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BLASTING AS AN AML RECLAMATION METHOD

Volume II - Appendixes

Prepared for
Office of Surface Mining
Reclamation and Enforcement
Western Field Operations
Denver, Colorado

Contract HQ-51-CT-6-01570

Technical Project Officer
Eugene Hay

By
Bauer, Calder & Workman, Inc.
Washburn, North Dakota

BLASTING AS AN AML RECLAMATION METHOD

CONTRACT HQ-51-CT-6-01570 (J5160052)

VOLUME II

CONTRACT REPORT APPENDIXES

SEPTEMBER 1987

PREPARED BY

BAUER, CALDER & WORKMAN, INC.

WASHBURN, NORTH DAKOTA

VOLUME II (APPENDIXES)

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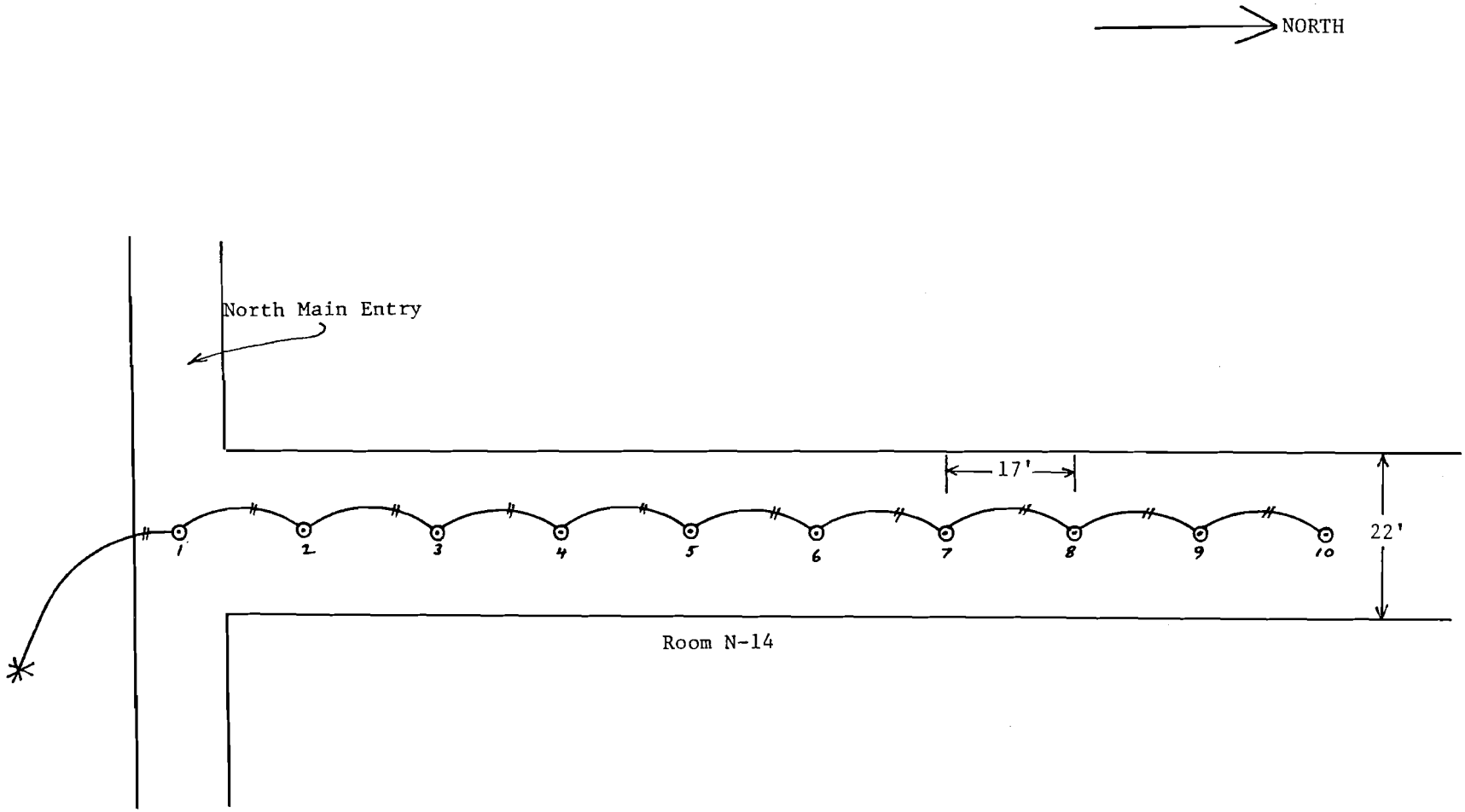
2

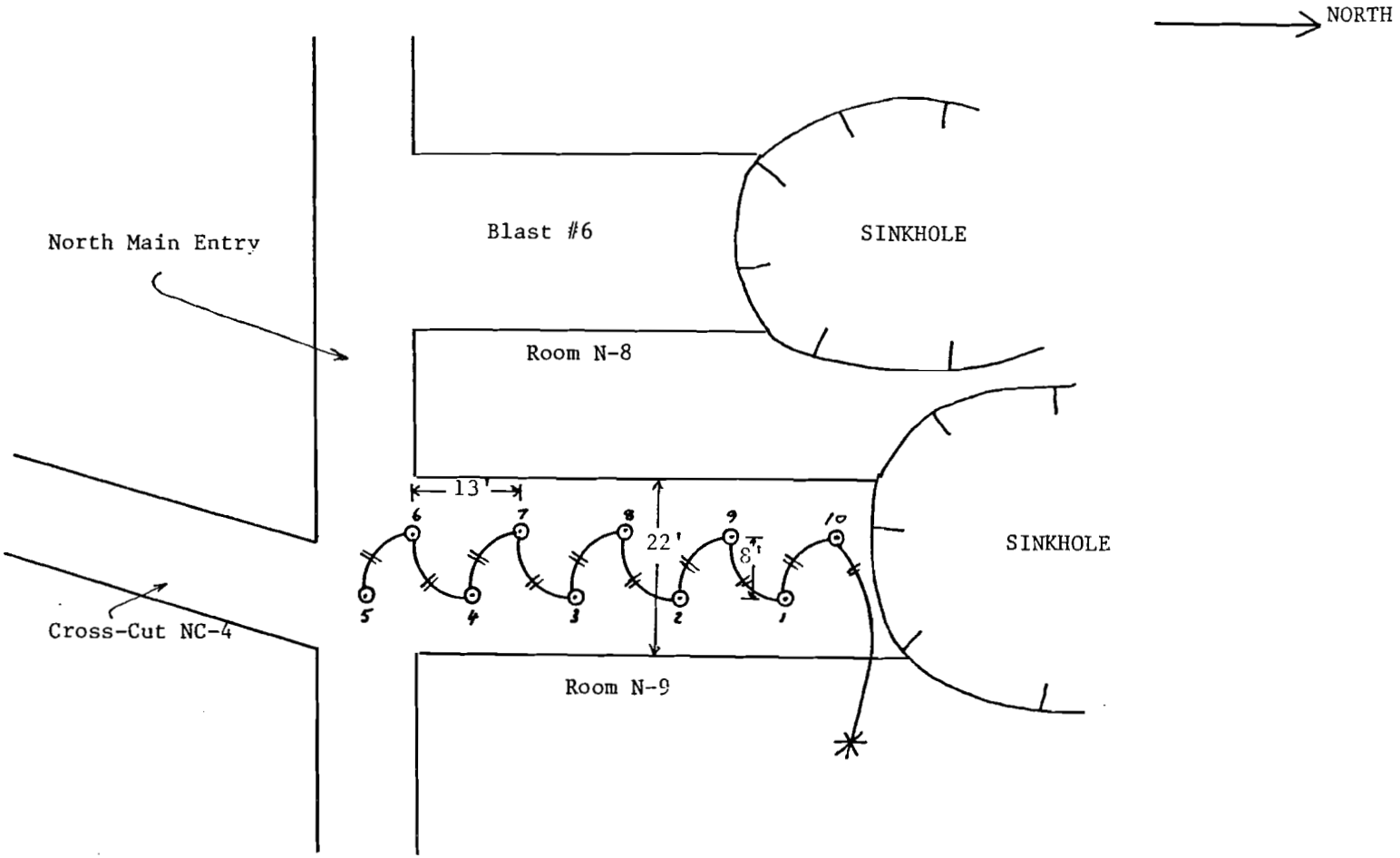
APPENDIX A

BLAST LAYOUT SKETCHES



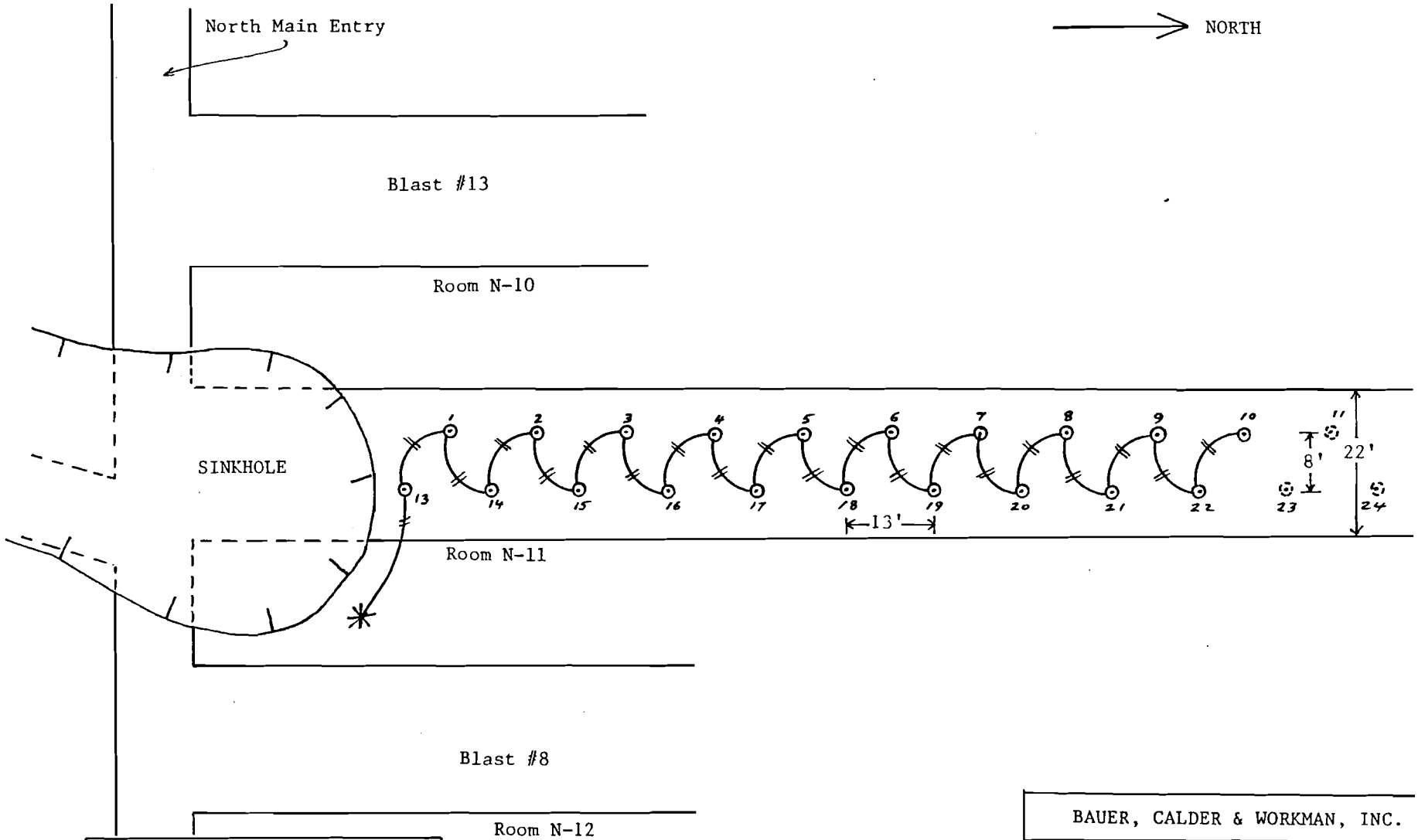
LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast #1	Date: 9/25/86
Scale: 1:20	



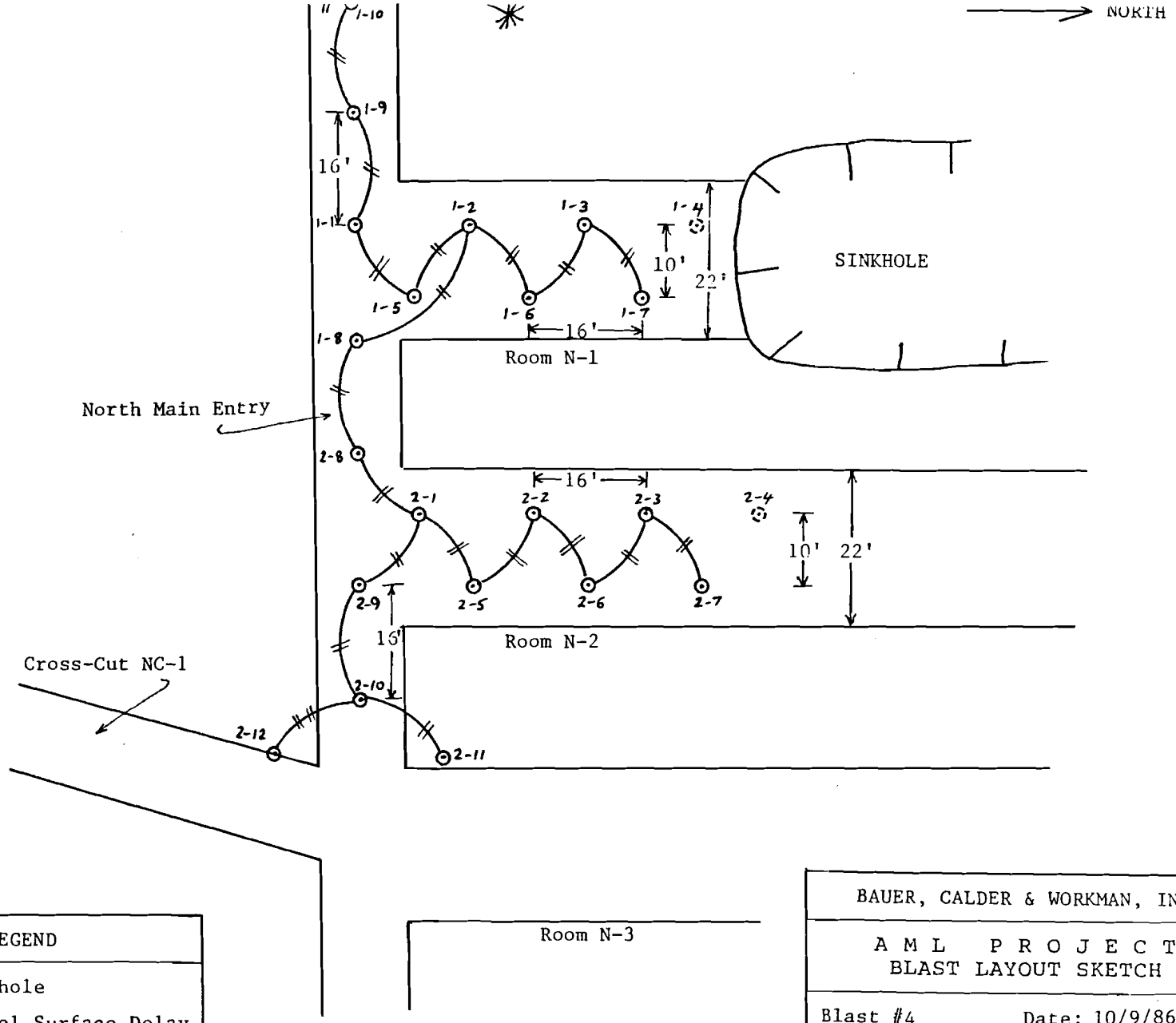
LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast #2	Date: 9/26/86
Scale: 1:20	



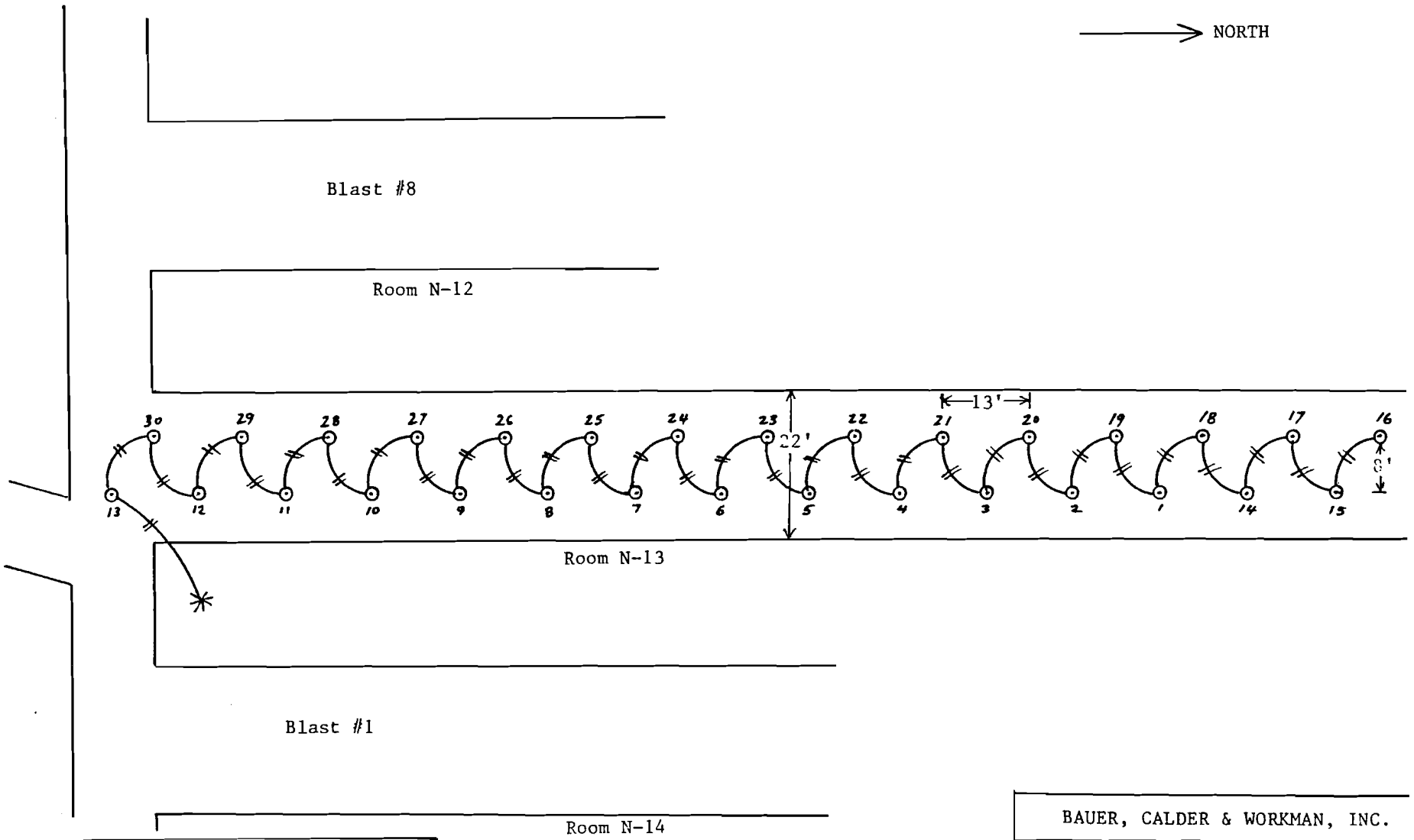
LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 3	Date: 10/7/86
Scale: 1:20	



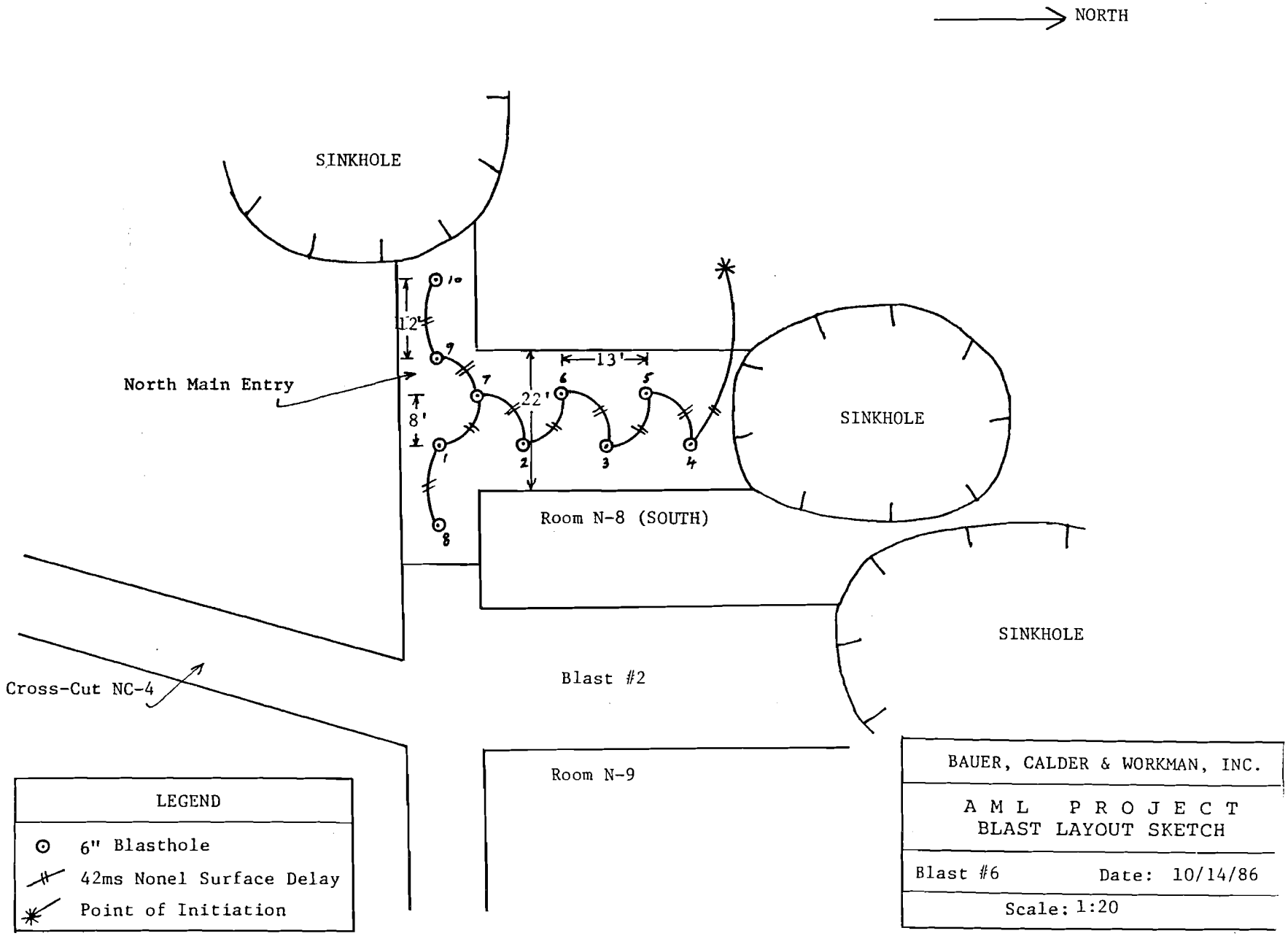
LEGEND
⊙ 8" Blasthole
42ms Nonel Surface Delay
Point of Initiation

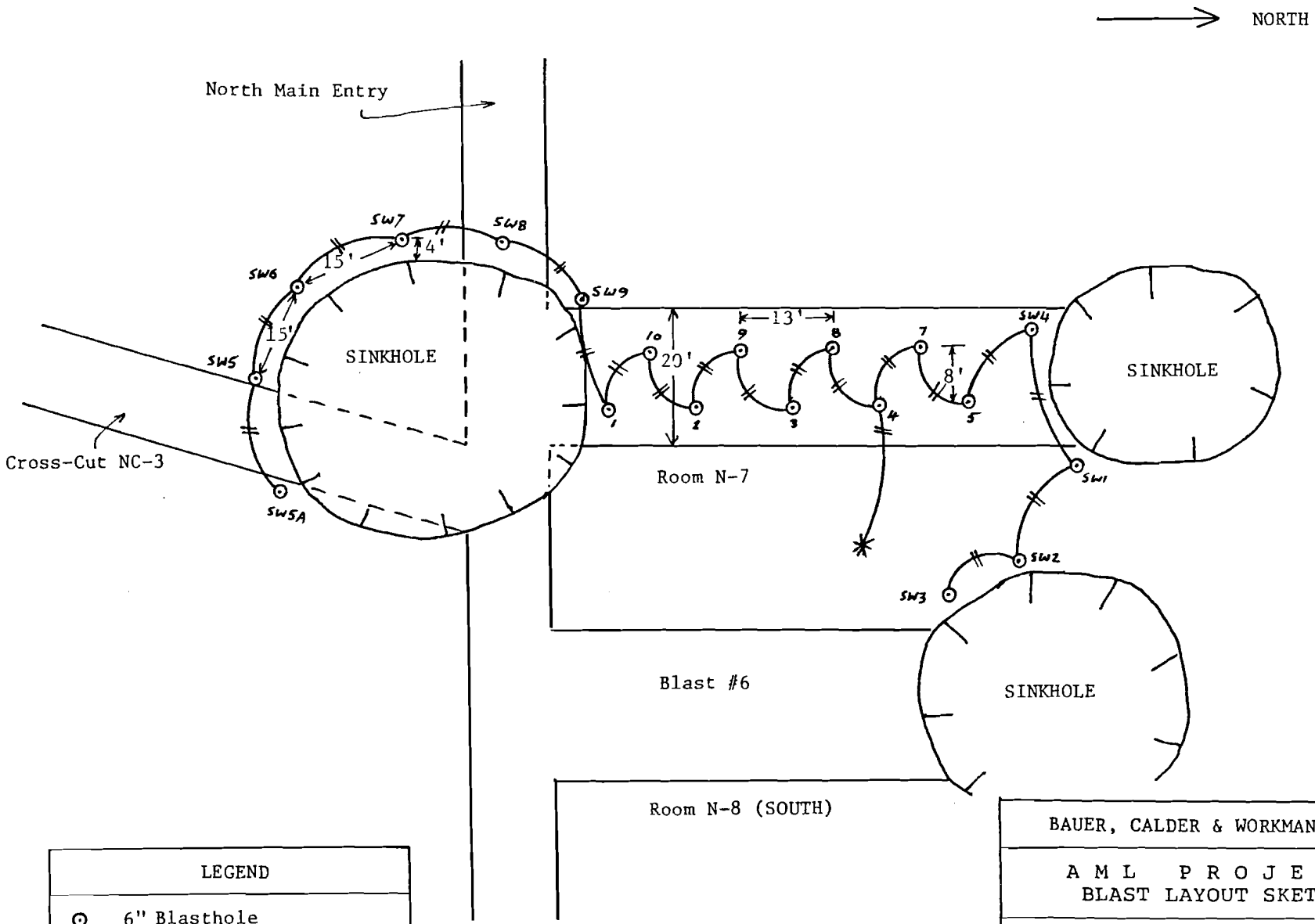
BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast #4	Date: 10/9/86
Scale: 1:20	



LEGEND	
⊙	6" Blasthole
⫽	42ms Nonel Surface Delay
✳	Point of Initiation

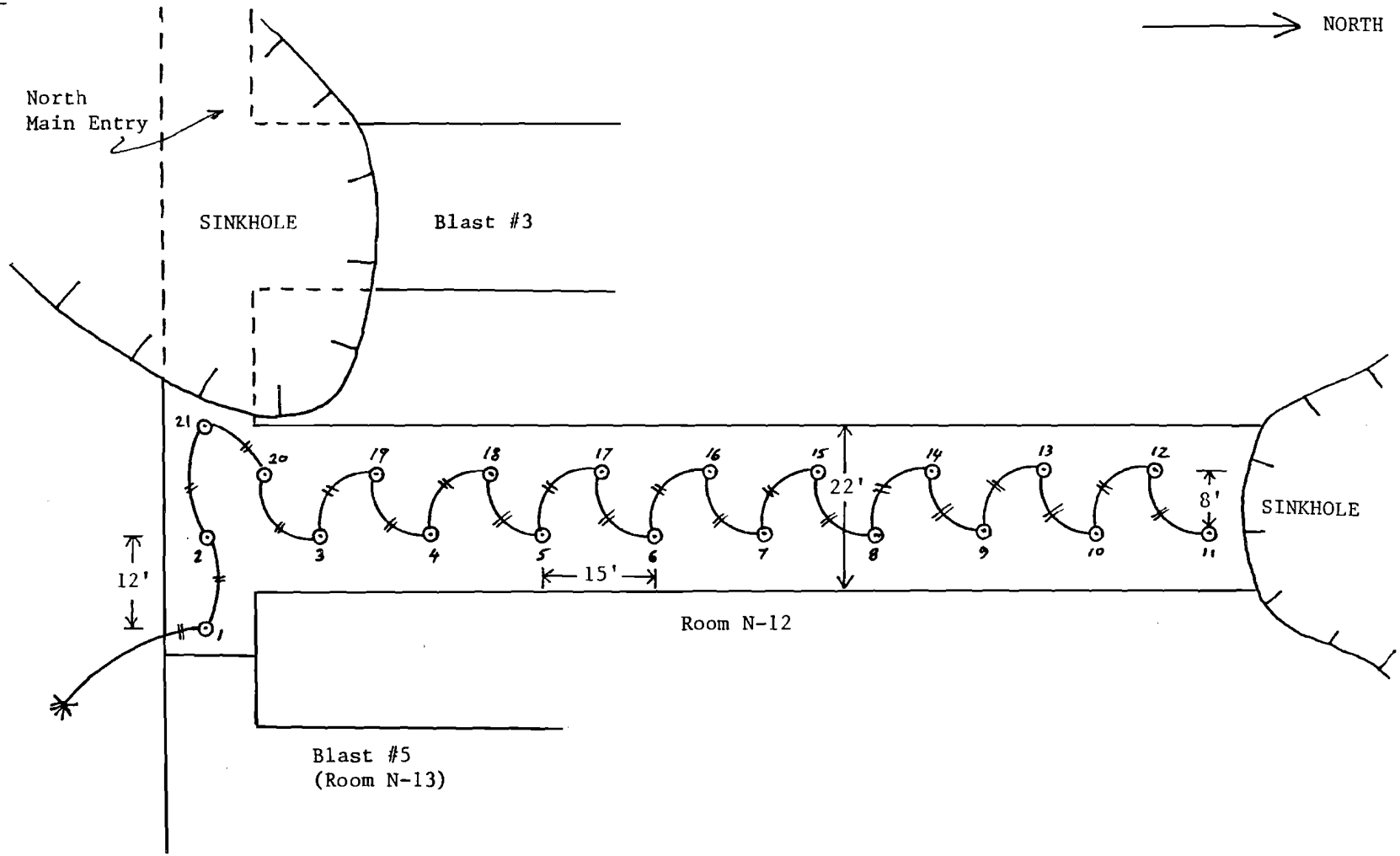
BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 5	Date: 10/13/86
Scale: 1:20	


NORTH
SINKHOLE
SINKHOLE
SINKHOLE
North Main Entry
12'
8'
22'
13'
1
2
3
4
5
6
7
8
9
10
Room N-8 (SOUTH)
Blast #2
Room N-9
Cross-Cut NC-4
LEGEND
6" Blasthole
42ms Nonel Surface Delay
Point of Initiation
BAUER, CALDER & WORKMAN, INC.
A M L P R O J E C T
BLAST LAYOUT SKETCH
Blast #6
Date: 10/14/86
Scale: 1:20



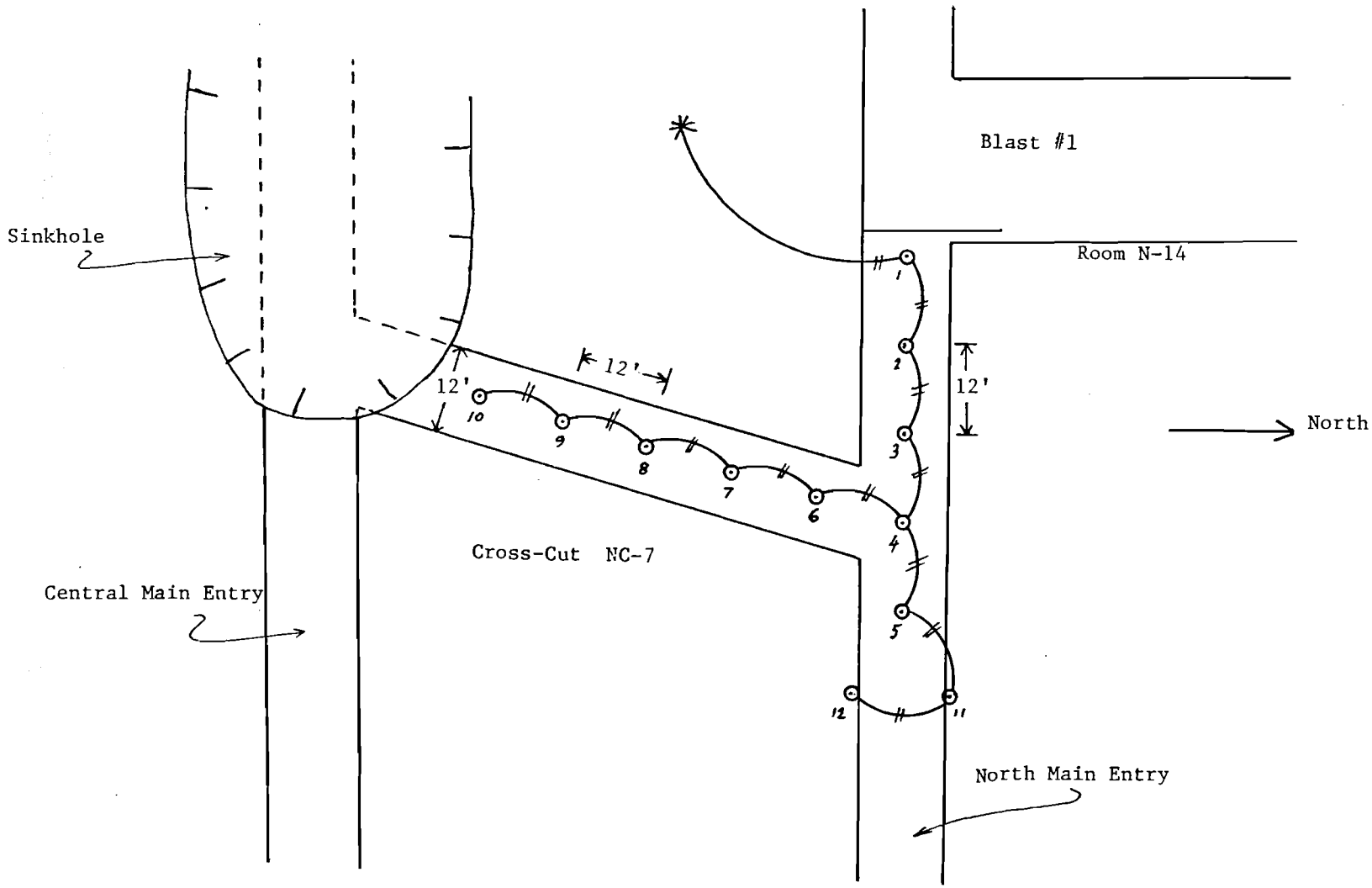
LEGEND	
⊙	6" Blasthole
⫽	42ms Nonel Surface Delay
✳	Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 7	Date: 10/16/86
Scale: 1:20	



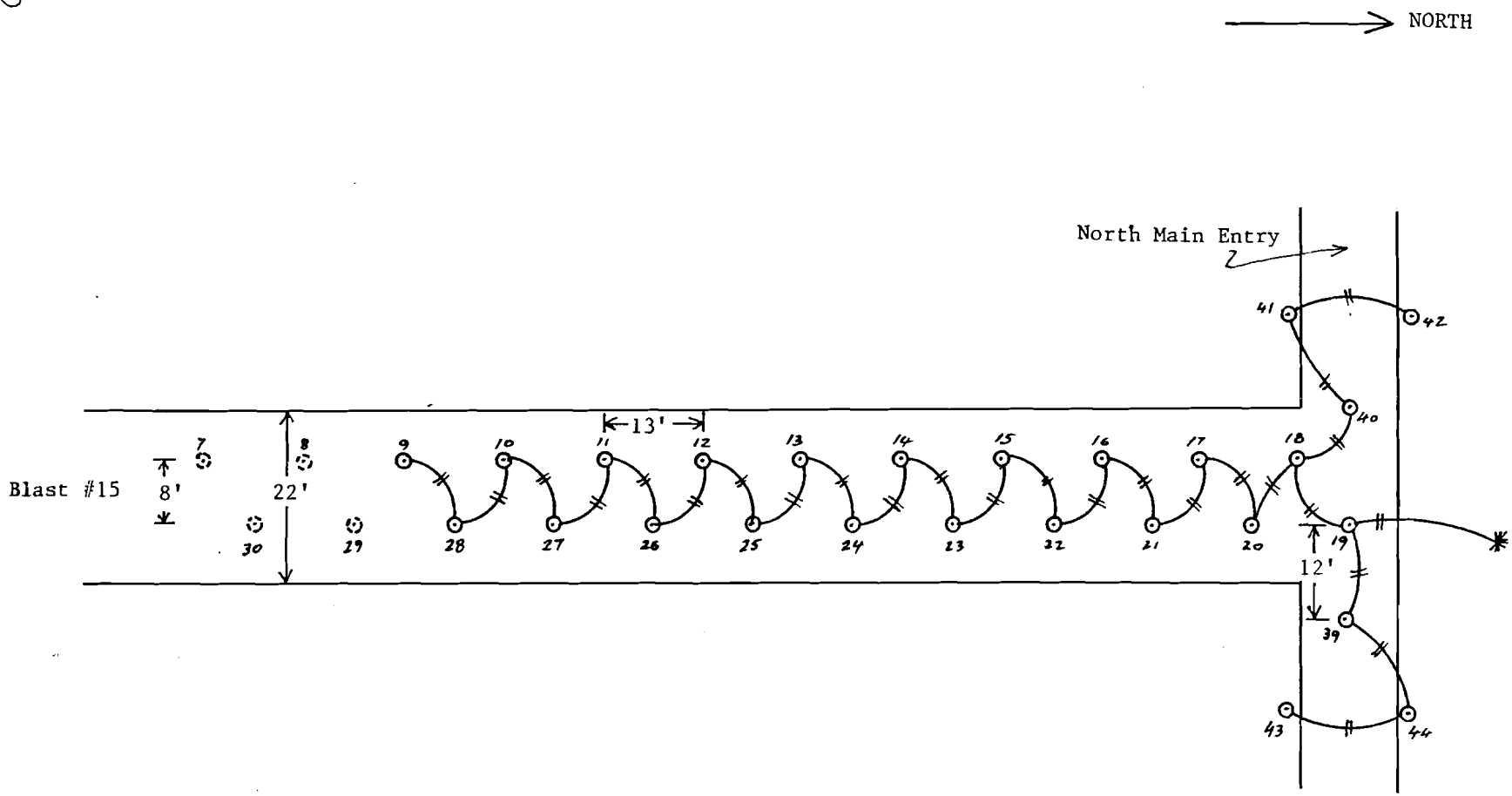
LEGEND	
⊙	6" Blasthole
⫽	42ms Nonel Surface Delay
✳	Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 8	Date: 10/17/86
Scale: 1:20	



LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

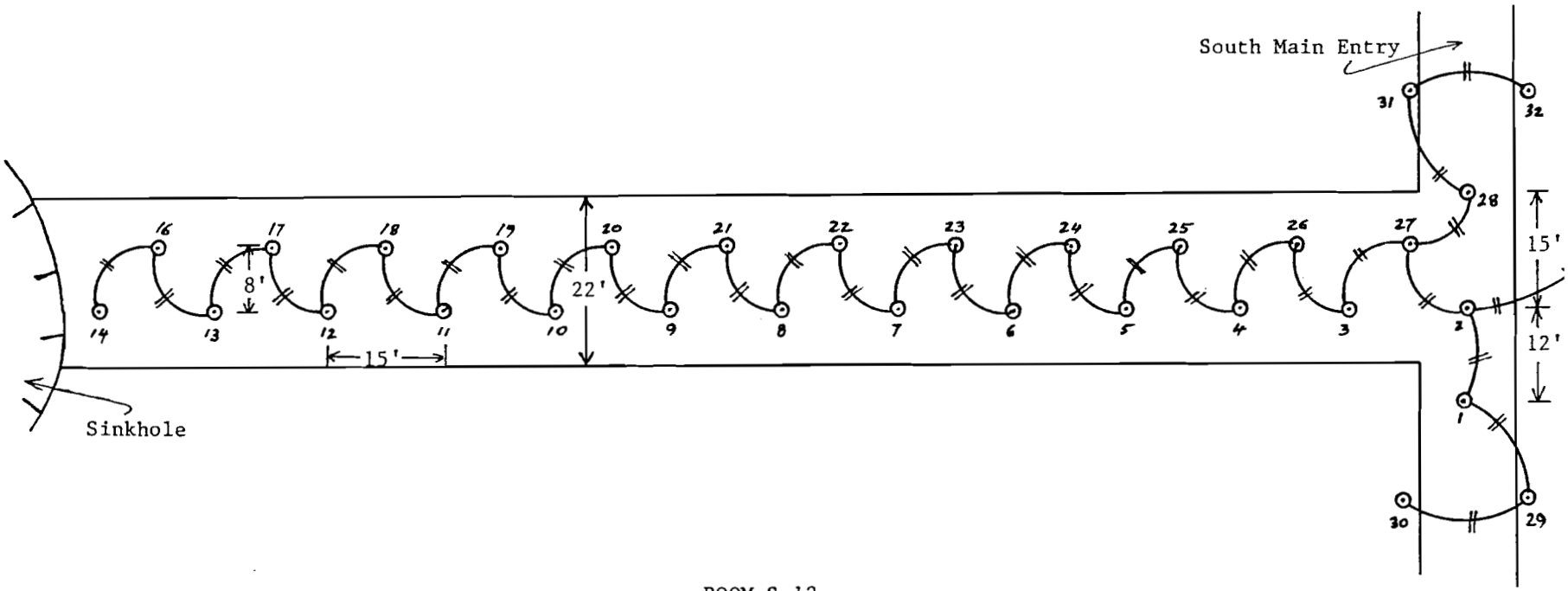
BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 9	Date: 10/20/86
Scale: 1:20	



ROOM S-1 (NORTH)

LEGEND	
⊙	6" Blasthole
⫽	42ms Nonel Surface Delay
✳	Point of Initiation

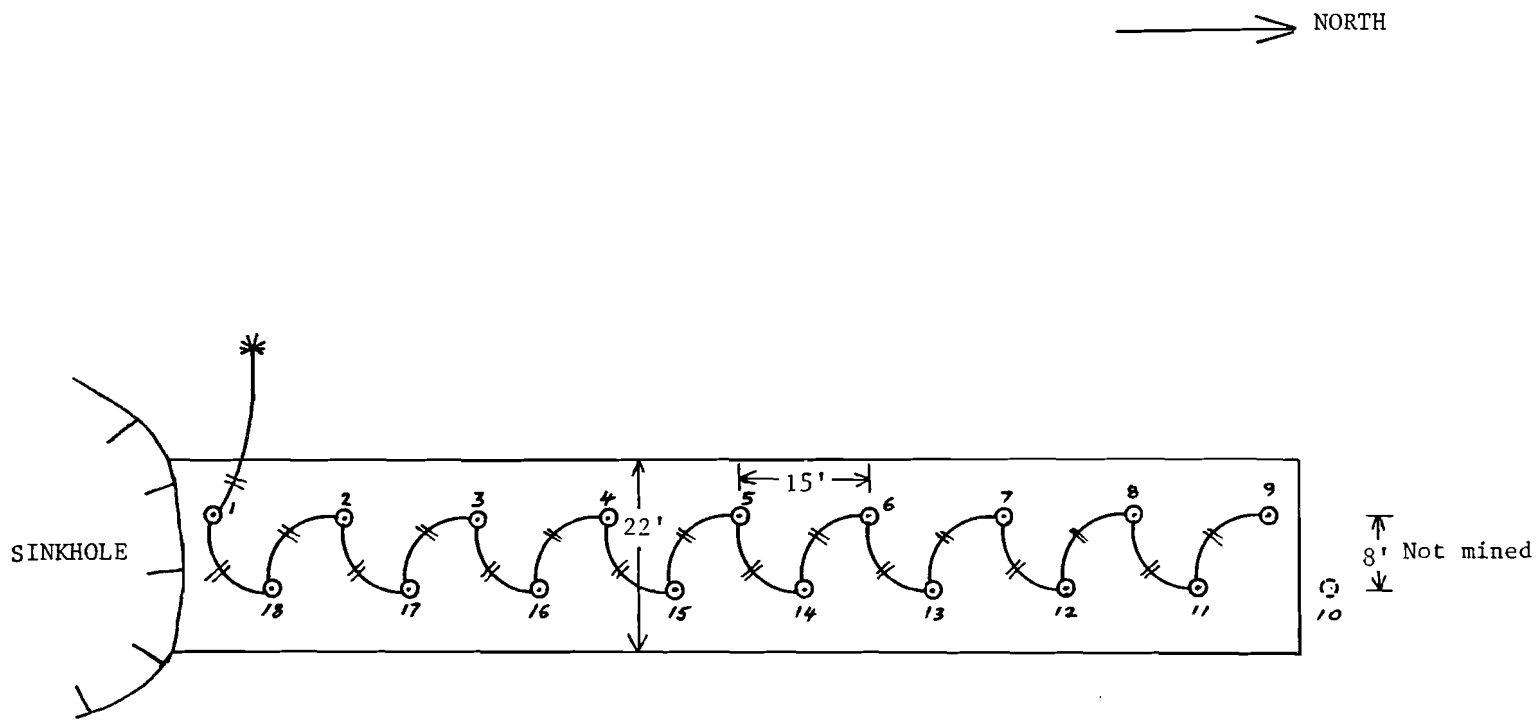
BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 10	Date: 10/21/86
Scale: 1:20	



ROOM S-12

LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

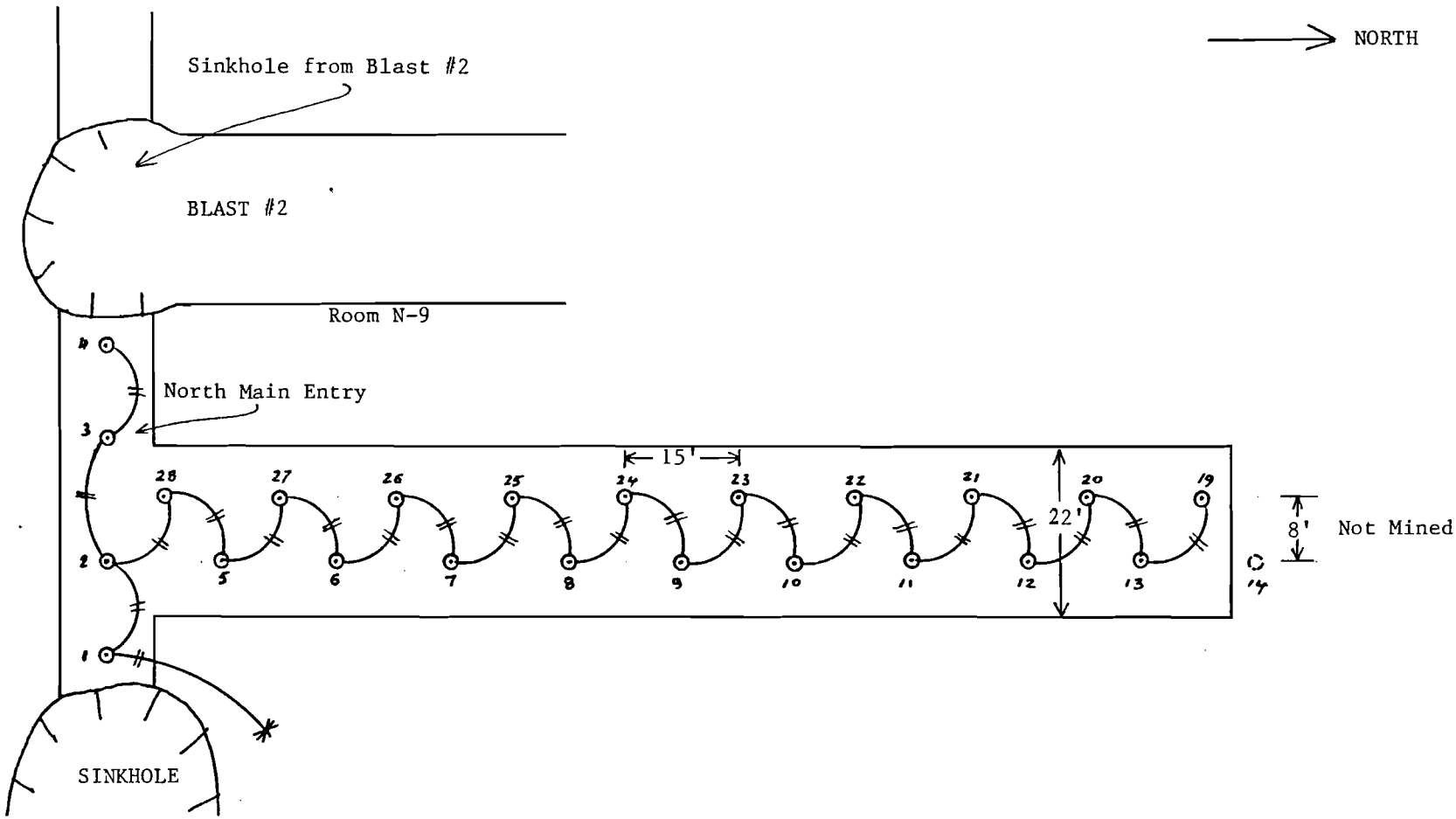
BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 11	Date: 10/24/86
Scale: 1:20	



ROOM N-8 (NORTH)

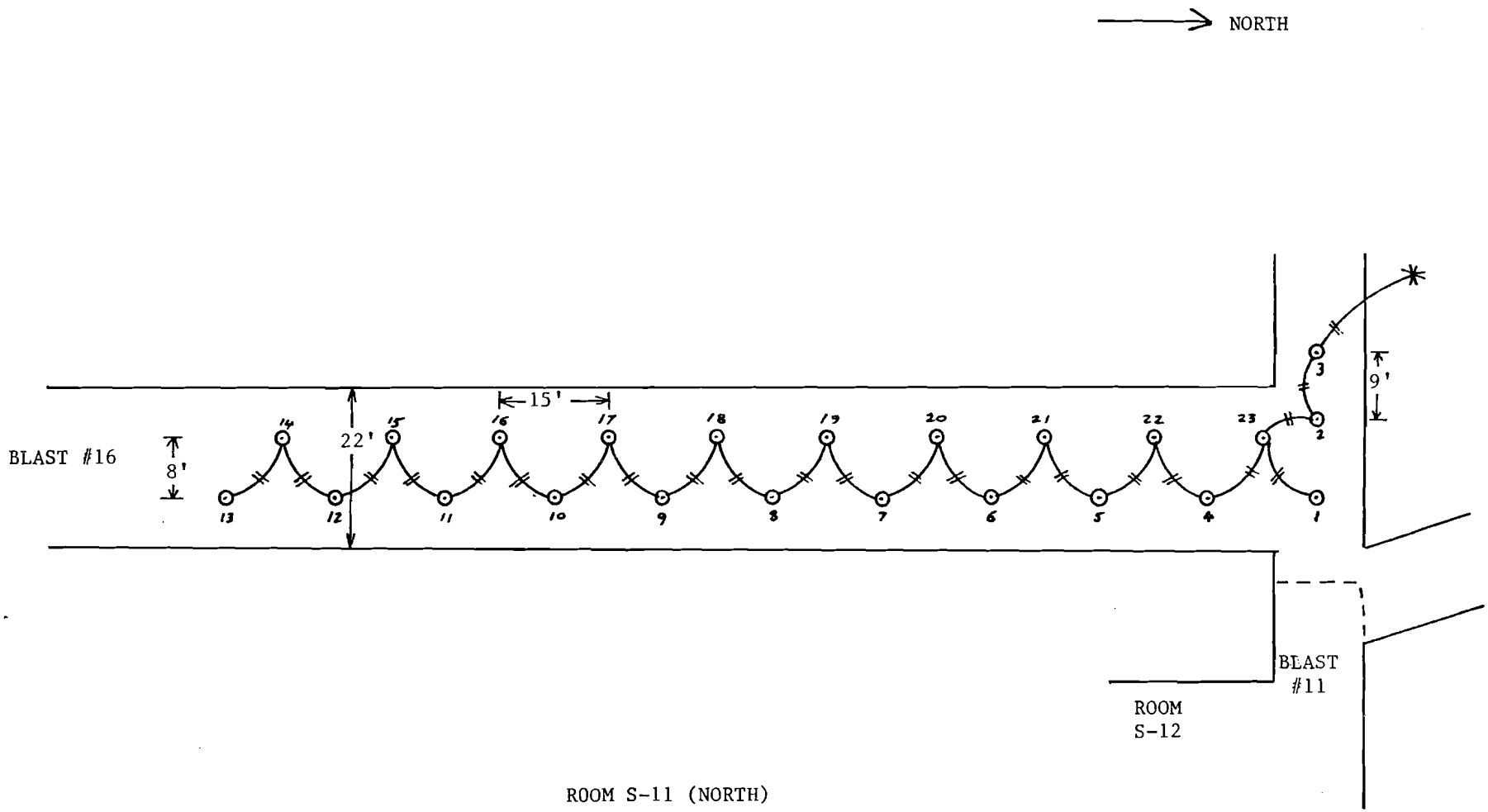
LEGEND	
⊙	6" Blasthole
#	42ms Nonel Surface Delay
✳	Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast #12	Date: 10/28/86
Scale: 1:20	



LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

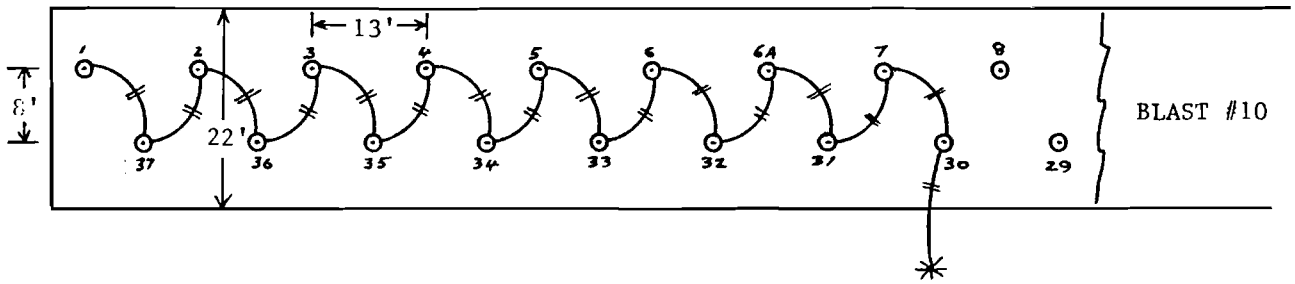
BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 13	Date: 10/30/86
Scale: 1:20	



LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast #14	Date: 10/31/86
Scale: 1:20	

NORTH

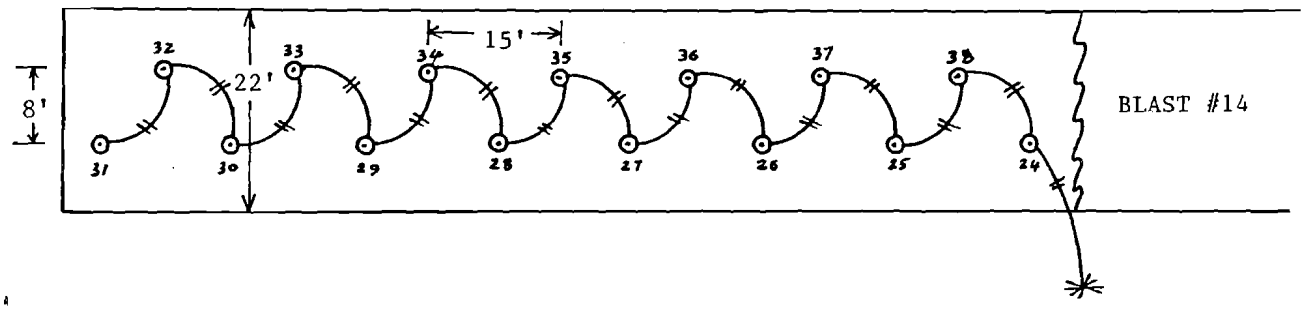


ROOM S-1 (SOUTH)

LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast #15	Date: 11-3-86
Scale: 1:20	

NORTH

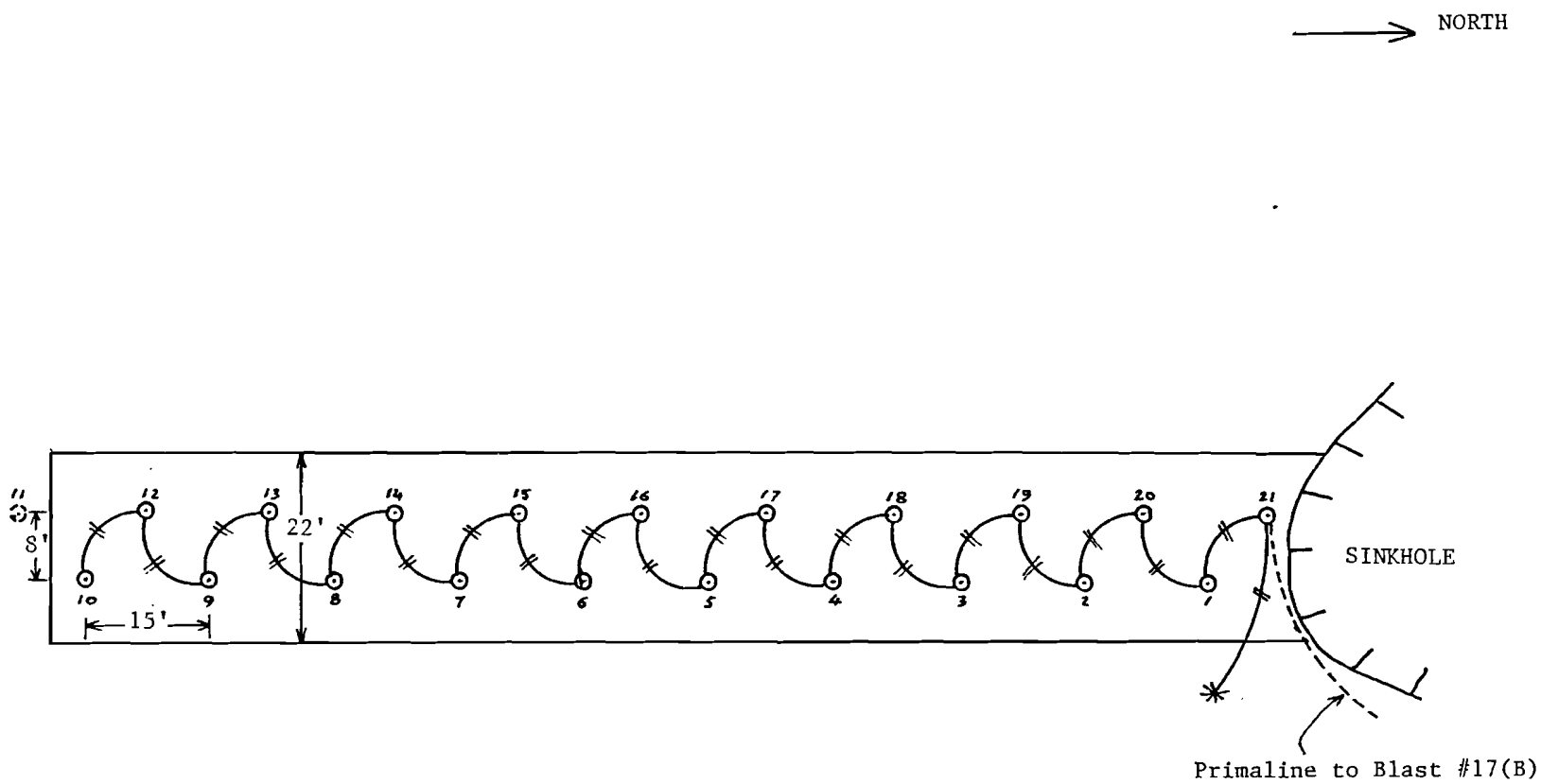


ROOM S-11 (SOUTH)

LEGEND	
⊙	6" Blasthole
	42ms Nonel Surface Delay
	Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 16	Date: 11/5/86
Scale: 1:20	

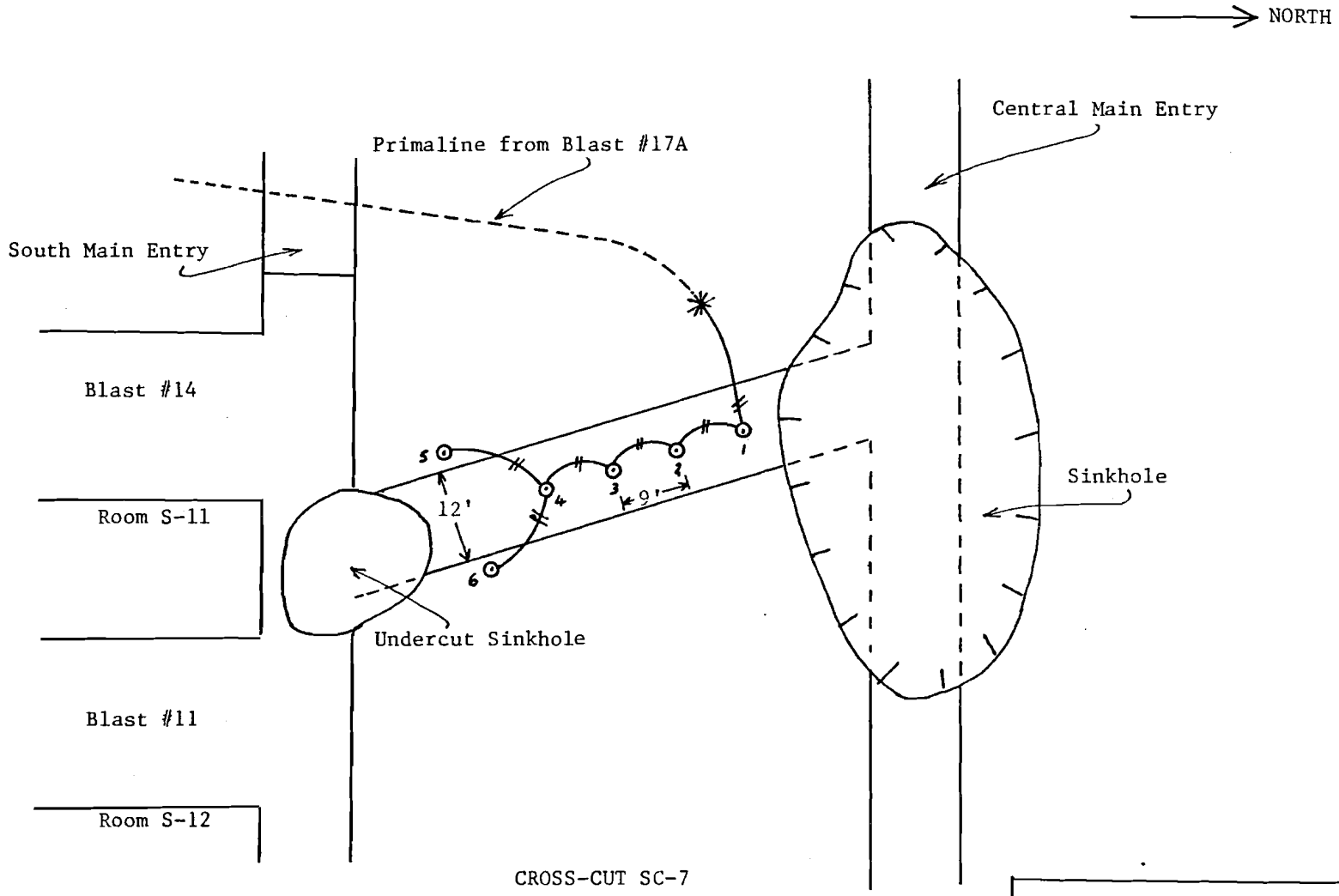
20



ROOM S-10

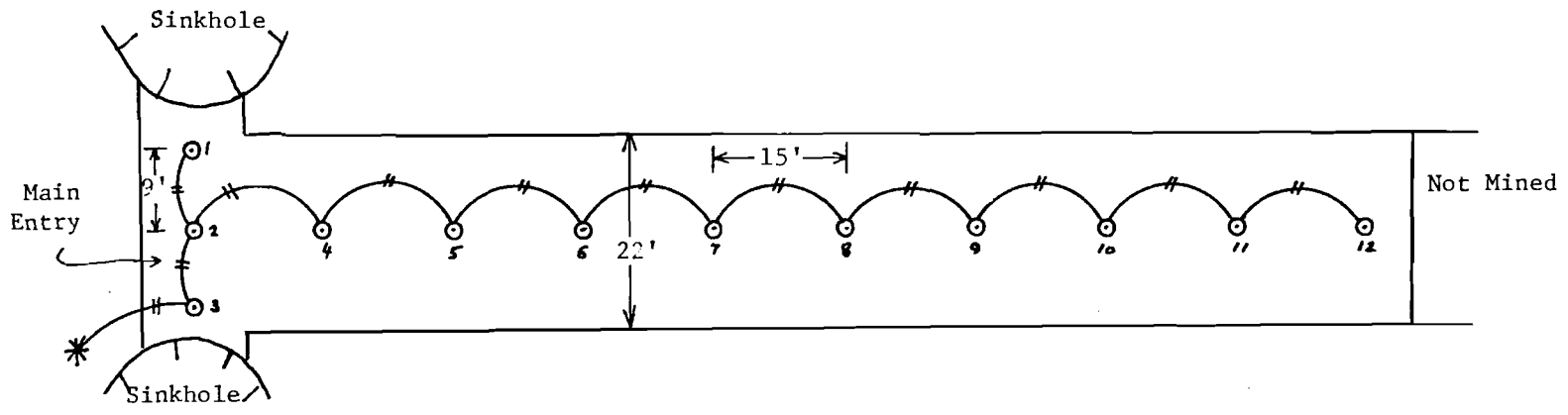
LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast #17(A)	Date: 11/6/86
Scale: 1:20	



LEGEND	
⊙	6" Blasthole
⫽	42ms Nonel Surface Delay
✳	Point of Initiation

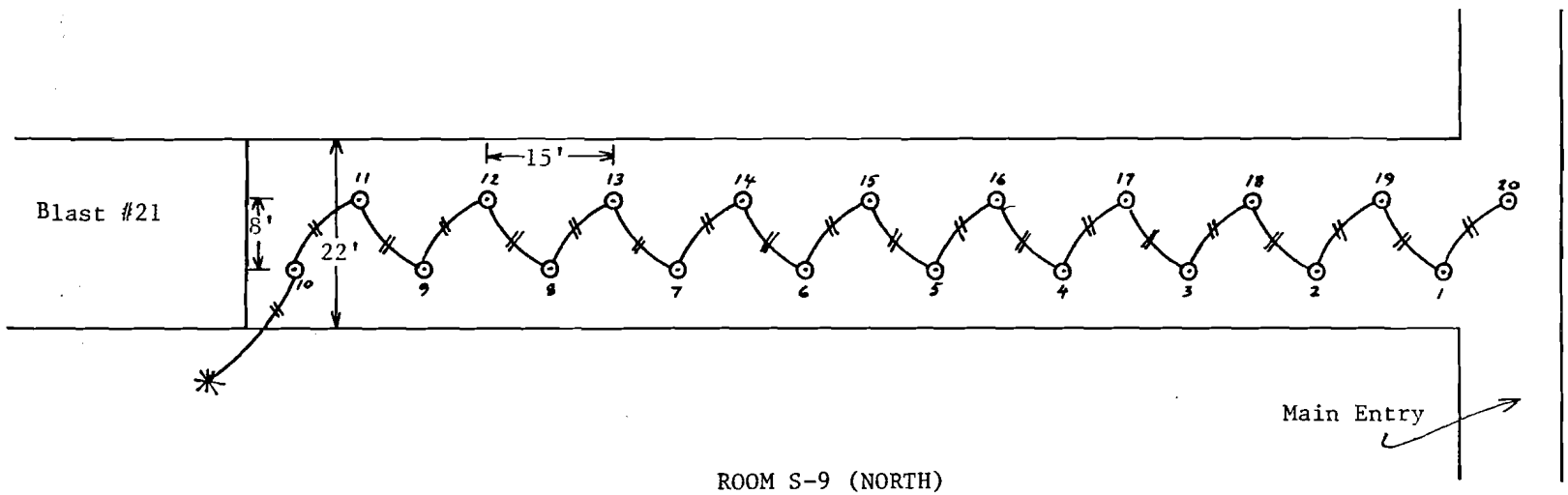
BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast #17(B)	Date: 11/6/86
Scale: 1:20	



ROOM N-6

LEGEND
⊙ 8" Blasthole
42ms Nonel Surface Delay
Point of Initiation

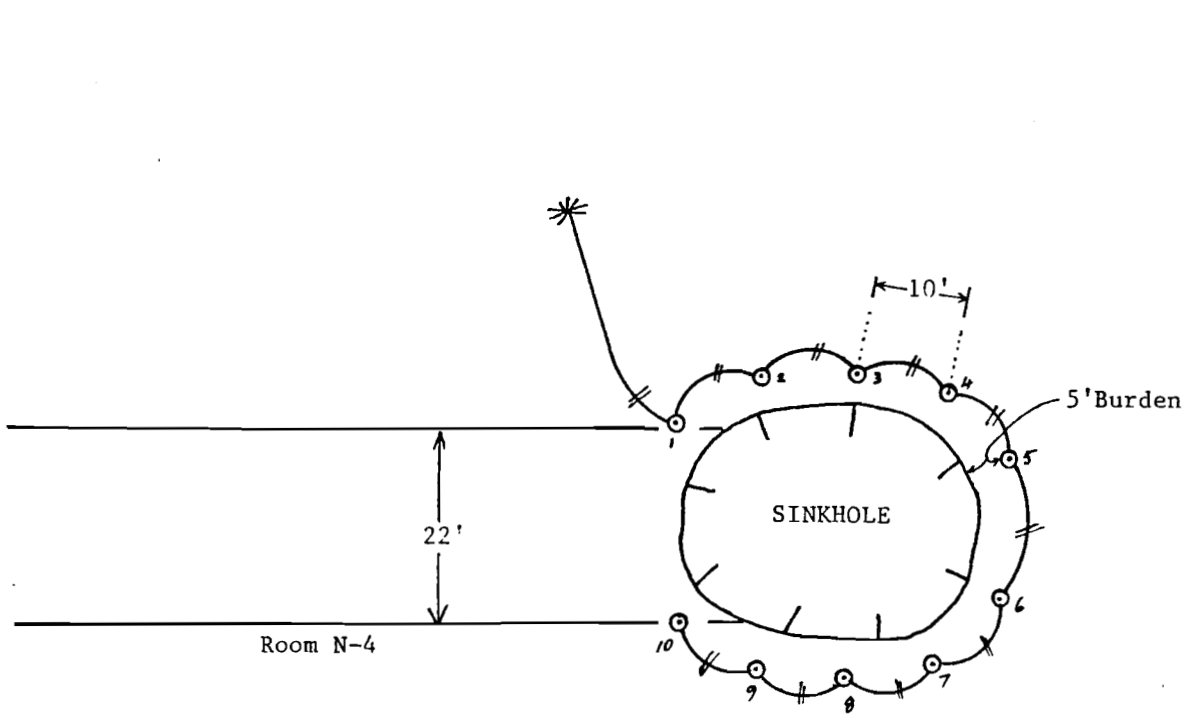
BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast #18	Date: 11/17/86
Scale: 1:20	



ROOM S-9 (NORTH)

LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 19	Date: 11/18/86
Scale: 1:20	

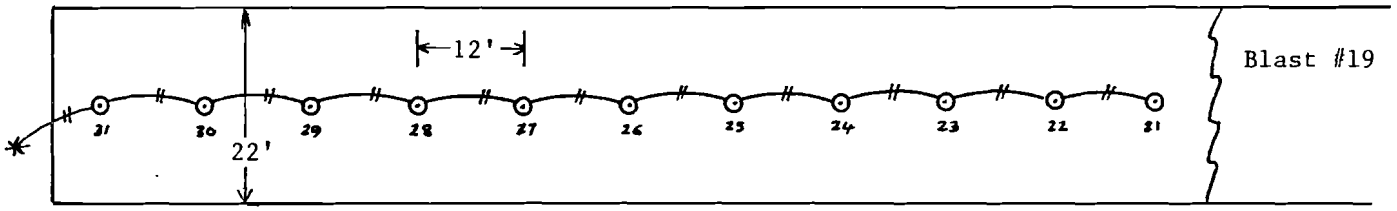


LEGEND
⊙ 6" Blasthole
42ms Nonel Surface Delay
Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast #20	Date: 11/19/86
Scale: 1:20	

25

NORTH



ROOM S-9 (SOUTH)

LEGEND	
⊙	6" Blasthole
⫽	42ms Nonel Surface Delay
✳	Point of Initiation

BAUER, CALDER & WORKMAN, INC.	
A M L P R O J E C T BLAST LAYOUT SKETCH	
Blast # 21	Date: 11/20/86
Scale: 1:20	

APPENDIX B

FIELD BLAST SUMMARY SHEETS

AML PROJECT - BLAST SUMMARY

BLAST #: 1

LOCATION: N-14

DATE 9/25

HOLE DIAM 6"

NO. HOLES 10

EXPLOSIVES CONSUMPTION

ANFO 26.5 BAGS = 1325 LBS SLURRY — BAGS = — LBS

BOOSTERS 41 42 M/S DELAYS 10

DELAYS #4 10 #5 10 #6 10 #7 10 #8 — #9 —

SEISMOGRAPH: ✓ LOCATION: 1450' SW ; CORNER 6/7 PPV: 0.03 IN/SEC

CAMERA USED: — TARGET DELAY #: — FPS: —

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	40.5				45	4.5				
2	41				49	8				
3	41				45	4				
4	41.5				45.5	4				
5	41				45.5	4.5				
6	41.5				45.5	4				
7	41.5				45.0	3.5				
8	42				45.5	3.5				
9	42				46.5	4.5				
10	43.5				46.5	3				

AML PROJECT - BLAST SUMMARY

BLAST #: 2

LOCATION: N-9

DATE 9/26

HOLE DIAM 6"

NO. HOLES 10

EXPLOSIVES COMSUMPTION

ANFO 36 BAGS = 1800 LBS SLURRY — BAGS = — LBS

BOOSTERS 47 42 M/S DELAYS 10

DELAYS #4 10 #5 10 #6 10 #7 10 #8 7 #9 —

SEISMOGRAPH: ✓ LOCATION: 1300' SW. Corner 6/7 PPV: 0.03 IN/SEC

CAMERA USED: — TARGET DELAY #: — FPS: —

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	54				57.5	3.5	57.5	0	19-22	
2	53.9				59	5.1	63	4	16-22	
3	52.9				63	10	68	5	14-19	Edge of pillar
4	52				—	—	—	—	13-15.5 21-25	In pillar
5	52				57	5	65	8	20-25	
6	52				57.5	5.5	62.5	5	20-26	
7	52				57	5	66	9	21-25	
8	52				58	6	67	9	22-23	
9	53.2				59	6.8	66.5	7.5	11.5-13	
10	54.2				56	1.8	56	0	20-23.5	

AML PROJECT - BLAST SUMMARY

BLAST #: 3

LOCATION: N-11

DATE 10/7

HOLE DIAM 6"

NO. HOLES 20

EXPLOSIVES COMSUMPTION (Bottom DECK)

ANFO 58 BAGS = 2900 LBS SLURRY 31 BAGS = 930 LBS

BOOSTERS 81 42 M/S DELAYS 20

DELAYS #4 21 #5 20 #6 20 #7 20 #8 — #9 —

SEISMOGRAPH: ✓ LOCATION: 1375' SW. Corner 6/7 PPV: 0.06 IN/SEC

CAMERA USED: — TARGET DELAY #: — FPS: —

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	49	55	53.8	-	53.8	6	63.5	8.5	21-24; 41	
2	49	53	52		52	4	64.5	11.5	20-24	
3	49.5	52	51.5		51.5	2.5	65	13	20-25	
4	50.5	56	55.7		55.7	5.5	64	8		
5	51	57	56		56	6	65.2	8.2	17-19	
6	51.5	57	56.5		56.5	5.5	65.5	8.5		
7	52	57	56.2		56.2	5	67	10	24-27	
8	52	57.5	56.3		56.3	5.5	66.5	9		
9	52	57	56.8		56.8	5	66.5	9.5		
10	52	58	57.8		57.8	6	65.8	7.8		
11	52.3	59.5	59		59	7.2	59.8	0.3		NOT BLASTED
12	52	58	57		57	6	58	0		NOT BLASTED
13	49	52.5	51		51	3.5	63.6	11.1		
14	50	53	51		51	3	63.8	10.8	19.5-23	
15	49	55	54		54	6	64.9	9.9	20.5-23.5	
16	50.5	57	55.9		55.9	6.5	66	9	21-24	
17	51.6	58	56.2		56.2	6.4	66	8		
18	51.5	57.5	56.8		56.8	6	65.8	8.3		
19	52	57	57		57	5	66.7	9.7		
20	52	57.5	56.9		56.9	5.5	66	8.5		
21	52	57	56.3		56.3	5	66	9		
22	52	57.5	56.7		56.7	5.5	64	8.5		
23	52	57	55.2		55.2	5	59	2		NOT BLASTED
24	—	38	38		-		45	7		NOT BLASTED

Reproduced from best available copy.

AML PROJECT - BLAST SUMMARY

BLAST #: 4

LOCATION: N-1, N-2

DATE 10/9

HOLE DIAM 8"

NO. HOLES 22

EXPLOSIVES COMSUMPTION

ANFO 114.5 BAGS = 5725 LBS SLURRY 88 BAGS = 2640 LBS

BOOSTERS 88 42 M/S DELAYS 23

DELAYS #4 22 #5 22 #6 22 #7 22 #8 - #9 -

SEISMOGRAPH: ✓ LOCATION: 1150' SW · CORNER 6/7 PPV: 0.23 IN/SEC

CAMERA USED: - TARGET DELAY #: - FPS: -

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1-1	60				66	6	73.5	7.5		
1-2	60				66.5	6.5	73.8	7.3		
1-3	59				64	5	70.2	6.2		
1-4	-				-	-	-	-		NOT LOADED
1-5	59				66.9	7.9	73.	3.1		
1-6	59				67.3	8.3	73	5.7		
1-7	58.5				62	3.5	66.5	4.5		
1-8	59				65.9	6.9	72.8	6.9		
1-9	59				66	7	74.5	8.5		
1-10	59				66.3	7.3	73.5	7.2		
1-11	-	✓	-	-	60	-	-	-		Closure hole
1-12	-	✓	✓	-	60	✓	-	-		" "
2-1	57				64.4	7.4	71	6.6		
2-2	58.5				64.5	6	71.5	7		
2-3	57.5				64.3	6.8	68.5	4.2		
2-4	-				53	0	55	2		NOT LOADED
2-5	57				-	-	-	-		In pillar
2-6	58				66	8	71.5	5.5		
2-7	57.5				64	6.5	67.3	3.3		
2-8	57				65	8	72	7		
2-9	57				65	8	72	7		
2-10	58				64.5	6.5	71.5	7		
2-11	-				60	-	-	-		Closure hole
2-12	✓				60	-	-	-		" "

AML PROJECT - BLAST SUMMARY

BLAST #: 5

LOCATION: N-13

DATE 10/13

HOLE DIAM 6"

NO. HOLES 30

EXPLOSIVES COMSUMPTION

ANFO 60 BAGS = 3000 LBS SLURRY 60 BAGS = 1800 LBS

BOOSTERS 120 42 M/S DELAYS 30

DELAYS #4 31 #5 30 #6 29 #7 30 #8 – #9 –

SEISMOGRAPH: ✓ LOCATION: 400' E. PPV: N/A IN/SEC

CAMERA USED: ✓ TARGET DELAY #: – FPS: 500

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	45	49.5	47		49.5	4.5	59.5	10		
2	46	49	48		49	3	60.5	11.5		
3	46	49	48		49	3	61	12		
4	45	48.6	47.5		48.5	3.5	59.5	11		
5	46	48	45.5		48	2	59	11		
6	45	48.5	47.3		48.5	3.5	59.5	11		
7	45	48.5	47		48.5	4.5	60	11.5		
8	44.5	49	47		49	4.5	60	11		
9	44.5	48	46.8		48	3.5	59.5	11.5	19-23	
10	44.5	48	49		49	9.5	60	11		
11	44	54	54		54	s/w	59	5		Edge pillar
12	44	63	59.2		59	–	–	–		In pillar
13	44	47.5	45.9		47.5	3.5	56.5	9		
14	46	49	48		49	3	61	11		
15	46	50	48		50	4	61.5	11.5		
16	47	50	49.8		50	3	62.5	12.5	14-17	
17	46	49	48.4		49	3	62	13		
18	47	51	49.3		51	4	62	11		
19	46.5	49.5	48.3		49.5	3	61.5	12		
20	46.5	49.5	48		49.5	3	61	11.5		
21	47	49.5	47		49.5	2.5	60.5	11		
22	46.5	47.5	46.7		47.5	1	60.5	13		
23	47	48.5	47.3		48.5	1.5	58.5	10		
24	46.5	49	47.3		49	2.5	60	11	9-14	
25	45	48.6	47		48.6	1.5	60	11.5	9-14	
26	45.5	48.5	46.8		48.5	2	60	11.5	10-24	
27	45	49	47		49	4	59.5	10.5		
28	44	47	46		47	3	60	13		
29	44	50	48		50	6	60	10		
30	44.5	48	46.5		48	3.5	57.5	9.5	23-25	

AML PROJECT - BLAST SUMMARY

BLAST #: 6

LOCATION: N-8 (S)

DATE 10/14

HOLE DIAM 6"

NO. HOLES 10

EXPLOSIVES COMSUMPTION

ANFO 29 BAGS = 1450 LBS SLURRY 23 BAGS = 690 LBS

BOOSTERS 38 42 M/S DELAYS 10

DELAYS #4 10 #5 10 #6 9 #7 9 #8 – #9 –

SEISMOGRAPH: ✓ LOCATION: 675' SE. TRAILER. PPV: 0.10 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: 7 FPS: 500

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	53.5	57.5	57.5		57.5	4	65	8.5		*
2	53	58	58		58	5	64.5	6.5		*
3	53	57	57		57	4	60.5	3.5		*
4	–		26		26	–	29.5	3.5		
5	53	58	57		58	4	58	0	25-27	*
6	53	55	55		55	2	64	9		
7	53	58	57.8		58	4.6	65	7		*
8	53.5	57	57		57	3.5	63	6		*
9	53	58	58		58	5	66.5	8.5		*
10	53	58	58		58	5	62	4		*

* 1 foot charge added to bottom of lower deck to take roof coal into consideration

AML PROJECT - BLAST SUMMARY

BLAST #: 7

LOCATION: N-7

DATE 10/16

HOLE DIAM 6"

NO. HOLES 19*

*INCLUDED 10 SHORT HOLES AROUND SINKHOLES

EXPLOSIVES COMSUMPTION (BOTTOM DECK)

ANFO 31 BAGS = 1550 LBS SLURRY 16 BAGS = 480 LBS

BOOSTERS 48 42 M/S DELAYS 19

DELAYS #4 9 #5 7 #6 11 #7 21 #8 — #9 —

SEISMOGRAPH: ✓ LOCATION: 425' S. W. OF S-5 PPV: 0.24 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: ___ FPS: 200

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	—	27	26	26	27	0	33.5	6.5		
2	—	53.3	53.3	53	53.5	0	57	3.5	21-23	
3	54.5	54	54	54	54	0	58.5	4.5	19-21	
4	—	45	45	45	45	0	55.8	10	25-29	
5	54.5	59	59	59	59	5.5	60	1	25-29.5	
6	—	—	—	—	—	—	—	—	—	NOT DRILLED
7	—	36	36	35	36	0	44	8	13-15	
8	55	—	—	54	—	—	65	—	19-21	Pillar Edge
9	54.5	62	62	54	—	3/W	66	—		Pillar
10	—	36.5	36.5	32	36.5	0	36.5	0		
S1	—	—	—	—	20					Adj to N-7(N) sinkhole
S2	—	—	—	—	20					" " " "
S3	—	—	—	—	20					Adj. to N-8 sinkhole
S4	—	—	—	—	20					" " " "
S5	—	—	—	—	25					SE. N-7/S1 sinkhole
S6	—	—	—	—	25					S " "
S7	—	—	—	—	25					SW " "
S8	—	—	—	—	25					W " "
S9	—	—	—	—	25					W " "
S10	—	—	—	—	25					W " "

AML PROJECT - BLAST SUMMARY

BLAST #: 8

LOCATION: N-12

DATE 10/17

HOLE DIAM 6"

NO. HOLES 21

EXPLOSIVES COMSUMPTION

ANFO 48 BAGS = 2400 LBS SLURRY 40 BAGS = 1200 LBS (BOTTOM DECK)

BOOSTERS 85 42 M/S DELAYS 21

DELAYS #4 21 #5 22 #6 21 #7 21 #8 – #9 –

SEISMOGRAPH: ✓ LOCATION: 450' E. EDGE OF FIELD PPV: N/A IN/SEC

CAMERA USED: ✓ TARGET DELAY #: 4 FPS: 500

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	44.5	48		46	48	3.5	50	2	20-25	
2	45	48.5		47	48.5	3.5	51	2.5		
3	45.5	–		52		–	–	–	21-23	In pillar
4	46.5	54		53	54	7.5	59	5		
5	47	53		52	53	6	60	7		
6	47	52		50	52	5	62	10		
7	47	53.5		52	53.5	6.5	61	7.5		
8	48.5	54		53	54	5.5	61	7		
9	48.7	52.5		51	52.5	3.8	59.5	7	28.5-30	
10	49	53		52	53	4	59	6	27-30	
11	49.2	51.5		50	51.5	2.3	53.5	2	27-29	
12	49.5			51	52	2.5	57	5	28-29.5	
13	49	52.5		51	52.5	3.5	59	6.5		
14	49	52.5		51	52.5	3.5	58.5	6		
15	49	52		50	52	3	59	7		
16	48.5	51		50	51	2.5	61.5	10.5		
17	48.5	50		49	50	1.5	61	11	17-19	
18	48	50.3		49	50.3	2.3	59	8.7	17-19	
19	47	49		48	49	2	57	8	17-21	
20	46	–		50		–	–	–	17-22.5	In pillar
21	45	47		46	47	2	53	6	18-24	

AML PROJECT - BLAST SUMMARY

BLAST #: 9

LOCATION: NC-7

DATE 10/20

HOLE DIAM 6"

NO. HOLES 12

EXPLOSIVES CONSUMPTION

ANFO 23 BAGS = 1150 LBS SLURRY 21 BAGS = 630 LBS

BOOSTERS 44 42 M/S DELAYS 12

DELAYS #4 9 #5 11 #6 12 #7 12 #8 — #9 —

SEISMOGRAPH: ✓ LOCATION: 400' N. FIELD N. OF SITE PPV: 0.31 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: ____ FPS: 500

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	40.5	45	45	44	45	4.5	55	10	15-19	
2	40.5	44.5	44.5	44	44.5	4	56	11.5	19.5-20.5	
3			44	43	44	4	56	12		
4	40.5	46	46	45	46	5.5	56	10		
5	40	46	46	45	46	6	56	10		
6	40.1	46.5	46.5	45	46.5	6.4	56	9.5		
7		45	44.5	44	45	5	55	10		
8	39.7	44.5	44	43	44.5	4.8	54.5	10		
9	39.5	44.5	44	43	44.5	4.5	55.5	11		
10	39	44.5	44	43	44.5	5	53.5	9		
11	—	—	—	—	25	—	—	—	—	Closure hole
12	—	—	—	—	25	—	—	—	—	" "

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AML PROJECT - BLAST SUMMARY

BLAST #: 10

LOCATION: S-1(N)

DATE 10/21

HOLE DIAM 6"

NO. HOLES 26

EXPLOSIVES COMSUMPTION

ANFO 85 BAGS = 4250 LBS BOTTOM DECK SLURRY 55 BAGS = 1650 LBS

BOOSTERS 109 42 M/S DELAYS 26

DELAYS #4 22 #5 22 #6 22 #7 26 #8 17 #9 –

SEISMOGRAPH: ✓ LOCATION: 400' W. RECLAIMED FIELD PPV: 0.28 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: – FPS: 400

MUD AND WATER IN HOLES BELOW 42 FEET

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
9	55	57.5	57.3	57	58	2	65.5	7.5		
10	55	59	58.5	58	59	4	66.5	7.5		
11	55.5	58.5	58.3	58	59	3.5	66	7		
12	56	59	58.5	58	59	3	65	6		
13	56.5	59	59	58.5	59	2.5	67	8		
14	57	60.5	60	60	61	4	69	8		
15	57.5	62.5	62	61	63	5.5	69.5	6.5		
16	57.5	–	–	63	64	S/W	–	–		In pillar
17	58	–	–	64	65	S/W	–	–		In pillar
18	57	66	65	65	66	9	71.5	5.5	50-51	
19	57	66	64.3	64	66	9	72	6		
20	57	66	64	64	66	9	72	6		
21	57	65.6	63.4	63.5	66	9	71	5		
22	57	64.5	62	61.5	65	8	70	5		
23	57	61	60	60	61	4	67	6		
24	56.5	60	60	60	60	3.5	67.3	7.3		
25	56.5	59	58.5	58	59	2.5	66	7		
26	56	59	58	58	59	3	67	8		
27	55.5	58	58	57	58	2.5	66	8	47-48	
28	55	58	58	57	58	3	65.5	7.5		
39	58	65.5	64.5	64	66	8	70	4		
40	58	65.5	64	64	66	8	71	5		
41	–	–	–	–	30	–	–	–	–	Close hole
42	–	–	–	–	30	–	–	–	–	" "
43	–	–	–	–	30	–	–	–	–	" "
44	–	–	–	–	30	–	–	–	–	" "

AML PROJECT - BLAST SUMMARY

BLAST #: 11

LOCATION: S-12

DATE 10/24

HOLE DIAM 6"

NO. HOLES 31

EXPLOSIVES COMSUMPTION

ANFO 69 BAGS = 3450 LBS SLURRY – BAGS = – LBS

BOOSTERS 102 42 M/S DELAYS 31

DELAYS #4 – #5 19 #6 27 #7 28 #8 28 #9 –

SEISMOGRAPH: ✓ LOCATION: 300' N N. OF SC8 PPV: 0.75 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: 6 FPS: 500

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	38	44	43.5	43	44	6	51.5	7.5		
2	38	42.5	42	41	43	5	50	7		
3	38	46	44.5	44	46	8	50	4		
4	38	41	40.5	40	41	3	52.5	11.5		
5	–	35	35	34	35	–	47	12		3 decks
6	–	20	19	18	20	–	40	20		1 deck
7	38	39.2	38.8	38	39	1	50	11		3 decks
8	37	41	40	39	41	4	52	11		
9	37.5	41	40.5	40	41	3.5	53	12		
10	37	41	40	39	41	4	52	11		
11	37	40.5	40	39	41	4	51.5	10.5		
12	37.5	39.5	39	38	40	2.5	52	12		3 decks
13	37	39.5	39.3	38	40	3	50.5	10.5		3 decks
14	37	39	39	38	39	2	45	6		3 decks
15	–	–	–	–	–	–	–	–	–	NOT DRILLED
16	37.5	40.5	40	39	41	5.5	50.5	7.5		
17	37.5	40.5	40.3	39	41	3.5	52.5	11.5		
18	37.5	41	40.5	40	41	3.5	52	11		
19	37	41	40.5	40	41	4	53	12		
20	38	41	40.5	40	41	3	53.5	12.5		
21	38	41	40	39	41	3	52.5	11.5		
22	38	41	41	40	41	3	52	11		
23	–	32	32	30	32	–	47	15		later cored to 17' (1 deck)
24	–	22	?	18	22	–	43.5	21.5		1 deck.
25	38	41	41	40	41	3	52	11		
26	38	45	43.6	43	45	7	51	6		
27	38	42.5	42	41	43	5	52.5	9.5		
28	38.7	42.5	42.3	41	43	3.5	49.5	6.5		
29	–	–	–	–	25	–	–	–		Closure hole 2 decks
30	–	–	–	–	25	–	–	–		" " "
31	–	–	–	–	25	–	–	–		" " "
32	–	–	–	–	25	–	–	–		" " "

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AML PROJECT - BLAST SUMMARY

BLAST #: 12

LOCATION: N-8(N)

DATE 10/28

HOLE DIAM 6"

NO. HOLES 17

EXPLOSIVES COMSUMPTION

ANFO 64 BAGS = 3200 LBS SLURRY — BAGS = — LBS

BOOSTERS 66 42 M/S DELAYS 17

DELAYS #4 ___ #5 16 #6 16 #7 17 #8 17 #9 —

SEISMOGRAPH: ✓ LOCATION: 575'E E EDGE OF SITE PPV: 0.14 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: 8 FPS: 500

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	-	25	24	22	25	-	28	3		
2	-	54	53	52	54	0	55	1		
3	55.5	58.3	58	57	58.5	3	65	6.5		
4	55	58.5	58	57	58.5	3.5	67.5	9	17-19	
5	55	58	58	57	58	3	66.5	8.5	19-20	
6	54.5		56	55	56	1.5	64.5	8.5		
7	-	53	50.5	50	53	0	61	8		
8	54.5	55.5	54.3	53	56	1.5	64	8		
9	54	56	56	55	56	2	62	6		Bottom 25' wet + mud
10	53	—	—	—	—	—	—	—	—	NOT MINED
11	53.5	57.5	57	56	58	4.5	68	12	15-17	
12	54.5	56	55	54	56	1.5	63	7		
13	54.9	56	55.5	55	56	1.1	64.5	8.5		
14	54.5		58.9	58	59	4.5	68	9		
15	54.5		58.8	57	59	4.5	67.5	8.5		
16	55.3	58	58	57	58	2.7	68	10		
17	55.5	57.5	56.5	56	58	2.5	61.5	4		
18	-	45	44.3	43	45	0	52	7		

AML PROJECT - BLAST SUMMARY

BLAST #: 13

LOCATION: N-10

DATE 10/30

HOLE DIAM 6"

NO. HOLES 23

EXPLOSIVES COMSUMPTION

ANFO 104 BAGS = 5200 LBS SLURRY — BAGS = — LBS

BOOSTERS 92 42 M/S DELAYS 23

DELAYS #4 23 #5 23 #6 23 #7 23 #8 23 #9 —

SEISMOGRAPH: ✓ LOCATION: 640' W. W. EDGE OF SITE PPV: 0.10 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: 7 FPS: 300

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	49	52.5	51	50	53	4	55	2		*
2	50	52.5	51	50	53	3	58	5	14-15	
3		52	49.5	49	52		55	3	11-19	
4	—	44	44	43	44	0	48.5	4.5	16-18	
5	49.5	—	—	53	54	4.5	—	—		*
6	50	54	53.5	52	54	4	61.5	7.5		*
7	51		52	51	54	3	62	8		*
8	52.5	56	55	54	56	3.5	62	6	20-26	
9	52.5	57.5	57	56	58	5.5	65	7		*
10	52.5	58	57.5	57	58	5.5	66.5	8.5		*
11	53	58	57.3	56	58	5	67.5	9.5		*
12	53	58.2	58	57	58	5	68	10		*
13	53.8	58.3	57.3	57	58.5	5	67	8.5		*
14	53.9	—	—	—	—	—	—	—		NOT MINED
15	—	—	—	—	—	—	—	—		NOT DRILLED
16	—	—	—	—	—	—	—	—		" "
17	—	—	—	—	—	—	—	—		" "
18	—	—	—	—	—	—	—	—		" "
19	54	65.5	63	62	65	S/W	67.5	2.5		lost at 58' hole
20	54	59	58	57	59	5	68	9		*
21	54	58.8	58.5	57	59	5	68	9	25	*
22	53.5	58.5	58	57	58.5	5	68	9.5		*
23	53.5	58.7	58	57	59	6.5	67	8		*
24	52.5	57.5	56.5	56	58	4.5	64	6	24-27	*
25	53	55.5	55.3	54	56	3	62.5	6.5	15-17	
26	51.5	54	53	52	54	2.5	63.5	9.5	14.5-16	
27	51.5	53	52.5	52	53	1.5	61	8	14-16.5	
28	50	52.5	52	51	53	3	59	6	13-15	

* = 1 foot extra charge added to bottom deck to take into account thicker roof coal

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AML PROJECT - BLAST SUMMARY

BLAST #: 14

LOCATION: S-11(N)

DATE 10/31

HOLE DIAM 6"

NO. HOLES 23

EXPLOSIVES CONSUMPTION

ANFO 67 BAGS = 3350 LBS SLURRY – BAGS = – LBS

BOOSTERS 92 42 M/S DELAYS 23

DELAYS #4 23 #5 – #6 23 #7 – #8 23 #9 23

SEISMOGRAPH: ✓ LOCATION: 550' N N. BOUNDARY OF FIELD PPV: 0.11 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: 9 FPS: 500

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	39.5	44	43	42	44	4.5	48	4		*
2	40	44.9	43.3	42	45	5	54	9		*
3	40.3	44.5	43.3	42	44.5	4.2	54	9.5		load as 45' hole
4	39	48.5		47	48.5	9.5	56	7.5		*
5	39	47	45	44	47	8	55	8		*
6	39.3	42.5	41.3	40	42.5	3.2	54.5	12		load as 42' hole
7	39.6	42.5	42.5	41	42.5	2.9	54	12		
8	39	44	42	41	44	5	53.5	9.5		*
9	39	43.5	42	41	43.5	4.5	54	10.5		
10	39	44	42.5	42	44	5	54	10		*
11	39	42	41.5	41	42	3	53	11		
12	39	40.6	39	38	41	2	52	11		
13	38.5	40.5	39	38	40.5	2	53.5	13	28-30	load as 41' hole
14	39	44	42.3	41	44	5	55	11		*
15	39	44	43	42	44	5	54	10		*
16	39	42	42	41	42	3	55	13		
17	39.7	45	44	43	45	5.3	56.5	11.5		*
18	39.7	45	43	42	45	5.3	54.5	9.5		*
19	40.3	42	41	40	42	1.7	54	12		
20	39.6	43	41	40	43	3.4	54	11		
21	39.6	42.6	40.8	40	43	3.4	54	11		
22	39.6	42.6	42	41	43	3.4	55	12		
23	39.7	42.9	47	42	43	3.3	53	10		

* = 1 foot extra charge in bottom deck due to thicker roof coal; stemming between bottom and next deck reduced by one foot.

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AML PROJECT - BLAST SUMMARY

BLAST #: 15

LOCATION: S-1/5)

DATE 11/3

HOLE DIAM 6"

NO. HOLES 16

EXPLOSIVES COMSUMPTION (BOTTOM TWO DECKS)

ANFO 29 BAGS = 1450 LBS SLURRY 59 BAGS = 1770 LBS

BOOSTERS 65 42 M/S DELAYS 16

DELAYS #4 21 #5 – #6 14 #7 – #8 15 #9 15

SEISMOGRAPH: ✓ LOCATION: 700' E TRAILER PPV: 0.20 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: 9 FPS: 200

HOLES WET; MUD BELOW 40 FEET. DIFFICULT LOADING. EXTRA BOOSTERS USED IN BOTTOM DECK.

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	49.5	54	54	53	54	4.5	64	10		*
2	49.5	55	54	53	55	5.5	64	9		*
3	50	56	55	54	56	6	63	7		*
4	51.6		56.5	55	57	5.4	61	4		*
5	52	57.5	57	56	58	6	65.5	7.5		*
6	52		56	55	56	4	63	7		*
6A		54		52	54		56	2		
7			32	30	32	0	43.5	11.5		3 decks only
8	–	–	–	–	–	–	–	–	–	LOST DUE TO BLAST DAMAGE
29	–	–	–	–	–	–	–	–	–	" " " " "
30			48	47	50	0	50	0		
31		52.5	49.5	48	50	0	51	1		
32	52.8	56		55	56	3.2	56	0		
33	53	58	58	57	58	5	64	8		*
34	52.5	58	57	56	58	5.5	65.5	7.5		*
35	51	56	56	55	56	5	64	8		*
36	50	55.5	55	54	56	6	64	8		*
37	49.5	55.5	54	53	56	6.5	64	8		*

* = 1 foot extra charge in bottom deck due to thicker roof coal; lowest stemming reduced by one foot.

AML PROJECT - BLAST SUMMARY

BLAST #: 16

LOCATION: S-11/5

DATE 11/5

HOLE DIAM 6"

NO. HOLES 15

EXPLOSIVES COMSUMPTION (BOTTOM DECK ONLY)

ANFO 28 BAGS = 1400 LBS SLURRY 24 BAGS = 720 LBS

BOOSTERS 54 42 M/S DELAYS 15

DELAYS #4 15 #5 - #6 15 #7 - #8 15 #9 9

SEISMOGRAPH: ✓ LOCATION: 425' W S. OF S-1 PPV: 0.33 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: 4 FPS: 500

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
24	38	39.5	38.5	38	40	2	42	2		
25	38	40	39	38	40	2	47.5	7.5		
26	37	39	38.5	38	39	2	51	12		
27	37	34	38.5	38	39	2	52	13		
28	35	35	34	33	35	0	50.5	15.5		
29	37	39	38.5	38	39	2	52	13		
30	37		98.5	39	41	4	54	13		
31	36.5	58.5		50		S/W	52.5			Water to 52'
32	37.5	47.5	44.5	43		S/W	54			Side of room
33	38	41	41	40	41	3	55	14		
34	38	41	40.5	40	41	3	53	12		
35	38	41	40	39	41	3	54	13		
36	37.5	40.5	40	39	40.5	3	53	12.5		
37	38	41	40	39	41	3	51.5	10.5		
38	38	41	40	39	41	3	48.5	7.5		

42

AML PROJECT - BLAST SUMMARY

BLAST #: 17

LOCATION: S-10

DATE 11/6

HOLE DIAM 6"

NO. HOLES 20

EXPLOSIVES COMSUMPTION

ANFO 44 BAGS = 2200 LBS SLURRY 40 BAGS = 1200 LBS (BOTTOM DECK ONLY)

BOOSTERS 98 42 M/S DELAYS 26

DELAYS #4 25 #5 4 #6 21 #7 - #8 19 #9 19

SEISMOGRAPH: ✓ LOCATION: 1400' W IN RECLAIMED FIELD PPV: 0.03 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: 6 FPS: 500

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	40.1	47	93.5	43	47	3.4	46	0		
2	39.9	44.5	43	42	44.5	4.6	52.5	8		
3	39.5	43	41.5	41	43	3.5	56	13		
4	39.5	42.5	41.5	41	42.5	3	55.5	13		
5	39	42	41	40	42	3	55.5	13.5		
6	39.3	43	41.5	41	43	3.7	55	12		
7	39.5	42	41.5	41	42	2.5	54	12	30-31	
8	39	42	41.5	41	42	3	55	13		
9	39.3	42	42	41	42	2.7	56	14		
10	39.5	50	50	48	50	S/W	56	6		Stem to 42', load as 45' hole
11	-	-	-	-	-	-	-	-		NOT MINED
12	39.8	45	43.5	43	45	5.2	56	11		Stem to 38', load as 43' hole
13	39.5	43	42	41	43	3.5	57	14		
14	39.3	42.5	42.5	41	42.5	3.2	56	13.5		
15	39.5	42.5	41.5	41	42.5	2.0	53.5	11	31-33	
16	39.9	42.5	42	41	42.5	2.6	56	13.5		
17	39.8	41.5	40.5	40	41.5	1.7	55.5	14		
18	39.6	41	40.5	40	41	1.4	55	14		
19	39.9	42	41.5	41	42	2.1	53.5	11.5		
20	40.5	41.5	41.5	40	41.5	1.0	47	5.5		
21	-	15	15	14	15	-	25	10		Stem to 14', load up to 9.5' ANFO

43

AML PROJECT - BLAST SUMMARY

BLAST #: 17

LOCATION: SC-7

DATE 11/6

HOLE DIAM 6"

NO. HOLES 6

EXPLOSIVES COMSUMPTION (included in sheet for S-10)

ANFO ____ BAGS = _____ LBS SLURRY ___ BAGS = _____ LBS

BOOSTERS _____ 42 M/S DELAYS ____

DELAYS #4 ___ #5 ___ #6 ___ #7 ___ #8 ___ #9 ___

SEISMOGRAPH: ___ LOCATION: _____ PPV: _____ IN/SEC

CAMERA USED: NO. TARGET DELAY #: - FPS: -

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	-	35	35	32	35	-	41	6	-	
2	-	22	22	20	22	-	34	12	-	
3	-	15	13	11	13	-	25	12	-	
4	-	12	11	10	12	-	22	10	-	
5	-	-	-	-	20	-	-	-	-	
6	-	-	-	-	20	-	-	-	-	

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AML PROJECT - BLAST SUMMARY

BLAST #: 18

LOCATION: N-6

DATE 11/17

HOLE DIAM 8"

NO. HOLES 12

EXPLOSIVES COMSUMPTION (BOTTOM 2 DECKS)

ANFO 59 BAGS = 2950 LBS SLURRY 44 BAGS = 1320 LBS

BOOSTERS 45 42 M/S DELAYS 12

DELAYS #4 12 #5 – #6 12 #7 – #8 11 #9 10

SEISMOGRAPH: ✓ LOCATION: 1100' SW. CORNER 6/7 PPV: ? IN/SEC

TRACE LOST - PAPER CLEWED UP.

CAMERA USED: – TARGET DELAY #: – FPS: –

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	54	58	34	33	36	-	36.5	–		Hole caved to 36'. 2 decks
2	52	56	54	53	56	4	56.5	0.5		
3	52	53		46		-	48	-		Hole caved. 3 decks.
4	54	61	60.5	60	61	7	63.5	2.5		
5	56	57	56.5	56	57	1	60.5	3.5		
6	54	57.5	56.5	56	57.5	3.5	59	1.5		
7	54	56.5	55	54	56.5	2.5	57	0.5		
8	54.7	55	54	53	55	0.3	59	4	24-26	
9	54	57	56	55	57	3	59.5	2.5		
10	52	56.7	54.5	54	57	5	57.5	0.5		
11	53	58	57.5	56	58	5	59	1		
12	52	55	55	54	55	3	60	5		

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AML PROJECT - BLAST SUMMARY

BLAST #: 19

LOCATION: S-9(N)

DATE 11/18

HOLE DIAM 6"

NO. HOLES 20

EXPLOSIVES COMSUMPTION (Bottom 2 DECKS)

ANFO 26 BAGS = 1300 LBS SLURRY 54 BAGS = 1620 LBS

BOOSTERS 82 42 M/S DELAYS 20

DELAYS #4 23 #5 – #6 20 #7 – #8 20 #9 19

SEISMOGRAPH: ✓ LOCATION: 1200' SW; CORNER 6/7 PPV: 0.1 IN/SEC

CAMERA USED: – TARGET DELAY #: – FPS: –

1½ BAGS SLURRY PER DECK IN BOTTOM 2 DECKS

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	44	50		48	50	6	50	0		load as 51' hole
2	44	60	–	–		S/W	58	–		load as 51' hole
3	44	46	46	45	46	2	59	13		
4	44	46	45	44	46	2	57	11		
5	44	47	46	45	47	3	56	9		
6	44	47	45.5	45	47	3	59	12		
7	42	47	45.5	45	47	5	59	12		
8			43	42	44	2	56	12		
9			42	41	43	2	56	13		
10	42	43	42	41	43	1	56	13		
11		43	42	41	43	1	56	13		
12	43.5	46.5			47	3				
13	43	46	44	43	46	3	59	13		
14	44	47	46	45	47	3	59	12		
15	44	47	46.5	46	47	3	58	11		
16	44	46	45.5	45	46	2	57	11		
17	–	35			35	0	53	18		3 decks
18	44	46	45	44	46	2	58	12		
19	44	52	52	51	52	8 (S/W)	58	6		load as 52' hole.
20	44	47	46	45	47	3	58	11		

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AML PROJECT - BLAST SUMMARY

BLAST #: 20

LOCATION: N-4

DATE 11/19

HOLE DIAM 6"

NO. HOLES 10

EXPLOSIVES CONSUMPTION

ANFO 9 BAGS = 450 LBS SLURRY 14 BAGS = 420 LBS

BOOSTERS 19 42 M/S DELAYS 10

DELAYS #4 9 #5 9 #6 - #7 1 #8 - #9 -

SEISMOGRAPH: - LOCATION: - PPV: - IN/SEC

CAMERA USED: - TARGET DELAY #: - FPS: -

2 DECKS USED; BOTTOM SLURRY 14'-19'; TOP ANFO 8-12'.

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
1	-	-	-	-	20	-				
2	-	-	-	-	20					Rock in hole @ 8 feet.
3	-	-	-	-	20					
4	-	-	-	-	20					
5	-	-	-	-	20					
6	-	-	-	-	20					
7	-	-	-	-	20					
8	-	-	-	-	20					
9	-	-	-	-	20					
10	-	-	-	-	20					

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AML PROJECT - BLAST SUMMARY

BLAST #: 21

LOCATION: S-9(S)

DATE 11/20

HOLE DIAM 6"

NO. HOLES 11

EXPLOSIVES COMSUMPTION (BOTTOM 2 DECKS)

ANFO 15 BAGS = 750 LBS SLURRY 31 BAGS = 930 LBS

BOOSTERS 41 42 M/S DELAYS 11

DELAYS #4 8 #5 – #6 10 #7 – #8 11 #9 11

SEISMOGRAPH: ✓ LOCATION: 300'E ; TRAILER PPV: 0.08 IN/SEC

CAMERA USED: ✓ TARGET DELAY #: 8 FPS: 500

IN 4-DECK HOLES 1½ BAGS SLURRY PER DECK IN BOTTOM 2 DECKS

#	TOC	VOID DRILLED	VOID MEAS	PLUG	DEPTH	ROOF COAL	BOTTOM	VOID DEPTH	ROCK LAYERS	COMMENTS
21	–	37	36	35	37	0	41	4		3 decks
22	42	45	41	40	45	3	50	5		
23	42	45.5	43	42	45.5	3.5	54	8.5		
24	42	45.5	43	42	45.5	3.5	55	9.5		
25	42	45	43	42	45	3	55.5	10.5		
26	41.5	45	42.5	42	45	3.5	55.5	10.5		
27	41.5	44.5	42.5	42	44.5	3	56	11.5		
28	–	38		35	38	0	52.5	14.5		3 decks
29	–	27	26	25	27	0	50	23		2 decks
30	41.5	44.5	43	42	44.5	3	55.5	11		
31	41.5	54	53	52	54	12.5	58	4		

APPENDIX C

RESULTS FROM ANALYSIS OF HIGH-SPEED FILMS

AML PROJECT - HI-SPEED CAMERA STUDIES

BLAST # : 6 LOCATION : N-8 (S)

NO. HOLES : 10 TARGET DTH DELAY # : 7

FPS (SET) : 500 CAMERA : 300' W LENS : ? MM

HOLE #	FILM SPEED (FPS)	SURFACE FRAME #	SURFACE MARK SEPRN. (MM)	SURFACE DELAYS DETN. INTVL (MSEC)	SURFACE DELAYS CUM. TIME (MSEC)	DOWN-THE-HOLE FRAME #	DOWN-THE-HOLE MARK SEPRN. (MM)	DOWN-THE-HOLE DELAYS DETN. INTVL (MSEC)	DOWN-THE-HOLE DELAYS CUM. TIME (MSEC)
INIT									
4	226.8	62	17.25		0.0				0.0
5	226.8	66	17.25	17.6	17.6	66	17.30	0.0	17.6
3	226.8	76	17.25	44.1	61.7	115	17.25	171.9	233.7
6	226.8	84	17.25	35.3	97.0	123	17.25	171.9	268.9
2	226.8	91	17.25	30.9	127.9	91	17.25	0.0	127.9
7	226.8	99	17.25	35.3	163.1				
9									
1									
10									
8	223.5	111	17.00	26.6	217.6	159	17.25	213.2	427.6
AVG	226.4			31.6				185.7	
N	7	7		36.4		5		171.9	

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AML PROJECT - HI-SPEED CAMERA STUDIES

BLAST # : 7 LOCATION : N-7

NO. HOLES : 19 TARGET DTH DELAY # : ?

FPS (SET) : 200 CAMERA : 250' W LENS : 50 MM

HOLE #	FILM SPEED (FPS)	SURFACE DELAYS FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)	DOWN-THE-HOLE DELAYS FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)
INIT	218.5	6	16.62		0.0				0.0
4	218.5	13	16.62	32.0	32.0				
8	218.5	22	16.62	41.2	73.2	61	16.62	178.5	251.7
7	218.5	23	16.62	45.8	77.8	60	16.62	169.3	247.1
3	218.5	30	16.62	36.6	109.8	70	16.62	183.0	292.9
5	218.5	32	16.62	41.2	119.0				
9						77	16.62		324.9
SW4									
2	218.5	48	16.62	41.2	192.2	48	16.62	0.0	192.2
SW1									
10	218.5	56	16.62	36.6	228.8				
SW2									
1									
SW3									
AVG	218.5			39.2				176.9	
N	8	8		40.4		5			

AML PROJECT - HI-SPEED CAMERA STUDIES

BLAST # : 8 LOCATION : N-12

NO. HOLES : 21 TARGET DTH DELAY # : 4

FPS (SET) : 500 CAMERA : 300' E LENS : 16 MM

		SURFACE DELAYS				DOWN-THE-HOLE DELAYS			
HOLE #	FILM SPEED (FPS)	FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)	FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)
INIT									
1									
2									
21	263.9	76	20.07		0.0				0.0
20	263.9	84	20.07	30.3	30.3				
3									
19									
4	263.9	116	20.07	40.4	151.6				
18	263.9	127	20.07	41.7	193.3	127	20.07	0.0	193.3
5									
17	262.1	148	19.93	39.9	273.8				
6									
16	262.1	170	19.93	42.0	357.4				
7									
15									
8	263.0	200	20.00	38.1	470.7	201	20.00	3.8	474.5
14									
9	263.0	210	20.00	19.0	508.6				
13	263.0	221	20.00	41.8	550.4				
10	263.0	230	20.00	34.2	584.6	265	19.90	133.4	719.2
12									
11	261.7	250	19.90	38.1	662.1	250	19.90	0.0	662.1
AVG	263.0			36.6				133.4	
N	11	11		39.5		4			

AML PROJECT - HI-SPEED CAMERA STUDIES

BLAST # : 11 LOCATION : S-12

NO. HOLES : 31 TARGET DTH DELAY # : 6

FPS (SET) : 500 CAMERA : 400' NW LENS : ? MM

HOLE #	FILM SPEED (FPS)	SURFACE DELAYS FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)	DOWN-THE-HOLE DELAYS FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)
INIT									
2									
27									
1									
3	109.1	69	8.29		0.0				
28									
29									
26									
31									
30									
4	109.0	78	8.29	41.3	82.5				
32									
25	109.0	82	8.29	36.7	119.2				
5	109.0	86	8.29	36.7	155.9				
24	109.0	92	8.29	55.0	210.9				
6	109.0	96	8.29	36.7	247.6				
23	109.3	100	8.31	36.7	284.0				
7									
22	109.3	106	8.31	54.9	338.9				
8	109.3	111	8.31	45.8	384.7				
21									
9									
20									
10									
19									
11									
18									
12									
17									
13									
16									
14									
AVG	109.1			43.0					
N	9	9				0			

AML PROJECT - HI-SPEED CAMERA STUDIES

BLAST # : 12 LOCATION : N-8(N)

NO. HOLES : 17 TARGET DTH DELAY # : 8

FPS (SET) : 500 CAMERA : 300' W LENS : ? MM

			SURFACE	DELAYS			DOWN-THE-HOLE	DELAYS		
HOLE #	FILM SPEED (FPS)	FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)	FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)
INIT	504.9	62	38.40		0.0				0.0
1	504.9	80	38.40	35.6	35.6				
18									
2									
17	503.6	141	38.30	40.3	156.7	141	38.30	0.0	156.7
3	503.6	160	38.30	37.7	194.3	262	38.40	202.3	396.1
16	504.9	180	38.40	39.7	233.7	282	38.40	202.0	435.7
4	506.2	199	38.50	37.6	271.0	303	38.50	205.4	476.7
15	506.2	218	38.50	37.5	308.6	326	38.50	213.3	522.2
5	504.9	238	38.40	39.6	348.6	238	38.40	0.0	348.6
14	504.9	257	38.40	37.6	386.2	361	38.40	206.0	592.2
6	504.9	274	38.40	33.7	419.9	380	38.40	209.9	629.8
13									
7	506.2	313	38.50	38.6	496.5	419	38.40	209.7	707.0
12	506.2	330	38.50	33.6	530.1	331	38.50	2.0	532.1
8						453	38.50		
11									
9						492	38.50		
AVG	505.2			37.4				206.9	
N	12	12				12			

AML PROJECT - HI-SPEED CAMERA STUDIES

BLAST # : 13 LOCATION : N-10

NO. HOLES : 23 TARGET DTH DELAY # : 7

FPS (SET) : 300 CAMERA : 400' E LENS : ? MM

		SURFACE DELAYS				DOWN-THE-HOLE DELAYS			
HOLE #	FILM SPEED (FPS)	FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)	FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)
INIT	302.4	33	23.00		0.0				0.0
1	302.4	46	23.00	43.0	43.0				
2	302.4	58	23.00	39.7	82.7				
28	302.4	71	23.00	43.0	125.6				
3									
5									
4									
27									
6						160	22.80		421.8
26	302.4	116	23.00	37.2	274.4	171	22.80	182.7	458.3
7	302.4	128	23.00	39.7	314.1	182	22.80	179.3	494.8
25	302.4	139	23.00	36.4	350.5	192	22.80	176.0	528.0
8	301.1	150	22.90	36.5	387.7	204	23.00	178.9	565.4
24	299.8	161	22.80	36.6	425.1	217	23.00	186.0	608.4
9	299.8	172	22.80	36.7	461.6	226	23.00	179.3	638.2
23	299.8	184	22.80	40.0	501.5	238	23.00	179.3	677.8
10	299.8	195	22.80	36.7	538.0	195	22.80	0.0	538.0
22	302.4	207	23.00	39.9	575.3				
11						274	23.00		796.9
21	302.4	231	23.00	39.7	654.7	286	23.00	181.9	836.6
12	302.4	243	23.00	39.7	694.4	299	23.00	185.2	879.5
20	302.4	256	23.00	43.0	737.4	312	23.00	185.2	922.5
13						321	23.00		952.3
19						333	23.00		992.0
AVG	301.7			39.2				181.4	
N	16	16				15			

AML PROJECT - HI-SPEED CAMERA STUDIES

BLAST # : 14 LOCATION : S-11(N)

NO. HOLES : 23 TARGET DTH DELAY # : 9

FPS (SET) : 500 CAMERA : 350' NW LENS : ? MM

HOLE #	FILM SPEED (FPS)	SURFACE DELAYS FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)	DOWN-THE-HOLE DELAYS FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)
INIT									
3	491.5	71	37.38		0.0	71	37.38	0.0	0.0
2						216	37.38		295.0
23	491.5	111	37.38	40.7	81.4	236	37.38	254.3	335.7
1	491.5	126	37.38	30.5	111.9	126	37.38	0.0	111.9
4						250	37.25		364.8
22						270	37.25		405.6
5	491.5	161	37.38	35.6	183.1	161	37.38	0.0	183.1
21						305	37.25		476.9
6									
20	491.5	219	37.38	39.3	301.1	345	37.25	256.8	558.4
7									
19	489.8	256	37.25	37.7	377.0	256	37.25	0.0	377.0
8	489.8	275	37.25	38.8	415.8				
18						420	37.10		712.7
9						439	37.10		751.5
17	489.8	332	37.25	38.8	531.9				
10						476	37.10		827.1
16						498	37.10		872.0
11	487.8	392	37.10	40.9	655.5	392	37.10	0.0	655.5
15						537	37.10		951.6
12	487.8	425	37.10	33.8	722.9				
14						574	37.10		1027
13						578	37.10		1035
AVG	490.3			37.4				255.6	
N	10	10				18			

AML PROJECT - HI-SPEED CAMERA STUDIES

BLAST # : 16 LOCATION : S-11(S)

NO. HOLES : 15 TARGET DTH DELAY # : 4

FPS (SET) : 500 CAMERA : 300' E LENS : ? MM

HOLE #	FILM SPEED (FPS)	SURFACE DELAYS FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)	DOWN-THE-HOLE DELAYS FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)
FIRE	409.3	39	31.13		0.0				0.0
INIT	409.3	64	31.13	61.1	61.1				
24	409.3	79	31.13	36.7	97.7	81	31.13	4.9	102.6
38	409.3	93	31.13	34.2	131.9	160	31.13	163.7	295.6
25	410.1	109	31.19	39.1	170.9	150	31.13	100.1	271.2
37	409.3	124	31.13	36.6	207.7				
26	409.3	138	31.13	34.2	241.9				
36						195	31.13		381.2
27									
35									
28	409.3	197	31.13	36.0	386.1				
34	409.3	211	31.13	34.2	420.3				
29	410.1	224	31.19	31.7	451.6	224	31.19	0.0	451.6
33	410.1	239	31.19	36.6	488.2	239	31.19	0.0	488.2
30	409.3	254	31.13	36.6	525.3	295	31.13	100.2	625.5
32	409.3	270	31.13	39.1	564.4				
31	409.3	282	31.13	29.3	593.7	282	31.13		
AVG	409.5			35.4				100.1	
N	14	14				8			

AML PROJECT - HI-SPEED CAMERA STUDIES

BLAST # : 17 LOCATION : S-10

NO. HOLES : 20 TARGET DTH DELAY # : 6

FPS (SET) : 500 CAMERA : 350' E LENS : ? MM

HOLE #	FILM SPEED (FPS)	SURFACE DELAYS FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)	DOWN-THE-HOLE DELAYS FRAME #	MARK SEPRN. (MM)	DETN. INTVL (MSEC)	CUM. TIME (MSEC)
INIT									
21	309.0	39	23.50		0.0				0.0
1									
20	309.0	60	23.50	34.0	68.0	124	23.58	206.8	274.6
2									
19						130	23.58		294.0
3						143	23.58		336.0
18						170	23.50		423.9
4									
17	310.1	126	23.58	35.5	281.1	126	23.58	0.0	281.1
5	310.1	137	23.58	35.5	316.6	137	23.58	0.0	316.6
16									
6	309.0	158	23.50	33.9	385.1	158	23.50	0.0	385.1
15	309.0	168	23.50	32.4	417.5				
7	309.0	178	23.50	32.4	449.8	231	23.50	171.5	621.3
14	309.0	189	23.50	35.6	485.4	240	23.50	165.0	650.5
8	309.0	200	23.50	35.6	521.0				
13	309.0	211	23.50	35.6	556.6				
9	309.0	222	23.50	35.6	592.2	272	23.50	161.8	754.0
12	309.0	233	23.50	35.6	627.8	287	23.50	174.8	802.6
10									
AVG	309.2			34.7				176.0	
N	12	12				11		168.3	

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APPENDIX D

TECHNICAL ANALYSIS OF ACTUAL BLAST DATA

BURDEN 0.0 FT WT/UNIT LENGTH 12.27 PTARER 374.0

	DECK 3								DECK 4								TOTAL		
HOL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SPOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SPOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
5	24.0	28.0	ANFO	4.0	41.7	2.45	0.29	4	34.5	38.5	ANFO	4.0	41.7	2.45	0.29	14.0	146.0	0.23
5	24.0	32.0	ANFO	4.0	41.7	2.45	0.29	4	38.5	42.5	ANFO	4.0	41.7	2.45	0.29	16.0	166.8	0.25
5	24.0	28.0	ANFO	4.0	41.7	2.45	0.29	4	34.5	38.5	ANFO	4.0	41.7	2.45	0.29	14.0	146.0	0.23
5	24.0	28.0	ANFO	4.0	41.7	2.45	0.29	4	34.5	38.5	ANFO	4.0	41.7	2.60	0.27	14.0	146.0	0.23
5	24.0	28.0	ANFO	4.0	41.7	2.45	0.29	4	34.5	38.5	ANFO	4.0	41.7	2.60	0.27	14.0	146.0	0.23
5	24.0	28.0	ANFO	4.0	41.7	2.45	0.29	4	34.5	38.5	ANFO	4.0	41.7	2.60	0.27	14.0	146.0	0.23
5	24.0	28.0	ANFO	4.0	41.7	2.45	0.29	4	34.5	38.5	ANFO	4.0	41.7	2.45	0.29	14.0	146.0	0.23
5	24.0	28.0	ANFO	4.0	41.7	2.45	0.29	4	34.5	38.5	ANFO	4.0	41.7	2.60	0.27	14.0	146.0	0.23
5	24.0	28.0	ANFO	4.0	41.7	2.45	0.29	4	34.5	38.5	ANFO	4.0	41.7	2.80	0.25	14.0	146.0	0.23
5	24.0	28.0	ANFO	4.0	41.7	2.45	0.29	4	34.5	38.5	ANFO	4.0	41.7	2.80	0.25	14.0	146.0	0.23
10				4.00	41.7	2.45	0.29	10				4.00	41.7	2.60	0.27	14.2	148.1	0.23
				4.0	41.7	2.45	0.29					4.0	41.7	2.45	0.25	14.0	146.0	0.23
				4.0	41.7	2.45	0.29					4.0	41.7	2.80	0.29	16.0	166.8	0.25
				0.00	0.0	.00	.00					0.00	0.00	0.17	0.01	0.63	6.60	0.01

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UMC PROJECT BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	ISOG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 1 LOCATION N-14 HOLE DIAM 6 ROW WIDTH 32 FT SPACING 17 FT ROW SEPARATION 0 FT

		BENCH 1								BENCH 2							
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SNOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SNOB	P.F.
1	45.0	7	8.5	11.5	ANFO	3.0	31.3	3.18	1.43	0.16	6	14.5	17.5	ANFO	3.0	31.3	2.54	1.24	0.24
2	49.0	7	7.5	11.5	ANFO	4.0	41.7	2.74	1.31	0.17	6	17.5	21.5	ANFO	4.0	41.7	2.45	1.29	
3	45.0	7	8.5	11.5	ANFO	3.0	31.3	3.18	1.43	0.16	6	14.5	17.5	ANFO	3.0	31.3	2.54	1.24	
4	46.5	7	8.5	11.5	ANFO	3.0	31.3	3.18	1.43	0.16	6	14.5	17.5	ANFO	3.0	31.3	2.54	1.24	
5	45.5	7	8.5	11.5	ANFO	3.0	31.3	3.18	1.43	0.16	6	14.5	17.5	ANFO	3.0	31.3	2.54	1.24	
6	45.5	7	8.5	11.5	ANFO	3.0	31.3	3.18	1.43	0.16	6	14.5	17.5	ANFO	3.0	31.3	2.54	1.24	
7	45.0	7	8.5	11.5	ANFO	3.0	31.3	3.18	1.43	0.16	6	14.5	17.5	ANFO	3.0	31.3	2.54	1.24	
8	45.5	7	8.5	11.5	ANFO	3.0	31.3	3.18	1.43	0.16	6	14.5	17.5	ANFO	3.0	31.3	2.54	1.24	
9	46.5	7	8.5	11.5	ANFO	3.0	31.3	3.18	1.43	0.16	6	14.5	17.5	ANFO	3.0	31.3	2.54	1.24	
10	46.5	7	8.5	11.5	ANFO	3.0	31.3	3.18	1.43	0.16	6	14.5	17.5	ANFO	3.0	31.3	2.54	1.24	
AV.	45.90	10				3.10	32.3	3.13	1.52	0.15	10				3.10	32.3	[illegible]	[illegible]	
MIN	45.0					3.0	31.3	2.74	1.43	0.16					3.0	31.3	2.35	1.24	
MAX	49.0					4.0	41.7	3.18	2.31	0.17					4.0	41.7	2.54	1.29	
STD	1.22					0.32	3.3	0.14	0.29	0.01					0.32	3.3	0.03	0.02	

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 2 LOCATION N-9 HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 13 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2							
#	DEPTH	DEL. #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
1	57.5	8	9.0	12.0	ANFO	3.0	31.3	3.34	1.75	0.37	7	16.0	20.0	ANFO	4.0	41.7	2.45	0.75
2	59.0	8	9.0	13.0	ANFO	4.0	41.7	3.18	2.02	0.44	7	18.0	22.0	ANFO	4.0	41.7	2.45	0.75
3	63.0	8	9.0	13.0	ANFO	4.0	41.7	3.18	2.02	0.44	7	18.0	22.0	ANFO	4.0	41.7	2.45	0.75
4	60.0	8	9.0	13.0	ANFO	4.0	41.7	3.18	2.02	0.44	7	18.0	22.0	ANFO	4.0	41.7	2.45	0.75
5	57.0	7	9.0	14.0	ANFO	5.0	52.1	3.08	2.41	0.48	6	20.5	25.5	ANFO	5.0	52.1	2.41	0.86
6	57.5	7	9.0	14.0	ANFO	5.0	52.1	3.08	2.41	0.48	6	20.5	25.5	ANFO	5.0	52.1	2.41	0.86
7	57.0	8	9.0	12.0	ANFO	3.0	31.3	3.34	1.75	0.37	7	16.0	20.0	ANFO	4.0	41.7	2.45	0.75
8	58.0	8	9.0	12.0	ANFO	3.0	31.3	3.34	1.75	0.37	7	16.0	20.0	ANFO	4.0	41.7	2.45	0.75
9	59.0	8	9.0	13.0	ANFO	4.0	41.7	3.18	2.02	0.44	7	18.0	22.0	ANFO	4.0	41.7	2.45	0.75
10	56.0	7	9.0	14.0	ANFO	5.0	52.1	3.08	2.41	0.48	6	20.5	25.5	ANFO	5.0	52.1	2.41	0.86
AV.	58.40	10				4.00	41.7	3.20	2.05	0.43	10				4.30	44.8	2.44	0.78
MIN	56.0					3.0	31.3	3.08	1.75	0.37					4.0	41.7	2.41	0.75
MAX	63.0					5.0	52.1	3.34	2.41	0.48					5.0	52.1	2.45	0.86
STD	2.00					0.82	8.5	0.11	0.27	0.05					0.48	5.04	0.02	0.05

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	2086	0	0
ACTUAL	1800	0	0
	0.86		
	0.73		

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BURDEN 10.3 FT WT/UNIT LENGTH 12.27 PFAREA 143.0

DECK NUMBER 3								DECK NUMBER 4								DECK		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT
6	26.5	30.5	ANFO	4.0	41.7	2.45	0.75	5	37.0	41.0	ANFO	4.0	41.7	2.45	0.75	4	47.5	51.5
6	28.5	32.5	ANFO	4.0	41.7	2.45	0.75	5	39.0	43.0	ANFO	4.0	41.7	2.45	0.75	4	49.5	53.5
6	28.5	32.5	ANFO	4.0	41.7	2.45	0.75	5	39.0	43.0	ANFO	4.0	41.7	2.45	0.75	4	49.5	53.5
6	28.5	32.5	ANFO	4.0	41.7	2.45	0.75	5	39.0	43.0	ANFO	4.0	41.7	2.45	0.75	4	49.5	53.5
5	32.0	37.5	ANFO	5.5	57.4	2.40	0.90	4	44.0	49.5	ANFO	5.5	57.4	2.66	0.83			
5	32.0	37.5	ANFO	5.5	57.4	2.40	0.90	4	44.0	49.5	ANFO	5.5	57.4	2.79	0.80			
6	26.5	30.5	ANFO	4.0	41.7	2.45	0.75	5	37.0	41.0	ANFO	4.0	41.7	2.45	0.75	4	47.5	51.5
6	26.5	30.5	ANFO	4.0	41.7	2.45	0.75	5	37.0	41.0	ANFO	4.0	41.7	2.45	0.75	4	47.5	51.5
6	28.5	32.5	ANFO	4.0	41.7	2.45	0.75	5	39.0	43.0	ANFO	4.0	41.7	2.45	0.75	4	49.5	53.5
5	32.0	37.5	ANFO	5.5	57.4	2.40	0.90	4	44.0	49.5	ANFO	5.5	57.4	2.40	0.90			
10				4.45	46.4	2.44	0.80	10				4.45	46.4	2.50	0.78	7		
				4.0	41.7	2.40	0.75					4.0	41.7	2.40	0.75			
				5.5	57.4	2.45	0.90					5.5	57.4	2.79	0.90			
				0.72	7.56	0.03	0.07					0.72	7.56	0.12	0.05			

N U M B E R	S				T O T A L		
EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
ANFO	4.0	41.7	2.31	0.79	19.0	198.1	0.65
ANFO	4.0	41.7	2.16	0.83	20.0	208.6	0.67
ANFO	4.0	41.7	3.32	0.58	20.0	208.6	0.63
ANFO	4.0	41.7	2.45	0.75	20.0	208.6	0.66
					21.0	219.0	0.73
					21.0	219.0	0.72
ANFO	4.0	41.7	2.16	0.83	19.0	198.1	0.66
ANFO	4.0	41.7	2.45	0.75	19.0	198.1	0.64
ANFO	4.0	41.7	2.16	0.83	20.0	208.6	0.67
					21.0	219.0	0.74
	4.00	41.7	2.43	0.77	20.0	208.6	0.68
	4.0	41.7	2.16	0.58	19.0	198.1	0.63
	4.0	41.7	3.32	0.83	21.0	219.0	0.74
	0.00	0.00	0.41	0.09	0.82	8.51	0.04

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

	ANFO	IREG	ENER
EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 3 LOCATION N-11 HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 13 FT ROW SEPARATION 8 FT

			DECK NUMBER 1									DECK NUMBER 2							
#	DEPTH	DEL. #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
1	53.8	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.39	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.81
2	52.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.39	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.75
3	51.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.39	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.75
4	55.7	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
5	56.0	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
6	56.5	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
7	56.2	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
8	56.3	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
9	56.8	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.5	ANFO	5.5	57.4	2.40	0.90
10	57.8	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.50	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.90
13	51.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.39	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.75
14	51.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.39	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.75
15	54.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.39	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.81
16	55.9	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
17	56.2	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
18	56.8	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.5	ANFO	5.5	57.4	2.40	0.90
19	57.0	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.5	ANFO	5.5	57.4	2.40	0.90
20	56.9	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.5	ANFO	5.5	57.4	2.40	0.90
21	56.3	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
22	56.7	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.5	ANFO	5.5	57.4	2.40	0.90
AV.	55.22	20				4.73	49.3	3.25	2.42	0.45	20				4.90	51.1	2.42	0.84
MIN	51.0					4.0	41.7	3.18	2.40	0.39					4.0	41.7	2.40	0.75
MAX	57.8					5.5	57.4	3.32	2.45	0.50					5.5	57.4	2.45	0.90
STD	2.18					0.50	5.21	0.05	0.02	0.04					0.55	5.76	0.02	0.06

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	3040	0	1282
ACTUAL	2900	0	930
	0.95		0.73
	0.81		0.73

BURDEN 10.3 FT WT/UNIT LENGTH 12.27 PFAREA 143.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.86	4	42.5	47.5	IREG	5.0	61.3	2.23	0.98	18.5	202.1	0.71
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.75	4	41.0	45.5	IREG	4.5	55.2	2.30	0.91	16.5	180.3	0.65
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.75	4	41.0	45.5	IREG	4.5	55.2	2.17	0.95	16.5	180.3	0.66
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.86	4	44.0	49.5	IREG	5.5	67.5	2.20	1.05	20.5	223.9	0.76
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.86	4	44.0	49.5	IREG	5.5	67.5	2.27	1.02	20.5	223.9	0.75
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.86	4	44.0	49.5	IREG	5.5	67.5	2.40	0.98	20.5	223.9	0.75
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.86	4	44.0	49.5	IREG	5.5	67.5	2.32	1.00	20.5	223.9	0.75
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.86	4	44.0	49.5	IREG	5.5	67.5	2.35	0.99	20.5	223.9	0.75
5	33.0	38.5	ANFO	5.5	57.4	2.40	0.90	4	45.0	50.5	IREG	5.5	67.5	2.22	1.04	21.5	234.3	0.78
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.90	4	45.5	51.5	IREG	6.0	73.6	2.22	1.08	22.5	245.7	0.80
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.75	4	41.0	45.0	IREG	4.0	49.1	2.19	0.89	16.0	174.2	0.64
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.75	4	41.0	45.0	IREG	4.0	49.1	2.19	0.89	16.0	174.2	0.64
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.86	4	42.5	47.5	IREG	5.0	61.3	2.28	0.97	18.5	202.1	0.71
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.86	4	44.0	49.5	IREG	5.5	67.5	2.25	1.03	20.5	223.9	0.76
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.86	4	44.0	49.5	IREG	5.5	67.5	2.32	1.00	20.5	223.9	0.75
5	33.0	38.5	ANFO	5.5	57.4	2.40	0.90	4	45.0	50.5	IREG	5.5	67.5	2.22	1.04	21.5	234.3	0.78
5	33.0	38.5	ANFO	5.5	57.4	2.40	0.90	4	45.0	50.5	IREG	5.5	67.5	2.27	1.02	21.5	234.3	0.78
5	33.0	38.5	ANFO	5.5	57.4	2.40	0.90	4	45.0	50.5	IREG	5.5	67.5	2.25	1.03	21.5	234.3	0.78
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.86	4	44.0	49.5	IREG	5.5	67.5	2.35	0.99	20.5	223.9	0.75
5	33.0	38.5	ANFO	5.5	57.4	2.40	0.90	4	45.0	50.5	IREG	5.5	67.5	2.20	1.05	21.5	234.3	0.78
20				4.95	51.6	2.41	0.85	20				5.23	64.1	2.26	1.00	19.8	216.1	0.74
				4.0	41.7	2.40	0.75					4.0	49.1	2.17	0.89	16.0	174.2	0.64
				5.5	57.4	2.45	0.90					6.0	73.6	2.40	1.08	22.5	245.7	0.80
				0.54	5.58	0.02	0.05					0.55	6.74	0.06	0.05	2.048	22.34	0.05

A M L P R O J E C T - B L A S T S U M M A R Y : T E C H N I C A L D A T A

	ANFO	IREG	ENER
EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 4 LOCATION N-1,N-2 HOLE DIAM 8 ROOM WIDTH 22 FT SPACING 16 FT ROW SEPARATION 10 FT

		D E C K N U M B E R 1								D E C K N U M B E R 2							
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
1-1	66.0	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.8	ANFO	5.3	98.3	2.42	1.09
1-2	66.5	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.8	ANFO	5.3	98.3	2.42	1.09
1-3	64.0	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.0	ANFO	4.5	83.4	2.30	1.04
1-5	66.9	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.8	ANFO	5.3	98.3	2.42	1.09
1-6	67.3	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.8	ANFO	5.3	98.3	2.42	1.09
1-7	62.0	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	28.5	ANFO	4.0	74.2	2.26	0.99
1-8	65.9	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26		6	24.5	29.8	ANFO	5.3	98.3	2.42	
1-9	66.0	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26		6	24.5	29.8	ANFO	5.3	98.3	2.42	
1-10	66.3	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26		6	24.5	29.8	ANFO	5.3	98.3	2.42	
1-11	60.0	7	13.0	17.0	ANFO	4.0	74.2				6	24.5	28.0	ANFO	3.5	64.9		
1-12	60.0	7	13.0	17.0	ANFO	4.0	74.2				6	24.5	28.0	ANFO	3.5	64.9		
2-1	64.4	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.0	ANFO	4.5	83.4	2.30	1.04
2-2	64.5	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.5	ANFO	5.0	92.7	2.32	1.09
2-3	64.3	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.0	ANFO	4.5	83.4	2.30	1.04
2-5	64.0	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.0	ANFO	4.5	83.4	2.30	1.04
2-6	66.0	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.8	ANFO	5.3	98.3	2.42	1.09
2-7	64.0	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.0	ANFO	4.5	83.4	2.30	1.04
2-8	65.0	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26		6	24.5	29.5	ANFO	5.0	92.7	2.32	
2-9	65.0	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26	0.46	6	24.5	29.5	ANFO	5.0	92.7	2.32	1.09
2-10	64.5	7	13.0	17.0	ANFO	4.0	74.2	3.58	2.26		6	24.5	29.5	ANFO	5.0	92.7	2.32	
2-11	60.0	7	13.0	17.0	ANFO	4.0	74.2				6	24.5	28.0	ANFO	3.5	64.9		
2-12	60.0	7	13.0	17.0	ANFO	4.0	74.2				6	24.5	28.0	ANFO	3.5	64.9		
AV.	64.21	22				4.00	74.2	3.58	2.26	0.46	22				4.68	86.7	2.35	1.06
MIN	60.0					4.0	74.2	3.58	2.26	0.46					3.5	64.9	2.26	0.99
MAX	67.3					4.0	74.2	3.58	2.26	0.46					5.3	98.3	2.42	1.09
STD	2.35					0.00	0.0	.00	0.00	0.00					0.68	12.6	0.06	0.03

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	5700	0	2582
ACTUAL	5725	0	2640
	1.00		1.02
	0.85		1.02

BURDEN 12.8 FT WT/UNIT LENGTH 21.81 PFAREA 176.0

DECK NUMBER 3									DECK NUMBER 4									TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.		DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.		LENGTH FT	WEIGHT LB	P.F.
5	38.3	43.6	ANFO	5.3	98.3	2.42	1.09		4	52.1	57.4	IREG	5.3	115.6	2.31	1.22		19.9	386.2	0.90
5	38.3	43.6	ANFO	5.3	98.3	2.42	1.09		4	52.1	58.0	IREG	5.9	128.7	2.27	1.32		20.5	399.3	0.92
5	36.8	42.1	ANFO	5.3	98.3	2.42	1.09		4	50.6	55.9	IREG	5.3	115.6	2.21	1.27		19.1	371.4	0.89
5	38.3	43.6	ANFO	5.3	98.3	2.42	1.09		4	52.1	58.0	IREG	5.9	128.7	2.35	1.28		20.5	399.3	0.92
5	38.3	43.6	ANFO	5.3	98.3	2.42	1.09		4	52.1	58.0	IREG	5.9	128.7	2.43	1.25		20.5	399.3	0.91
5	36.0	41.3	ANFO	5.3	98.3	2.42	1.09		4	49.8	55.1	IREG	5.3	115.6	1.96	1.40		18.6	362.1	0.90
5	38.3	43.6	ANFO	5.3	98.3	2.42			4	52.1	57.4	IREG	5.3	115.6	2.29			19.9	386.2	
5	38.3	43.6	ANFO	5.3	98.3	2.42			4	52.1	57.4	IREG	5.3	115.6	2.31			19.9	386.2	
5	38.3	43.6	ANFO	5.3	98.3	2.42			4	52.1	57.4	IREG	5.3	115.6	2.37			19.9	386.2	
5	35.5	40.8	ANFO	5.3	98.3				4	47.3	52.6	IREG	5.3	115.6				18.1	352.9	
5	35.5	40.8	ANFO	5.3	98.3				4	47.3	52.6	IREG	5.3	115.6				18.1	352.9	
5	36.8	42.1	ANFO	5.3	98.3	2.42	1.09		4	50.6	55.9	IREG	5.3	115.6	2.29	1.23		19.1	371.4	0.88
5	37.5	42.8	ANFO	5.3	98.3	2.42	1.09		4	51.3	56.6	IREG	5.3	115.6	2.17	1.29		19.6	380.7	0.91
5	36.8	42.1	ANFO	5.3	98.3	2.42	1.09		4	50.6	55.9	IREG	5.3	115.6	2.27	1.24		19.1	371.4	0.89
5	36.8	42.1	ANFO	5.3	98.3	2.42	1.09		4	50.6	55.9	IREG	5.3	115.6	2.21	1.27		19.1	371.4	0.89
5	38.3	43.6	ANFO	5.3	98.3	2.42	1.09		4	52.1	57.4	IREG	5.3	115.6	2.31	1.22		19.9	386.2	0.90
5	36.8	42.1	ANFO	5.3	98.3	2.42	1.09		4	50.6	55.9	IREG	5.3	115.6	2.21	1.27		19.1	371.4	0.89
5	37.5	42.8	ANFO	5.3	98.3	2.42			4	51.3	56.6	IREG	5.3	115.6	2.27			19.6	380.7	
5	37.5	42.8	ANFO	5.3	98.3	2.42	1.09		4	51.3	56.6	IREG	5.3	115.6	2.27	1.24		19.6	380.7	0.90
5	37.5	42.8	ANFO	5.3	98.3	2.42			4	51.3	56.6	IREG	5.3	115.6	2.17			19.6	380.7	
5	35.5	40.8	ANFO	5.3	98.3				4	47.3	52.6	IREG	5.3	115.6				18.1	352.9	
5	35.5	40.8	ANFO	5.3	98.3				4	47.3	52.6	IREG	5.3	115.6				18.1	352.9	
22				5.30	98.3	2.42	1.09		22				5.38	117.4	2.26	1.27		19.4	376.5	0.90
				5.3	98.3	2.42	1.09						5.3	115.6	1.96	1.22		18.1	352.9	0.88
				5.3	98.3	2.42	1.09						5.9	128.7	2.43	1.40		20.5	399.3	0.92
				0.00	0.00	0.00	.00						0.21	4.60	0.10	0.05		0.782	14.92	0.01

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AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STREMGTH	1.00	0.96	0.95

BLAST # 5 LOCATION N-13 HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 13 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2							
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
1	49.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.0	ANFO	4.0	41.7	2.45	0.75
2	49.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
3	49.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
4	48.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
5	48.0	7	9.5	13.0	ANFO	3.5	36.5	3.40	2.19	0.37	6	18.5	22.5	ANFO	4.0	41.7	2.45	0.75
6	48.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
7	48.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
8	49.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
9	48.0	7	9.5	13.0	ANFO	3.5	36.5	3.40	2.19	0.37	6	18.5	22.5	ANFO	4.0	41.7	2.45	0.75
10	49.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
11	54.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.39	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.81
12	59.0	7	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.55	6	21.5	27.5	ANFO	6.0	62.6	2.39	0.95
13	47.5	7	9.5	13.0	ANFO	3.5	36.5	3.40	2.19	0.37	6	18.5	22.5	ANFO	4.0	41.7	2.45	0.75
14	49.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
15	50.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.0	ANFO	4.0	41.7	2.45	0.75
16	50.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.0	ANFO	4.0	41.7	2.45	0.75
17	49.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
18	51.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.39	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.75
19	49.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.0	ANFO	4.0	41.7	2.45	0.75
20	49.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.0	ANFO	4.0	41.7	2.45	0.75
21	49.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.0	ANFO	4.0	41.7	2.45	0.75
22	47.5	7	9.5	13.0	ANFO	3.5	36.5	3.40	2.19	0.37	6	18.5	22.5	ANFO	4.0	41.7	2.45	0.75
23	48.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
24	49.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
25	48.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
26	48.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
27	49.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.81
28	47.0	7	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.34	6	17.5	21.5	ANFO	4.0	41.7	2.45	0.75
29	50.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	6	19.0	23.0	ANFO	4.0	41.7	2.45	0.75
30	48.0	7	9.5	13.0	ANFO	3.5	36.5	3.40	2.19	0.37	6	18.5	22.5	ANFO	4.0	41.7	2.45	0.75
AV.	49.37	30				3.95	41.2	3.33	2.19	0.41	30				4.32	45.0	2.44	0.78
MIN	47.0					3.0	31.3	3.15	2.06	0.34					4.0	41.7	2.39	0.75
MAX	59.0					6.0	62.6	3.50	2.45	0.55					6.0	62.6	2.45	0.95
STD	2.21					0.46	4.81	0.05	0.08	0.03					0.40	4.22	0.01	0.04

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	3869	0	1509
ACTUAL	3000	0	1800
	0.78		1.19
	0.66		1.19

BURDEN 10.3 FT WT/UNIT LENGTH 12.27 PFAREA 143.0

DECK NUMBER 3									DECK NUMBER 4									TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
5	29.5	33.5	ANFO	4.0	41.7	2.45	0.75	4	40.0	44.0	IREG	4.0	49.1	2.05	0.94	16.0	174.2	0.66
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.91	0.99	16.5	179.4	0.69
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.91	0.99	16.5	179.4	0.69
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.78	1.05	16.5	179.4	0.70
5	29.0	33.0	ANFO	4.0	41.7	2.31	0.79	4	39.0	43.0	IREG	4.0	49.1	1.91	0.99	15.5	169.0	0.66
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.78	1.05	16.5	179.4	0.70
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.78	1.05	16.5	179.4	0.70
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.91	0.99	16.5	179.4	0.69
5	29.0	33.0	ANFO	4.0	41.7	2.31	0.79	4	39.0	43.0	IREG	4.0	49.1	1.91	0.99	15.5	169.0	0.66
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.91	0.99	16.5	179.4	0.69
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.86	4	42.5	47.5	IREG	5.0	61.3	2.28	0.97	18.5	202.1	0.71
5	34.0	40.0	ANFO	6.0	62.6	2.39	0.95	4	46.5	52.5	IREG	6.0	73.6	2.27	1.07	24.0	261.3	0.84
5	29.0	33.0	ANFO	4.0	41.7	2.31	0.79	4	39.0	43.0	IREG	4.0	49.1	1.78	1.05	15.5	169.0	0.67
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.91	0.99	16.5	179.4	0.69
5	29.5	33.5	ANFO	4.0	41.7	2.45	0.75	4	40.0	44.0	IREG	4.0	49.1	2.19	0.89	16.0	174.2	0.66
5	29.5	33.5	ANFO	4.0	41.7	2.45	0.75	4	40.0	44.0	IREG	4.0	49.1	2.19	0.89	16.0	174.2	0.66
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.91	0.99	16.5	179.4	0.69
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.75	4	41.0	45.0	IREG	4.0	49.1	2.19	0.89	16.0	174.2	0.64
5	29.5	33.5	ANFO	4.0	41.7	2.45	0.75	4	40.0	44.0	IREG	4.0	49.1	2.05	0.94	16.0	174.2	0.66
5	29.5	33.5	ANFO	4.0	41.7	2.45	0.75	4	40.0	44.0	IREG	4.0	49.1	2.05	0.94	16.0	174.2	0.66
5	29.5	33.5	ANFO	4.0	41.7	2.45	0.75	4	40.0	44.0	IREG	4.0	49.1	2.05	0.94	16.0	174.2	0.66
5	29.0	33.0	ANFO	4.0	41.7	2.31	0.79	4	39.0	43.0	IREG	4.0	49.1	1.78	1.05	15.5	169.0	0.67
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.78	1.05	16.5	179.4	0.70
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.91	0.99	16.5	179.4	0.69
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.78	1.05	16.5	179.4	0.70
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.78	1.05	16.5	179.4	0.70
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.79	4	40.0	44.0	IREG	4.0	49.1	1.91	0.99	16.5	179.4	0.69
5	28.0	32.0	ANFO	4.0	41.7	2.31	0.79	4	38.0	42.0	IREG	4.0	49.1	1.91	0.99	15.0	163.8	0.66
5	29.5	33.5	ANFO	4.0	41.7	2.45	0.75	4	40.0	44.0	IREG	4.0	49.1	2.19	0.89	16.0	174.2	0.66
5	29.0	33.0	ANFO	4.0	41.7	2.31	0.79	4	39.0	43.0	IREG	4.0	49.1	1.91	0.99	15.5	169.0	0.66
30				4.10	42.8	2.35	0.79	30				4.10	50.3	1.95	0.99	16.5	179.3	0.68
				4.0	41.7	2.31	0.75					4.0	49.1	1.78	0.89	15.0	163.8	0.64
				6.0	62.6	2.45	0.95					6.0	73.6	2.28	1.07	24.0	261.3	0.84
				0.40	4.20	0.07	0.04					0.40	4.94	0.16	0.05	1.55	16.84	0.03

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AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 6 LOCATION N-8(S) HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 13 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2							
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.
1	57.5	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40		6	21.5	27.0	ANFO	5.5	57.4	2.40		
2	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.50	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.90	
3	57.0	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	6	21.0	26.5	ANFO	5.5	57.4	2.40	0.90	
4	26.0	5	9.5	12.5	ANFO	3.0	31.3	3.50	1.90	0.35	4	17.0	20.5	ANFO	3.5	36.5	2.19	0.77	
5	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.50	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.90	
6	55.0	7	9.5	14.0	ANFO	4.5	46.9	3.26	2.43	0.43	6	20.5	25.5	ANFO	5.0	52.1	2.41	0.86	
7	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.50	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.90	
8	57.0	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41		6	21.0	26.5	ANFO	5.5	57.4	2.40		
9	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40		6	21.5	27.0	ANFO	5.5	57.4	2.40		
10	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40		6	21.5	27.0	ANFO	5.5	57.4	2.40		
AV.	54.25	10				5.05	52.7	3.23	2.35	0.46	10				5.25	54.7	2.38	0.87	
MIN	26.0					3.0	31.3	3.18	1.90	0.35					3.5	36.5	2.19	0.77	
MAX	58.0					5.5	57.4	3.50	2.43	0.50					5.5	57.4	2.41	0.90	
STD	9.97					0.80	8.32	0.10	0.16	0.06					0.63	6.62	0.07	0.06	

EXPLOSIVES CONSUMPTION	ANFO	ENER	IREG
THEOR.	1585	0	736
ACTUAL	1450	0	690
	0.91		0.93
	0.77		0.93

BURDEN 10.3 FT WT/UNIT LENGTH 12.27 PFAREA 143.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
5	33.5	39.0	ANFO	5.5	57.4	2.40		4	45.5	52.5	IREG	7.0	85.9	1.93		23.5	257.9	0.85
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.90	4	45.5	52.5	IREG	7.0	85.9	2.04	1.25	23.5	257.9	0.84
5	33.0	38.5	ANFO	5.5	57.4	2.40	0.90	4	45.0	51.5	IREG	6.5	79.7	2.03	1.20	22.5	246.6	0.82
																6.5	67.8	
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.90	4	45.5	52.5	IREG	7.0	85.9	2.04	1.25	23.5	257.9	0.84
5	32.0	37.0	ANFO	5.0	52.1	2.41	0.86	4	43.5	48.5	IREG	5.0	61.3	2.28	0.97	19.5	212.5	0.73
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.90	4	45.5	52.5	IREG	7.0	85.9	2.04	1.25	23.5	257.9	0.84
5	33.0	38.5	ANFO	5.5	57.4	2.40		4	45.0	51.5	IREG	6.5	79.7	2.03		22.5	246.6	0.82
5	33.5	39.0	ANFO	5.5	57.4	2.40		4	45.5	52.5	IREG	7.0	85.9	2.04		23.5	257.9	0.84
5	33.5	39.0	ANFO	5.5	57.4	2.40		4	45.5	52.5	IREG	7.0	85.9	2.04		23.5	257.9	0.84
9				5.44	56.8	2.40	0.89	9				6.67	81.8	2.05	1.18	21.2	232.1	0.82
				5.0	52.1	2.40	0.86					5.0	61.3	1.93	0.97	6.5	67.8	0.73
				5.5	57.4	2.41	0.90					7.0	85.9	2.28	1.25	23.5	257.9	0.85
				0.17	1.74	.00	0.02					0.66	8.11	0.09	0.12	5.314	59.45	0.04

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 7 LOCATION N-7 HOLE DIAM 6 ROOM WIDTH 20 FT SPACING 13 FT ROW SEPARATION 8 FT

		DECK		NUMBER 1					DECK		NUMBER 2				
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.
1	27.0	7	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.40	4	19.0	23.0	IREG	4.0	49.1	1.64	1.22
2	53.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.43	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.89
3	54.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.43	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.89
4	45.0	7	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.39	6	16.5	19.5	ANFO	3.0	31.3	2.54	0.68
5	59.0	7	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.60	6	21.5	27.5	ANFO	6.0	62.6	2.39	1.04
7	36.0	7	9.5	12.5	ANFO	3.0	31.3	3.50	2.22	0.36	6	18.0	21.0	ANFO	3.0	31.3	2.22	0.76
8	56.0	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.52	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.94
9	56.0	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.52	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.94
10	36.5	7	9.5	13.0	ANFO	3.5	36.5	3.40	2.19	0.41	6	18.5	22.5	ANFO	4.0	41.7	2.16	0.91
SW1	20.0	7	13.0	18.0	ANFO	5.0	52.1											
SW2	20.0	7	13.0	18.0	ANFO	5.0	52.1											
SW3	20.0	7	13.0	18.0	ANFO	5.0	52.1											
SW4	20.0	7	13.0	18.0	ANFO	5.0	52.1											
SW5	25.0	7	13.0	16.0	ANFO	3.0	31.3				6	18.0	22.0	ANFO	4.0	41.7		
SW6	25.0	7	13.0	16.0	ANFO	3.0	31.3				6	18.0	22.0	ANFO	4.0	41.7		
SW6	25.0	7	13.0	16.0	ANFO	3.0	31.3				6	18.0	22.0	ANFO	4.0	41.7		
SW7	25.0	7	13.0	16.0	ANFO	3.0	31.3				4	18.0	22.0	ANFO	4.0	41.7		
SW8	25.0	7	13.0	16.0	ANFO	3.0	31.3				7	18.0	22.0	ANFO	4.0	41.7		
SW9	25.0	7	13.0	16.0	ANFO	3.0	31.3				7	18.0	22.0	ANFO	4.0	41.7		
AV.	34.37	19				3.95	41.2	3.33	2.20	0.45	15				4.20	44.3	2.29	0.92
MIN	20.0					3.0	31.3	3.15	1.75	0.36					3.0	31.3	1.64	0.68
MAX	59.0					6.0	62.6	3.50	2.45	0.60					6.0	62.6	2.54	1.22
SD.	14.57					1.01	10.6	0.12	0.22	0.08					0.75	7.9	0.27	0.15

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	1710	0	528
ACTUAL	1550	0	480
	0.90		0.90
	0.77		0.90

BURDEN 10.3 FT WT/UNIT LENGTH 12.27 PFAREA 130.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
																7.5	85.6	0.66
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.94	4	42.5	47.5	IREG	5.0	61.3	2.16	1.11	18.5	202.1	0.78
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.94	4	42.5	47.5	IREG	5.0	61.3	2.28	1.06	18.5	202.1	0.78
5	26.0	30.0	ANFO	4.0	41.7	2.31	0.87	4	36.0	40.0	IREG	4.0	49.1	1.91	1.09	14.0	153.3	0.71
5	34.0	40.0	ANFO	6.0	62.6	2.39	1.04	4	46.5	52.5	IREG	6.0	73.6	2.27	1.17	24.0	261.3	0.92
4	26.5	30.5	IREG	4.0	49.1	2.05	1.03									10.0	111.6	0.64
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.94	4	44.0	49.5	IREG	5.5	67.5	2.27	1.12	20.5	223.9	0.83
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.94	4	44.0	49.5	IREG	5.5	67.5	2.27	1.12	20.5	223.9	0.83
5	28.0	32.0	IREG	4.0	49.1	1.78	1.15									11.5	127.3	0.72
8				4.75	51.4	2.27	0.98	6				5.17	63.4	2.19	1.11	16.1	176.8	0.76
				4.0	41.7	1.78	0.87					4.0	49.1	1.91	1.06	7.5	85.6	0.64
				6.0	62.6	2.41	1.15					6.0	73.6	2.28	1.17	24.0	261.3	0.92
				0.71	5.75	0.24	0.09					0.68	8.4	0.15	0.04	5.583	59.61	0.09

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 8 LOCATION N-12 HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 15 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2							
#	DEPTH	DEL. #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
1	48.0	7	9.5	13.0	ANFO	3.5	36.5	3.40	2.19		6	18.5	22.5	ANFO	4.0	41.7	2.45	
2	48.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	6	19.0	23.5	ANFO	4.5	46.9	2.43	
3	54.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.70
4	54.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.70
5	53.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
6	52.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
7	53.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.70
8	54.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.70
9	52.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
10	53.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
11	51.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
12	52.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
13	52.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
14	52.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
15	52.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
16	51.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
17	50.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	6	19.0	23.0	ANFO	4.0	41.7	2.45	0.65
18	50.5	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
19	49.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	6	19.0	23.5	ANFO	4.5	46.9	2.43	0.70
20	52.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
21	47.0	7	9.5	12.5	ANFO	3.0	31.3	3.50	2.06		6	17.5	21.5	ANFO	4.0	41.7	2.45	
AV.	51.55	21				3.93	41.0	3.33	2.38	0.34	21				4.14	43.2	2.44	0.66
MIN	47.0					3.0	31.3	3.32	2.06	0.34					4.0	41.7	2.43	0.65
MAX	54.0					4.0	41.7	3.50	2.45	0.36					4.5	46.9	2.45	0.70
STD	2.03					0.24	2.49	0.04	0.13	0.01					0.23	2.41	0.01	0.02

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	2711	0	1172
ACTUAL	2400	0	1200
	0.89		1.02
	0.75		1.02

BURDEN 11.0 FT WT/UNIT LENGTH 12.27 PFAREA 165.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL	
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
5	29.0	33.0	ANFO	4.0	41.7	2.31		4	39.0	43.0	IREG	4.0	49.1	1.91		15.5	169.0	
5	30.0	34.0	ANFO	4.0	41.7	2.31		4	40.0	44.0	IREG	4.0	49.1	1.78		16.5	179.4	
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.74	4	42.5	47.5	IREG	5.0	61.3	2.28	0.84	18.5	202.1	0.61
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.74	4	42.5	47.5	IREG	5.0	61.3	2.28	0.84	18.5	202.1	0.61
5	30.5	35.0	ANFO	4.5	46.9	2.43	0.70	4	41.5	46.5	IREG	5.0	61.3	2.28	0.84	17.5	191.7	0.59
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.65	4	41.0	45.5	IREG	4.5	55.2	2.30	0.79	16.5	180.3	0.57
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.74	4	42.5	47.5	IREG	5.0	61.3	2.16	0.88	18.5	202.1	0.62
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.74	4	42.5	47.5	IREG	5.0	61.3	2.28	0.84	18.5	202.1	0.61
5	30.5	35.0	ANFO	4.5	46.9	2.43	0.70	4	41.5	46.5	IREG	5.0	61.3	2.16	0.88	17.5	191.7	0.60
5	30.5	35.0	ANFO	4.5	46.9	2.43	0.70	4	41.5	46.5	IREG	5.0	61.3	2.28	0.84	17.5	191.7	0.59
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.65	4	41.0	45.5	IREG	4.5	55.2	2.17	0.83	16.5	180.3	0.57
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.65	4	41.0	45.5	IREG	4.5	55.2	2.30	0.79	16.5	180.3	0.57
5	30.5	35.0	ANFO	4.5	46.9	2.43	0.70	4	41.5	46.5	IREG	5.0	61.3	2.16	0.88	17.5	191.7	0.60
5	30.5	35.0	ANFO	4.5	46.9	2.43	0.70	4	41.5	46.5	IREG	5.0	61.3	2.16	0.88	17.5	191.7	0.60
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.65	4	41.0	45.5	IREG	4.5	55.2	2.30	0.79	16.5	180.3	0.57
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.65	4	41.0	45.0	IREG	4.0	49.1	2.19	0.77	16.0	174.2	0.56
5	29.5	33.5	ANFO	4.0	41.7	2.45	0.65	4	40.0	44.0	IREG	4.0	49.1	2.19	0.77	16.0	174.2	0.57
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.65	4	41.0	45.0	IREG	4.0	49.1	2.05	0.81	16.0	174.2	0.56
5	30.0	34.0	ANFO	4.0	41.7	2.31	0.68	4	40.0	44.0	IREG	4.0	49.1	1.91	0.86	16.5	179.4	0.60
5	30.5	34.5	ANFO	4.0	41.7	2.45	0.65	4	41.0	45.5	IREG	4.5	55.2	2.30	0.79	16.5	180.3	0.57
5	28.0	32.0	ANFO	4.0	41.7	2.31		4	38.0	42.0	IREG	4.0	49.1	1.91		15.0	163.8	
21				4.31	44.9	2.41	0.69	21				4.55	55.8	2.16	0.83	16.9	184.9	0.59
				4.0	41.7	2.31	0.65					4.0	49.1	1.78	0.77	15.0	163.8	0.56
				5.0	52.1	2.45	0.74					5.0	61.3	2.30	0.88	18.5	202.1	0.62
				0.40	4.20	0.05	0.04					0.44	5.45	0.16	0.04	1.03	11.45	0.02

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 9 LOCATION NC-7 HOLE DIAM 6 ROOM WIDTH 12 FT SPACING 12 FT ROW SEPARATION 0 FT

		DECK NUMBER 1							DECK NUMBER 2						
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
1	45.0	7	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.36	6	16.5	19.5	ANFO	3.0	31.3	2.54	0.62
2	44.5	7	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.36	6	16.5	19.5	ANFO	3.0	31.3	2.54	0.62
3	44.0	7	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.36	6	16.5	19.5	ANFO	3.0	31.3	2.22	0.69
4	46.0	7	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.34	6	17.5	20.5	ANFO	3.0	31.3	2.54	0.62
5	46.0	7	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.34	6	17.5	20.5	ANFO	3.0	31.3	2.54	0.62
6	46.5	7	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.34	6	17.5	21.5	ANFO	4.0	41.7	2.45	0.74
7	45.0	7	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.36	6	16.5	19.5	ANFO	3.0	31.3	2.54	0.62
8	44.5	7	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.36	6	16.5	19.5	ANFO	3.0	31.3	2.54	0.62
9	44.5	7	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.36	6	16.5	19.5	ANFO	3.0	31.3	2.54	0.62
10	44.5	7	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.36	6	16.5	19.5	ANFO	3.0	31.3	2.54	0.62
11		7	9.5	13.0	ANFO	3.5	36.5				6	18.0	22.0	IREG	4.0	49.1		
12		7	9.5	13.0	ANFO	3.5	36.5				6	18.0	22.0	IREG	4.0	49.1		
AV.	45.05	12				3.08	32.2	3.50	1.84	0.35	12				3.25	35.1	2.50	0.64
MIN	44.0					3.0	31.3	3.50	1.75	0.34					3.0	31.3	2.22	0.62
MAX	46.5					3.5	36.5	3.50	2.06	0.36					4.0	49.1	2.54	0.74
STD	0.83					0.19	2.03	0.00	0.15	0.01					0.45	7.17	0.10	0.04

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	1126	0	589
ACTUAL	1150	0	630
	1.02		1.07
	0.87		1.07

BURDEN 0.0 FT WT/UNIT LENGTH 12.27 PFAREA 144.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
5	26.0	30.0	ANFO	4.0	41.7	2.31	0.78	4	36.0	40.0	IREG	4.0	49.1	1.91	0.98	14.0	153.3	0.64
5	26.0	30.0	ANFO	4.0	41.7	2.31	0.78	4	36.0	40.0	IREG	4.0	49.1	1.78	1.04	14.0	153.3	0.65
5	25.0	29.0	ANFO	4.0	41.7	2.31	0.78	4	35.0	39.0	IREG	4.0	49.1	1.91	0.98	14.0	153.3	0.65
5	27.0	31.0	ANFO	4.0	41.7	2.31	0.78	4	37.0	41.0	IREG	4.0	49.1	1.91	0.98	14.0	153.3	0.63
5	27.0	31.0	ANFO	4.0	41.7	2.31	0.78	4	37.0	41.0	IREG	4.0	49.1	1.91	0.98	14.0	153.3	0.63
5	28.0	32.0	ANFO	4.0	41.7	2.31	0.78	4	38.0	42.0	IREG	4.0	49.1	1.78	1.04	15.0	163.8	0.66
5	26.0	30.0	ANFO	4.0	41.7	2.31	0.78	4	36.0	40.0	IREG	4.0	49.1	1.91	0.98	14.0	153.3	0.64
5	26.0	30.0	ANFO	4.0	41.7	2.31	0.78	4	36.0	40.0	IREG	4.0	49.1	1.78	1.04	14.0	153.3	0.65
5	26.0	30.0	ANFO	4.0	41.7	2.31	0.78	4	36.0	40.0	IREG	4.0	49.1	1.78	1.04	14.0	153.3	0.65
5	26.0	30.0	ANFO	4.0	41.7	2.31	0.78	5	36.0	40.0	IREG	4.0	49.1	1.78	1.04	14.0	153.3	0.65
																7.5		
																7.5		
10				4.00	41.7	2.31	0.78	10				4.00	49.1	1.84	1.01	13.0	154.4	0.64
				4.0	41.7	2.31	0.78					4.0	49.1	1.78	0.98	7.5	153.3	0.63
				4.0	41.7	2.31	0.78					4.0	49.1	1.91	1.04	15.0	163.8	0.66
				0.00	0.00	.00	.00					0.00	0.00	0.07	0.03	2.58	3.30	0.01

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

	ANFO	IREG	ENER
EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 10 LOCATION S-1(N) HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 13 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2						
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.
9	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.50	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.90
10	59.0	7	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.55	6	21.5	27.5	ANFO	6.0	62.6	2.39	0.95
11	59.0	7	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.55	6	21.5	27.5	ANFO	6.0	62.6	2.39	0.95
12	59.0	7	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.55	6	21.5	27.5	ANFO	6.0	62.6	2.39	0.95
13	59.0	7	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.55	6	21.5	27.5	ANFO	6.0	62.6	2.39	0.95
14	61.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.79
15	63.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.79
16	64.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.79
17	65.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.79
18	66.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.79
19	66.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16		7	19.0	23.0	ANFO	4.0	41.7	2.31	
20	66.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.79
21	66.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.79
22	65.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.79
23	61.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.79
24	60.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.79
25	59.0	7	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.55	6	21.5	27.5	ANFO	6.0	62.6	2.39	0.95
26	59.0	7	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.55	6	21.5	27.5	ANFO	6.0	62.6	2.39	0.95
27	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.50	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.90
28	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.50	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.90
39	66.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16		7	19.0	23.0	ANFO	4.0	41.7	2.31	
40	66.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16		7	19.0	23.0	ANFO	4.0	41.7	2.31	
41		8	9.5	13.5	ANFO	4.0	41.7				7	19.0	23.0	IREG	4.0	49.1		
42		8	9.5	13.5	ANFO	4.0	41.7				7	19.0	23.0	IREG	4.0	49.1		
43		8	9.5	13.5	ANFO	4.0	41.7				7	19.0	23.0	IREG	4.0	49.1		
44		8	9.5	13.5	ANFO	4.0	41.7				7	19.0	23.0	IREG	4.0	49.1		
AV.	61.95	26				4.63	48.3	3.26	2.22	0.47	26				4.63	49.5	2.34	0.86
MIN	58.0					4.0	41.7	3.15	2.16	0.41					4.0	41.7	2.31	0.79
MAX	66.0					6.0	62.6	3.32	2.40	0.55					6.0	62.6	2.40	0.95
STD	3.29					0.90	9.39	0.08	0.08	0.06					0.90	8.94	0.04	0.07

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	4322	0	1326
ACTUAL	4250	0	1650
	0.98		0.86
	0.84		0.86

BURDEN 10.3 FT WT/UNIT LENGTH 12.27 PFAREA 143.0

DECK NUMBER 3								DECK NUMBER 4								DECK		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.90	4	45.5	51.5	IREG	6.0	73.6	2.27	1.07			
5	34.0	40.0	ANFO	6.0	62.6	2.39	0.95	4	46.5	52.5	IREG	6.0	73.6	2.27	1.07			
5	34.0	40.0	ANFO	6.0	62.6	2.39	0.95	4	46.5	52.5	IREG	6.0	73.6	2.27	1.07			
5	34.0	40.0	ANFO	6.0	62.6	2.39	0.95	4	46.5	52.5	IREG	6.0	73.6	2.27	1.07			
5	34.0	40.0	ANFO	6.0	62.6	2.39	0.95	4	46.5	52.5	IREG	6.0	73.6	2.27	1.07			
6	29.0	33.0	ANFO	4.0	41.7	2.31	0.79	5	39.0	44.0	ANFO	5.0	52.1	2.28	0.89	4	50.0	56.0
6	29.0	34.0	ANFO	5.0	52.1	2.28	0.89	5	40.0	46.0	ANFO	6.0	62.6	2.27	0.98	4	52.0	58.0
6	29.0	35.0	ANFO	6.0	62.6	2.27	0.98	5	41.0	47.0	ANFO	6.0	62.6	2.27	0.98	4	53.0	59.0
6	29.0	35.0	ANFO	6.0	62.6	2.27	0.98	5	41.0	47.5	ANFO	6.5	67.8	2.27	1.02	4	53.5	60.0
6	29.0	35.0	ANFO	6.0	62.6	2.27	0.98	5	41.0	47.5	ANFO	6.5	67.8	2.27	1.02	4	53.5	61.0
6	29.0	35.0	ANFO	6.0	62.6	2.27		5	41.0	47.5	ANFO	6.5	67.8	2.27		4	53.5	61.0
6	29.0	35.0	ANFO	6.0	62.6	2.27	0.98	5	41.0	47.5	ANFO	6.5	67.8	2.27	1.02	4	53.5	61.0
6	29.0	35.0	ANFO	6.0	62.6	2.27	0.98	5	41.0	47.5	ANFO	6.5	67.8	2.27	1.02	4	53.5	61.0
6	29.0	35.0	ANFO	6.0	62.6	2.27	0.98	5	41.0	47.5	ANFO	6.5	67.8	2.27	1.02	4	53.5	60.0
6	29.0	33.0	ANFO	4.0	41.7	2.31	0.79	5	39.0	44.0	ANFO	5.0	52.1	2.28	0.89	4	50.0	56.0
6	29.0	33.0	ANFO	4.0	41.7	2.31	0.79	5	39.0	44.0	ANFO	5.0	52.1	2.28	0.89	4	50.0	55.0
5	34.0	40.0	ANFO	6.0	62.6	2.39	0.95	4	46.5	52.5	IREG	6.0	73.6	2.27	1.07			
5	34.0	40.0	ANFO	6.0	62.6	2.39	0.95	4	46.5	52.5	IREG	6.0	73.6	2.27	1.07			
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.90	4	45.5	51.5	IREG	6.0	73.6	2.27	1.07			
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.90	4	45.5	51.5	IREG	6.0	73.6	2.27	1.07			
6	29.0	35.0	ANFO	6.0	62.6	2.27		5	41.0	47.5	ANFO	6.5	79.7	2.15		4	53.5	61.0
6	29.0	35.0	ANFO	6.0	62.6	2.27		5	41.0	47.5	ANFO	6.5	79.7	2.15		4	53.5	61.0
22				5.61	58.5	2.33	0.92	22				6.05	68.6	2.26	1.02	13		
				4.0	41.7	2.27	0.79					5.0	52.1	2.15	0.89			
				6.0	62.6	2.40	0.98					6.5	79.7	2.28	1.07			
				0.71	7.36	0.06	0.07					0.49	8.06	0.04	0.06			

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AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

NUMBER S					TOTAL		
EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
					22.5	245.7	0.80
					24.0	261.3	0.84
					24.0	261.3	0.84
					24.0	261.3	0.84
					24.0	261.3	0.84
IREG	6.0	73.6	1.91	1.21	23.0	250.3	0.78
IREG	6.0	73.6	1.91	1.21	25.0	271.7	0.81
IREG	6.0	73.6	1.91	1.21	26.0	282.2	0.83
IREG	6.5	79.7	1.92	1.26	27.0	293.5	0.85
IREG	7.5	92.0	1.94	1.33	28.0	305.8	0.87
IREG	7.5	92.0	1.94		28.0	305.8	
IREG	7.5	92.0	1.94	1.33	28.0	305.8	0.87
IREG	7.5	92.0	1.94	1.33	28.0	305.8	0.87
IREG	6.5	79.7	1.92	1.26	27.0	293.5	0.85
IREG	6.0	73.6	1.91	1.21	23.0	250.3	0.78
IREG	5.0	61.3	1.90	1.11	22.0	238.6	0.75
					24.0	261.3	0.84
					24.0	261.3	0.84
					22.5	245.7	0.80
					22.5	245.7	0.80
IREG	7.5	92.0	1.94		28.0	317.7	
IREG	7.5	92.0	1.94		28.0	317.7	
					8.0	90.8	
					8.0	90.8	
					8.0	90.8	
					8.0	90.8	
	6.69	82.1	1.92	1.25	22.5	246.5	0.83
	5.0	61.3	1.90	1.11	8.0	90.8	0.75
	7.5	92.0	1.94	1.33	28.0	317.7	0.87
	0.85	10.5	0.02	0.07	6.62	71.82	0.03

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 11 LOCATION S-12 HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 15 FT ROW SEPARATION 8 FT

		DECK NUMBER 1							DECK NUMBER 2						
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.
1	44.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75		7	16.5	19.5	ANFO	3.0	31.3	2.22		
2	43.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75		7	16.5	19.5	ANFO	3.0	31.3	2.22		
3	46.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	7	17.5	20.5	ANFO	3.0	31.3	2.54	0.54	
4	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
5	35.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	7	17.5	20.5	ANFO	3.0	31.3	2.06	0.64	
6	20.0	6	9.5	15.0	ANFO	5.5	57.4												
7	39.0	8	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.68	
8	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
9	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
10	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
11	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
12	40.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	7	20.0	24.0	ANFO	4.0	41.7	2.31	0.68	
13	40.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	7	20.0	24.0	ANFO	4.0	41.7	2.31	0.68	
14	39.0	8	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	7	19.0	23.0	ANFO	4.0	41.7	2.31	0.68	
16	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
17	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
18	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
19	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
20	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
21	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
22	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
23	32.0	6	9.5	15.0	ANFO	5.5	57.4												
24	22.0	6	9.5	16.0	ANFO	6.5	67.8												
25	41.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
26	45.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.54	0.54	
27	43.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60	
28	43.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75		7	16.5	19.5	ANFO	3.0	31.3	2.22		
29	25.0	8	10.0	14.0	ANFO	4.0	41.7				7	20.0	24.0	ANFO	4.0	41.7			
30	25.0	8	10.0	14.0	ANFO	4.0	41.7				7	20.0	24.0	ANFO	4.0	41.7			
31	25.0	8	10.0	14.0	ANFO	4.0	41.7				7	20.0	24.0	ANFO	4.0	41.7			
32	25.0	8	10.0	14.0	ANFO	4.0	41.7				7	20.0	24.0	ANFO	4.0	41.7			
AV.	37.55	31				3.50	36.5	3.47	1.88	0.31	28				3.29	34.3	2.26	0.61	
MIN	20.0					3.0	31.3	3.32	1.75	0.29					3.0	31.3	2.06	0.54	
MAX	46.0					6.5	67.8	3.50	2.45	0.34					4.0	41.7	2.54	0.68	
STD	7.41					0.89	9.23	0.05	0.25	0.01					0.46	4.80	0.10	0.04	

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	3682	0	0.0
ACTUAL	3450	0	0.0
	0.94		

BURDEN 11.0 FT WT/UNIT LENGTH 12.27 PFAREA 165.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
6	25.0	29.0	ANFO	4.0	41.7	2.08		5	34.2	39.0	ANFO	4.8	50.1	2.01		14.8	154.3	
6	25.0	29.0	ANFO	4.0	41.7	1.79		5	33.2	38.0	ANFO	4.8	50.1	2.01		14.8	154.3	
6	27.0	31.0	ANFO	4.0	41.7	2.08	0.74	5	36.2	41.0	ANFO	4.8	50.1	2.01	0.84	14.8	154.3	0.55
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	25.5	29.5	ANFO	4.0	41.7	2.16	0.72									10.0	104.3	0.49
																5.5	57.4	0.47
6	29.0	33.0	ANFO	4.0	41.7	2.31	0.68									11.5	119.9	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	30.0	34.0	ANFO	4.0	41.7	2.31	0.68									12.0	125.1	0.51
6	30.0	34.0	ANFO	4.0	41.7	2.31	0.68									12.0	125.1	0.51
6	29.0	33.0	ANFO	4.0	41.7	2.31	0.68									11.5	119.9	0.50
6	25.0	28.0	ANFO	3.0	31.3	1.49	0.83	5	31.2	36.0	ANFO	4.8	50.1	2.01	0.84	13.8	143.9	0.57
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
																5.5	57.4	
																6.5	67.8	
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	5	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	26.0	30.0	ANFO	4.0	41.7	2.08	0.74	5	35.2	40.0	ANFO	4.8	50.1	2.01	0.84	14.8	154.3	0.56
6	25.0	29.0	ANFO	4.0	41.7	1.79	0.83	5	33.2	38.0	ANFO	4.8	50.1	2.01	0.84	14.8	154.3	0.59
6	25.0	29.0	ANFO	4.0	41.7	1.79		5	33.2	38.0	ANFO	4.8	50.1	2.01		14.8	154.3	
																8.0	83.4	
																8.0	83.4	
																8.0	83.4	
																8.0	83.4	
24				3.46	36.1	2.05	0.68	19				3.66	38.2	2.04	0.69	11.4	118.8	0.51
				3.0	31.3	1.49	0.64					3.0	31.3	2.01	0.64	5.5	57.4	0.47
				4.0	41.7	2.31	0.83					4.8	50.1	2.06	0.84	14.8	154.3	0.59
				0.51	5.31	0.19	0.06					0.89	9.30	0.03	0.09	2.72	28.37	0.03

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AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 12 LOCATION N-8(N) HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 15 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2							
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.
1	25.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
2	54.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	7	20.0	24.5	ANFO	4.5	46.9	2.43	0.70
3	58.5	8	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.48	7	21.5	27.5	ANFO	6.0	62.6	2.39	0.82
4	58.5	8	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.48	7	21.5	27.5	ANFO	6.0	62.6	2.39	0.82
5	58.0	8	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	7	21.5	27.0	ANFO	5.5	57.4	2.40	0.78
6	56.0	8	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	7	21.0	26.0	ANFO	5.0	52.1	2.41	0.74
7	53.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	7	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
8	56.0	8	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	7	21.0	26.0	ANFO	5.0	52.1	2.41	0.74
9	56.0	8	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	7	21.0	26.0	ANFO	5.0	52.1	2.41	0.74
11	58.0	8	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	7	21.5	27.0	ANFO	5.5	57.4	2.40	0.78
12	56.0	8	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	7	21.0	26.0	ANFO	5.0	52.1	2.41	0.74
13	56.0	8	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	7	21.0	26.0	ANFO	5.0	52.1	2.41	0.74
14	59.0	8	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.48	7	21.5	27.5	ANFO	6.0	62.6	2.39	0.82
15	59.0	8	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.48	7	21.5	27.5	ANFO	6.0	62.6	2.39	0.82
16	58.0	8	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	7	21.5	27.0	ANFO	5.5	57.4	2.40	0.78
17	58.0	8	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	7	21.5	27.0	ANFO	5.5	57.4	2.40	0.78
18	45.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	7	16.5	19.5	ANFO	3.0	31.3	2.54	0.54
AV.	54.35	17				5.00	52.1	3.24	2.30	0.41	17				5.03	52.4	2.40	0.74
MIN	25.0					3.0	31.3	3.15	1.75	0.31					3.0	31.3	2.22	0.54
MAX	59.0					6.0	62.6	3.50	2.45	0.48					6.0	62.6	2.54	0.82
STD	8.27					0.97	10.1	0.11	0.22	0.06					0.94	9.84	0.06	0.08

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	3608	0	0.0
ACTUAL	3200	0	0.0
	0.89		
	0.75		

BURDEN 11.0 FT WT/UNIT LENGTH 12.27 PFAREA 165.0

DECK NUMBER 3									DECK NUMBER 4									TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.		DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.		LENGTH FT	WEIGHT LB	P.F.
																		6.0	62.6	0.41
6	31.0	36.0	ANFO	5.0	52.1	2.41	0.74		5	42.5	47.5	ANFO	5.0	52.1	2.41	0.74		18.5	192.9	0.58
6	34.0	40.0	ANFO	6.0	62.6	2.39	0.82		5	46.5	52.5	ANFO	6.0	62.6	2.27	0.85		24.0	250.3	0.70
6	34.0	40.0	ANFO	6.0	62.6	2.39	0.82		5	46.5	52.5	ANFO	6.0	62.6	2.27	0.85		24.0	250.3	0.70
6	33.5	39.0	ANFO	5.5	57.4	2.40	0.78		5	45.5	51.5	ANFO	6.0	62.6	2.39	0.82		22.5	234.6	0.66
6	32.5	37.5	ANFO	5.0	52.1	2.41	0.74		5	44.0	49.5	ANFO	5.5	57.4	2.40	0.78		20.5	213.8	0.62
6	30.5	35.0	ANFO	4.5	46.9	2.43	0.70		5	41.5	46.5	ANFO	5.0	52.1	2.41	0.74		17.5	182.5	0.56
6	32.5	37.5	ANFO	5.0	52.1	2.41	0.74		5	44.0	49.5	ANFO	5.5	57.4	2.40	0.78		20.5	213.8	0.62
6	32.5	37.5	ANFO	5.0	52.1	2.41	0.74		5	44.0	49.5	ANFO	5.5	57.4	2.40	0.78		20.5	213.8	0.62
6	33.5	39.0	ANFO	5.5	57.4	2.40	0.78		5	45.5	52.0	ANFO	6.5	67.8	2.27	0.89		23.0	239.8	0.68
6	32.5	37.5	ANFO	5.0	52.1	2.41	0.74		5	44.0	49.5	ANFO	5.5	57.4	2.40	0.78		20.5	213.8	0.62
6	32.5	37.5	ANFO	5.0	52.1	2.41	0.74		5	44.0	49.5	ANFO	5.5	57.4	2.40	0.78		20.5	213.8	0.62
6	34.0	40.0	ANFO	6.0	62.6	2.39	0.82		5	46.5	53.0	ANFO	6.5	67.8	2.27	0.89		24.5	255.5	0.71
6	34.0	40.0	ANFO	6.0	62.6	2.39	0.82		5	46.5	53.0	ANFO	6.5	67.8	2.27	0.89		24.5	255.5	0.71
6	33.5	39.0	ANFO	5.5	57.4	2.40	0.78		5	45.5	51.5	ANFO	6.0	62.6	2.39	0.82		22.5	234.6	0.66
6	33.5	39.0	ANFO	5.5	57.4	2.40	0.78		5	45.5	51.5	ANFO	6.0	62.6	2.39	0.82		22.5	234.6	0.66
6	26.0	30.0	ANFO	4.0	41.7	2.31	0.68		5	36.0	40.0	ANFO	4.0	41.7	2.02	0.76		14.0	146.0	0.53
16				5.28	55.1	2.40	0.76		16				5.69	59.3	2.33	0.81		20.4	212.2	0.63
				4.0	41.7	2.31	0.68						4.0	41.7	2.02	0.74		6.0	62.6	0.41
				6.0	62.6	2.43	0.82						6.5	67.8	2.41	0.89		24.5	255.5	0.71
				0.58	6.01	0.03	0.04						0.66	6.83	0.10	0.05		4.61	48.06	0.08

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST 13 LOCATION N-10 HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 15 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2							
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.
1	53.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45		6	20.0	24.0	ANFO	4.0	41.7	2.45		
2	53.0	7	10.0	15.0	ANFO	5.0	52.1	3.35	2.28		6	21.0	25.0	ANFO	4.0	41.7	2.45		
3	52.0	7	10.0	16.0	ANFO	6.0	62.6	3.28	2.14		6	21.5	25.5	ANFO	4.0	41.7	2.45		
4	44.0	7	9.5	12.5	ANFO	3.0	31.3	3.50	1.75		6	16.5	19.5	ANFO	3.0	31.3	2.22		
5	54.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.70	
6	54.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.70	
7	54.0	7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.5	ANFO	4.5	46.9	2.43	0.70	
8	56.0	7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.74	
9	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.78	
10	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.78	
11	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.78	
12	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.78	
13	58.5	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.78	
19	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.78	
20	59.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.5	ANFO	6.0	62.6	2.39	0.82	
21	59.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.5	ANFO	6.0	62.6	2.39	0.82	
22	58.5	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.78	
23	59.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.5	ANFO	6.0	62.6	2.39	0.82	
24	58.0	7	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	6	21.5	27.0	ANFO	5.5	57.4	2.40	0.78	
25	56.0	7	9.5	15.5	ANFO	6.0	62.6	3.15	2.14	0.49	6	21.0	26.0	ANFO	5.0	52.1	2.41	0.74	
26	54.0	7	10.0	15.0	ANFO	5.0	52.1	3.35	2.28	0.41	6	21.0	25.5	ANFO	4.5	46.9	2.43	0.70	
27	53.0	7	10.0	15.0	ANFO	5.0	52.1	3.35	2.28	0.41	6	21.0	25.0	ANFO	4.0	41.7	2.45	0.65	
28	53.0	7	10.0	15.0	ANFO	5.0	52.1	3.35	2.28	0.41	6	21.0	25.0	ANFO	4.0	41.7	2.45	0.65	
23	55.57	23				5.07	52.8	3.25	2.34	0.42	23				4.91	51.2	2.41	0.75	
	44.0					3.0	31.3	3.15	1.75	0.34					3.0	31.3	2.22	0.65	
	59.0					6.0	62.6	3.50	2.45	0.49					6.0	62.6	2.45	0.82	
	3.51					0.8	7.9	0.09	0.16	0.04					0.8	8.6	0.05	0.05	

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	5099	0	0.0
ACTUAL	5200	0	0.0
	1.02		
	0.87		

BURDEN 11.0 FT WT/UNIT LENGTH 12.27 PFAREA 165.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
5	30.5	35.0	ANFO	4.5	46.9	2.43		4	41.5	47.5	ANFO	6.0	62.6	2.14		18.5	192.9	
5	31.5	36.0	ANFO	4.5	46.9	2.43		4	42.5	47.5	ANFO	5.0	52.1	2.14		18.5	192.9	
5	32.0	36.0	ANFO	4.0	41.7	2.45		4	42.5	47.0	ANFO	4.5	46.9	2.01		18.5	192.9	
5	25.0	29.0	ANFO	4.0	41.7	2.31		4	35.0	39.0	ANFO	4.0	41.7	2.02		14.0	146.0	
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.74	4	42.5	48.5	ANFO	6.0	62.6	2.14	0.89	19.5	203.3	0.62
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.74	4	42.5	48.5	ANFO	6.0	62.6	2.14	0.89	19.5	203.3	0.62
5	31.0	36.0	ANFO	5.0	52.1	2.41	0.74	4	42.5	48.5	ANFO	6.0	62.6	2.14	0.89	19.5	203.3	0.62
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.74	4	44.0	49.5	ANFO	5.5	57.4	2.40	0.78	20.5	213.8	0.62
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.78	4	45.5	52.5	ANFO	7.0	73.0	2.15	0.96	23.5	245.1	0.69
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.78	4	45.5	52.5	ANFO	7.0	73.0	2.15	0.96	23.5	245.1	0.69
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.78	4	45.5	52.5	ANFO	7.0	73.0	2.15	0.96	23.5	245.1	0.69
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.78	4	45.5	52.5	ANFO	7.0	73.0	2.15	0.96	23.5	245.1	0.69
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.78	4	45.5	53.0	ANFO	7.5	78.2	2.16	0.98	24.0	250.3	0.70
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.78	4	45.5	52.5	ANFO	7.0	73.0	2.15	0.96	23.5	245.1	0.69
5	34.0	40.0	ANFO	6.0	62.6	2.39	0.82	4	46.5	53.5	ANFO	7.0	73.0	2.15	0.96	24.5	255.5	0.71
5	34.0	40.0	ANFO	6.0	62.6	2.39	0.82	4	46.5	53.5	ANFO	7.0	73.0	2.15	0.96	24.5	255.5	0.71
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.78	4	45.5	53.0	ANFO	7.5	78.2	2.16	0.98	24.0	250.3	0.70
5	34.0	40.0	ANFO	6.0	62.6	2.39	0.82	4	46.5	53.5	ANFO	7.0	73.0	2.15	0.96	24.5	255.5	0.71
5	33.5	39.0	ANFO	5.5	57.4	2.40	0.78	4	45.5	52.5	ANFO	7.0	73.0	2.15	0.96	23.5	245.1	0.69
5	32.5	37.5	ANFO	5.0	52.1	2.41	0.74	4	44.0	49.5	ANFO	5.5	57.4	2.40	0.78	21.5	224.2	0.66
5	32.0	37.0	ANFO	5.0	52.1	2.41	0.74	4	43.5	48.5	ANFO	5.0	52.1	2.14	0.81	19.5	203.3	0.62
5	31.5	36.0	ANFO	4.5	46.9	2.43	0.70	4	42.5	47.5	ANFO	5.0	52.1	2.14	0.81	18.5	192.9	0.60
5	31.5	36.0	ANFO	4.5	46.9	2.43	0.70	4	42.5	47.5	ANFO	5.0	52.1	2.14	0.81	18.5	192.9	0.60
23				5.13	53.5	2.40	0.77	23				6.15	64.2	2.16	0.91	21.3	221.7	0.66
				4.0	41.7	2.31	0.70					4.0	41.7	2.01	0.78	14.0	146.0	0.60
				6.0	62.6	2.45	0.82					7.5	78.2	2.40	0.98	24.5	255.5	0.71
				0.6	6.1	0.03	0.04					1.0	10.8	0.09	0.07	2.86	29.86	0.04

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AML PROJECT - BLAST SUMMARY : TECH[illegible] DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 14 LOCATION S-11(N) HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 15 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2							
#	DEPTH	DEL. #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
1	44.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75		8	16.5	19.5	ANFO	3.0	31.3	2.22	
2	45.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75		8	16.5	19.5	ANFO	3.0	31.3	2.54	
3	44.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75		8	16.5	19.5	ANFO	3.0	31.3	2.54	
4	48.5	9	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	8	19.0	23.5	ANFO	4.5	46.9	2.43	0.70
5	47.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	21.5	ANFO	4.0	41.7	2.45	0.65
6	42.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
7	42.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
8	44.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
9	43.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
10	44.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
11	42.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
12	41.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
13	40.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
14	44.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
15	44.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
16	42.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
17	45.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.54	0.54
18	45.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.54	0.54
19	42.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
20	43.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
21	43.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
22	43.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
23	43.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
AV.	43.61	23				3.04	31.7	3.49	1.78	0.31	23				3.11	32.4	2.30	0.60
MIN	40.5					3.0	31.3	3.32	1.75	0.29					3.0	31.3	2.22	0.54
MAX	48.5					4.0	41.7	3.50	2.16	0.36					4.5	46.9	2.54	0.70
STD	1.80					0.21	2.17	0.04	0.11	0.01					0.37	3.84	0.13	0.03

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	3420	0	0.0
ACTUAL	3350	0	0.0
	0.98		
	0.83		

BURDEN 11.0 FT WT/UNIT LENGTH 12.27 PFAREA 165.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
6	25.0	29.0	ANFO	4.0	41.7	2.02		4	34.0	39.0	ANFO	5.0	52.1	2.01		15.0	156.4	
6	26.0	30.0	ANFO	4.0	41.7	2.02		4	35.0	40.0	ANFO	5.0	52.1	2.01		15.0	156.4	
6	26.0	30.0	ANFO	4.0	41.7	2.31		4	36.0	40.0	ANFO	4.0	41.7	1.87		14.0	146.0	
6	30.0	34.0	ANFO	4.0	41.7	1.87	0.80	4	38.5	44.0	ANFO	5.5	57.4	1.88	0.94	18.0	187.7	0.63
6	28.0	32.0	ANFO	4.0	41.7	2.02	0.76	4	37.0	42.0	ANFO	5.0	52.1	2.01	0.85	16.0	166.8	0.58
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ANFO	4.0	41.7	2.16	0.72	13.0	135.6	0.52
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ANFO	4.0	41.7	1.87	0.80	14.0	146.0	0.56
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	39.0	ANFO	5.0	52.1	2.01	0.85	15.0	156.4	0.58
6	25.0	29.0	ANFO	4.0	41.7	2.31	0.68	4	35.0	39.0	ANFO	4.0	41.7	1.87	0.80	14.0	146.0	0.55
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	39.0	ANFO	5.0	52.1	2.01	0.85	15.0	156.4	0.58
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ANFO	4.0	41.7	2.02	0.76	13.0	135.6	0.53
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	36.0	ANFO	3.0	31.3	2.06	0.64	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	36.0	ANFO	3.0	31.3	1.90	0.68	12.0	125.1	0.51
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	39.0	ANFO	5.0	52.1	2.01	0.85	15.0	156.4	0.58
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	39.0	ANFO	5.0	52.1	2.01	0.85	15.0	156.4	0.58
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ANFO	4.0	41.7	2.02	0.76	13.0	135.6	0.53
6	26.0	30.0	ANFO	4.0	41.7	2.02	0.76	4	35.0	40.0	ANFO	5.0	52.1	2.01	0.85	15.0	156.4	0.57
6	26.0	30.0	ANFO	4.0	41.7	2.02	0.76	4	35.0	40.0	ANFO	5.0	52.1	2.01	0.85	15.0	156.4	0.57
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ANFO	4.0	41.7	2.02	0.76	13.0	135.6	0.53
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ANFO	4.0	41.7	2.02	0.76	14.0	146.0	0.56
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ANFO	4.0	41.7	2.02	0.76	14.0	146.0	0.56
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ANFO	4.0	41.7	2.02	0.76	14.0	146.0	0.56
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ANFO	4.0	41.7	2.02	0.76	14.0	146.0	0.56
23				3.74	39.0	2.05	0.72	23				4.37	45.6	1.99	0.79	14.3	148.7	0.56
				3.0	31.3	1.87	0.64					3.0	31.3	1.87	0.64	12.0	125.1	0.50
				4.0	41.7	2.31	0.80					5.5	57.4	2.16	0.94	18.0	187.7	0.63
				0.45	4.68	0.09	0.06					0.68	7.07	0.07	0.07	1.32	13.78	0.03

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 15 LOCATION S-1(S) HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 13 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2							
#	DEPTH	DEL. #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.
1	54.0	9	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.39	8	20.0	24.5	ANFO	4.5	46.9	2.43	0.81
2	55.0	9	9.5	14.0	ANFO	4.5	46.9	3.26	2.43	0.43	8	20.5	25.5	ANFO	5.0	52.1	2.41	0.86
3	56.0	9	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	8	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
4	57.0	9	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	8	21.0	26.5	ANFO	5.5	57.4	2.40	0.90
5	58.0	9	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.50	8	21.5	27.0	ANFO	5.5	57.4	2.40	0.90
6	56.0	9	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	8	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
6A	54.0	9	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.39	8	20.0	24.5	ANFO	4.5	46.9	2.43	0.81
7	32.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.36	8	16.5	19.5	ANFO	3.0	31.3	1.43	0.98
30	50.0	9	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	8	19.0	23.0	ANFO	4.0	41.7	2.45	0.75
31	50.0	9	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.41	8	19.0	23.0	ANFO	4.0	41.7	2.45	0.75
32	56.0	9	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	8	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
33	58.0	9	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.50	8	21.5	27.0	ANFO	5.5	57.4	2.40	0.90
34	58.0	9	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.50	8	21.5	27.0	ANFO	5.5	57.4	2.40	0.90
35	56.0	4	5.0	8.0	ENER	3.0	31.3											
36	56.0	9	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	8	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
37	56.0	9	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.47	8	21.0	26.0	ANFO	5.0	52.1	2.41	0.86
AV.	53.88	16				4.56	47.6	3.26	2.34	0.45	15				4.80	50.1	2.35	0.86
MIN	32.0					3.0	31.3	3.18	1.75	0.36					3.0	31.3	1.43	0.75
MAX	58.0					5.5	57.4	3.50	2.45	0.50					5.5	57.4	2.45	0.98
STD	6.31					0.81	8.49	0.08	0.19	0.05					0.70	7.32	0.26	0.06

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	1481	1648	0.0
ACTUAL	1450	1770	0.0
	0.98	1.07	
	0.83	0.91	

BURDEN 10.3 FT WT/UNIT LENGTH 12.27 PFAREA 143.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
6	31.0	36.0	ENER	5.0	52.1	2.41	0.81	4	42.5	48.5	ENER	6.0	62.6	2.14	0.98	19.5	203.3	0.71
6	32.0	37.0	ENER	5.0	52.1	2.41	0.81	4	43.5	49.5	ENER	6.0	62.6	2.14	0.98	20.5	213.8	0.73
6	32.5	37.5	ENER	5.0	52.1	2.41	0.81	4	44.0	50.5	ENER	6.5	67.8	2.15	1.01	21.5	224.2	0.76
6	33.0	38.5	ENER	5.5	57.4	2.40	0.86	4	45.0	51.5	ENER	6.5	67.8	2.15	1.01	22.5	234.6	0.78
6	33.5	39.0	ENER	5.5	57.4	2.40	0.86	4	45.5	52.5	ENER	7.0	73.0	2.15	1.05	23.5	245.1	0.80
6	32.5	37.5	ENER	5.0	52.1	2.41	0.81	4	44.0	50.5	ENER	6.5	67.8	2.15	1.01	21.5	224.2	0.76
6	31.0	36.0	ENER	5.0	52.1	2.41	0.81	4	42.5	47.5	ENER	5.0	52.1	2.41	0.81	18.5	192.9	0.67
6	22.5	26.5	ENER	4.0	41.7	2.16	0.79									10.0	104.3	0.62
6	29.5	33.5	ENER	4.0	41.7	2.45	0.71	4	40.0	44.0	ENER	4.0	41.7	2.31	0.75	16.0	166.8	0.63
6	29.5	33.5	ENER	4.0	41.7	2.45	0.71	4	40.0	44.0	ENER	4.0	41.7	2.31	0.75	16.0	166.8	0.63
6	32.5	37.5	ENER	5.0	52.1	2.41	0.81	4	44.0	49.5	ENER	5.5	57.4	2.40	0.86	20.5	213.8	0.72
6	33.5	39.0	ENER	5.5	57.4	2.40	0.86	4	45.5	52.5	ENER	7.0	73.0	2.15	1.05	23.5	245.1	0.80
6	33.5	39.0	ENER	5.5	57.4	2.40	0.86	4	45.5	52.5	ENER	7.0	73.0	2.15	1.05	23.5	245.1	0.80
																3.0	31.3	
6	32.5	37.5	ENER	5.0	52.1	2.41	0.81	4	44.0	50.5	ENER	6.5	67.8	2.15	1.01	21.5	224.2	0.76
6	32.5	37.5	ENER	5.0	52.1	2.41	0.81	4	44.0	50.5	ENER	6.5	67.8	2.15	1.01	21.5	224.2	0.76
15				4.93	51.4	2.40	0.81	14				6.00	62.6	2.21	0.95	18.9	197.5	0.73
				4.0	41.7	2.16	0.71					4.0	41.7	2.14	0.75	3.0	31.3	0.62
				5.5	57.4	2.45	0.86					7.0	73.0	2.41	1.05	23.5	245.1	0.80
				0.53	5.53	0.07	0.05					1.02	10.6	0.10	0.11	5.53	57.62	0.06

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

	ANFO	IREG	ENER
EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 16 LOCATION S-11(S) HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 15 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2							
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
24	40.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.31	0.68
25	40.0	8	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	6	20.0	24.0	ANFO	4.0	41.7	2.31	0.68
26	39.0	8	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	6	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
27	39.0	8	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	6	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
28	35.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	6	17.5	20.5	ANFO	3.0	31.3	2.06	0.64
29	39.0	8	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	6	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
30	41.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
31	45.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.54	0.54
32	41.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
33	41.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
34	41.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
35	41.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
36	40.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
37	41.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
38	41.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
AV.	40.30	15				3.23	33.7	3.45	1.98	0.31	15				3.33	34.8	2.26	0.63
MIN	35.0					3.0	31.3	3.32	1.75	0.29					3.0	31.3	2.06	0.54
MAX	45.0					4.0	41.7	3.50	2.45	0.34					4.0	41.7	2.54	0.68
STD	2.05					0.37	3.88	0.07	0.31	0.01					0.49	5.09	0.10	0.04

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	1319	626	0.0
ACTUAL	1400	720	0.0
	1.06	1.15	
	0.90	0.98	

BURDEN 11.0 FT WT/UNIT LENGTH 12.27 PFAREA 165.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
4	30.0	34.0	ENER	4.0	41.7	2.31	0.65									12.0	125.1	0.51
4	30.0	34.0	ENER	4.0	41.7	2.31	0.65									12.0	125.1	0.51
4	29.0	33.0	ENER	4.0	41.7	2.31	0.65									11.5	119.9	0.50
4	29.0	33.0	ENER	4.0	41.7	2.31	0.65									11.5	119.9	0.50
4	25.5	29.5	ENER	4.0	41.7	2.16	0.68									10.0	104.3	0.49
4	29.0	33.0	ENER	4.0	41.7	2.31	0.65									11.5	119.9	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	36.0	ENER	3.0	31.3	2.06	0.61	12.0	125.1	0.50
6	26.0	30.0	ANFO	4.0	41.7	2.31	0.68	4	36.0	44.0	ENER	8.0	83.4			18.0	187.7	
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	40.0	ENER	7.0	73.0			16.0	166.8	
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	36.0	ENER	3.0	31.3	2.06	0.61	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	36.0	ENER	3.0	31.3	2.06	0.61	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	36.0	ENER	3.0	31.3	2.06	0.61	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	36.0	ENER	3.0	31.3	1.90	0.65	12.0	125.1	0.51
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	36.0	ENER	3.0	31.3	2.06	0.61	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	36.0	ENER	3.0	31.3	2.06	0.61	12.0	125.1	0.50
15				3.47	36.1	2.17	0.65	9				4.00	41.7	2.04	0.61	12.4	129.7	0.50
				3.0	31.3	2.06	0.64					3.0	31.3	1.90	0.61	10.0	104.3	0.49
				4.0	41.7	2.31	0.68					8.0	83.4	2.06	0.65	18.0	187.7	0.51
				0.52	5.38	0.12	0.01					2.00	20.9	0.06	0.02	1.96	20.47	0.01

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST 17 LOCATION S-10/SC-7 HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 15 FT ROW SEPARATION 8 FT

		DECK NUMBER 1									DECK NUMBER 2							
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
1	47.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	21.5	ANFO	4.0	41.7	2.45	0.65
2	44.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.54	0.54
3	43.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
4	42.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
5	42.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
6	43.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
7	42.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
8	42.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
9	42.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
10	50.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.54	0.54
12	45.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
13	43.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
14	42.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
15	42.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
16	42.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
17	41.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
18	41.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
19	42.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
20	41.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
21	15.0	6	9.5	13.0	ANFO	3.5	36.5											
SC1	35.0	6	9.5	12.5	ANFO	3.0	31.3				5	17.0	20.0	ANFO	3.0	31.3		
SC2	22.0	5	9.5	12.5	ANFO	3.0	31.3				4	16.0	19.0	ENER	3.0	31.3		
SC3	13.0	4	7.5	10.0	ANFO	2.5	26.1											
SC4	12.0	4	7.5	10.0	ANFO	2.5	26.1											
SC5	20.0	5	8.0	11.5	ANFO	3.5	36.5				4	14.0	19.0	ENER	5.0	52.1		
SC6	20.0	5	8.0	11.5	ANFO	3.5	36.5				4	14.0	19.0	ENER	5.0	52.1		
AV.	36.79	26				3.02	31.5	3.50	1.76	0.31	23				3.22	33.6	2.27	0.60
MIN	12.0					2.5	26.1	3.50	1.75	0.29					3.0	31.3	2.22	0.54
MAX	50.0					3.5	36.5	3.50	2.06	0.31					5.0	52.1	2.54	0.65
SD.	11.47					0.2	2.3	.00	0.07	.00					0.6	6.3	0.11	0.02

EXPLOSIVES CONSUMPTION:

	ANFO	ENER	IREG
THEOR.	2164	991	0.0
ACTUAL	2200	1200	0.0
	1.02	1.21	
	0.86	1.03	

BURDEN 11.0 FT WT/UNIT LENGTH 12.27 PFAREA 165.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
6	28.0	32.0	ANFO	4.0	41.7	2.31	0.68	4	38.0	42.0	ENER	4.0	41.7	2.02	0.72	15.0	156.4	0.54
6	26.0	30.0	ANFO	4.0	41.7	2.31	0.68	4	36.0	40.0	ENER	4.0	41.7	1.87	0.76	14.0	146.0	0.54
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.56
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ENER	4.0	41.7	1.87	0.76	14.0	146.0	0.56
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ENER	4.0	41.7	2.02	0.72	13.0	135.6	0.53
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.56
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ENER	4.0	41.7	2.02	0.72	13.0	135.6	0.53
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ENER	4.0	41.7	2.02	0.72	13.0	135.6	0.53
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ENER	4.0	41.7	2.02	0.72	13.0	135.6	0.53
6	26.0	30.0	ANFO	4.0	41.7	2.31	0.68	4	36.0	42.0	ENER	6.0	62.6	2.77	0.69	16.0	166.8	0.55
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ENER	4.0	41.7	2.60	0.59	14.0	146.0	0.53
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.56
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ENER	4.0	41.7	1.87	0.76	14.0	146.0	0.56
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ENER	4.0	41.7	1.87	0.76	14.0	146.0	0.56
6	25.0	29.0	ANFO	4.0	41.7	2.02	0.76	4	34.0	38.0	ENER	4.0	41.7	1.87	0.76	14.0	146.0	0.56
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ENER	4.0	41.7	1.87	0.76	13.0	135.6	0.53
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	36.0	ENER	3.0	31.3	2.06	0.61	12.0	125.1	0.50
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ENER	4.0	41.7	2.02	0.72	13.0	135.6	0.53
6	25.0	28.0	ANFO	3.0	31.3	2.06	0.64	4	33.0	37.0	ENER	4.0	41.7	1.87	0.76	13.0	135.6	0.53
																3.5	36.5	
4	25.0	30.0	ENER	5.0	52.1											11.0	114.7	
																6.0	62.6	
																2.5	26.1	
																2.5	26.1	
																8.5	88.6	
																8.5	88.6	
20				3.65	38.1	2.08	0.70	19				4.05	42.3	2.04	0.72	11.6	121.3	0.54
				3.0	31.3	2.02	0.64					3.0	31.3	1.87	0.59	2.5	26.1	0.50
				5.0	52.1	2.31	0.76					6.0	62.6	2.77	0.76	16.0	166.8	0.56
				0.6	6.1	0.10	0.06					0.5	5.5	0.24	0.05	3.89	40.6	0.02

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 18 LOCATION N-6 HOLE DIAM 8 ROOM WIDTH 20 FT SPACING 15 FT ROW SEPARATION 0 FT

		DECK NUMBER 1							DECK NUMBER 2						
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.
1	36.0	6	13.0	18.0	ANFO	5.0	92.7				4	25.5	30.5	ENER	5.0	92.7			
2	56.0	9	13.0	17.5	ANFO	4.5	83.4				8	23.5	28.0	ANFO	4.5	83.4			
3	48.0	8	13.0	18.0	ANFO	5.0	92.7				6	25.5	30.0	ENER	4.5	83.4			
4	61.0	9	13.0	18.0	ANFO	5.0	92.7	3.43	2.21	0.33	8	25.5	30.0	ANFO	4.5	83.4	2.00	0.68	
5	57.0	9	13.0	18.0	ANFO	5.0	92.7	3.43	1.93	0.34	8	24.5	29.0	ANFO	4.5	83.4	1.77	0.75	
6	57.5	9	13.0	18.0	ANFO	5.0	92.7	3.43	1.93	0.34	8	24.5	29.0	ANFO	4.5	83.4	1.77	0.75	
7	56.5	9	13.0	18.0	ANFO	5.0	92.7	3.43	1.93	0.34	8	24.5	29.0	ANFO	4.5	83.4	1.77	0.75	
8	55.0	9	13.0	17.5	ANFO	4.5	83.4	3.50	1.83	0.32	8	23.5	28.0	ANFO	4.5	83.4	1.77	0.75	
9	57.0	9	13.0	18.0	ANFO	5.0	92.7	3.43	1.93	0.34	8	24.5	29.0	ANFO	4.5	83.4	1.77	0.75	
10	57.0	9	13.0	18.0	ANFO	5.0	92.7	3.43	1.93	0.34	8	24.5	29.0	ANFO	4.5	83.4	1.77	0.75	
11	58.0	9	13.0	18.0	ANFO	5.0	92.7	3.43	1.93	0.34	8	24.5	29.0	ANFO	4.5	83.4	1.77	0.75	
12	55.0	9	13.0	17.5	ANFO	4.5	83.4	3.50	1.83	0.32	8	23.5	28.0	ANFO	4.5	83.4	1.77	0.75	
AV.	54.50	12				4.88	90.4	3.44	1.93	0.33	12				4.54	84.2	1.80	0.74	
MIN	36.0					4.5	83.4	3.43	1.83	0.32					4.5	83.4	1.77	0.68	
MAX	61.0					5.0	92.7	3.50	2.21	0.34					5.0	92.7	2.00	0.75	
STD	6.56					0.23	4.19	0.03	0.03	0.01					0.14	2.68	0.08	0.02	

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	2873	1363	0.0
ACTUAL	2950	1320	0.0
	1.03	0.97	
	0.87	0.82	

BURDEN 0.0 FT WT/UNIT LENGTH 21.81 PFAREA 300.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
																10.0	185.4	
6	33.5	38.5	ANFO	5.0	92.7			4	44.5	50.5	ENER	6.0	111.2			20.0	370.8	
4	36.5	42.0	ENER	5.5	102.0											15.0	278.1	
6	36.5	42.0	ANFO	5.5	102.0	2.41	0.66	4	50.5	57.5	ENER	7.0	129.8	1.38	1.06	22.0	407.8	0.60
6	34.5	39.5	ANFO	5.0	92.7	2.54	0.60	4	48.5	54.5	ENER	6.0	111.2	1.14	1.12	20.5	380.0	0.60
6	34.5	40.0	ANFO	5.5	102.0	1.98	0.76	4	46.5	52.0	ENER	5.5	102.0	1.77	0.79	20.5	380.0	0.59
6	34.5	39.5	ANFO	5.0	92.7	1.88	0.76	4	45.5	51.0	ENER	5.5	102.0	1.77	0.79	20.0	370.8	0.59
6	33.5	38.5	ANFO	5.0	92.7	1.88	0.76	4	44.5	50.0	ENER	5.5	102.0	1.66	0.83	19.5	361.5	0.59
6	34.5	39.5	ANFO	5.0	92.7	1.88	0.76	4	45.5	51.5	ENER	6.0	111.2	1.77	0.83	20.5	380.0	0.60
6	34.5	39.5	ANFO	5.0	92.7	1.88	0.76	4	45.5	51.5	ENER	6.0	111.2	1.77	0.83	20.5	380.0	0.60
6	34.5	40.0	ANFO	5.5	102.0	1.98	0.76	4	46.5	52.0	ENER	5.5	102.0	1.87	0.76	20.5	380.0	0.59
6	33.5	38.5	ANFO	5.0	92.7	1.88	0.76	4	44.5	50.0	ENER	5.5	102.0	1.66	0.83	19.5	361.5	0.59
11				5.18	96.1	2.03	0.73	10				5.85	108.4	1.64	0.87	19.0	353.0	0.60
				5.0	92.7	1.88	0.60					5.5	102.0	1.14	0.76	10.0	185.4	0.59
				5.5	102.0	2.54	0.76					7.0	129.8	1.87	1.12	22.0	407.8	0.60
				0.25	4.68	0.26	0.06					0.47	8.79	0.23	0.13	3.299	61.16	0.01

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 19 LOCATION S-9(N) HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 15 FT ROW SEPARATION 8 FT

		DECK NUMBER 1								DECK NUMBER 2						
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.
1	50.0	9	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	8	20.0	24.0	ANFO	4.0	41.7	2.45	2.45	0.65
2	51.0	9	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	8	20.0	24.0	ANFO	4.0	41.7	2.45	2.45	0.65
3	46.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	20.5	ANFO	3.0	31.3	2.54	2.54	0.54
4	46.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	20.5	ANFO	3.0	31.3	2.54	2.54	0.54
5	47.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	21.5	ANFO	4.0	41.7	2.45	2.45	0.65
6	47.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	21.5	ANFO	4.0	41.7	2.45	2.45	0.65
7	47.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	21.5	ANFO	4.0	41.7	2.45	2.45	0.65
8	44.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	2.22	0.60
9	43.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	2.22	0.60
10	43.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	2.22	0.60
11	43.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.22	2.22	0.60
12	47.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	21.5	ANFO	4.0	41.7	2.45	2.45	0.65
13	46.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	20.5	ANFO	3.0	31.3	2.54	2.54	0.54
14	47.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	21.5	ANFO	4.0	41.7	2.45	2.45	0.65
15	47.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	21.5	ANFO	4.0	41.7	2.45	2.45	0.65
16	46.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	20.5	ANFO	3.0	31.3	2.54	2.54	0.54
17	35.0	8	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	6	17.5	20.5	ENER	3.0	31.3	2.06	2.06	0.61
18	46.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	8	17.5	20.5	ANFO	3.0	31.3	2.54	2.54	0.54
19	52.0	9	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	8	20.0	24.0	ANFO	4.0	41.7	2.45	2.45	0.65
20	45.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	8	16.5	19.5	ANFO	3.0	31.3	2.54	2.54	0.54
AV.	45.90	20				3.15	32.8	3.47	2.04	0.30	20				3.45	36.0	2.41	2.41	0.61
MIN	35.0					3.0	31.3	3.32	1.75	0.29					3.0	31.3	2.06	2.06	0.54
MAX	52.0					4.0	41.7	3.50	2.45	0.34					4.0	41.7	2.54	2.54	0.65
STD	3.52					0.37	3.82	0.06	0.22	0.02					0.51	5.32	0.14	0.14	0.05

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	1345	1663	0.0
ACTUAL	1300	1620	0.0
	0.97	0.97	
	0.82	0.83	

BURDEN 11.0 FT WT/UNIT LENGTH 12.27 PFAREA 165.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
6	30.5	34.5	ENER	4.0	41.7	2.45	0.62	4	41.0	45.0	ENER	4.0	41.7	2.02	0.72	16.0	166.8	0.55
6	30.5	34.5	ENER	4.0	41.7	2.45	0.62	4	41.0	45.0	ENER	4.0	41.7	2.31	0.65	16.0	166.8	0.54
6	27.0	31.0	ENER	4.0	41.7	2.31	0.65	4	37.0	41.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.52
6	27.0	31.0	ENER	4.0	41.7	2.31	0.65	4	37.0	41.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.52
6	28.0	32.0	ENER	4.0	41.7	2.31	0.65	4	38.0	42.0	ENER	4.0	41.7	2.02	0.72	15.0	156.4	0.54
6	28.0	32.0	ENER	4.0	41.7	2.31	0.65	4	38.0	42.0	ENER	4.0	41.7	2.02	0.72	15.0	156.4	0.54
6	28.0	32.0	ENER	4.0	41.7	2.31	0.65	4	38.0	42.0	ENER	4.0	41.7	2.02	0.72	15.0	156.4	0.54
6	25.0	29.0	ENER	4.0	41.7	2.31	0.65	4	35.0	39.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.54
6	25.0	29.0	ENER	4.0	41.7	2.02	0.72	4	34.0	38.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.56
6	25.0	29.0	ENER	4.0	41.7	2.02	0.72	4	34.0	38.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.56
6	25.0	29.0	ENER	4.0	41.7	2.02	0.72	4	34.0	38.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.56
6	28.0	32.0	ENER	4.0	41.7	2.31	0.65	4	38.0	42.0	ENER	4.0	41.7	2.02	0.72	15.0	156.4	0.54
6	27.0	31.0	ENER	4.0	41.7	2.31	0.65	4	37.0	41.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.52
6	28.0	32.0	ENER	4.0	41.7	2.31	0.65	4	38.0	42.0	ENER	4.0	41.7	2.02	0.72	15.0	156.4	0.54
6	28.0	32.0	ENER	4.0	41.7	2.31	0.65	4	38.0	42.0	ENER	4.0	41.7	2.02	0.72	15.0	156.4	0.54
6	27.0	31.0	ENER	4.0	41.7	2.31	0.65	4	37.0	41.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.52
4	25.5	29.5	ENER	4.0	41.7	2.16	0.68									10.0	104.3	0.49
6	27.0	31.0	ENER	4.0	41.7	2.31	0.65	4	37.0	41.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.52
6	30.5	34.5	ENER	4.0	41.7	2.45	0.62	4	41.0	45.5	ENER	4.5	46.9	2.43	0.66	16.5	172.1	0.54
6	26.0	30.0	ENER	4.0	41.7	2.31	0.65	4	36.0	40.0	ENER	4.0	41.7	2.02	0.72	14.0	146.0	0.53
20				4.00	41.7	2.28	0.66	19				4.03	42.0	2.06	0.71	14.4	150.4	0.54
				4.0	41.7	2.02	0.62					4.0	41.7	2.02	0.65	10.0	104.3	0.49
				4.0	41.7	2.45	0.72					4.5	46.9	2.43	0.72	16.5	172.1	0.56
				0.00	0.00	0.13	0.03					0.11	1.20	0.11	0.02	1.31	13.67	0.02

AML PROJECT - BLAST SUMMARY : TECHNICAL DATA

EXPLOSIVE TYPE	ANFO	IREG	ENER
EXPL. DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

BLAST # 21 LOCATION S-9(S) HOLE DIAM 6 ROOM WIDTH 22 FT SPACING 12 FT ROW SEPARATION 0 FT

		DECK NUMBER 1							DECK NUMBER 2						
#	DEPTH	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	SDOB	P.F.
21	37.0	9	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.20	8	19.0	23.0	ANFO	4.0	41.7	2.19	0.44
22	45.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.19	8	16.5	19.5	ANFO	3.0	31.3	2.41	0.35
23	45.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.18	8	17.5	20.5	ANFO	3.0	31.3	2.41	0.35
24	45.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.18	8	17.5	20.5	ANFO	3.0	31.3	2.41	0.35
25	45.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.19	8	16.5	19.5	ANFO	3.0	31.3	2.41	0.35
26	45.0	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.19	8	16.5	19.5	ANFO	3.0	31.3	2.41	0.35
27	44.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.19	8	16.5	19.5	ANFO	3.0	31.3	2.41	0.35
28	38.0	9	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.20	8	19.0	23.0	ANFO	4.0	41.7	2.19	0.44
29	27.0	9	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.20	8	19.0	23.0	ENER	4.0	41.7	1.73	0.51
30	44.5	9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.19	8	16.5	19.5	ANFO	3.0	31.3	2.41	0.35
31	54.0	9	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.21	8	20.0	24.5	ANFO	4.5	46.9	2.43	0.44
AV.	42.81	11				3.23	33.7	3.45	2.03	0.19	11				3.40	35.5	2.31	0.39
MIN	27.0					3.0	31.3	3.32	1.75	0.18					3.0	31.3	1.73	0.35
MAX	54.0					4.0	41.7	3.50	2.45	0.21					4.5	46.9	2.43	0.51
STD	6.83					0.34	3.58	0.06	0.29	0.01					0.58	6.09	0.21	0.06

EXPLOSIVES CONSUMPTION :

	ANFO	ENER	IREG
THEOR.	720	880	0.0
ACTUAL	750	930	0.0
	1.04	1.06	
	0.89	0.90	

BURDEN 0.0 FT WT/UNIT LENGTH 12.27 PFAREA 264.0

DECK NUMBER 3								DECK NUMBER 4								TOTAL		
DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	DEL #	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	LENGTH FT	WEIGHT LB	P.F.
6	28.6	33.0	ENER	4.4	45.9	1.73	0.53									11.9	124.1	0.34
6	25.6	30.0	ENER	4.4	45.9	2.18	0.45	4	35.6	40.0	ENER	4.4	45.9	2.01	0.47	14.8	154.3	0.35
6	26.6	31.0	ENER	4.4	45.9	2.18	0.45	4	36.6	41.0	ENER	4.4	45.9	1.87	0.50	14.8	154.3	0.35
6	26.6	31.0	ENER	4.4	45.9	2.18	0.45	4	36.6	41.0	ENER	4.4	45.9	1.87	0.50	14.8	154.3	0.35
6	25.6	30.0	ENER	4.4	45.9	2.18	0.45	4	35.6	40.0	ENER	4.4	45.9	2.01	0.47	14.8	154.3	0.35
6	25.6	30.0	ENER	4.4	45.9	2.18	0.45	4	35.6	40.0	ENER	4.4	45.9	2.01	0.47	14.8	154.3	0.35
6	25.6	30.0	ENER	4.4	45.9	2.18	0.45	4	35.6	40.0	ENER	4.4	45.9	1.87	0.50	14.8	154.3	0.35
6	28.6	33.0	ENER	4.4	45.9	2.01	0.47									11.9	124.1	0.33
																7.5	78.2	0.30
6	25.6	30.0	ENER	4.4	45.9	2.18	0.45	4	35.6	40.0	ENER	4.4	45.9	1.87	0.50	14.8	154.3	0.35
6	31.0	36.0	ENER	5.0	52.1	2.41	0.44	4	42.5	47.5	ENER	5.0	52.1	2.41	0.44	18.5	192.9	0.37
10				4.46	46.5	2.14	0.46	8				4.47	46.7	1.99	0.48	13.94	145.4	0.34
				4.4	45.9	1.73	0.44					4.4	45.9	1.87	0.44	7.5	78.2	0.30
				5.0	52.1	2.41	0.53					5.0	52.1	2.41	0.50	18.5	192.9	0.37
				0.19	1.98	0.17	0.03					0.21	2.21	0.18	0.02	2.75	28.70	0.02

APPENDIX E

TECHNICAL ANALYSIS OF STANDARD LOADING DATA

AML PROJECT - BLAST LOADING DATA SUMMARY

	ANFO	IREG	EMER
EXPLOSIVE TYPE	ANFO	IREG	EMER
DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

HOLE DIAMETER	6	IN
WIDTH OF OPENING	22	FT
HOLE SPACING	15	FT
ROW SEPARATION	8	FT
BURDEN	11.0	FT
WT/UNIT LENGTH	12.27	
PFAREA	165.0	SQ. FT

ALL ANFO

			DECK NUMBER 1								DECK NUMBER 2						
DEPTH FT	WT. ANFO	WT. SLURRY	TOP	BOT	EXPL TYPE	LENGTH FT	WT. LB	SDOB UP	SDOB DOWN	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
35	104.3	0.0	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	20.5	ANFO	3.0	31.3	2.06	0.64
36	109.5	0.0	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	21.0	ANFO	3.5	36.5	2.34	0.63
37	119.9	0.0	9.5	13.0	ANFO	3.5	36.5	3.40	2.04	0.33	18.0	22.0	ANFO	4.0	41.7	2.31	0.68
38	119.9	0.0	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
39	119.9	0.0	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
40	125.1	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.31	0.68
41	125.1	0.0	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
42	135.6	0.0	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
43	146.0	0.0	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
44	146.0	0.0	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
45	146.0	0.0	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.54	0.54
46	146.0	0.0	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	20.5	ANFO	3.0	31.3	2.54	0.54
47	156.4	0.0	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	21.5	ANFO	4.0	41.7	2.45	0.65
48	161.6	0.0	9.5	13.0	ANFO	3.5	36.5	3.40	2.19	0.32	18.5	22.5	ANFO	4.0	41.7	2.45	0.65
49	172.1	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.5	ANFO	4.5	46.9	2.43	0.70
50	166.8	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.45	0.65
51	166.8	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
52	172.1	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
53	182.5	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
54	192.9	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.5	ANFO	4.5	46.9	2.43	0.70
55	203.3	0.0	9.5	14.0	ANFO	4.5	46.9	3.26	2.43	0.37	20.5	25.5	ANFO	5.0	52.1	2.41	0.74
56	213.8	0.0	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	21.0	26.0	ANFO	5.0	52.1	2.41	0.74
57	224.2	0.0	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	21.0	26.5	ANFO	5.5	57.4	2.40	0.78
58	234.6	0.0	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	21.5	27.0	ANFO	5.5	57.4	2.40	0.78
59	250.3	0.0	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.48	21.5	27.5	ANFO	6.0	62.6	2.39	0.82
60	229.4	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
61	239.8	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
62	250.3	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
63	260.7	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
64	271.1	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
65	281.5	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
66	292.0	0.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68

DECK NUMBER 3							DECK NUMBER 4							DECK NUMBER 5							TOTALS		
TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WEIGHT LB	SDOB	P.F.	LGTH FT	WEIGHT LB	P.F.
25.5	29.5	ANFO	4.0	41.7	2.16	0.72															10.0	104.3	0.49
27.0	31.0	ANFO	4.0	41.7	2.02	0.76															10.5	109.5	0.50
28.0	32.0	ANFO	4.0	41.7	2.02	0.76															11.5	119.9	0.53
29.0	33.0	ANFO	4.0	41.7	2.02	0.76															11.5	119.9	0.52
29.0	33.0	ANFO	4.0	41.7	2.31	0.68															11.5	119.9	0.50
30.0	34.0	ANFO	4.0	41.7	2.31	0.68															12.0	125.1	0.51
25.0	28.0	ANFO	3.0	31.3	2.06	0.64	33.0	36.0	ANFO	3.0	31.3	2.06	0.64								12.0	125.1	0.50
25.0	28.0	ANFO	3.0	31.3	2.06	0.64	33.0	37.0	ANFO	4.0	41.7	2.02	0.76								13.0	135.6	0.53
25.0	29.0	ANFO	4.0	41.7	2.02	0.76	34.0	38.0	ANFO	4.0	41.7	2.02	0.76								14.0	146.0	0.56
25.0	29.0	ANFO	4.0	41.7	2.31	0.68	35.0	39.0	ANFO	4.0	41.7	2.02	0.76								14.0	146.0	0.54
26.0	30.0	ANFO	4.0	41.7	2.31	0.68	36.0	40.0	ANFO	4.0	41.7	2.02	0.76								14.0	146.0	0.53
27.0	31.0	ANFO	4.0	41.7	2.31	0.68	37.0	41.0	ANFO	4.0	41.7	2.02	0.76								14.0	146.0	0.52
28.0	32.0	ANFO	4.0	41.7	2.31	0.68	38.0	42.0	ANFO	4.0	41.7	2.02	0.76								15.0	156.4	0.54
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	43.0	ANFO	4.0	41.7	2.02	0.76								15.5	161.6	0.55
30.0	34.0	ANFO	4.0	41.7	2.31	0.68	40.0	44.0	ANFO	4.0	41.7	2.02	0.76								16.5	172.1	0.57
29.5	33.5	ANFO	4.0	41.7	2.45	0.65	40.0	44.0	ANFO	4.0	41.7	2.31	0.68								16.0	166.8	0.55
30.5	34.5	ANFO	4.0	41.7	2.45	0.65	41.0	45.0	ANFO	4.0	41.7	2.31	0.68								16.0	166.8	0.54
30.5	34.5	ANFO	4.0	41.7	2.45	0.65	41.0	45.5	ANFO	4.5	46.9	2.43	0.70								16.5	172.1	0.54
30.5	35.0	ANFO	4.5	46.9	2.43	0.70	41.5	46.5	ANFO	5.0	52.1	2.41	0.74								17.5	182.5	0.56
31.0	36.0	ANFO	5.0	52.1	2.41	0.74	42.5	47.5	ANFO	5.0	52.1	2.41	0.74								18.5	192.9	0.58
32.0	37.0	ANFO	5.0	52.1	2.41	0.74	43.5	48.5	ANFO	5.0	52.1	2.41	0.74								19.5	203.3	0.60
32.5	37.5	ANFO	5.0	52.1	2.41	0.74	44.0	49.5	ANFO	5.5	57.4	2.40	0.78								20.5	213.8	0.62
33.0	38.5	ANFO	5.5	57.4	2.40	0.78	45.0	50.5	ANFO	5.5	57.4	2.40	0.78								21.5	224.2	0.64
33.5	39.0	ANFO	5.5	57.4	2.40	0.78	45.5	51.5	ANFO	6.0	62.6	2.39	0.82								22.5	234.6	0.66
34.0	40.0	ANFO	6.0	62.6	2.39	0.82	46.5	52.5	ANFO	6.0	62.6	2.39	0.82								24.0	250.3	0.69
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	44.0	ANFO	5.0	52.1	2.28	0.78	50.0	55.0	ANFO	5.0	52.1	2.01	0.85	22.0	229.4	0.63
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	44.0	ANFO	5.0	52.1	2.28	0.78	50.0	56.0	ANFO	6.0	62.6	2.02	0.93	23.0	239.8	0.64
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	45.0	ANFO	6.0	62.6	2.27	0.85	51.0	57.0	ANFO	6.0	62.6	2.02	0.93	24.0	250.3	0.66
29.0	34.0	ANFO	5.0	52.1	2.28	0.78	40.0	46.0	ANFO	6.0	62.6	2.27	0.85	52.0	58.0	ANFO	6.0	62.6	2.02	0.93	25.0	260.7	0.68
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.0	ANFO	6.0	62.6	2.27	0.85	53.0	59.0	ANFO	6.0	62.6	2.02	0.93	26.0	271.1	0.69
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.5	ANFO	6.5	67.8	2.27	0.89	53.5	60.0	ANFO	6.5	67.8	2.02	0.96	27.0	281.5	0.71
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.5	ANFO	6.5	67.8	2.27	0.89	53.5	61.0	ANFO	7.5	78.2	2.05	1.02	28.0	292.0	0.72

ANL PROJECT - BLAST LOADING DATA SUMMARY

EXPLOSIVE TYPE	ANFO	IREG	ENER
DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95
HOLE DIAMETER	6	IN	
WIDTH OF OPENING	22	FT	
HOLE SPACING	15	FT	
ROW SEPARATION	8	FT	
BURDEN	11.0	FT	
WT/UNIT LENGTH	12.27		
PFAREA	165.0	SQ. FT	

BOTTOM DECK : IREG

			DECK NUMBER 1							DECK NUMBER 2						
DEPTH FT	WT. ANFO	WT. SLURRY	TOP	BOT	EXPL TYPE	LENGTH FT	WT. LB	SDOB UP	SDOB DOWN	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
35	62.6	49.1	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	20.5	ANFO	3.0	31.3	2.06	0.64
36	67.8	49.1	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	21.0	ANFO	3.5	36.5	2.34	0.63
37	78.2	49.1	9.5	13.0	ANFO	3.5	36.5	3.40	2.04	0.33	18.0	22.0	ANFO	4.0	41.7	2.31	0.68
38	78.2	49.1	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
39	78.2	49.1	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
40	83.4	49.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.31	0.68
41	93.8	36.8	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
42	93.8	49.1	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
43	104.3	49.1	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
44	104.3	49.1	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
45	104.3	49.1	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.54	0.54
46	104.3	49.1	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	20.5	ANFO	3.0	31.3	2.54	0.54
47	114.7	49.1	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	21.5	ANFO	4.0	41.7	2.45	0.65
48	119.9	49.1	9.5	13.0	ANFO	3.5	36.5	3.40	2.19	0.32	18.5	22.5	ANFO	4.0	41.7	2.45	0.65
49	130.3	49.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.5	ANFO	4.5	46.9	2.43	0.70
50	125.1	49.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.45	0.65
51	125.1	49.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
52	125.1	55.2	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
53	130.3	61.3	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
54	140.8	61.3	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.5	ANFO	4.5	46.9	2.43	0.70
55	151.2	61.3	9.5	14.0	ANFO	4.5	46.9	3.26	2.43	0.37	20.5	25.5	ANFO	5.0	52.1	2.41	0.74
56	156.4	67.5	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	21.0	26.0	ANFO	5.0	52.1	2.41	0.74
57	166.8	67.5	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	21.0	26.5	ANFO	5.5	57.4	2.40	0.78
58	172.1	73.6	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	21.5	27.0	ANFO	5.5	57.4	2.40	0.78
59	187.7	73.6	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.48	21.5	27.5	ANFO	6.0	62.6	2.39	0.82
60	177.3	61.3	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
61	177.3	73.6	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
62	187.7	73.6	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
63	198.1	73.6	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
64	208.6	73.6	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
65	213.8	79.7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
66	213.8	92.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68

DECK NUMBER 3							DECK NUMBER 4							DECK NUMBER 5							TOTALS		
TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WEIGHT LB	SDOB	P.F.	LGTH FT	WEIGHT LB	P.F.
25.5	29.5	IREG	4.0	49.1	2.05	0.81															10.0	111.6	0.52
27.0	31.0	IREG	4.0	49.1	1.91	0.86															10.5	116.9	0.53
28.0	32.0	IREG	4.0	49.1	1.91	0.86															11.5	127.3	0.56
29.0	33.0	IREG	4.0	49.1	1.91	0.86															11.5	127.3	0.55
29.0	33.0	IREG	4.0	49.1	2.19	0.77															11.5	127.3	0.53
30.0	34.0	IREG	4.0	49.1	2.19	0.77															12.0	132.5	0.54
25.0	28.0	ANFO	3.0	31.3	2.06	0.64	33.0	36.0	IREG	3.0	36.8	1.95	0.72								12.0	130.7	0.52
25.0	29.0	ANFO	3.0	31.3	2.06	0.64	33.0	37.0	IREG	4.0	49.1	1.91	0.86								13.0	142.9	0.56
25.0	29.0	ANFO	4.0	41.7	2.02	0.76	34.0	38.0	IREG	4.0	49.1	1.91	0.86								14.0	153.3	0.58
25.0	29.0	ANFO	4.0	41.7	2.31	0.68	35.0	39.0	IREG	4.0	49.1	1.91	0.86								14.0	153.3	0.57
26.0	30.0	ANFO	4.0	41.7	2.31	0.68	36.0	40.0	IREG	4.0	49.1	1.91	0.86								14.0	153.3	0.56
27.0	31.0	ANFO	4.0	41.7	2.31	0.68	37.0	41.0	IREG	4.0	49.1	1.91	0.86								14.0	153.3	0.55
28.0	32.0	ANFO	4.0	41.7	2.31	0.68	38.0	42.0	IREG	4.0	49.1	1.91	0.86								15.0	163.8	0.57
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	43.0	IREG	4.0	49.1	1.91	0.86								15.5	169.0	0.58
30.0	34.0	ANFO	4.0	41.7	2.31	0.68	40.0	44.0	IREG	4.0	49.1	1.91	0.86								16.5	179.4	0.60
29.5	33.5	ANFO	4.0	41.7	2.45	0.65	40.0	44.0	IREG	4.0	49.1	2.19	0.77								16.0	174.2	0.57
30.5	34.5	ANFO	4.0	41.7	2.45	0.65	41.0	45.0	IREG	4.0	49.1	2.19	0.77								16.0	174.2	0.56
30.5	34.5	ANFO	4.0	41.7	2.45	0.65	41.0	45.5	IREG	4.5	55.2	2.30	0.79								16.5	180.3	0.57
30.5	35.0	ANFO	4.5	46.9	2.43	0.70	41.5	46.5	IREG	5.0	61.3	2.28	0.84								17.5	191.7	0.59
31.0	36.0	ANFO	5.0	52.1	2.41	0.74	42.5	47.5	IREG	5.0	61.3	2.28	0.84								18.5	202.1	0.61
32.0	37.0	ANFO	5.0	52.1	2.41	0.74	43.5	48.5	IREG	5.0	61.3	2.28	0.84								19.5	212.5	0.63
32.5	37.5	ANFO	5.0	52.1	2.41	0.74	44.0	49.5	IREG	5.5	67.5	2.27	0.88								20.5	223.9	0.65
33.0	38.5	ANFO	5.5	57.4	2.40	0.78	45.0	50.5	IREG	5.5	67.5	2.27	0.88								21.5	234.3	0.67
33.5	39.0	ANFO	5.5	57.4	2.40	0.78	45.5	51.5	IREG	6.0	73.6	2.27	0.93								22.5	245.7	0.69
34.0	40.0	ANFO	6.0	62.6	2.39	0.82	46.5	52.5	IREG	6.0	73.6	2.27	0.93								24.0	261.3	0.72
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	44.0	ANFO	5.0	52.1	2.28	0.78	50.0	55.0	IREG	5.0	61.3	1.90	0.96	22.0	238.6	0.65
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	44.0	ANFO	5.0	52.1	2.28	0.78	50.0	56.0	IREG	6.0	73.6	1.91	1.05	23.0	250.9	0.67
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	45.0	ANFO	6.0	62.6	2.27	0.85	51.0	57.0	IREG	6.0	73.6	1.91	1.05	24.0	261.3	0.69
29.0	34.0	ANFO	5.0	52.1	2.28	0.78	40.0	46.0	ANFO	6.0	62.6	2.27	0.85	52.0	58.0	IREG	6.0	73.6	1.91	1.05	25.0	271.7	0.71
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.0	ANFO	6.0	62.6	2.27	0.85	53.0	59.0	IREG	6.0	73.6	1.91	1.05	26.0	282.2	0.72
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.5	ANFO	6.5	67.8	2.27	0.89	53.5	60.0	IREG	6.5	79.7	1.92	1.09	27.0	293.5	0.74
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.5	ANFO	6.5	67.8	2.27	0.89	53.5	61.0	IREG	7.5	92.0	1.94	1.16	28.0	305.8	0.76

AML PROJECT - BLAST LOADING DATA SUMMARY

EXPLOSIVE TYPE	ANFO	IREG	ENER
DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95

HOLE DIAMETER	6	IN
WIDTH OF OPENING	22	FT
HOLE SPACING	15	FT
ROW SEPARATION	8	FT
BURDEN	11.0	FT
WT/UNIT LENGTH	12.27	
PFAREA	165.0	SQ. FT

BOTTOM TWO DECKS: ENER

			DECK NUMBER 1									DECK NUMBER 2						
DEPTH FT	WT. ANFO	WT. SLURRY	TOP	BOT	EXPL TYPE	LENGTH FT	WT. LB	SDOB	SDOB UP	P.F. DOWN	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
35	62.6	41.7	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	20.5	ANFO	3.0	31.3	2.06	0.64
36	67.8	41.7	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	21.0	ANFO	3.5	36.5	2.34	0.63
37	78.2	41.7	9.5	13.0	ANFO	3.5	36.5	3.40	2.04	0.33	18.0	22.0	ANFO	4.0	41.7	2.31	0.68
38	78.2	41.7	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
39	78.2	41.7	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
40	83.4	41.7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.31	0.68
41	62.6	62.6	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
42	62.6	73.0	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
43	62.6	83.4	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
44	62.6	83.4	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
45	62.6	83.4	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.54	0.54
46	62.6	83.4	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	20.5	ANFO	3.0	31.3	2.54	0.54
47	73.0	83.4	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	21.5	ANFO	4.0	41.7	2.45	0.65
48	78.2	83.4	9.5	13.0	ANFO	3.5	36.5	3.40	2.19	0.32	18.5	22.5	ANFO	4.0	41.7	2.45	0.65
49	88.6	83.4	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.5	ANFO	4.5	46.9	2.43	0.70
50	83.4	83.4	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.45	0.65
51	83.4	83.4	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
52	83.4	88.6	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
53	83.4	99.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
54	88.6	104.3	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.5	ANFO	4.5	46.9	2.43	0.70
55	99.1	104.3	9.5	14.0	ANFO	4.5	46.9	3.26	2.43	0.37	20.5	25.5	ANFO	5.0	52.1	2.41	0.74
56	104.3	109.5	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	21.0	26.0	ANFO	5.0	52.1	2.41	0.74
57	109.5	114.7	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	21.0	26.5	ANFO	5.5	57.4	2.40	0.78
58	114.7	119.9	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	21.5	27.0	ANFO	5.5	57.4	2.40	0.78
59	125.1	125.1	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.48	21.5	27.5	ANFO	6.0	62.6	2.39	0.82
60	125.1	104.3	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
61	125.1	114.7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
62	125.1	125.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
63	135.6	125.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
64	146.0	125.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
65	146.0	135.6	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
66	146.0	146.0	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68

DECK NUMBER 3							DECK NUMBER 4							DECK NUMBER 5							TOTALS		
TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WEIGHT LB	SDOB	P.F.	LGTH FT	WEIGHT LB	P.F.
25.5	29.5	ENER	4.0	41.7	2.16	0.68															10.0	104.3	0.49
27.0	31.0	ENER	4.0	41.7	2.02	0.72															10.5	109.5	0.50
28.0	32.0	ENER	4.0	41.7	2.02	0.72															11.5	119.9	0.53
29.0	33.0	ENER	4.0	41.7	2.02	0.72															11.5	119.9	0.52
29.0	33.0	ENER	4.0	41.7	2.31	0.65															11.5	119.9	0.50
30.0	34.0	ENER	4.0	41.7	2.31	0.65															12.0	125.1	0.51
25.0	28.0	ENER	3.0	31.3	2.06	0.61	33.0	36.0	ENER	3.0	31.3	2.06	0.61								12.0	125.1	0.50
25.0	28.0	ENER	3.0	31.3	2.06	0.61	33.0	37.0	ENER	4.0	41.7	2.02	0.72								13.0	135.6	0.53
25.0	29.0	ENER	4.0	41.7	2.02	0.72	34.0	38.0	ENER	4.0	41.7	2.02	0.72								14.0	146.0	0.56
25.0	29.0	ENER	4.0	41.7	2.31	0.65	35.0	39.0	ENER	4.0	41.7	2.02	0.72								14.0	146.0	0.54
26.0	30.0	ENER	4.0	41.7	2.31	0.65	36.0	40.0	ENER	4.0	41.7	2.02	0.72								14.0	146.0	0.53
27.0	31.0	ENER	4.0	41.7	2.31	0.65	37.0	41.0	ENER	4.0	41.7	2.02	0.72								14.0	146.0	0.52
28.0	32.0	ENER	4.0	41.7	2.31	0.65	38.0	42.0	ENER	4.0	41.7	2.02	0.72								15.0	156.4	0.54
29.0	33.0	ENER	4.0	41.7	2.31	0.65	39.0	43.0	ENER	4.0	41.7	2.02	0.72								15.5	161.6	0.55
30.0	34.0	ENER	4.0	41.7	2.31	0.65	40.0	44.0	ENER	4.0	41.7	2.02	0.72								16.5	172.1	0.57
29.5	33.5	ENER	4.0	41.7	2.45	0.62	40.0	44.0	ENER	4.0	41.7	2.31	0.65								16.0	166.8	0.55
30.5	34.5	ENER	4.0	41.7	2.45	0.62	41.0	45.0	ENER	4.0	41.7	2.31	0.65								16.0	166.8	0.54
30.5	34.5	ENER	4.0	41.7	2.45	0.62	41.0	45.5	ENER	4.5	46.9	2.43	0.66								16.5	172.1	0.54
30.5	35.0	ENER	4.5	46.9	2.43	0.66	41.5	46.5	ENER	5.0	52.1	2.41	0.70								17.5	182.5	0.56
31.0	36.0	ENER	5.0	52.1	2.41	0.70	42.5	47.5	ENER	5.0	52.1	2.41	0.70								18.5	192.9	0.58
32.0	37.0	ENER	5.0	52.1	2.41	0.70	43.5	48.5	ENER	5.0	52.1	2.41	0.70								19.5	203.3	0.60
32.5	37.5	ENER	5.0	52.1	2.41	0.70	44.0	49.5	ENER	5.5	57.4	2.40	0.74								20.5	213.8	0.62
33.0	38.5	ENER	5.5	57.4	2.40	0.74	45.0	50.5	ENER	5.5	57.4	2.40	0.74								21.5	224.2	0.64
33.5	39.0	ENER	5.5	57.4	2.40	0.74	45.5	51.5	ENER	6.0	62.6	2.39	0.78								22.5	234.6	0.66
34.0	40.0	ENER	6.0	62.6	2.39	0.78	46.5	52.5	ENER	6.0	62.6	2.39	0.78								24.0	250.3	0.69
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	44.0	ENER	5.0	52.1	2.28	0.74	50.0	55.0	ENER	5.0	52.1	2.01	0.81	22.0	229.4	0.63
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	44.0	ENER	5.0	52.1	2.28	0.74	50.0	56.0	ENER	6.0	62.6	2.02	0.88	23.0	239.8	0.64
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	45.0	ENER	6.0	62.6	2.27	0.81	51.0	57.0	ENER	6.0	62.6	2.02	0.88	24.0	250.3	0.66
29.0	34.0	ANFO	5.0	52.1	2.28	0.78	40.0	46.0	ENER	6.0	62.6	2.27	0.81	52.0	58.0	ENER	6.0	62.6	2.02	0.88	25.0	260.7	0.68
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.0	ENER	6.0	62.6	2.27	0.81	53.0	59.0	ENER	6.0	62.6	2.02	0.88	26.0	271.1	0.69
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.5	ENER	6.5	67.8	2.27	0.84	53.5	60.0	ENER	6.5	67.8	2.02	0.92	27.0	281.5	0.71
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.5	ENER	6.5	67.8	2.27	0.84	53.5	61.0	ENER	7.5	78.2	2.05	0.97	28.0	292.0	0.72

AML PROJECT - BLAST LOADING DATA SUMMARY

EXPLOSIVE TYPE	ANFO	IREG	ENER
DENSITY	0.85	1.00	0.85
WT. STRENGTH	1.00	0.96	0.95
HOLE DIAMETER	6	IN	
WIDTH OF OPENING	22	FT	
HOLE SPACING	15	FT	
ROW SEPARATION	8	FT	
BURDEN	11.0	FT	
WT/UNIT LENGTH	12.27		
PFAREA	165.0	SQ. FT	

BOTTOM TWO DECKS: IREG

			DECK NUMBER 1								DECK NUMBER 2					
DEPTH FT	WT. ANFO	WT. SLURRY	TOP	BOT	EXPL TYPE	LENGTH FT	WT. LB	SDOB UP	SDOB DOWN	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.
35	62.6	49.1	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	20.5	ANFO	3.0	31.3	2.06	0.64
36	67.8	49.1	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	21.0	ANFO	3.5	36.5	2.34	0.63
37	78.2	49.1	9.5	13.0	ANFO	3.5	36.5	3.40	2.04	0.33	18.0	22.0	ANFO	4.0	41.7	2.31	0.68
38	78.2	49.1	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
39	78.2	49.1	9.5	13.0	ANFO	3.5	36.5	3.40	2.34	0.31	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
40	83.4	49.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.31	0.68
41	62.6	73.6	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
42	62.6	85.9	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
43	62.6	98.1	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
44	62.6	98.1	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.22	0.60
45	62.6	98.1	9.5	12.5	ANFO	3.0	31.3	3.50	1.75	0.31	16.5	19.5	ANFO	3.0	31.3	2.54	0.54
46	62.6	98.1	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	20.5	ANFO	3.0	31.3	2.54	0.54
47	73.0	98.1	9.5	12.5	ANFO	3.0	31.3	3.50	2.06	0.29	17.5	21.5	ANFO	4.0	41.7	2.45	0.65
48	78.2	98.1	9.5	13.0	ANFO	3.5	36.5	3.40	2.19	0.32	18.5	22.5	ANFO	4.0	41.7	2.45	0.65
49	88.6	98.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.5	ANFO	4.5	46.9	2.43	0.70
50	83.4	98.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.45	0.65
51	83.4	98.1	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
52	83.4	104.3	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
53	83.4	116.5	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.0	ANFO	4.0	41.7	2.45	0.65
54	88.6	122.7	9.5	13.5	ANFO	4.0	41.7	3.32	2.45	0.34	20.0	24.5	ANFO	4.5	46.9	2.43	0.70
55	99.1	122.7	9.5	14.0	ANFO	4.5	46.9	3.26	2.43	0.37	20.5	25.5	ANFO	5.0	52.1	2.41	0.74
56	104.3	128.8	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	21.0	26.0	ANFO	5.0	52.1	2.41	0.74
57	109.5	134.9	9.5	14.5	ANFO	5.0	52.1	3.22	2.41	0.41	21.0	26.5	ANFO	5.5	57.4	2.40	0.78
58	114.7	141.1	9.5	15.0	ANFO	5.5	57.4	3.18	2.40	0.44	21.5	27.0	ANFO	5.5	57.4	2.40	0.78
59	125.1	147.2	9.5	15.5	ANFO	6.0	62.6	3.15	2.27	0.48	21.5	27.5	ANFO	6.0	62.6	2.39	0.82
60	125.1	122.7	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
61	125.1	134.9	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
62	125.1	147.2	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
63	135.6	147.2	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
64	146.0	147.2	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
65	146.0	159.5	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68
66	146.0	171.8	9.5	13.5	ANFO	4.0	41.7	3.32	2.16	0.36	19.0	23.0	ANFO	4.0	41.7	2.31	0.68

DECK NUMBER 3							DECK NUMBER 4							DECK NUMBER 5							TOTALS		
TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WT. LB	SDOB	P.F.	TOP	BOT	EXPL TYPE	LGTH FT	WEIGHT LB	SDOB	P.F.	LGTH FT	WEIGHT LB	P.F.
25.5	29.5	IREG	4.0	49.1	2.05	0.81															10.0	111.6	0.52
27.0	31.0	IREG	4.0	49.1	1.91	0.86															10.5	116.9	0.53
28.0	32.0	IREG	4.0	49.1	1.91	0.86															11.5	127.3	0.56
29.0	33.0	IREG	4.0	49.1	1.91	0.86															11.5	127.3	0.55
29.0	33.0	IREG	4.0	49.1	2.19	0.77															11.5	127.3	0.53
30.0	34.0	IREG	4.0	49.1	2.19	0.77															12.0	132.5	0.54
25.0	28.0	IREG	3.0	36.8	1.95	0.72	33.0	36.0	IREG	3.0	36.8	1.95	0.72								12.0	136.2	0.54
25.0	28.0	IREG	3.0	36.8	1.95	0.72	33.0	37.0	IREG	4.0	49.1	1.91	0.86								13.0	148.4	0.58
25.0	29.0	IREG	4.0	49.1	1.91	0.86	34.0	38.0	IREG	4.0	49.1	1.91	0.86								14.0	160.7	0.61
25.0	29.0	IREG	4.0	49.1	2.19	0.77	35.0	39.0	IREG	4.0	49.1	1.91	0.86								14.0	160.7	0.60
26.0	30.0	IREG	4.0	49.1	2.19	0.77	36.0	40.0	IREG	4.0	49.1	1.91	0.86								14.0	160.7	0.58
27.0	31.0	IREG	4.0	49.1	2.19	0.77	37.0	41.0	IREG	4.0	49.1	1.91	0.86								14.0	160.7	0.57
28.0	32.0	IREG	4.0	49.1	2.19	0.77	38.0	42.0	IREG	4.0	49.1	1.91	0.86								15.0	171.1	0.60
29.0	33.0	IREG	4.0	49.1	2.19	0.77	39.0	43.0	IREG	4.0	49.1	1.91	0.86								15.5	176.4	0.60
30.0	34.0	IREG	4.0	49.1	2.19	0.77	40.0	44.0	IREG	4.0	49.1	1.91	0.86								16.5	186.8	0.62
29.5	33.5	IREG	4.0	49.1	2.32	0.73	40.0	44.0	IREG	4.0	49.1	2.19	0.77								16.0	181.6	0.59
30.5	34.5	IREG	4.0	49.1	2.32	0.73	41.0	45.0	IREG	4.0	49.1	2.19	0.77								16.0	181.6	0.58
30.5	34.5	IREG	4.0	49.1	2.32	0.73	41.0	45.5	IREG	4.5	55.2	2.30	0.79								16.5	187.7	0.59
30.5	35.0	IREG	4.5	55.2	2.30	0.79	41.5	46.5	IREG	5.0	61.3	2.28	0.84								17.5	200.0	0.62
31.0	36.0	IREG	5.0	61.3	2.28	0.84	42.5	47.5	IREG	5.0	61.3	2.28	0.84								18.5	211.3	0.64
32.0	37.0	IREG	5.0	61.3	2.28	0.84	43.5	48.5	IREG	5.0	61.3	2.28	0.84								19.5	221.7	0.66
32.5	37.5	IREG	5.0	61.3	2.28	0.84	44.0	49.5	IREG	5.5	67.5	2.27	0.88								20.5	233.1	0.68
33.0	38.5	IREG	5.5	67.5	2.27	0.88	45.0	50.5	IREG	5.5	67.5	2.27	0.88								21.5	244.4	0.70
33.5	39.0	IREG	5.5	67.5	2.27	0.88	45.5	51.5	IREG	6.0	73.6	2.27	0.93								22.5	255.8	0.72
34.0	40.0	IREG	6.0	73.6	2.27	0.93	46.5	52.5	IREG	6.0	73.6	2.27	0.93								24.0	272.3	0.76
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	44.0	IREG	5.0	61.3	2.16	0.88	50.0	55.0	IREG	5.0	61.3	1.30	0.96	22.0	247.8	0.68
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	44.0	IREG	5.0	61.3	2.16	0.88	50.0	56.0	IREG	6.0	73.6	1.31	1.05	23.0	260.1	0.70
29.0	33.0	ANFO	4.0	41.7	2.31	0.68	39.0	45.0	IREG	6.0	73.6	2.15	0.96	51.0	57.0	IREG	6.0	73.6	1.31	1.05	24.0	272.3	0.72
29.0	34.0	ANFO	5.0	52.1	2.28	0.73	40.0	46.0	IREG	6.0	73.6	2.15	0.96	52.0	58.0	IREG	6.0	73.6	1.31	1.05	25.0	282.8	0.73
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.0	IREG	6.0	73.6	2.15	0.96	53.0	59.0	IREG	6.0	73.6	1.31	1.05	26.0	293.2	0.75
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.5	IREG	6.5	79.7	2.15	1.00	53.5	60.0	IREG	6.5	79.7	1.32	1.09	27.0	305.5	0.77
29.0	35.0	ANFO	6.0	62.6	2.27	0.85	41.0	47.5	IREG	6.5	79.7	2.15	1.00	53.5	61.0	IREG	7.5	92.0	1.34	1.16	28.0	317.7	0.79

APPENDIX F

ANALYSIS OF ACTUAL BLASTING COSTS

AML PROJECT - BLAST COST ANALYSIS.

			COSTS USED
		8 INCH	6 INCH
DRILLING COST	/FT	$0.900	$0.750
EXPLOSIVES COSTS			
		BATCH 2	BATCH 1
ANFO	/LB	$0.212	$0.161
SLURRY	/LB	$0.451	$0.386
BOOSTERS	EACH		$3.120
DTH DELAYS	EACH		$1.680
SURF. DELAYS	EACH		$2.200
HOLE PLUGS	EACH		$1.820
CAPS	EACH		$1.976
PRIMALINE	/FT		$0.079
NONEL T'LINE	/FT		$0.057
BALER TWINE	/FT		$0.003
LABOR COSTS			
BLAST. ENGR.	/HR		$27.00
FIELD ENGR.	/HR		$18.50
LABORER	/HR		$10.00
GENERAL COSTS			
TRAVEL (PICKUP RENTAL, MILEAGE, GAS)			
TOTAL FOR PROJECT			$2,566.00
PER BLAST			$122.19
SUBSISTENCE			
TOTAL FOR PROJECT			$831.00
PER BLAST			$39.57
RENTALS			
SEISMOGRAPH			$1,120.00
MAGAZINES			$665.00
TRAILER			$621.00
TOTAL FOR PROJECT			$2,406.00
PER BLAST			$114.57
MISCELLANEOUS			
MISC. FIELD EQUIPMENT			$419.00
GRAVEL (STEMMING)			$263.00
SNOW REMOVAL, BOBCAT HIRE			$340.00
WOODEN STAKES			$275.00
TOTAL FOR PROJECT			$1,297.00
PER BLAST			$61.76
STAKES, TARGETS ETC. (RESEARCH COMPONENT)			$380.00
PER BLAST			$27.14

AML PROJECT - BLAST COST MODEL. ANALISYS NO.

COMMENTS: VARIABLE DEPTH
10 ACRE SITE. BASE CASE. DOUBLE ROW.

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	2
LENGTH	200 FT	ROOM WIDTH	20 FT
ROW SEPARAT.	8 FT	HOLE SPACING	15 FT
# HOLES	28	AV. DEPTH TO VOID	50 FT
PILLAR WIDTH	30.0 FT	AREA OF INFLUENCE	4000 SQ. FT
% EXTRACTION	40.0%	VOID/ACRE	17424 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	44

LOADING PARAMETERS : CHOICE ------) 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

						COST
DRILLING						
	ROOM LINE-UP	150 FT	@	$ 1.000 /FT	=	$150.00
	PRODUCTION	1400 FT	@	$ 1.000 /FT	=	$1,400.00
	TOTAL					$1,550.00
BLASTING						
	ANFO	3503.7 LBS	@	$ 0.145 /LB	=	$508.04
	SLURRY	1167.9 LBS	@	$ 0.360 /LB	=	$420.45
	BOOSTERS	114	@	3.200 EACH	=	$364.80
	DTH DELAYS	114	@	1.750 EACH	=	$199.50
	SURF. DELAYS	28	@	2.250 EACH	=	$63.00
	HOLE PLUGS	28	@	1.850 EACH	=	$51.80
	CAPS	1	@	2.000 EACH	=	$2.00
	PRIMALINE	1484 FT	@	$ 0.079 /FT	=	$116.49
	BALER TWINE	2968 FT	@	$ 0.003 /FT	=	$7.42
	TOTAL					$1,733.50
LABOR						
	LINEUP	1.75 HRS	@	$ 20.00 /HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00 /HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00 /HR	=	$600.00
	TOTAL					$740.00
	OVERHEADS	50 % DIR LAB			=	$370.00
	TOTAL					$1,110.00
GENERAL						
	TRAVEL	/BLAST			=	$68.18
	SUBSISTENCE	/BLAST			=	$140.00
	RENTALS	/BLAST			=	$62.50
	MISC.	/BLAST			=	$34.09
	TOTAL	/BLAST				$304.77

TOTAL COST = $4,698.27

COST/ACRE (BASED ON THIS BLAST) = $20,465.67

AML PROJECT - BLAST COSTING MODEL.

COSTS USED

		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000

EXPLOSIVES COSTS

		BATCH 1
ANFO	/LB	$0.145
SLURRY	/LB	$0.360
BOOSTERS	EACH	$3.200
DTH DELAYS	EACH	$1.750
SURF. DELAYS	EACH	$2.250
HOLE PLUGS	EACH	$1.850
CAPS	EACH	$2.000
PRIMALINE	/FT	$0.079
NONEL T'LINE	/FT	$0.057
BALER TWINE	/FT	$0.003

LABOR COSTS

BLAST. ENGR.	/HR	$30.00
FIELD ENGR.	/HR	$20.00
LABORER	/HR	$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)

TOTAL FOR PROJECT	$3,000.00
PER BLAST	$68.18

SUBSISTENCE

ENGINEERS	@	$50	/DAY	= $4,400.00
LABORERS	@	$40	/DAY	= $1,760.00

TOTAL FOR PROJECT	$6,160.00
PER BLAST	$140.00

RENTALS

SEISMOGRAPH	@	$500	/MONTH	= $1,100.00
MAGAZINES	@	$400	/MONTH	= $880.00
TRAILER	@	$350	/MONTH	= $770.00

TOTAL FOR PROJECT	$2,750.00
PER BLAST	$62.50

MISCELLANEOUS

MISC. FIELD EQUIPMENT	$750.00
GENERAL SITE SERVICES	$450.00
CONSUMABLE FIELD SUPPLIES	$300.00

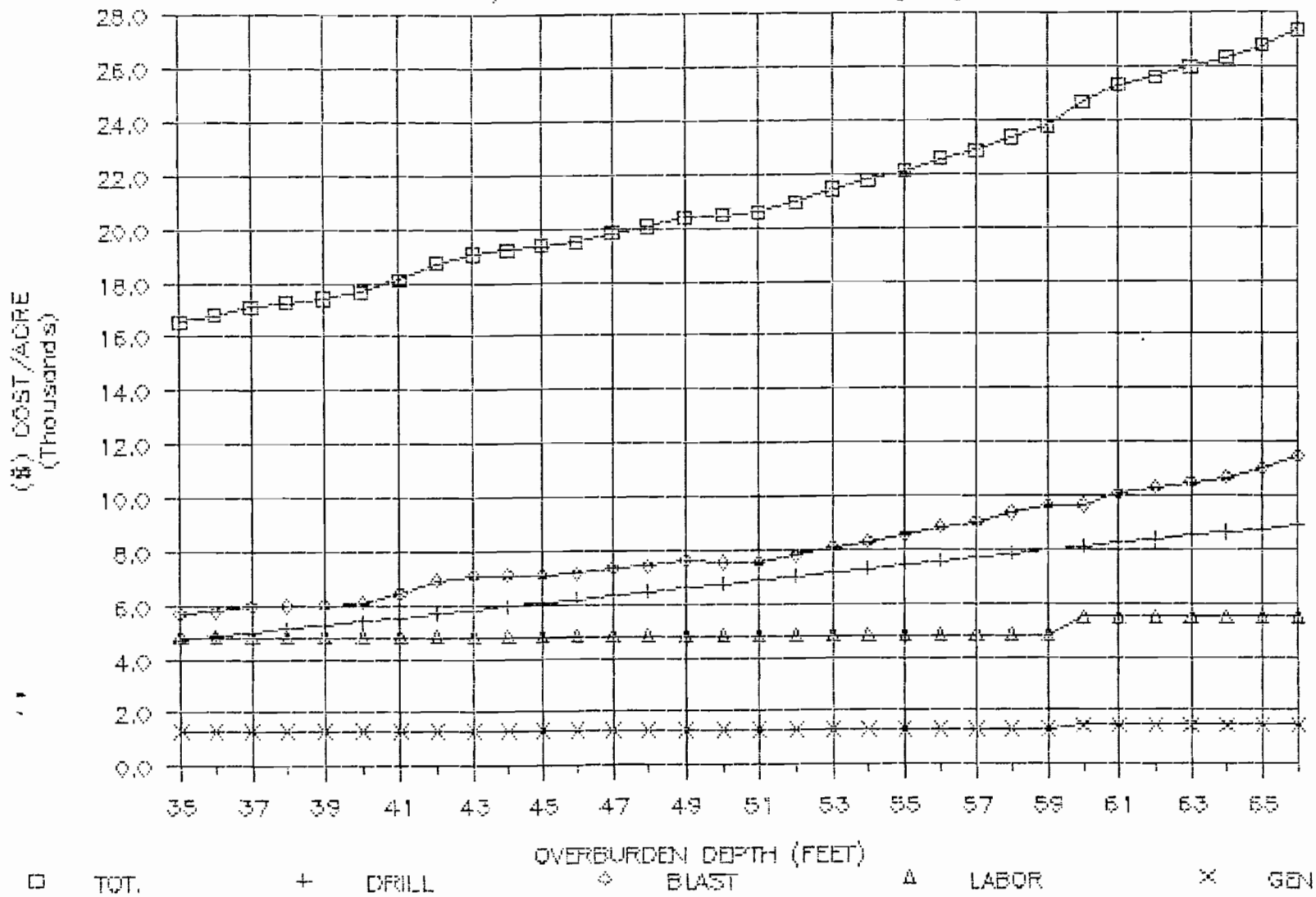
TOTAL FOR PROJECT	$1,500.00
PER BLAST	$34.09

AML PROJECT COST MODEL - VARIABLE DEPTH, 2 ROWS. (OD2

PARAMETER	C O S T		P E R	A C R E	
DEPTH (FT)	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
35	$4,726	$5,688	$4,835	$1,328	$16,577
36	$4,861	$5,790	$4,835	$1,328	$16,815
37	$4,996	$5,985	$4,835	$1,328	$17,144
38	$5,131	$5,995	$4,835	$1,328	$17,289
39	$5,266	$6,005	$4,835	$1,328	$17,435
40	$5,401	$6,108	$4,835	$1,328	$17,672
41	$5,536	$6,448	$4,835	$1,328	$18,148
42	$5,672	$6,916	$4,835	$1,328	$18,751
43	$5,807	$7,111	$4,835	$1,328	$19,080
44	$5,942	$7,121	$4,835	$1,328	$19,226
45	$6,077	$7,131	$4,835	$1,328	$19,371
46	$6,212	$7,142	$4,835	$1,328	$19,516
47	$6,347	$7,336	$4,835	$1,328	$19,846
48	$6,482	$7,439	$4,835	$1,328	$20,083
49	$6,617	$7,633	$4,835	$1,328	$20,413
50	$6,752	$7,551	$4,835	$1,328	$20,466
51	$6,887	$7,561	$4,835	$1,328	$20,611
52	$7,022	$7,800	$4,835	$1,328	$20,985
53	$7,157	$8,132	$4,835	$1,328	$21,451
54	$7,292	$8,326	$4,835	$1,328	$21,781
55	$7,427	$8,521	$4,835	$1,328	$22,111
56	$7,562	$8,852	$4,835	$1,328	$22,577
57	$7,697	$9,047	$4,835	$1,328	$22,907
58	$7,832	$9,378	$4,835	$1,328	$23,373
59	$7,967	$9,665	$4,835	$1,328	$23,795
60	$8,102	$9,637	$5,489	$1,502	$24,729
61	$8,237	$10,105	$5,489	$1,502	$25,332
62	$8,372	$10,299	$5,489	$1,502	$25,662
63	$8,507	$10,494	$5,489	$1,502	$25,992
64	$8,642	$10,689	$5,489	$1,502	$26,321
65	$8,777	$11,020	$5,489	$1,502	$26,788
66	$8,912	$11,488	$5,489	$1,502	$27,391

AML BLASTING - COST MODEL

COST/ACRE VS. OVERBURDEN DEPTH [OD2]



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MAL PROJECT - BLAST COST MODEL. ANALISYS NO. UD3

COMMENTS: VARIABLE DEPTH. 10 ACRE SITE
BASE CASE. 1 ROW, 20 FT WIDE ROOM

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	1
LENGTH	350 FT	ROOM WIDTH	20 FT
ROW SEPARAT.	0 FT	HOLE SPACING	12 FT
# HOLES	30	AV. DEPTH TO VOID	50 FT
PILLAR WIDTH	30.0 FT	AREA OF INFLUENCE	7000 SQ. FT
% EXTRACTION	40.0%	VOID/ACRE	17424 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	25

LOADING PARAMETERS : CHOICE ------> 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

						COST
DRILLING						
	ROOM LINE-UP	300 FT	@	$ 1.000 /FT	=	$300.00
	PRODUCTION	1500 FT	@	$ 1.000 /FT	=	$1,500.00
	TOTAL					$1,800.00
BLASTING						
	ANFO	3754.0 LBS	@	$ 0.145 /LB	=	$544.33
	SLURRY	1251.3 LBS	@	$ 0.360 /LB	=	$450.48
	BOOSTERS	122	@	3.200 EACH	=	$390.40
	DTH DELAYS	122	@	1.750 EACH	=	$213.50
	SURF. DELAYS	30	@	2.250 EACH	=	$67.50
	HOLE PLUGS	30	@	1.850 EACH	=	$55.50
	CAPS	1	@	2.000 EACH	=	$2.00
	PRIMALINE	1590 FT	@	$ 0.079 /FT	=	$124.82
	BALER TWINE	3180 FT	@	$ 0.003 /FT	=	$7.95
	TOTAL					$1,856.47
LABOR						
	LINEUP	1.75 HRS	@	$ 20.00 /HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00 /HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00 /HR	=	$600.00
	TOTAL					$740.00
	OVERHEADS	50 % DIR LAB			=	$370.00
	TOTAL					$1,110.00
GENERAL						
	TRAVEL	/BLAST			=	$120.00
	SUBSISTENCE	/BLAST			=	$140.00
	RENTALS	/BLAST			=	$62.50
	MISC.	/BLAST			=	$60.00
	TOTAL	/BLAST				$382.50

TOTAL COST = $5,148.97

COST/ACRE (BASED ON THIS BLAST) = $12,816.52

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AML PROJECT - BLAST COSTING MODEL.

COSTS USED

		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000
EXPLOSIVES COSTS			BATCH 1
ANFO	/LB		$0.145
SLURRY	/LB		$0.360
BOOSTERS	EACH		$3.200
DTH DELAYS	EACH		$1.750
SURF. DELAYS	EACH		$2.250
HOLE PLUGS	EACH		$1.850
CAPS	EACH		$2.000
PRIMALINE	/FT		$0.079
NONEL T'LINE	/FT		$0.057
BALER TWINE	/FT		$0.003
LABOR COSTS			
BLAST. ENGR.	/HR		$30.00
FIELD ENGR.	/HR		$20.00
LABORER	/HR		$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)

TOTAL FOR PROJECT	$3,000.00
PER BLAST	$120.00

SUBSISTENCE

ENGINEERS	@	$50	/DAY	= $2,500.00
LABORERS	@	$40	/DAY	= $2,000.00

TOTAL FOR PROJECT	$4,500.00
PER BLAST	$180.00

RENTALS

SEISMOGRAPH	@	$500	/MONTH	= $625.00
MAGAZINES	@	$400	/MONTH	= $500.00
TRAILER	@	$350	/MONTH	= $437.50

TOTAL FOR PROJECT	$1,562.50
PER BLAST	$62.50

MISCELLANEOUS

MISC. FIELD EQUIPMENT	$750.00
GENERAL SITE SERVICES	$450.00
CONSUMABLE FIELD SUPPLIES	$300.00
TOTAL FOR PROJECT	$1,500.00
PER BLAST	$60.00

AML PROJECT COST MODEL - VARIABLE DEPTH, 1 ROW. (OD3

PARAMETER	C O S T		P E R	A C R E	
DEPTH (FT)	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
35	$3,136	$3,480	$2,763	$952	$10,332
36	$3,226	$3,543	$2,763	$952	$10,484
37	$3,316	$3,662	$2,763	$952	$10,693
38	$3,405	$3,668	$2,763	$952	$10,789
39	$3,495	$3,675	$2,763	$952	$10,885
40	$3,584	$3,737	$2,763	$952	$11,037
41	$3,674	$3,946	$2,763	$952	$11,335
42	$3,764	$4,232	$2,763	$952	$11,711
43	$3,853	$4,352	$2,763	$952	$11,920
44	$3,943	$4,358	$2,763	$952	$12,016
45	$4,032	$4,364	$2,763	$952	$12,111
46	$4,122	$4,370	$2,763	$952	$12,207
47	$4,212	$4,489	$2,763	$952	$12,416
48	$4,301	$4,552	$2,763	$952	$12,568
49	$4,391	$4,671	$2,763	$952	$12,777
50	$4,480	$4,621	$2,763	$952	$12,817
51	$4,570	$4,627	$2,763	$952	$12,912
52	$4,660	$4,774	$2,763	$952	$13,148
53	$4,749	$4,977	$2,763	$952	$13,441
54	$4,839	$5,096	$2,763	$952	$13,650
55	$4,929	$5,215	$2,763	$952	$13,858
56	$5,018	$5,418	$2,763	$952	$14,151
57	$5,108	$5,537	$2,763	$952	$14,360
58	$5,197	$5,740	$2,763	$952	$14,652
59	$5,287	$5,915	$2,763	$952	$14,917
60	$5,377	$5,898	$3,136	$1,052	$15,462
61	$5,466	$6,184	$3,136	$1,052	$15,839
62	$5,556	$6,304	$3,136	$1,052	$16,047
63	$5,645	$6,423	$3,136	$1,052	$16,256
64	$5,735	$6,542	$3,136	$1,052	$16,465
65	$5,825	$6,745	$3,136	$1,052	$16,757
66	$5,914	$7,031	$3,136	$1,052	$17,133

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 1

LOCATION : N-14 # HOLES 10 DIAM. 6
LENGTH 170 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 1 AREA OF INFLUENCE 6800 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	490 FT @	$ 0.750 /FT	=		$367.50
	TOTAL					$502.50
BLASTING						
	ANFO	1325 LBS @	$ 0.161 /LB	=		$213.33
	SLURRY	0 LBS @	$ 0.386 /LB	=		$0.00
	BOOSTERS	41 @	3.120 EACH	=		$127.92
	DTH DELAYS	40 @	1.680 EACH	=		$67.20
	42 MS DELAYS	10 @	2.200 EACH	=		$22.00
	HOLE PLUGS	11 @	1.820 EACH	=		$20.02
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	520 FT @	$ 0.079 /FT	=		$40.82
	BALER TWINE	1040 FT @	$ 0.003 /FT	=		$2.60
	TOTAL					$495.86
	NONEL T'LINE	0 FT @	$ 0.057 /FT	=		$0.00
	(RESEARCH COMPONENT)					
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	0.00 HRS @	$ 55.50 /HR	=		$0.00
	TOTAL (+ OVERHEADS)					$0.00
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$0.00

TOTAL COST (EXCL. RESEARCH) = $2,367.14

TOTAL COST (INCL. RESEARCH) = $2,367.14

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $15,163.64

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AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 2

LOCATION : N-9 # HOLES 10 DIAM. 6
LENGTH 70 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 2 AREA OF INFLUENCE 2800 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$	0.750 /FT	=	$135.00
	PRODUCTION	618 FT @	$	0.750 /FT	=	$463.50
	TOTAL					$598.50
BLASTING						
	ANFO	1800 LBS @	$	0.161 /LB	=	$289.80
	SLURRY	0 LBS @	$	0.386 /LB	=	$0.00
	BOOSTERS	47 @		3.120 EACH	=	$146.64
	DTH DELAYS	47 @		1.680 EACH	=	$78.96
	42 MS DELAYS	10 @		2.200 EACH	=	$22.00
	HOLE PLUGS	11 @		1.820 EACH	=	$20.02
	CAPS	1 @		1.976 EACH	=	$1.98
	PRIMALINE	650 FT @	$	0.079 /FT	=	$51.03
	BALER TWINE	1300 FT @	$	0.003 /FT	=	$3.25
	TOTAL					$613.67
	NONEL T'LINE (RESEARCH COMPONENT)	0 FT @	$	0.057 /FT	=	$0.00
LABOR						
	LINEUP	1.75 HRS @	$	18.50 /HR	=	$32.38
	PREPARATION	3.50 HRS @	$	28.50 /HR	=	$99.75
	BLASTING	10.00 HRS @	$	55.50 /HR	=	$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB			=	$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	0.00 HRS @	$	55.50 /HR	=	$0.00
	TOTAL (+ OVERHEADS)					$0.00
GENERAL						
	TRAVEL	/BLAST			=	$122.19
	SUBSISTENCE	/BLAST			=	$39.57
	RENTALS	/BLAST			=	$114.57
	MISC.	/BLAST			=	$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST			=	$0.00

TOTAL COST (EXCL. RESEARCH) = $2,580.95

TOTAL COST (INCL. RESEARCH) = $2,580.95

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $40,152.27

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AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 3

LOCATION :	N-11	# HOLES	20	DIAM.	6
LENGTH	135 FT	WIDTH AFFECTED :	40 FT		
NO.OF ROWS	2	AREA OF INFLUENCE	5400 SQ. FT		

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	1515 FT @	$ 0.750 /FT	=		$1,136.25
	TOTAL					$1,271.25
BLASTING						
	ANFO	2900 LBS @	$ 0.161 /LB	=		$466.90
	SLURRY	930 LBS @	$ 0.386 /LB	=		$359.35
	BOOSTERS	81 @	3.120 EACH	=		$252.72
	DTH DELAYS	81 @	1.680 EACH	=		$136.08
	42 MS DELAYS	20 @	2.200 EACH	=		$44.00
	HOLE PLUGS	22 @	1.820 EACH	=		$40.04
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	1580 FT @	$ 0.079 /FT	=		$124.03
	BALER TWINE	3160 FT @	$ 0.003 /FT	=		$7.90
	TOTAL					$1,433.00
	NONEL T'LINE	0 FT @	$ 0.057 /FT	=		$0.00
	(RESEARCH COMPONENT)					
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	0.00 HRS @	$ 55.50 /HR	=		$0.00
	TOTAL (+ OVERHEADS)					$0.00
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$0.00

TOTAL COST (EXCL. RESEARCH) = $4,073.03

TOTAL COST (INCL. RESEARCH) = $4,073.03

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $32,855.78

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 4

LOCATION : N-1,N-2 # HOLES 22 DIAM. 8
LENGTH 65 FT WIDTH AFFECTED : 100 FT
NO.OF ROWS 2 AREA OF INFLUENCE 6500 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT	@	$ 0.750 /FT	=	$135.00
	PRODUCTION	1630 FT	@	$ 0.900 /FT	=	$1,467.00
	TOTAL					$1,602.00
BLASTING						
	ANFO	5725 LBS	@	$ 0.161 /LB	=	$921.73
	SLURRY	2640 LBS	@	$ 0.386 /LB	=	$1,020.10
	BOOSTERS	88	@	3.120 EACH	=	$274.56
	DTH DELAYS	88	@	1.680 EACH	=	$147.84
	42 MS DELAYS	23	@	2.200 EACH	=	$50.60
	HOLE PLUGS	25	@	1.820 EACH	=	$45.50
	CAPS	1	@	1.976 EACH	=	$1.98
	PRIMALINE	1700 FT	@	$ 0.079 /FT	=	$133.45
	BALER TWINE	3400 FT	@	$ 0.003 /FT	=	$8.50
	TOTAL					$2,604.25
	NONEL T'LINE (RESEARCH COMPONENT)	0 FT	@	$ 0.057 /FT	=	$0.00
LABOR						
	LINEUP	1.75 HRS	@	$ 18.50 /HR	=	$32.38
	PREPARATION	3.50 HRS	@	$ 28.50 /HR	=	$99.75
	BLASTING	10.00 HRS	@	$ 55.50 /HR	=	$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB			=	$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	0.00 HRS	@	$ 55.50 /HR	=	$0.00
	TOTAL (+ OVERHEADS)					$0.00
GENERAL						
	TRAVEL	/BLAST			=	$122.19
	SUBSISTENCE	/BLAST			=	$39.57
	RENTALS	/BLAST			=	$114.57
	MISC.	/BLAST			=	$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST			=	$0.00

TOTAL COST (EXCL. RESEARCH) = $5,575.03

TOTAL COST (INCL. RESEARCH) = $5,575.03

123 COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $37,361.28

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 5

LOCATION : N-13 # HOLES 30 DIAM. 6
LENGTH 200 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 2 AREA OF INFLUENCE 8000 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	1521 FT @	$ 0.750 /FT	=		$1,140.75
	TOTAL					$1,275.75
BLASTING						
	ANFO	3000 LBS @	$ 0.161 /LB	=		$483.00
	SLURRY	1800 LBS @	$ 0.386 /LB	=		$695.52
	BOOSTERS	120 @	3.120 EACH	=		$374.40
	DTH DELAYS	120 @	1.680 EACH	=		$201.60
	42 MS DELAYS	30 @	2.200 EACH	=		$66.00
	HOLE PLUGS	32 @	1.820 EACH	=		$58.24
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	1620 FT @	$ 0.079 /FT	=		$127.17
	BALER TWINE	3250 FT @	$ 0.003 /FT	=		$8.13
	TOTAL					$2,016.03
	NONEL T'LINE (RESEARCH COMPONENT)	0 FT @	$ 0.057 /FT	=		$0.00
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50 /HR	=		$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$27.14

TOTAL COST (EXCL. RESEARCH) = $4,660.56

TOTAL COST (INCL. RESEARCH) = $4,854.21

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $25,376.77

124

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 6

LOCATION : N-8(S) # HOLES 10 DIAM. 6
LENGTH 55 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 2 AREA OF INFLUENCE 2200 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	574 FT @	$ 0.750 /FT	=		$430.50
	TOTAL					$565.50
BLASTING						
	ANFO	1450 LBS @	$ 0.161 /LB	=		$233.45
	SLURRY	690 LBS @	$ 0.386 /LB	=		$266.62
	BOOSTERS	38 @	3.120 EACH	=		$118.56
	DTH DELAYS	38 @	1.680 EACH	=		$63.84
	42 MS DELAYS	10 @	2.200 EACH	=		$22.00
	HOLE PLUGS	11 @	1.820 EACH	=		$20.02
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	620 FT @	$ 0.079 /FT	=		$48.67
	BALER TWINE	1240 FT @	$ 0.003 /FT	=		$3.10
	TOTAL					$778.23
	NONEL T'LINE (RESEARCH COMPONENT)	800 FT @	$ 0.057 /FT	=		$45.60
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50 /HR	=		$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$27.14

TOTAL COST (EXCL. RESEARCH) = $2,712.51

TOTAL COST (INCL. RESEARCH) = $2,951.76

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $53,707.79

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AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 7

LOCATION :	N-7	# HOLES	19	DIAM.	6
LENGTH	120 FT	WIDTH AFFECTED :	40 FT		
NO.OF ROWS	2	AREA OF INFLUENCE	4800 SQ. FT		

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	650 FT @	$ 0.750 /FT	=		$487.50
	TOTAL					$622.50
BLASTING						
	ANFO	1550 LBS @	$ 0.161 /LB	=		$249.55
	SLURRY	480 LBS @	$ 0.386 /LB	=		$185.47
	BOOSTERS	48 @	3.120 EACH	=		$149.76
	DTH DELAYS	48 @	1.680 EACH	=		$80.64
	42 MS DELAYS	19 @	2.200 EACH	=		$41.80
	HOLE PLUGS	10 @	1.820 EACH	=		$18.20
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	740 FT @	$ 0.079 /FT	=		$58.09
	BALER TWINE	1000 FT @	$ 0.003 /FT	=		$2.50
	TOTAL					$787.99
	NONEL T'LINE (RESEARCH COMPONENT)	600 FT @	$ 0.057 /FT	=		$34.20
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50 /HR	=		$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$27.14

TOTAL COST (EXCL. RESEARCH) = $2,779.27

TOTAL COST (INCL. RESEARCH) = $3,007.11

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $25,221.88

126

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 8

LOCATION : N-12 # HOLES 21 DIAM. 6
LENGTH 150 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 2 AREA OF INFLUENCE 6000 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	1141 FT @	$ 0.750 /FT	=		$855.75
	TOTAL					$990.75
BLASTING						
	ANFO	2400 LBS @	$ 0.161 /LB	=		$386.40
	SLURRY	1200 LBS @	$ 0.386 /LB	=		$463.68
	BOOSTERS	85 @	3.120 EACH	=		$265.20
	DTH DELAYS	85 @	1.680 EACH	=		$142.80
	42 MS DELAYS	21 @	2.200 EACH	=		$46.20
	HOLE PLUGS	22 @	1.820 EACH	=		$40.04
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	1200 FT @	$ 0.079 /FT	=		$94.20
	BALER TWINE	2400 FT @	$ 0.003 /FT	=		$6.00
	TOTAL					$1,446.50
	NONEL T'LINE	1200 FT @	$ 0.057 /FT	=		$68.40
	(RESEARCH COMPONENT)					
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50 /HR	=		$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$27.14

TOTAL COST (EXCL. RESEARCH) = $3,806.03

TOTAL COST (INCL. RESEARCH) = $4,068.07

27 COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $27,631.77

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 9

LOCATION : NC-7 # HOLES 12 DIAM. 6
LENGTH 80 FT WIDTH AFFECTED : 70 FT
NO.OF ROWS 1 AREA OF INFLUENCE 5600 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	496 FT @	$ 0.750 /FT	=		$372.00
	TOTAL					$507.00
BLASTING						
	ANFO	1150 LBS @	$ 0.161 /LB	=		$185.15
	SLURRY	630 LBS @	$ 0.386 /LB	=		$243.43
	BOOSTERS	44 @	3.120 EACH	=		$137.28
	DTH DELAYS	44 @	1.680 EACH	=		$73.92
	42 MS DELAYS	12 @	2.200 EACH	=		$26.40
	HOLE PLUGS	11 @	1.820 EACH	=		$20.02
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	530 FT @	$ 0.079 /FT	=		$41.61
	BALER TWINE	1000 FT @	$ 0.003 /FT	=		$2.50
	TOTAL					$732.28
	NONEL T'LINE (RESEARCH COMPONENT)	500 FT @	$ 0.057 /FT	=		$28.50
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50 /HR	=		$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$27.14

TOTAL COST (EXCL. RESEARCH) = $2,608.07

TOTAL COST (INCL. RESEARCH) = $2,830.21

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $20,287.03

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AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 10

LOCATION :	S-1	# HOLES	26	DIAM.	6
LENGTH	135 FT	WIDTH AFFECTED :	40 FT		
NO.OF ROWS	2	AREA OF INFLUENCE	5400 SQ. FT		

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	1540 FT @	$ 0.750 /FT	=		$1,155.00
	TOTAL					$1,290.00
BLASTING						
	ANFO	4250 LBS @	$ 0.161 /LB	=		$684.25
	SLURRY	1650 LBS @	$ 0.386 /LB	=		$637.56
	BOOSTERS	109 @	3.120 EACH	=		$340.08
	DTH DELAYS	107 @	1.680 EACH	=		$179.76
	42 MS DELAYS	26 @	2.200 EACH	=		$57.20
	HOLE PLUGS	30 @	1.820 EACH	=		$54.60
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	1620 FT @	$ 0.079 /FT	=		$127.17
	BALER TWINE	3240 FT @	$ 0.003 /FT	=		$8.10
	TOTAL					$2,090.70
	NONEL T'LINE	0 FT @	$ 0.057 /FT	=		$0.00
	(RESEARCH COMPONENT)					
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50 /HR	=		$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$27.14

TOTAL COST (EXCL. RESEARCH) = $4,749.48

TOTAL COST (INCL. RESEARCH) = $4,943.12

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $38,312.46

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 11

LOCATION :	S-12	# HOLES	31	DIAM.	6
LENGTH	195 FT	WIDTH AFFECTED :	40 FT		
NO.OF ROWS	2	AREA OF INFLUENCE	7800 SQ. FT		

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	1215 FT @	$ 0.750 /FT	=		$911.25
	TOTAL					$1,046.25
BLASTING						
	ANFO	3450 LBS @	$ 0.161 /LB	=		$555.45
	SLURRY	0 LBS @	$ 0.386 /LB	=		$0.00
	BOOSTERS	102 @	3.120 EACH	=		$318.24
	DTH DELAYS	102 @	1.680 EACH	=		$171.36
	42 MS DELAYS	31 @	2.200 EACH	=		$68.20
	HOLE PLUGS	33 @	1.820 EACH	=		$60.06
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	1300 FT @	$ 0.079 /FT	=		$102.05
	BALER TWINE	2600 FT @	$ 0.003 /FT	=		$6.50
	TOTAL					$1,283.84
	NONEL T'LINE (RESEARCH COMPONENT)	1300 FT @	$ 0.057 /FT	=		$74.10
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50 /HR	=		$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$27.14

TOTAL COST (EXCL. RESEARCH) = $3,698.87

TOTAL COST (INCL. RESEARCH) = $3,966.61

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $20,656.76

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AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 12

LOCATION : N-8(N) # HOLES 17 DIAM. 6
LENGTH 130 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 2 AREA OF INFLUENCE 5200 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750	/FT	=	$135.00
	PRODUCTION	1065 FT @	$ 0.750	/FT	=	$798.75
	TOTAL					$933.75
BLASTING						
	ANFO	3200 LBS @	$ 0.161	/LB	=	$515.20
	SLURRY	0 LBS @	$ 0.386	/LB	=	$0.00
	BOOSTERS	66 @	3.120	EACH	=	$205.92
	DTH DELAYS	66 @	1.680	EACH	=	$110.88
	42 MS DELAYS	17 @	2.200	EACH	=	$37.40
	HOLE PLUGS	18 @	1.820	EACH	=	$32.76
	CAPS	1 @	1.976	EACH	=	$1.98
	PRIMALINE	1120 FT @	$ 0.079	/FT	=	$87.92
	BALER TWINE	2240 FT @	$ 0.003	/FT	=	$5.60
	TOTAL					$997.66
	NONEL T'LINE (RESEARCH COMPONENT)	1000 FT @	$ 0.057	/FT	=	$57.00
LABOR						
	LINEUP	1.75 HRS @	$ 18.50	/HR	=	$32.38
	PREPARATION	3.50 HRS @	$ 28.50	/HR	=	$99.75
	BLASTING	10.00 HRS @	$ 55.50	/HR	=	$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB			=	$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50	/HR	=	$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST			=	$122.19
	SUBSISTENCE	/BLAST			=	$39.57
	RENTALS	/BLAST			=	$114.57
	MISC.	/BLAST			=	$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST			=	$27.14

TOTAL COST (EXCL. RESEARCH) = $3,300.19

TOTAL COST (INCL. RESEARCH) = $3,550.83

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $27,645.43

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 13

LOCATION :	N-10	# HOLES	23	DIAM.	6
LENGTH	155 FT	WIDTH AFFECTED :	40 FT		
NO.OF ROWS	2	AREA OF INFLUENCE	6200 SQ. FT		

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	1347 FT @	$ 0.750 /FT	=		$1,010.25
	TOTAL					$1,145.25
BLASTING						
	ANFO	5200 LBS @	$ 0.175 /LB	=		$910.00
	SLURRY	0 LBS @	$ 0.386 /LB	=		$0.00
	BOOSTERS	92 @	3.120 EACH	=		$287.04
	DTH DELAYS	92 @	1.680 EACH	=		$154.56
	42 MS DELAYS	23 @	2.200 EACH	=		$50.60
	HOLE PLUGS	25 @	1.820 EACH	=		$45.50
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	1420 FT @	$ 0.079 /FT	=		$111.47
	BALER TWINE	2840 FT @	$ 0.003 /FT	=		$7.10
	TOTAL					$1,568.25
	NONEL T'LINE	1400 FT @	$ 0.057 /FT	=		$79.80
	(RESEARCH COMPONENT)					
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50 /HR	=		$111.00
	TOTAL	(+ OVERHEADS)				$166.50
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$27.14

TOTAL COST (EXCL. RESEARCH) = $4,082.28

TOTAL COST (INCL. RESEARCH) = $4,355.72

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $28,681.30

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AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 14

LOCATION : S-11(N) # HOLES 23 DIAM. 6
LENGTH 160 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 2 AREA OF INFLUENCE 6400 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT	@	$ 0.750 /FT	=	$135.00
	PRODUCTION	1109 FT	@	$ 0.750 /FT	=	$831.75
	TOTAL					$966.75
BLASTING						
	ANFO	3350 LBS	@	$ 0.212 /LB	=	$710.20
	SLURRY	0 LBS	@	$ 0.386 /LB	=	$0.00
	BOOSTERS	92	@	3.120 EACH	=	$287.04
	DTH DELAYS	92	@	1.680 EACH	=	$154.56
	42 MS DELAYS	23	@	2.200 EACH	=	$50.60
	HOLE PLUGS	25	@	1.820 EACH	=	$45.50
	CAPS	1	@	1.976 EACH	=	$1.98
	PRIMALINE	1180 FT	@	$ 0.079 /FT	=	$92.63
	BALER TWINE	2360 FT	@	$ 0.003 /FT	=	$5.90
	TOTAL					$1,348.41
	NONEL T'LINE (RESEARCH COMPONENT)	1100 FT	@	$ 0.057 /FT	=	$62.70
LABOR						
	LINEUP	1.75 HRS	@	$ 18.50 /HR	=	$32.38
	PREPARATION	3.50 HRS	@	$ 28.50 /HR	=	$99.75
	BLASTING	10.00 HRS	@	$ 55.50 /HR	=	$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB			=	$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS	@	$ 55.50 /HR	=	$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST			=	$122.19
	SUBSISTENCE	/BLAST			=	$39.57
	RENTALS	/BLAST			=	$114.57
	MISC.	/BLAST			=	$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST			=	$27.14

TOTAL COST (EXCL. RESEARCH) = $3,683.94

TOTAL COST (INCL. RESEARCH) = $3,940.28

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $25,073.81

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 15

LOCATION : S-1(S) # HOLES 16 DIAM. 6
LENGTH 120 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 2 AREA OF INFLUENCE 4800 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	1044 FT @	$ 0.750 /FT	=		$783.00
	TOTAL					$918.00
BLASTING						
	ANFO	1450 LBS @	$ 0.212 /LB	=		$307.40
	SLURRY	1770 LBS @	$ 0.451 /LB	=		$798.27
	BOOSTERS	65 @	3.120 EACH	=		$202.80
	DTH DELAYS	65 @	1.680 EACH	=		$109.20
	42 MS DELAYS	16 @	2.200 EACH	=		$35.20
	HOLE PLUGS	20 @	1.820 EACH	=		$36.40
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	1100 FT @	$ 0.079 /FT	=		$86.35
	BALER TWINE	2200 FT @	$ 0.003 /FT	=		$5.50
	TOTAL					$1,583.10
	NONEL T'LINE (RESEARCH COMPONENT)	1100 FT @	$ 0.057 /FT	=		$62.70
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50 /HR	=		$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$27.14

TOTAL COST (EXCL. RESEARCH) = $3,869.88

TOTAL COST (INCL. RESEARCH) = $4,126.22

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $35,119.15

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AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 16

LOCATION : S-11(S) # HOLES 15 DIAM. 6
LENGTH 115 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 2 AREA OF INFLUENCE 4600 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750	/FT	=	$135.00
	PRODUCTION	629 FT @	$ 0.750	/FT	=	$471.75
	TOTAL					$606.75
BLASTING						
	ANFO	1400 LBS @	$ 0.212	/LB	=	$296.80
	SLURRY	720 LBS @	$ 0.451	/LB	=	$324.72
	BOOSTERS	54 @	3.120	EACH	=	$168.48
	DTH DELAYS	54 @	1.680	EACH	=	$90.72
	42 MS DELAYS	15 @	2.200	EACH	=	$33.00
	HOLE PLUGS	16 @	1.820	EACH	=	$29.12
	CAPS	1 @	1.976	EACH	=	$1.98
	PRIMALINE	680 FT @	$ 0.079	/FT	=	$53.38
	BALER TWINE	1360 FT @	$ 0.003	/FT	=	$3.40
	TOTAL					$1,001.60
	NONEL T'LINE (RESEARCH COMPONENT)	700 FT @	$ 0.057	/FT	=	$39.90
LABOR						
	LINEUP	1.75 HRS @	$ 18.50	/HR	=	$32.38
	PREPARATION	3.50 HRS @	$ 28.50	/HR	=	$99.75
	BLASTING	10.00 HRS @	$ 55.50	/HR	=	$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB			=	$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50	/HR	=	$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST			=	$122.19
	SUBSISTENCE	/BLAST			=	$39.57
	RENTALS	/BLAST			=	$114.57
	MISC.	/BLAST			=	$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST			=	$27.14

TOTAL COST (EXCL. RESEARCH) = $2,977.13

TOTAL COST (INCL. RESEARCH) = $3,210.67

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COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $28,192.11

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 17

LOCATION : S-10,SC-7 # HOLES 26 DIAM. 6
LENGTH 150 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 1,2 AREA OF INFLUENCE 10800 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	1035 FT @	$ 0.750 /FT	=		$776.25
	TOTAL					$911.25
BLASTING						
	ANFO	2200 LBS @	$ 0.212 /LB	=		$466.40
	SLURRY	1200 LBS @	$ 0.451 /LB	=		$541.20
	BOOSTERS	88 @	3.120 EACH	=		$274.56
	DTH DELAYS	88 @	1.680 EACH	=		$147.84
	42 MS DELAYS	26 @	2.200 EACH	=		$57.20
	HOLE PLUGS	25 @	1.820 EACH	=		$45.50
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	1350 FT @	$ 0.079 /FT	=		$105.98
	BALER TWINE	2300 FT @	$ 0.003 /FT	=		$5.75
	TOTAL					$1,646.40
	NONEL T'LINE (RESEARCH COMPONENT)	1000 FT @	$ 0.057 /FT	=		$57.00
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$ 55.50 /HR	=		$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$27.14

TOTAL COST (EXCL. RESEARCH) = $3,926.43

TOTAL COST (INCL. RESEARCH) = $4,177.08

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $15,836.62

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 16

LOCATION :	N-6	# HOLES	12	DIAM.	8
LENGTH	150 FT	WIDTH AFFECTED :	40 FT		
NO.OF ROWS	1	AREA OF INFLUENCE	6000 SQ. FT		

						COST
DRILLING						
	ROOM LINE-UP	750 FT @	$ 0.750 /FT	=		$562.50
	PRODUCTION	820 FT @	$ 0.900 /FT	=		$738.00
	TOTAL					$1,300.50
BLASTING						
	ANFO	2950 LBS @	$ 0.212 /LB	=		$625.40
	SLURRY	1320 LBS @	$ 0.451 /LB	=		$595.32
	BOOSTERS	45 @	3.120 EACH	=		$140.40
	DTH DELAYS	45 @	1.680 EACH	=		$75.60
	42 MS DELAYS	12 @	2.200 EACH	=		$26.40
	HOLE PLUGS	15 @	1.820 EACH	=		$27.30
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	870 FT @	$ 0.079 /FT	=		$68.30
	BALER TWINE	1750 FT @	$ 0.003 /FT	=		$4.38
	TOTAL					$1,565.07
	NONEL T'LINE	0 FT @	$ 0.057 /FT	=		$0.00
	(RESEARCH COMPONENT)					
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	0.00 HRS @	$ 55.50 /HR	=		$0.00
	TOTAL (+ OVERHEADS)					$0.00
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$0.00

TOTAL COST (EXCL. RESEARCH) = $4,234.35

TOTAL COST (INCL. RESEARCH) = $4,234.35

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $30,741.37

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 19

LOCATION : S-9(N) # HOLES 20 DIAM. 6
LENGTH 155 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 2 AREA OF INFLUENCE 6200 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$ 0.750 /FT	=		$135.00
	PRODUCTION	941 FT @	$ 0.750 /FT	=		$705.75
	TOTAL					$840.75
BLASTING						
	ANFO	1300 LBS @	$ 0.212 /LB	=		$275.60
	SLURRY	1620 LBS @	$ 0.451 /LB	=		$730.62
	BOOSTERS	82 @	3.120 EACH	=		$255.84
	DTH DELAYS	82 @	1.680 EACH	=		$137.76
	42 MS DELAYS	20 @	2.200 EACH	=		$44.00
	HOLE PLUGS	22 @	1.820 EACH	=		$40.04
	CAPS	1 @	1.976 EACH	=		$1.98
	PRIMALINE	1000 FT @	$ 0.079 /FT	=		$78.50
	BALER TWINE	2000 FT @	$ 0.003 /FT	=		$5.00
	TOTAL					$1,569.34
	NONEL T'LINE (RESEARCH COMPONENT)	0 FT @	$ 0.057 /FT	=		$0.00
LABOR						
	LINEUP	1.75 HRS @	$ 18.50 /HR	=		$32.38
	PREPARATION	3.50 HRS @	$ 28.50 /HR	=		$99.75
	BLASTING	10.00 HRS @	$ 55.50 /HR	=		$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB		=		$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	0.00 HRS @	$ 55.50 /HR	=		$0.00
	TOTAL (+ OVERHEADS)					$0.00
GENERAL						
	TRAVEL	/BLAST		=		$122.19
	SUBSISTENCE	/BLAST		=		$39.57
	RENTALS	/BLAST		=		$114.57
	MISC.	/BLAST		=		$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST		=		$0.00

TOTAL COST (EXCL. RESEARCH) = $3,778.87

TOTAL COST (INCL. RESEARCH) = $3,778.87

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $26,549.60

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 20

LOCATION : N-4* # HOLES 10 DIAM. 6
RADIUS 25 FT WIDTH AFFECTED : ** FT
NO.OF ROWS 1 AREA OF INFLUENCE 1963.5 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	0 FT	@	$ 0.750 /FT	=	$0.00
	PRODUCTION	200 FT	@	$ 0.750 /FT	=	$150.00
	TOTAL					$150.00
BLASTING						
	ANFO	450 LBS	@	$ 0.212 /LB	=	$95.40
	SLURRY	420 LBS	@	$ 0.451 /LB	=	$189.42
	BOOSTERS	19	@	3.120 EACH	=	$59.28
	DTH DELAYS	19	@	1.680 EACH	=	$31.92
	42 MS DELAYS	10	@	2.200 EACH	=	$22.00
	HOLE PLUGS	0	@	1.820 EACH	=	$0.00
	CAPS	1	@	1.976 EACH	=	$1.98
	PRIMALINE	250 FT	@	$ 0.079 /FT	=	$19.63
	BALER TWINE	0 FT	@	$ 0.003 /FT	=	$0.00
	TOTAL					$419.62
	NONEL T'LINE (RESEARCH COMPONENT)	0 FT	@	$ 0.057 /FT	=	$0.00
LABOR						
	LINEUP	0.00 HRS	@	$ 18.50 /HR	=	$0.00
	PREPARATION	0.00 HRS	@	$ 28.50 /HR	=	$0.00
	BLASTING	8.00 HRS	@	$ 28.50 /HR	=	$228.00
	TOTAL					$228.00
	OVERHEADS	50 % DIR LAB			=	$114.00
	TOTAL					$342.00
	RESEARCH COMPONENT	0.00 HRS	@	$ 55.50 /HR	=	$0.00
	TOTAL (+ OVERHEADS)					$0.00
GENERAL						
	TRAVEL	/BLAST			=	$122.19
	SUBSISTENCE	/BLAST			=	$39.57
	RENTALS	/BLAST			=	$114.57
	MISC.	/BLAST			=	$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST			=	$0.00

TOTAL COST (EXCL. RESEARCH) = $1,249.72

TOTAL COST (INCL. RESEARCH) = $1,249.72

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $27,724.89

AML PROJECT - BLAST COST ANALYSIS. BLAST NO. 21

LOCATION : N-9(S) # HOLES 11 DIAM. 6
LENGTH 130 FT WIDTH AFFECTED : 40 FT
NO.OF ROWS 1 AREA OF INFLUENCE 5200 SQ. FT

						COST
DRILLING						
	ROOM LINE-UP	180 FT @	$	0.750 /FT	=	$135.00
	PRODUCTION	473 FT @	$	0.750 /FT	=	$354.75
	TOTAL					$489.75
BLASTING						
	ANFO	750 LBS @	$	0.212 /LB	=	$159.00
	SLURRY	930 LBS @	$	0.451 /LB	=	$419.43
	BOOSTERS	41 @		3.120 EACH	=	$127.92
	DTH DELAYS	40 @		1.680 EACH	=	$67.20
	42 MS DELAYS	11 @		2.200 EACH	=	$24.20
	HOLE PLUGS	12 @		1.820 EACH	=	$21.84
	CAPS	1 @		1.976 EACH	=	$1.98
	PRIMALINE	520 FT @	$	0.079 /FT	=	$40.82
	BALER TWINE	1040 FT @	$	0.003 /FT	=	$2.60
	TOTAL					$864.99
	NONEL T'LINE (RESEARCH COMPONENT)	500 FT @	$	0.057 /FT	=	$28.50
LABOR						
	LINEUP	1.75 HRS @	$	18.50 /HR	=	$32.38
	PREPARATION	3.50 HRS @	$	28.50 /HR	=	$99.75
	BLASTING	10.00 HRS @	$	55.50 /HR	=	$555.00
	TOTAL					$687.13
	OVERHEADS	50 % DIR LAB			=	$343.56
	TOTAL					$1,030.69
	RESEARCH COMPONENT	2.00 HRS @	$	55.50 /HR	=	$111.00
	TOTAL (+ OVERHEADS)					$166.50
GENERAL						
	TRAVEL	/BLAST			=	$122.19
	SUBSISTENCE	/BLAST			=	$39.57
	RENTALS	/BLAST			=	$114.57
	MISC.	/BLAST			=	$61.76
	TOTAL	/BLAST				$338.10
	RESEARCH COMPONENT	/BLAST			=	$27.14

TOTAL COST (EXCL. RESEARCH) = $2,723.52

TOTAL COST (INCL. RESEARCH) = $2,945.66

COST/ACRE (BASED ON THIS BLAST, EXCL. RESEARCH) $22,814.71

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APPENDIX G

ANALYSIS USING AML BLAST COST MODEL

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APPENDIX G-1

COST MODEL ANALYSIS
VARIATION OF AML BLASTING COST PER ACRE WITH
OVERBURDEN DEPTH

AML PROJECT - BLAST COST MODEL. ANALISYS NO. OD1

COMMENTS: VARIABLE DEPTH
10 ACRE SITE. BASE CASE. SINGLE ROW.

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	1
LENGTH	350 FT	ROOM WIDTH	12 FT
ROW SEPARAT.	8 FT	HOLE SPACING	12 FT
# HOLES	30	AV. DEPTH TO VOID	50 FT
PILLAR WIDTH	18.0 FT	AREA OF INFLUENCE	4200 SQ. FT
% EXTRACTION	40.0%	VOID/ACRE	17424 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	42

LOADING PARAMETERS : CHOICE ------> 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

						COST
DRILLING						
	ROOM LINE-UP	300 FT	@	$ 1.000 /FT	=	$300.00
	PRODUCTION	1500 FT	@	$ 1.000 /FT	=	$1,500.00
	TOTAL					$1,800.00
BLASTING						
	ANFO	3754.0 LBS	@	$ 0.145 /LB	=	$544.33
	SLURRY	1251.3 LBS	@	$ 0.360 /LB	=	$450.48
	BOOSTERS	122	@	3.200 EACH	=	$390.40
	DTH DELAYS	122	@	1.750 EACH	=	$213.50
	SURF. DELAYS	30	@	2.250 EACH	=	$67.50
	HOLE PLUGS	30	@	1.850 EACH	=	$55.50
	CAPS	1	@	2.000 EACH	=	$2.00
	PRIMALINE	1590 FT	@	$ 0.079 /FT	=	$124.82
	BALER TWINE	3180 FT	@	$ 0.003 /FT	=	$7.95
	TOTAL					$1,856.47
LABOR						
	LINEUP	1.75 HRS	@	$ 20.00 /HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00 /HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00 /HR	=	$600.00
	TOTAL					$740.00
	OVERHEADS	50 % DIR LAB			=	$370.00
	TOTAL					$1,110.00
GENERAL						
	TRAVEL	/BLAST			=	$71.43
	SUBSISTENCE	/BLAST			=	$140.00
	RENTALS	/BLAST			=	$62.50
	MISC.	/BLAST			=	$35.71
	TOTAL	/BLAST				$309.64

TOTAL COST = $5,076.11

COST/ACRE (BASED ON THIS BLAST) = $21,058.62

AML PROJECT - BLAST COSTING MODEL.

COSTS USED

		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000
EXPLOSIVES COSTS			BATCH 1
ANFO	/LB		$0.145
SLURRY	/LB		$0.360
BOOSTERS	EACH		$3.200
DTH DELAYS	EACH		$1.750
SURF. DELAYS	EACH		$2.250
HOLE PLUGS	EACH		$1.850
CAPS	EACH		$2.000
PRIMALINE	/FT		$0.079
NONEL T'LINE	/FT		$0.057
BALER TWINE	/FT		$0.003
LABOR COSTS			
BLAST. ENGR.	/HR		$30.00
FIELD ENGR.	/HR		$20.00
LABORER	/HR		$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)

TOTAL FOR PROJECT	$3,000.00
PER BLAST	$71.43

SUBSISTENCE

ENGINEERS	@	$50 /DAY	=	$4,200.00
LABORERS	@	$40 /DAY	=	$1,680.00
TOTAL FOR PROJECT				$5,880.00
PER BLAST				$140.00

RENTALS

SEISMOGRAPH	@	$500 /MONTH	=	$1,050.00
MAGAZINES	@	$400 /MONTH	=	$840.00
TRAILER	@	$350 /MONTH	=	$735.00
TOTAL FOR PROJECT				$2,625.00
PER BLAST				$62.50

MISCELLANEOUS

MISC. FIELD EQUIPMENT	$750.00
GENERAL SITE SERVICES	$450.00
CONSUMABLE FIELD SUPPLIES	$300.00
TOTAL FOR PROJECT	$1,500.00
PER BLAST	$35.71

AML PROJECT COST MODEL - VARIABLE DEPTH, 1 ROW. (OD1

PARAMETER C O S T P E R A C R E

DEPTH (FT)	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
35	$5,227	$5,801	$4,605	$1,285	$16,917
36	$5,377	$5,905	$4,605	$1,285	$17,171
37	$5,526	$6,104	$4,605	$1,285	$17,519
38	$5,675	$6,114	$4,605	$1,285	$17,679
39	$5,825	$6,125	$4,605	$1,285	$17,839
40	$5,974	$6,229	$4,605	$1,285	$18,092
41	$6,123	$6,576	$4,605	$1,285	$18,589
42	$6,273	$7,054	$4,605	$1,285	$19,216
43	$6,422	$7,253	$4,605	$1,285	$19,564
44	$6,571	$7,263	$4,605	$1,285	$19,724
45	$6,721	$7,273	$4,605	$1,285	$19,884
46	$6,870	$7,284	$4,605	$1,285	$20,043
47	$7,019	$7,482	$4,605	$1,285	$20,391
48	$7,169	$7,587	$4,605	$1,285	$20,645
49	$7,318	$7,785	$4,605	$1,285	$20,993
50	$7,467	$7,702	$4,605	$1,285	$21,059
51	$7,617	$7,712	$4,605	$1,285	$21,218
52	$7,766	$7,956	$4,605	$1,285	$21,612
53	$7,915	$8,294	$4,605	$1,285	$22,099
54	$8,065	$8,493	$4,605	$1,285	$22,447
55	$8,214	$8,691	$4,605	$1,285	$22,795
56	$8,364	$9,029	$4,605	$1,285	$23,282
57	$8,513	$9,228	$4,605	$1,285	$23,630
58	$8,662	$9,566	$4,605	$1,285	$24,118
59	$8,812	$9,859	$4,605	$1,285	$24,560
60	$8,961	$9,830	$5,227	$1,451	$25,468
61	$9,110	$10,307	$5,227	$1,451	$26,095
62	$9,260	$10,506	$5,227	$1,451	$26,443
63	$9,409	$10,705	$5,227	$1,451	$26,791
64	$9,558	$10,903	$5,227	$1,451	$27,139
65	$9,708	$11,241	$5,227	$1,451	$27,627
66	$9,857	$11,719	$5,227	$1,451	$28,254

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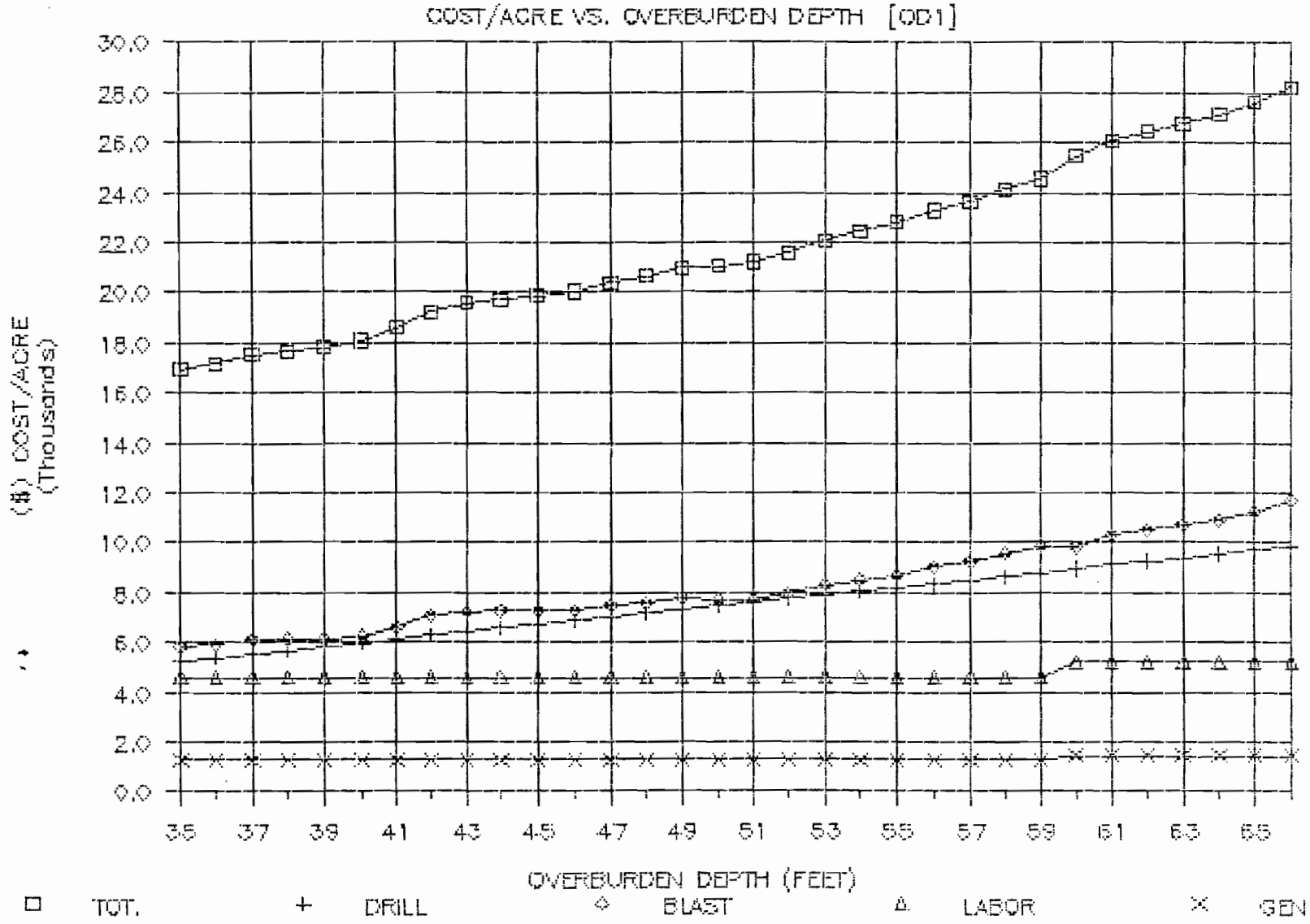
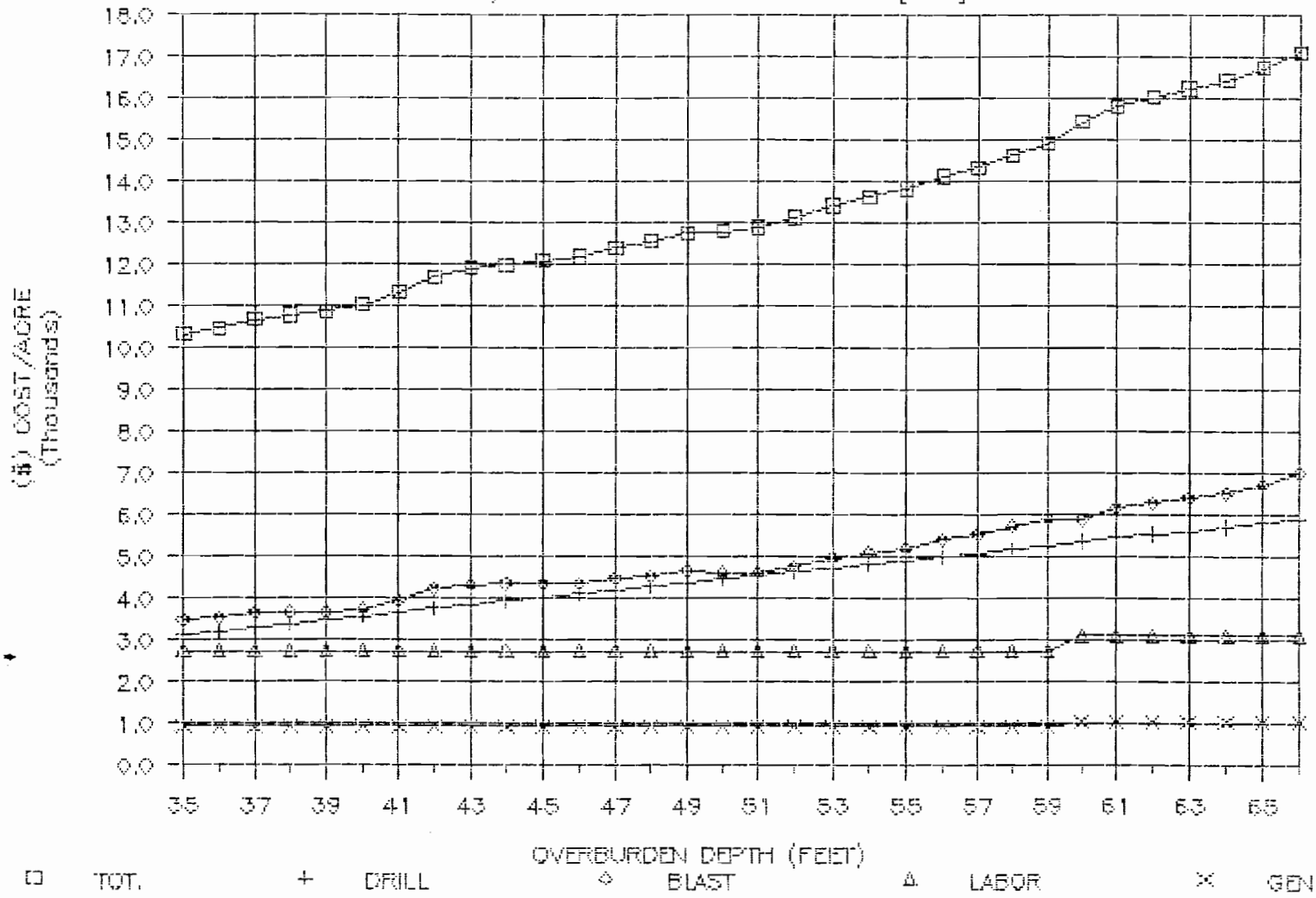
AML BLASTING - COST MODEL



AML BLASTING - COST MODEL

COST/ACRE VS. OVERBURDEN DEPTH [OD3]



APPENDIX G-2

COST MODEL ANALYSIS
VARIATION OF AML BLASTING COST PER ACRE WITH DRILLING COST

AML PROJECT COST MODEL - VAR. DRILL COST. 35'/1ROW (DC1

PARAMETER	C O S T	P E R	A C R E		
DRILL COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.50	$2,614	$5,801	$4,605	$1,285	$14,304
$0.60	$3,136	$5,801	$4,605	$1,285	$14,826
$0.70	$3,659	$5,801	$4,605	$1,285	$15,349
$0.80	$4,182	$5,801	$4,605	$1,285	$15,872
$0.90	$4,704	$5,801	$4,605	$1,285	$16,395
$1.00	$5,227	$5,801	$4,605	$1,285	$16,917
$1.10	$5,750	$5,801	$4,605	$1,285	$17,440
$1.20	$6,273	$5,801	$4,605	$1,285	$17,963
$1.30	$6,795	$5,801	$4,605	$1,285	$18,486
$1.40	$7,318	$5,801	$4,605	$1,285	$19,008
$1.50	$7,841	$5,801	$4,605	$1,285	$19,531
$1.60	$8,364	$5,801	$4,605	$1,285	$20,054
$1.70	$8,886	$5,801	$4,605	$1,285	$20,576
$1.80	$9,409	$5,801	$4,605	$1,285	$21,099
$1.90	$9,932	$5,801	$4,605	$1,285	$21,622
$2.00	$10,454	$5,801	$4,605	$1,285	$22,145
$2.10	$10,977	$5,801	$4,605	$1,285	$22,667
$2.20	$11,500	$5,801	$4,605	$1,285	$23,190
$2.30	$12,023	$5,801	$4,605	$1,285	$23,713
$2.40	$12,545	$5,801	$4,605	$1,285	$24,235
$2.50	$13,068	$5,801	$4,605	$1,285	$24,758

AML PROJECT COST MODEL - VAR. DRILL COST. 45'/1ROW (DC2

PARAMETER	C O S T	P E R	A C R E		
DRILL COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.50	$3,360	$7,273	$4,605	$1,285	$16,523
$0.60	$4,032	$7,273	$4,605	$1,285	$17,195
$0.70	$4,704	$7,273	$4,605	$1,285	$17,867
$0.80	$5,377	$7,273	$4,605	$1,285	$18,539
$0.90	$6,049	$7,273	$4,605	$1,285	$19,211
$1.00	$6,721	$7,273	$4,605	$1,285	$19,884
$1.10	$7,393	$7,273	$4,605	$1,285	$20,556
$1.20	$8,065	$7,273	$4,605	$1,285	$21,228
$1.30	$8,737	$7,273	$4,605	$1,285	$21,900
$1.40	$9,409	$7,273	$4,605	$1,285	$22,572
$1.50	$10,081	$7,273	$4,605	$1,285	$23,244
$1.60	$10,753	$7,273	$4,605	$1,285	$23,916
$1.70	$11,425	$7,273	$4,605	$1,285	$24,588
$1.80	$12,097	$7,273	$4,605	$1,285	$25,260
$1.90	$12,769	$7,273	$4,605	$1,285	$25,932
$2.00	$13,441	$7,273	$4,605	$1,285	$26,604
$2.10	$14,113	$7,273	$4,605	$1,285	$27,276
$2.20	$14,786	$7,273	$4,605	$1,285	$27,948
$2.30	$15,458	$7,273	$4,605	$1,285	$28,620
$2.40	$16,130	$7,273	$4,605	$1,285	$29,293
$2.50	$16,802	$7,273	$4,605	$1,285	$29,965

AML PROJECT - BLAST COST MODEL. ANALISYS NO. DC3

COMMENTS: VARIABLE DRILLING COST. 10 ACRE SITE. BASE CASE. 55 FT O/B. SINGLE ROW.

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	1
LENGTH	350 FT	ROOM WIDTH	12 FT
ROW SEPARAT.	0 FT	HOLE SPACING	12 FT
# HOLES	30	AV. DEPTH TO VOID	55 FT
PILLAR WIDTH	18.0 FT	AREA OF INFLUENCE	4200 SQ. FT
% EXTRACTION	40.0%	VOID/ACRE	17424 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	42

LOADING PARAMETERS : CHOICE ------> 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

						COST
DRILLING						
	ROOM LINE-UP	330 FT	@	$ 1.000 /FT	=	$330.00
	PRODUCTION	1650 FT	@	$ 1.000 /FT	=	$1,650.00
	TOTAL					$1,980.00
BLASTING						
	ANFO	4536.1 LBS	@	$ 0.145 /LB	=	$657.73
	SLURRY	1564.2 LBS	@	$ 0.360 /LB	=	$563.10
	BOOSTERS	122	@	3.200 EACH	=	$390.40
	DTH DELAYS	122	@	1.750 EACH	=	$213.50
	SURF. DELAYS	30	@	2.250 EACH	=	$67.50
	HOLE PLUGS	30	@	1.850 EACH	=	$55.50
	CAPS	1	@	2.000 EACH	=	$2.00
	PRIMALINE	1740 FT	@	$ 0.079 /FT	=	$136.59
	BALER TWINE	3480 FT	@	$ 0.003 /FT	=	$8.70
	TOTAL					$2,095.02
LABOR						
	LINEUP	1.75 HRS	@	$ 20.00 /HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00 /HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00 /HR	=	$600.00
	TOTAL					$740.00
	OVERHEADS	50 % DIR LAB			=	$370.00
	TOTAL					$1,110.00
GENERAL						
	TRAVEL	/BLAST			=	$71.43
	SUBSISTENCE	/BLAST			=	$140.00
	RENTALS	/BLAST			=	$62.50
	MISC.	/BLAST			=	$35.71
	TOTAL	/BLAST				$309.64

TOTAL COST = $5,494.66

COST/ACRE (BASED ON THIS BLAST) = $22,794.98

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AML PROJECT - BLAST COSTING MODEL.

COSTS USED

		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000
EXPLOSIVES COSTS			BATCH 1
ANFO	/LB		$0.145
SLURRY	/LB		$0.360
BOOSTERS	EACH		$3.200
DTH DELAYS	EACH		$1.750
SURF. DELAYS	EACH		$2.250
HOLE PLUGS	EACH		$1.850
CAPS	EACH		$2.000
PRIMALINE	/FT		$0.079
NONEL T'LINE	/FT		$0.057
BALER TWINE	/FT		$0.003
LABOR COSTS			
BLAST. ENGR.	/HR		$30.00
FIELD ENGR.	/HR		$20.00
LABORER	/HR		$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)

TOTAL FOR PROJECT	$3,000.00
PER BLAST	$71.43

SUBSISTENCE

ENGINEERS	@	$50 /DAY	=	$4,200.00
LABORERS	@	$40 /DAY	=	$1,680.00
TOTAL FOR PROJECT				$5,880.00
PER BLAST				$140.00

RENTALS

SEISMOGRAPH	@	$500 /MONTH	=	$1,050.00
MAGAZINES	@	$400 /MONTH	=	$840.00
TRAILER	@	$350 /MONTH	=	$735.00
TOTAL FOR PROJECT				$2,625.00
PER BLAST				$62.50

MISCELLANEOUS

MISC. FIELD EQUIPMENT	$750.00
GENERAL SITE SERVICES	$450.00
CONSUMABLE FIELD SUPPLIES	$300.00
TOTAL FOR PROJECT	$1,500.00
PER BLAST	$35.71

AML PROJECT COST MODEL - VAR.DRILL COST. 55'/1ROW (DC3

PARAMETER	C O S T		P E R		A C R E
DRILL COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.50	$4,107	$8,691	$4,605	$1,285	$18,688
$0.60	$4,929	$8,691	$4,605	$1,285	$19,509
$0.70	$5,750	$8,691	$4,605	$1,285	$20,331
$0.80	$6,571	$8,691	$4,605	$1,285	$21,152
$0.90	$7,393	$8,691	$4,605	$1,285	$21,974
$1.00	$8,214	$8,691	$4,605	$1,285	$22,795
$1.10	$9,036	$8,691	$4,605	$1,285	$23,616
$1.20	$9,857	$8,691	$4,605	$1,285	$24,438
$1.30	$10,678	$8,691	$4,605	$1,285	$25,259
$1.40	$11,500	$8,691	$4,605	$1,285	$26,081
$1.50	$12,321	$8,691	$4,605	$1,285	$26,902
$1.60	$13,143	$8,691	$4,605	$1,285	$27,723
$1.70	$13,964	$8,691	$4,605	$1,285	$28,545
$1.80	$14,786	$8,691	$4,605	$1,285	$29,366
$1.90	$15,607	$8,691	$4,605	$1,285	$30,188
$2.00	$16,428	$8,691	$4,605	$1,285	$31,009
$2.10	$17,250	$8,691	$4,605	$1,285	$31,831
$2.20	$18,071	$8,691	$4,605	$1,285	$32,652
$2.30	$18,893	$8,691	$4,605	$1,285	$33,473
$2.40	$19,714	$8,691	$4,605	$1,285	$34,295
$2.50	$20,535	$8,691	$4,605	$1,285	$35,116

AML PROJECT COST MODEL - VAR.DRILL COST. 65'/1ROW (DC4

PARAMETER	C O S T		P E R		A C R E
DRILL COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.50	$4,854	$11,241	$5,227	$1,451	$22,773
$0.60	$5,825	$11,241	$5,227	$1,451	$23,744
$0.70	$6,795	$11,241	$5,227	$1,451	$24,714
$0.80	$7,766	$11,241	$5,227	$1,451	$25,685
$0.90	$8,737	$11,241	$5,227	$1,451	$26,656
$1.00	$9,708	$11,241	$5,227	$1,451	$27,627
$1.10	$10,678	$11,241	$5,227	$1,451	$28,597
$1.20	$11,649	$11,241	$5,227	$1,451	$29,568
$1.30	$12,620	$11,241	$5,227	$1,451	$30,539
$1.40	$13,591	$11,241	$5,227	$1,451	$31,510
$1.50	$14,561	$11,241	$5,227	$1,451	$32,480
$1.60	$15,532	$11,241	$5,227	$1,451	$33,451
$1.70	$16,503	$11,241	$5,227	$1,451	$34,422
$1.80	$17,474	$11,241	$5,227	$1,451	$35,393
$1.90	$18,445	$11,241	$5,227	$1,451	$36,363
$2.00	$19,415	$11,241	$5,227	$1,451	$37,334
$2.10	$20,386	$11,241	$5,227	$1,451	$38,305
$2.20	$21,357	$11,241	$5,227	$1,451	$39,276
$2.30	$22,328	$11,241	$5,227	$1,451	$40,247
$2.40	$23,298	$11,241	$5,227	$1,451	$41,217
$2.50	$24,269	$11,241	$5,227	$1,451	$42,188

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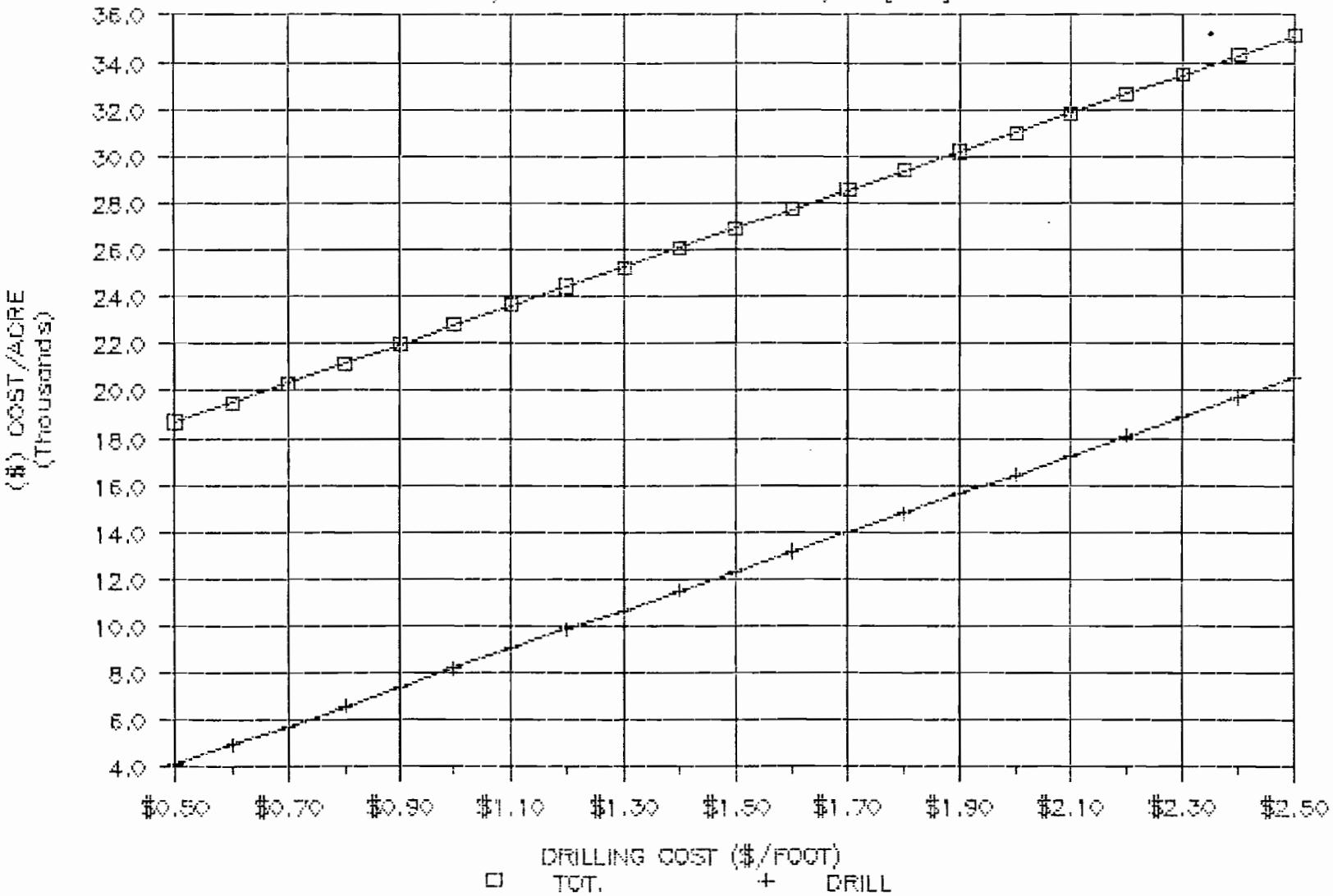
AML BLASTING - COST MODEL

COST/ACRE VS. DRILL COST, 55'/1R [DC3]



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AML PROJECT COST MODEL - VAR.DRILL COST. 35'/2ROW (DC5

PARAMETER	C O S T		P E R		A C R E
DRILL COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.50	$2,363	$5,688	$4,835	$1,328	$14,214
$0.60	$2,836	$5,688	$4,835	$1,328	$14,687
$0.70	$3,308	$5,688	$4,835	$1,328	$15,159
$0.80	$3,781	$5,688	$4,835	$1,328	$15,632
$0.90	$4,254	$5,688	$4,835	$1,328	$16,104
$1.00	$4,726	$5,688	$4,835	$1,328	$16,577
$1.10	$5,199	$5,688	$4,835	$1,328	$17,050
$1.20	$5,672	$5,688	$4,835	$1,328	$17,522
$1.30	$6,144	$5,688	$4,835	$1,328	$17,995
$1.40	$6,617	$5,688	$4,835	$1,328	$18,468
$1.50	$7,089	$5,688	$4,835	$1,328	$18,940
$1.60	$7,562	$5,688	$4,835	$1,328	$19,413
$1.70	$8,035	$5,688	$4,835	$1,328	$19,885
$1.80	$8,507	$5,688	$4,835	$1,328	$20,358
$1.90	$8,980	$5,688	$4,835	$1,328	$20,831
$2.00	$9,453	$5,688	$4,835	$1,328	$21,303
$2.10	$9,925	$5,688	$4,835	$1,328	$21,776
$2.20	$10,398	$5,688	$4,835	$1,328	$22,249
$2.30	$10,870	$5,688	$4,835	$1,328	$22,721
$2.40	$11,343	$5,688	$4,835	$1,328	$23,194
$2.50	$11,816	$5,688	$4,835	$1,328	$23,667

AML PROJECT COST MODEL - VAR.DRILL COST. 45'/2ROW (DC6

PARAMETER	C O S T		P E R		A C R E
DRILL COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.50	$3,038	$7,131	$4,835	$1,328	$16,332
$0.60	$3,646	$7,131	$4,835	$1,328	$16,940
$0.70	$4,254	$7,131	$4,835	$1,328	$17,548
$0.80	$4,861	$7,131	$4,835	$1,328	$18,155
$0.90	$5,469	$7,131	$4,835	$1,328	$18,763
$1.00	$6,077	$7,131	$4,835	$1,328	$19,371
$1.10	$6,684	$7,131	$4,835	$1,328	$19,978
$1.20	$7,292	$7,131	$4,835	$1,328	$20,586
$1.30	$7,900	$7,131	$4,835	$1,328	$21,194
$1.40	$8,507	$7,131	$4,835	$1,328	$21,801
$1.50	$9,115	$7,131	$4,835	$1,328	$22,409
$1.60	$9,723	$7,131	$4,835	$1,328	$23,017
$1.70	$10,330	$7,131	$4,835	$1,328	$23,624
$1.80	$10,938	$7,131	$4,835	$1,328	$24,232
$1.90	$11,546	$7,131	$4,835	$1,328	$24,840
$2.00	$12,153	$7,131	$4,835	$1,328	$25,447
$2.10	$12,761	$7,131	$4,835	$1,328	$26,055
$2.20	$13,369	$7,131	$4,835	$1,328	$26,663
$2.30	$13,976	$7,131	$4,835	$1,328	$27,270
$2.40	$14,584	$7,131	$4,835	$1,328	$27,878
$2.50	$15,192	$7,131	$4,835	$1,328	$28,486

AML PROJECT - BLAST COST MODEL. ANALISYS NO. DC7

COMMENTS: VARIABLE DRILLING COST. 10 ACRE SITE. BASE CASE. 55 FT O/B. DOUBLE ROW.

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	2
LENGTH	200 FT	ROOM WIDTH	20 FT
ROW SEPARAT.	8 FT	HOLE SPACING	15 FT
# HOLES	28	AV. DEPTH TO VOID	55 FT
PILLAR WIDTH	30.0 FT	AREA OF INFLUENCE	4000 SQ. FT
% EXTRACTION	40.0%	VOID/ACRE	17424 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	44

LOADING PARAMETERS : CHOICE ------> 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

						COST
DRILLING						
	ROOM LINE-UP	165 FT	@	$ 1.000 /FT	=	$165.00
	PRODUCTION	1540 FT	@	$ 1.000 /FT	=	$1,540.00
	TOTAL					$1,705.00
BLASTING						
	ANFO	4233.7 LBS	@	$ 0.145 /LB	=	$613.88
	SLURRY	1459.9 LBS	@	$ 0.360 /LB	=	$525.56
	BOOSTERS	114	@	3.200 EACH	=	$364.80
	DTH DELAYS	114	@	1.750 EACH	=	$199.50
	SURF. DELAYS	28	@	2.250 EACH	=	$63.00
	HOLE PLUGS	28	@	1.850 EACH	=	$51.80
	CAPS	1	@	2.000 EACH	=	$2.00
	PRIMALINE	1624 FT	@	$ 0.079 /FT	=	$127.48
	BALER TWINE	3248 FT	@	$ 0.003 /FT	=	$8.12
	TOTAL					$1,956.14
LABOR						
	LINEUP	1.75 HRS	@	$ 20.00 /HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00 /HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00 /HR	=	$600.00
	TOTAL					$740.00
	OVERHEADS	50 % DIR LAB			=	$370.00
	TOTAL					$1,110.00
GENERAL						
	TRAVEL	/BLAST			=	$68.18
	SUBSISTENCE	/BLAST			=	$140.00
	RENTALS	/BLAST			=	$62.50
	MISC.	/BLAST			=	$34.09
	TOTAL	/BLAST				$304.77

TOTAL COST = $5,075.91

COST/ACRE (BASED ON THIS BLAST) = $22,110.68

AML PROJECT - BLAST COSTING MODEL.

COSTS USED

		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000
EXPLOSIVES COSTS			BATCH 1
ANFO	/LB		$0.145
SLURRY	/LB		$0.360
BOOSTERS	EACH		$3.200
DTH DELAYS	EACH		$1.750
SURF. DELAYS	EACH		$2.250
HOLE PLUGS	EACH		$1.850
CAPS	EACH		$2.000
PRIMALINE	/FT		$0.079
NONEL T'LINE	/FT		$0.057
BALER TWINE	/FT		$0.003
LABOR COSTS			
BLAST. ENGR.	/HR		$30.00
FIELD ENGR.	/HR		$20.00
LABORER	/HR		$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)

TOTAL FOR PROJECT	$3,000.00
PER BLAST	$68.18

SUBSISTENCE

ENGINEERS	@	$50	/DAY	= $4,400.00
LABORERS	@	$40	/DAY	= $1,760.00
TOTAL FOR PROJECT				$6,160.00
PER BLAST				$140.00

RENTALS

SEISMOGRAPH	@	$500	/MONTH	= $1,100.00
MAGAZINES	@	$400	/MONTH	= $880.00
TRAILER	@	$350	/MONTH	= $770.00
TOTAL FOR PROJECT				$2,750.00
PER BLAST				$62.50

MISCELLANEOUS

MISC. FIELD EQUIPMENT	$750.00
GENERAL SITE SERVICES	$450.00
CONSUMABLE FIELD SUPPLIES	$300.00
TOTAL FOR PROJECT	$1,500.00
PER BLAST	$34.09

AML PROJECT COST MODEL - VAR.DRILL COST. 55'/2ROW (DC7

PARAMETER	C O S T		P E R	A C R E	
DRILL COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.50	$3,713	$8,521	$4,835	$1,328	$18,397
$0.60	$4,456	$8,521	$4,835	$1,328	$19,140
$0.70	$5,199	$8,521	$4,835	$1,328	$19,883
$0.80	$5,942	$8,521	$4,835	$1,328	$20,625
$0.90	$6,684	$8,521	$4,835	$1,328	$21,368
$1.00	$7,427	$8,521	$4,835	$1,328	$22,111
$1.10	$8,170	$8,521	$4,835	$1,328	$22,853
$1.20	$8,912	$8,521	$4,835	$1,328	$23,596
$1.30	$9,655	$8,521	$4,835	$1,328	$24,339
$1.40	$10,398	$8,521	$4,835	$1,328	$25,081
$1.50	$11,140	$8,521	$4,835	$1,328	$25,824
$1.60	$11,883	$8,521	$4,835	$1,328	$26,567
$1.70	$12,626	$8,521	$4,835	$1,328	$27,310
$1.80	$13,369	$8,521	$4,835	$1,328	$28,052
$1.90	$14,111	$8,521	$4,835	$1,328	$28,795
$2.00	$14,854	$8,521	$4,835	$1,328	$29,538
$2.10	$15,597	$8,521	$4,835	$1,328	$30,280
$2.20	$16,339	$8,521	$4,835	$1,328	$31,023
$2.30	$17,082	$8,521	$4,835	$1,328	$31,766
$2.40	$17,825	$8,521	$4,835	$1,328	$32,508
$2.50	$18,567	$8,521	$4,835	$1,328	$33,251

AML PROJECT COST MODEL - VAR.DRILL COST. 65'/2ROW (DC8

PARAMETER	C O S T		P E R	A C R E	
DRILL COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.50	$4,389	$11,020	$5,489	$1,502	$22,399
$0.60	$5,266	$11,020	$5,489	$1,502	$23,277
$0.70	$6,144	$11,020	$5,489	$1,502	$24,154
$0.80	$7,022	$11,020	$5,489	$1,502	$25,032
$0.90	$7,900	$11,020	$5,489	$1,502	$25,910
$1.00	$8,777	$11,020	$5,489	$1,502	$26,788
$1.10	$9,655	$11,020	$5,489	$1,502	$27,665
$1.20	$10,533	$11,020	$5,489	$1,502	$28,543
$1.30	$11,411	$11,020	$5,489	$1,502	$29,421
$1.40	$12,288	$11,020	$5,489	$1,502	$30,299
$1.50	$13,166	$11,020	$5,489	$1,502	$31,176
$1.60	$14,044	$11,020	$5,489	$1,502	$32,054
$1.70	$14,921	$11,020	$5,489	$1,502	$32,932
$1.80	$15,799	$11,020	$5,489	$1,502	$33,809
$1.90	$16,677	$11,020	$5,489	$1,502	$34,687
$2.00	$17,555	$11,020	$5,489	$1,502	$35,565
$2.10	$18,432	$11,020	$5,489	$1,502	$36,443
$2.20	$19,310	$11,020	$5,489	$1,502	$37,320
$2.30	$20,188	$11,020	$5,489	$1,502	$38,198
$2.40	$21,066	$11,020	$5,489	$1,502	$39,076
$2.50	$21,943	$11,020	$5,489	$1,502	$39,954

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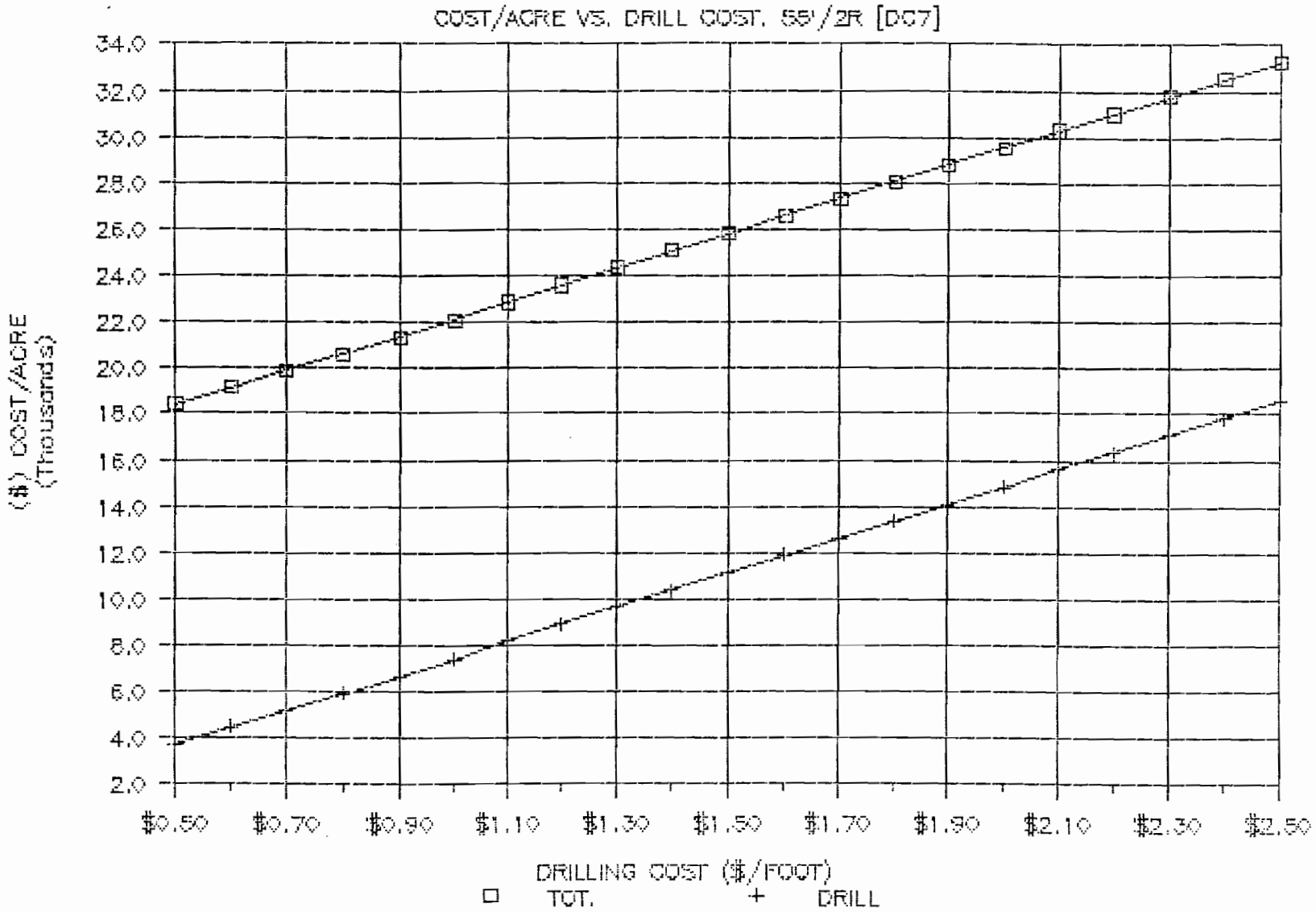
AML BLASTING - COST MODEL



APPENDIX G-3

COST MODEL ANALYSIS
VARIATION OF AML BLASTING COST PER ACRE WITH EXPLOSIVES COST

AML PROJECT COST MODEL - VARIABLE EXPLOSIVE COST. 35'/1R. (EC1

PARAMETER		C O S T	P E R	A C R E		
ANFO COST/LB	SLURRY COST/LB	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.100	$0.350	$5,227	$5,398	$4,605	$1,285	$16,515
$0.110	$0.360	$5,227	$5,528	$4,605	$1,285	$16,645
$0.120	$0.370	$5,227	$5,658	$4,605	$1,285	$16,775
$0.130	$0.380	$5,227	$5,788	$4,605	$1,285	$16,904
$0.140	$0.390	$5,227	$5,917	$4,605	$1,285	$17,034
$0.150	$0.400	$5,227	$6,047	$4,605	$1,285	$17,164
$0.160	$0.410	$5,227	$6,177	$4,605	$1,285	$17,294
$0.170	$0.420	$5,227	$6,307	$4,605	$1,285	$17,423
$0.180	$0.430	$5,227	$6,437	$4,605	$1,285	$17,553
$0.190	$0.440	$5,227	$6,566	$4,605	$1,285	$17,683
$0.200	$0.450	$5,227	$6,696	$4,605	$1,285	$17,813
$0.210	$0.460	$5,227	$6,826	$4,605	$1,285	$17,943
$0.220	$0.470	$5,227	$6,956	$4,605	$1,285	$18,072
$0.230	$0.480	$5,227	$7,085	$4,605	$1,285	$18,202

AML PROJECT COST MODEL - VARIABLE EXPLOSIVE COST, 45'/1R. (EC2

PARAMETER		C O S T	P E R	A C R E		
ANFO COST/LB	SLURRY COST/LB	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.100	$0.350	$6,721	$6,637	$4,605	$1,285	$19,248
$0.110	$0.360	$6,721	$6,819	$4,605	$1,285	$19,429
$0.120	$0.370	$6,721	$7,001	$4,605	$1,285	$19,611
$0.130	$0.380	$6,721	$7,183	$4,605	$1,285	$19,793
$0.140	$0.390	$6,721	$7,364	$4,605	$1,285	$19,974
$0.150	$0.400	$6,721	$7,546	$4,605	$1,285	$20,156
$0.160	$0.410	$6,721	$7,728	$4,605	$1,285	$20,338
$0.170	$0.420	$6,721	$7,909	$4,605	$1,285	$20,519
$0.180	$0.430	$6,721	$8,091	$4,605	$1,285	$20,701
$0.190	$0.440	$6,721	$8,273	$4,605	$1,285	$20,883
$0.200	$0.450	$6,721	$8,454	$4,605	$1,285	$21,065
$0.210	$0.460	$6,721	$8,636	$4,605	$1,285	$21,246
$0.220	$0.470	$6,721	$8,818	$4,605	$1,285	$21,428
$0.230	$0.480	$6,721	$8,999	$4,605	$1,285	$21,610

ANL [illegible] - BLAST COST MODEL. ANALISYS NO. [illegible]

COMMENTS: VARIABLE EXPLOSIVES COST
10 ACRE SITE. BASE CASE. SINGLE ROW.

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	1
LENGTH	350 FT	ROOM WIDTH	12 FT
ROW SEPARAT.	8 FT	HOLE SPACING	12 FT
# HOLES	30	AV. DEPTH TO VOID	55 FT
PILLAR WIDTH	18.0 FT	AREA OF INFLUENCE	4200 SQ. FT
% EXTRACTION	40.0%	VOID/ACRE	17424 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	42

LOADING PARAMETERS : CHOICE ------> 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

						COST
DRILLING						
	ROOM LINE-UP	330 FT	@	$ 1.000 /FT	=	$330.00
	PRODUCTION	1650 FT	@	$ 1.000 /FT	=	$1,650.00
	TOTAL					$1,980.00
BLASTING						
	ANFO	4536.1 LBS	@	$ 0.150 /LB	=	$680.41
	SLURRY	1564.2 LBS	@	$ 0.400 /LB	=	$625.66
	BOOSTERS	122	@	3.200 EACH	=	$390.40
	DTH DELAYS	122	@	1.750 EACH	=	$213.50
	SURF. DELAYS	30	@	2.250 EACH	=	$67.50
	HOLE PLUGS	30	@	1.850 EACH	=	$55.50
	CAPS	1	@	2.000 EACH	=	$2.00
	PRIMALINE	1740 FT	@	$ 0.079 /FT	=	$136.59
	BALER TWINE	3480 FT	@	$ 0.003 /FT	=	$8.70
	TOTAL					$2,180.26
LABOR						
	LINEUP	1.75 HRS	@	$ 20.00 /HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00 /HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00 /HR	=	$600.00
	TOTAL					$740.00
	OVERHEADS	50 % DIR LAB			=	$370.00
	TOTAL					$1,110.00
GENERAL						
	TRAVEL	/BLAST			=	$71.43
	SUBSISTENCE	/BLAST			=	$140.00
	RENTALS	/BLAST			=	$62.50
	MISC.	/BLAST			=	$35.71
	TOTAL	/BLAST				$309.64

TOTAL COST = $5,579.91

COST/ACRE (BASED ON THIS BLAST) = $23,148.63

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AML PROJECT - BLAST COSTING MODEL.

COSTS USED

		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000
EXPLOSIVES COSTS			BATCH 1
ANFO	/LB		$0.150
SLURRY	/LB		$0.400
BOOSTERS	EACH		$3.200
DTH DELAYS	EACH		$1.750
SURF. DELAYS	EACH		$2.250
HOLE PLUGS	EACH		$1.850
CAPS	EACH		$2.000
PRIMALINE	/FT		$0.079
NONEL T'LINE	/FT		$0.057
BALER TWINE	/FT		$0.003
LABOR COSTS			
BLAST. ENGR.	/HR		$30.00
FIELD ENGR.	/HR		$20.00
LABORER	/HR		$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)			
TOTAL FOR PROJECT			$3,000.00
PER BLAST			$71.43
SUBSISTENCE			
ENGINEERS	@	$50 /DAY =	$4,200.00
LABORERS	@	$40 /DAY =	$1,680.00
TOTAL FOR PROJECT			$5,880.00
PER BLAST			$140.00
RENTALS			
SEISMOGRAPH	@	$500 /MONTH =	$1,050.00
MAGAZINES	@	$400 /MONTH =	$840.00
TRAILER	@	$350 /MONTH =	$735.00
TOTAL FOR PROJECT			$2,625.00
PER BLAST			$62.50
MISCELLANEOUS			
MISC. FIELD EQUIPMENT			$750.00
GENERAL SITE SERVICES			$450.00
CONSUMABLE FIELD SUPPLIES			$300.00
TOTAL FOR PROJECT			$1,500.00
PER BLAST			$35.71

AML PROJECT COST MODEL - VARIABLE EXPLOSIVE COST, 55'/1R. (EC3

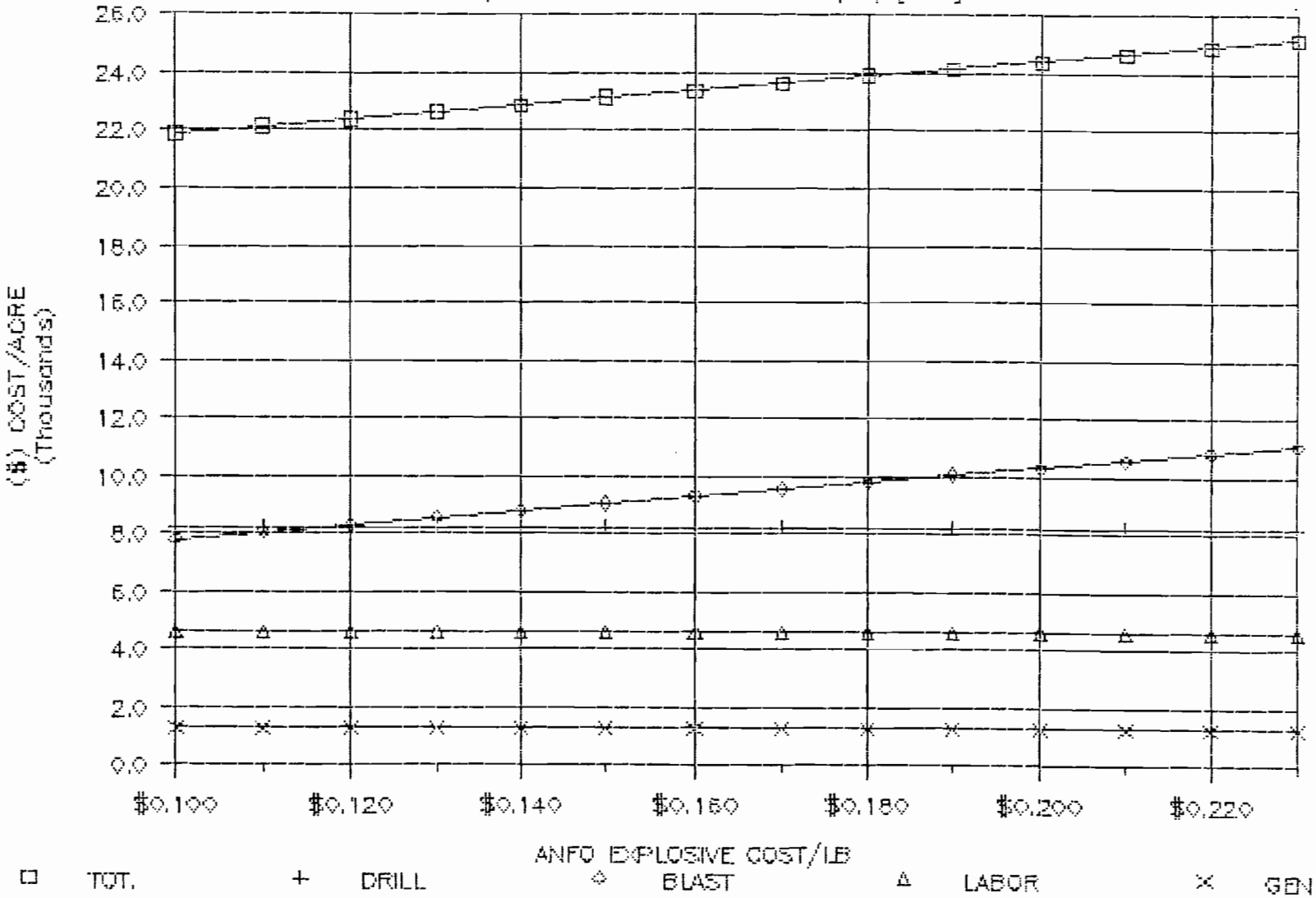
PARAMETER		COST PER ACRE				
ANFO COST/LB	SLURRY COST/LB	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.100	$0.350	$8,214	$7,780	$4,605	$1,285	$21,883
$0.110	$0.360	$8,214	$8,033	$4,605	$1,285	$22,136
$0.120	$0.370	$8,214	$8,286	$4,605	$1,285	$22,389
$0.130	$0.380	$8,214	$8,539	$4,605	$1,285	$22,642
$0.140	$0.390	$8,214	$8,792	$4,605	$1,285	$22,896
$0.150	$0.400	$8,214	$9,045	$4,605	$1,285	$23,149
$0.160	$0.410	$8,214	$9,298	$4,605	$1,285	$23,402
$0.170	$0.420	$8,214	$9,551	$4,605	$1,285	$23,655
$0.180	$0.430	$8,214	$9,804	$4,605	$1,285	$23,908
$0.190	$0.440	$8,214	$10,057	$4,605	$1,285	$24,161
$0.200	$0.450	$8,214	$10,310	$4,605	$1,285	$24,414
$0.210	$0.460	$8,214	$10,563	$4,605	$1,285	$24,667
$0.220	$0.470	$8,214	$10,816	$4,605	$1,285	$24,920
$0.230	$0.480	$8,214	$11,070	$4,605	$1,285	$25,173

AML PROJECT COST MODEL - VARIABLE EXPLOSIVE COST, 65'/1R. (EC4

PARAMETER		COST PER ACRE				
ANFO COST/LB	SLURRY COST/LB	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.100	$0.350	$9,708	$9,960	$5,227	$1,451	$26,345
$0.110	$0.360	$9,708	$10,310	$5,227	$1,451	$26,695
$0.120	$0.370	$9,708	$10,660	$5,227	$1,451	$27,046
$0.130	$0.380	$9,708	$11,011	$5,227	$1,451	$27,396
$0.140	$0.390	$9,708	$11,361	$5,227	$1,451	$27,747
$0.150	$0.400	$9,708	$11,712	$5,227	$1,451	$28,097
$0.160	$0.410	$9,708	$12,062	$5,227	$1,451	$28,447
$0.170	$0.420	$9,708	$12,412	$5,227	$1,451	$28,798
$0.180	$0.430	$9,708	$12,763	$5,227	$1,451	$29,148
$0.190	$0.440	$9,708	$13,113	$5,227	$1,451	$29,499
$0.200	$0.450	$9,708	$13,464	$5,227	$1,451	$29,849
$0.210	$0.460	$9,708	$13,814	$5,227	$1,451	$30,199
$0.220	$0.470	$9,708	$14,165	$5,227	$1,451	$30,550
$0.230	$0.480	$9,708	$14,515	$5,227	$1,451	$30,900

AML BLASTING - COST MODEL

COST/ACRE VS. EXPLOSIVE COST (AN) [EC3]



AML PROJECT COST MODEL - VARIABLE EXPLOSIVE COST, 35'/2R. (EC5

PARAMETER		C O S T		P E R	A C R E	
ANFO COST/LB	SLURRY COST/LB	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.100	$0.350	$4,726	$5,294	$4,835	$1,328	$16,183
$0.110	$0.360	$4,726	$5,421	$4,835	$1,328	$16,310
$0.120	$0.370	$4,726	$5,548	$4,835	$1,328	$16,437
$0.130	$0.380	$4,726	$5,675	$4,835	$1,328	$16,564
$0.140	$0.390	$4,726	$5,803	$4,835	$1,328	$16,692
$0.150	$0.400	$4,726	$5,930	$4,835	$1,328	$16,819
$0.160	$0.410	$4,726	$6,057	$4,835	$1,328	$16,946
$0.170	$0.420	$4,726	$6,184	$4,835	$1,328	$17,073
$0.180	$0.430	$4,726	$6,311	$4,835	$1,328	$17,200
$0.190	$0.440	$4,726	$6,438	$4,835	$1,328	$17,328
$0.200	$0.450	$4,726	$6,566	$4,835	$1,328	$17,455
$0.210	$0.460	$4,726	$6,693	$4,835	$1,328	$17,582
$0.220	$0.470	$4,726	$6,820	$4,835	$1,328	$17,709
$0.230	$0.480	$4,726	$6,947	$4,835	$1,328	$17,836

AML PROJECT COST MODEL - VARIABLE EXPLOSIVE COST, 45'/2R. (EC6

PARAMETER		C O S T		P E R	A C R E	
ANFO COST/LB	SLURRY COST/LB	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.100	$0.350	$6,077	$6,508	$4,835	$1,328	$18,748
$0.110	$0.360	$6,077	$6,686	$4,835	$1,328	$18,926
$0.120	$0.370	$6,077	$6,864	$4,835	$1,328	$19,104
$0.130	$0.380	$6,077	$7,042	$4,835	$1,328	$19,282
$0.140	$0.390	$6,077	$7,220	$4,835	$1,328	$19,460
$0.150	$0.400	$6,077	$7,398	$4,835	$1,328	$19,638
$0.160	$0.410	$6,077	$7,577	$4,835	$1,328	$19,816
$0.170	$0.420	$6,077	$7,755	$4,835	$1,328	$19,994
$0.180	$0.430	$6,077	$7,933	$4,835	$1,328	$20,172
$0.190	$0.440	$6,077	$8,111	$4,835	$1,328	$20,350
$0.200	$0.450	$6,077	$8,289	$4,835	$1,328	$20,528
$0.210	$0.460	$6,077	$8,467	$4,835	$1,328	$20,706
$0.220	$0.470	$6,077	$8,645	$4,835	$1,328	$20,884
$0.230	$0.480	$6,077	$8,823	$4,835	$1,328	$21,062

AML PROJECT - BLAST COST MODEL. ANALISYS NO. EC7

COMMENTS: VARIABLE EXPLOSIVES COST
10 ACRE SITE. BASE CASE. DOUBLE ROW.

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	2
LENGTH	200 FT	ROOM WIDTH	20 FT
ROW SEPARAT.	8 FT	HOLE SPACING	15 FT
# HOLES	28	AV. DEPTH TO VOID	55 FT
PILLAR WIDTH	30.0 FT	AREA OF INFLUENCE	4000 SQ. FT
% EXTRACTION	40.0%	VOID/ACRE	17424 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	44

LOADING PARAMETERS : CHOICE ------) 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

						COST
DRILLING						
	ROOM LINE-UP	165 FT	@	$ 1.000 /FT	=	$165.00
	PRODUCTION	1540 FT	@	$ 1.000 /FT	=	$1,540.00
	TOTAL					$1,705.00
BLASTING						
	ANFO	4233.7 LBS	@	$ 0.150 /LB	=	$635.05
	SLURRY	1459.9 LBS	@	$ 0.400 /LB	=	$583.95
	BOOSTERS	114	@	3.200 EACH	=	$364.80
	DTH DELAYS	114	@	1.750 EACH	=	$199.50
	SURF. DELAYS	28	@	2.250 EACH	=	$63.00
	HOLE PLUGS	28	@	1.850 EACH	=	$51.80
	CAPS	1	@	2.000 EACH	=	$2.00
	PRIMALINE	1624 FT	@	$ 0.079 /FT	=	$127.48
	BALER TWINE	3248 FT	@	$ 0.003 /FT	=	$8.12
	TOTAL					$2,035.70
LABOR						
	LINEUP	1.75 HRS	@	$ 20.00 /HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00 /HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00 /HR	=	$600.00
	TOTAL					$740.00
	OVERHEADS	50 % DIR LAB			=	$370.00
	TOTAL					$1,110.00
GENERAL						
	TRAVEL	/BLAST			=	$68.18
	SUBSISTENCE	/BLAST			=	$140.00
	RENTALS	/BLAST			=	$62.50
	MISC.	/BLAST			=	$34.09
	TOTAL	/BLAST				$304.77

TOTAL COST = $5,155.48

COST/ACRE (BASED ON THIS BLAST) = $22,457.26

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AML PROJECT - BLAST COSTING MODEL.

COSTS USED

		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000
EXPLOSIVES COSTS			BATCH 1
ANFO	/LB		$0.150
SLURRY	/LB		$0.400
BOOSTERS	EACH		$3.200
DTH DELAYS	EACH		$1.750
SURF. DELAYS	EACH		$2.250
HOLE PLUGS	EACH		$1.850
CAPS	EACH		$2.000
PRIMALINE	/FT		$0.079
NONEL T'LINE	/FT		$0.057
BALER TWINE	/FT		$0.003
LABOR COSTS			
BLAST. ENGR.	/HR		$30.00
FIELD ENGR.	/HR		$20.00
LABORER	/HR		$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)

TOTAL FOR PROJECT	$3,000.00
PER BLAST	$68.18

SUBSISTENCE

ENGINEERS	@	$50	/DAY	= $4,400.00
LABORERS	@	$40	/DAY	= $1,760.00

TOTAL FOR PROJECT	$6,160.00
PER BLAST	$140.00

RENTALS

SEISMOGRAPH	@	$500	/MONTH	= $1,100.00
MAGAZINES	@	$400	/MONTH	= $880.00
TRAILER	@	$350	/MONTH	= $770.00

TOTAL FOR PROJECT	$2,750.00
PER BLAST	$62.50

MISCELLANEOUS

MISC. FIELD EQUIPMENT	$750.00
GENERAL SITE SERVICES	$450.00
CONSUMABLE FIELD SUPPLIES	$300.00
TOTAL FOR PROJECT	$1,500.00
PER BLAST	$34.09

AML PROJECT COST MODEL - VARIABLE EXPLOSIVE COST, 55'/2R. (EC7

PARAMETER		COST PER ACRE				
ANFO COST/LB	SLURRY COST/LB	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.100	$0.350	$7,427	$7,627	$4,835	$1,328	$21,217
$0.110	$0.360	$7,427	$7,875	$4,835	$1,328	$21,465
$0.120	$0.370	$7,427	$8,123	$4,835	$1,328	$21,713
$0.130	$0.380	$7,427	$8,372	$4,835	$1,328	$21,961
$0.140	$0.390	$7,427	$8,620	$4,835	$1,328	$22,209
$0.150	$0.400	$7,427	$8,868	$4,835	$1,328	$22,457
$0.160	$0.410	$7,427	$9,116	$4,835	$1,328	$22,705
$0.170	$0.420	$7,427	$9,364	$4,835	$1,328	$22,953
$0.180	$0.430	$7,427	$9,612	$4,835	$1,328	$23,201
$0.190	$0.440	$7,427	$9,860	$4,835	$1,328	$23,449
$0.200	$0.450	$7,427	$10,108	$4,835	$1,328	$23,697
$0.210	$0.460	$7,427	$10,356	$4,835	$1,328	$23,945
$0.220	$0.470	$7,427	$10,604	$4,835	$1,328	$24,193
$0.230	$0.480	$7,427	$10,852	$4,835	$1,328	$24,441

AML PROJECT COST MODEL - VARIABLE EXPLOSIVE COST, 65'/2R. (EC8

PARAMETER		COST PER ACRE				
ANFO COST/LB	SLURRY COST/LB	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
$0.100	$0.350	$8,777	$9,764	$5,489	$1,502	$25,532
$0.110	$0.360	$8,777	$10,107	$5,489	$1,502	$25,875
$0.120	$0.370	$8,777	$10,451	$5,489	$1,502	$26,218
$0.130	$0.380	$8,777	$10,794	$5,489	$1,502	$26,562
$0.140	$0.390	$8,777	$11,137	$5,489	$1,502	$26,905
$0.150	$0.400	$8,777	$11,481	$5,489	$1,502	$27,249
$0.160	$0.410	$8,777	$11,824	$5,489	$1,502	$27,592
$0.170	$0.420	$8,777	$12,168	$5,489	$1,502	$27,935
$0.180	$0.430	$8,777	$12,511	$5,489	$1,502	$28,279
$0.190	$0.440	$8,777	$12,854	$5,489	$1,502	$28,622
$0.200	$0.450	$8,777	$13,198	$5,489	$1,502	$28,966
$0.210	$0.460	$8,777	$13,541	$5,489	$1,502	$29,309
$0.220	$0.470	$8,777	$13,885	$5,489	$1,502	$29,652
$0.230	$0.480	$8,777	$14,228	$5,489	$1,502	$29,996

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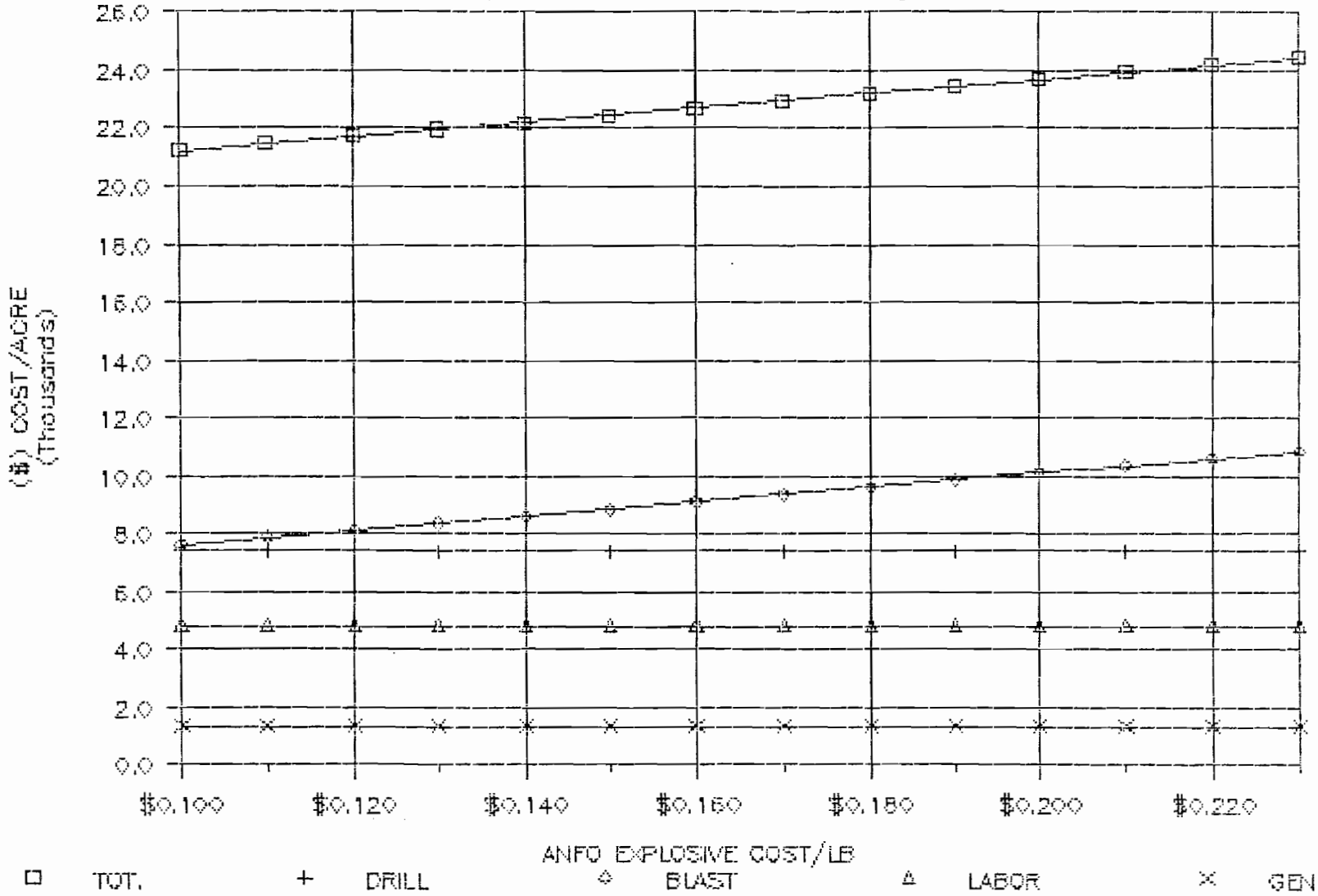
AML BLASTING - COST MODEL

COST/ACRE VS. EXPLOSIVE COST (AN) [E07]



APPENDIX G-4

COST MODEL ANALYSIS
VARIATION OF AML BLASTING COST PER ACRE WITH
LABOR COST

AML PROJECT COST MODEL - VAR.LABOR COST. 35'/1ROW (LC1

PARAMETER	C O S T	P E R	A C R E		
% BASE COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
85.0%	$5,227	$5,801	$3,914	$1,285	$16,227
90.0%	$5,227	$5,801	$4,144	$1,285	$16,457
95.0%	$5,227	$5,801	$4,375	$1,285	$16,687
100.0%	$5,227	$5,801	$4,605	$1,285	$16,917
105.0%	$5,227	$5,801	$4,835	$1,285	$17,148
110.0%	$5,227	$5,801	$5,065	$1,285	$17,378
115.0%	$5,227	$5,801	$5,296	$1,285	$17,608

AML PROJECT COST MODEL - VAR.LABOR COST. 45'/1ROW (LC2

PARAMETER	C O S T	P E R	A C R E		
% BASE COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
85.0%	$6,721	$7,273	$3,914	$1,285	$19,193
90.0%	$6,721	$7,273	$4,144	$1,285	$19,423
95.0%	$6,721	$7,273	$4,375	$1,285	$19,653
100.0%	$6,721	$7,273	$4,605	$1,285	$19,884
105.0%	$6,721	$7,273	$4,835	$1,285	$20,114
110.0%	$6,721	$7,273	$5,065	$1,285	$20,344
115.0%	$6,721	$7,273	$5,296	$1,285	$20,574

AML PROJECT COST MODEL - VAR.LABOR COST. 55'/1ROW (LC3

PARAMETER	C O S T	P E R	A C R E		
% BASE COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
85.0%	$8,214	$8,691	$3,914	$1,285	$22,104
90.0%	$8,214	$8,691	$4,144	$1,285	$22,334
95.0%	$8,214	$8,691	$4,375	$1,285	$22,565
100.0%	$8,214	$8,691	$4,605	$1,285	$22,795
105.0%	$8,214	$8,691	$4,835	$1,285	$23,025
110.0%	$8,214	$8,691	$5,065	$1,285	$23,255
115.0%	$8,214	$8,691	$5,296	$1,285	$23,486

AML PROJECT - BLAST COST MODEL. ANALISYS NO. LC3

COMMENTS: VARIABLE LABOR COST. 10 ACRE SITE.
BASE CASE. 55 FT O/B. SINGLE ROW.

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	1
LENGTH	350 FT	ROOM WIDTH	12 FT
ROW SEPARAT.	0 FT	HOLE SPACING	12 FT
# HOLES	30	AV. DEPTH TO VOID	55 FT
PILLAR WIDTH	18.0 FT	AREA OF INFLUENCE	4200 SQ. FT
% EXTRACTION	40.0%	VOID/ACRE	17424 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	42

LOADING PARAMETERS : CHOICE ------> 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

							COST
DRILLING							
	ROOM LINE-UP	330 FT	@	$ 1.000	/FT	=	$330.00
	PRODUCTION	1650 FT	@	$ 1.000	/FT	=	$1,650.00
	TOTAL						$1,980.00
BLASTING							
	ANFO	4536.1 LBS	@	$ 0.145	/LB	=	$657.73
	SLURRY	1564.2 LBS	@	$ 0.360	/LB	=	$563.10
	BOOSTERS	122	@	3.200	EACH	=	$390.40
	DTH DELAYS	122	@	1.750	EACH	=	$213.50
	SURF. DELAYS	30	@	2.250	EACH	=	$67.50
	HOLE PLUGS	30	@	1.850	EACH	=	$55.50
	CAPS	1	@	2.000	EACH	=	$2.00
	PRIMALINE	1740 FT	@	$ 0.079	/FT	=	$136.59
	BALER TWINE	3480 FT	@	$ 0.003	/FT	=	$8.70
	TOTAL						$2,095.02
LABOR							
	LINEUP	1.75 HRS	@	$ 20.00	/HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00	/HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00	/HR	=	$600.00
	TOTAL						$740.00
	OVERHEADS	50 % DIR LAB				=	$370.00
	TOTAL						$1,110.00
GENERAL							
	TRAVEL	/BLAST				=	$71.43
	SUBSISTENCE	/BLAST				=	$140.00
	RENTALS	/BLAST				=	$62.50
	MISC.	/BLAST				=	$35.71
	TOTAL	/BLAST					$309.64

TOTAL COST = $5,494.66

12 COST/ACRE (BASED ON THIS BLAST) = $22,794.98

AML PROJECT - BLAST COSTING MODEL.

COSTS USED

		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000

EXPLOSIVES COSTS

		BATCH 1
ANFO	/LB	$0.145
SLURRY	/LB	$0.360
BOOSTERS	EACH	$3.200
DTH DELAYS	EACH	$1.750
SURF. DELAYS	EACH	$2.250
HOLE PLUGS	EACH	$1.850
CAPS	EACH	$2.000
PRIMALINE	/FT	$0.079
NONEL T'LINE	/FT	$0.057
BALER TWINE	/FT	$0.003

LABOR COSTS

BLAST. ENGR.	/HR	$30.00
FIELD ENGR.	/HR	$20.00
LABORER	/HR	$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)

TOTAL FOR PROJECT	$3,000.00
PER BLAST	$71.43

SUBSISTENCE

ENGINEERS	@	$50	/DAY	= $4,200.00
LABORERS	@	$40	/DAY	= $1,680.00

TOTAL FOR PROJECT	$5,880.00
PER BLAST	$140.00

RENTALS

SEISMOGRAPH	@	$500	/MONTH	= $1,050.00
MAGAZINES	@	$400	/MONTH	= $840.00
TRAILER	@	$350	/MONTH	= $735.00

TOTAL FOR PROJECT	$2,625.00
PER BLAST	$62.50

MISCELLANEOUS

MISC. FIELD EQUIPMENT	$750.00
GENERAL SITE SERVICES	$450.00
CONSUMABLE FIELD SUPPLIES	$300.00

TOTAL FOR PROJECT	$1,500.00
PER BLAST	$35.71

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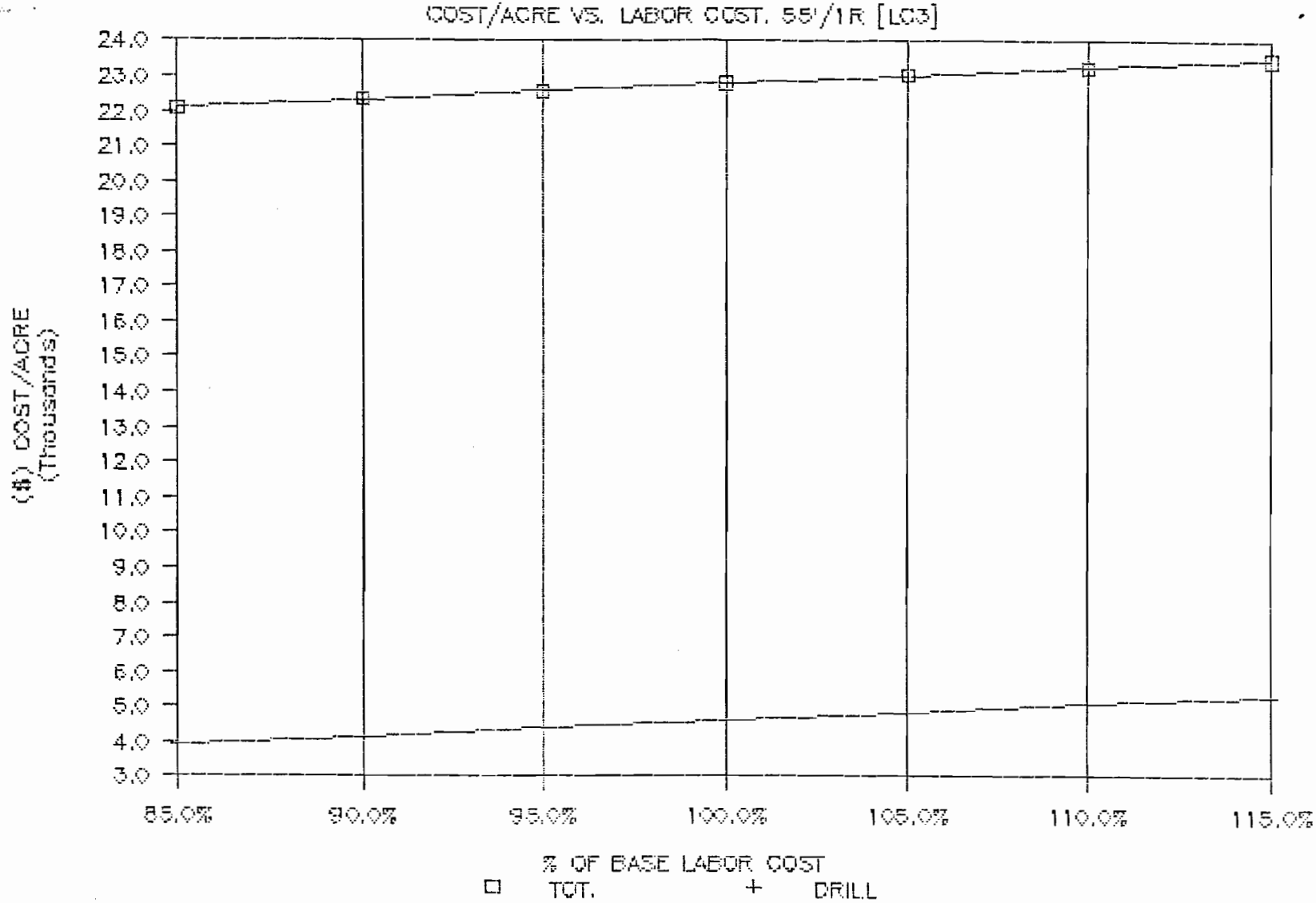
AML BLASTING - COST MODEL



AML PROJECT COST MODEL - VAR.LABOR COST. 65'/1ROW (LC4

PARAMETER	C O S T		P E R		A C R E
% BASE COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
85.0%	$9,708	$11,241	$4,443	$1,451	$26,843
90.0%	$9,708	$11,241	$4,704	$1,451	$27,104
95.0%	$9,708	$11,241	$4,966	$1,451	$27,365
100.0%	$9,708	$11,241	$5,227	$1,451	$27,627
105.0%	$9,708	$11,241	$5,489	$1,451	$27,888
110.0%	$9,708	$11,241	$5,750	$1,451	$28,149
115.0%	$9,708	$11,241	$6,011	$1,451	$28,411

AML PROJECT COST MODEL - VAR.LABOR COST. 35'/2ROW (LC5

PARAMETER	C O S T		P E R		A C R E
% BASE COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
85.0%	$4,726	$5,688	$4,110	$1,328	$15,852
90.0%	$4,726	$5,688	$4,352	$1,328	$16,094
95.0%	$4,726	$5,688	$4,593	$1,328	$16,335
100.0%	$4,726	$5,688	$4,835	$1,328	$16,577
105.0%	$4,726	$5,688	$5,077	$1,328	$16,819
110.0%	$4,726	$5,688	$5,319	$1,328	$17,061
115.0%	$4,726	$5,688	$5,560	$1,328	$17,302

AML PROJECT COST MODEL - VAR.LABOR COST. 45'/2ROW (LC6

PARAMETER	C O S T		P E R		A C R E
% BASE COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
85.0%	$6,077	$7,131	$4,110	$1,328	$18,645
90.0%	$6,077	$7,131	$4,352	$1,328	$18,887
95.0%	$6,077	$7,131	$4,593	$1,328	$19,129
100.0%	$6,077	$7,131	$4,835	$1,328	$19,371
105.0%	$6,077	$7,131	$5,077	$1,328	$19,612
110.0%	$6,077	$7,131	$5,319	$1,328	$19,854
115.0%	$6,077	$7,131	$5,560	$1,328	$20,096

AML PROJECT COST MODEL - VAR.LABOR COST. 55'/2ROW (LC7

PARAMETER	C O S T	P E R	A C R E		
% BASE COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
85.0%	$7,427	$8,521	$4,110	$1,328	$21,385
90.0%	$7,427	$8,521	$4,352	$1,328	$21,627
95.0%	$7,427	$8,521	$4,593	$1,328	$21,869
100.0%	$7,427	$8,521	$4,835	$1,328	$22,111
105.0%	$7,427	$8,521	$5,077	$1,328	$22,352
110.0%	$7,427	$8,521	$5,319	$1,328	$22,594
115.0%	$7,427	$8,521	$5,560	$1,328	$22,836

AML PROJECT COST MODEL - VAR.LABOR COST. 65'/2ROW (LC8

PARAMETER	C O S T	P E R	A C R E		
% BASE COST	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
85.0%	$8,777	$11,020	$4,665	$1,502	$25,964
90.0%	$8,777	$11,020	$4,940	$1,502	$26,239
95.0%	$8,777	$11,020	$5,214	$1,502	$26,513
100.0%	$8,777	$11,020	$5,489	$1,502	$26,788
105.0%	$8,777	$11,020	$5,763	$1,502	$27,062
110.0%	$8,777	$11,020	$6,037	$1,502	$27,336
115.0%	$8,777	$11,020	$6,312	$1,502	$27,611

AML PROJECT - BLAST COST MODEL. ANALISYS NO. LC7

COMMENTS: VARIABLE LABOR COST. 10 ACRE SITE.
BASE CASE. 55 FT O/B. DOUBLE ROW.

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	2
LENGTH	200 FT	ROOM WIDTH	20 FT
ROW SEPARAT.	8 FT	HOLE SPACING	15 FT
# HOLES	28	AV. DEPTH TO VOID	55 FT
PILLAR WIDTH	30.0 FT	AREA OF INFLUENCE	4000 SQ. FT
% EXTRACTION	40.0%	VOID/ACRE	17424 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	44

LOADING PARAMETERS : CHOICE ------) 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

						COST
DRILLING						
	ROOM LINE-UP	165 FT	@	$ 1.000 /FT	=	$165.00
	PRODUCTION	1540 FT	@	$ 1.000 /FT	=	$1,540.00
	TOTAL					$1,705.00
BLASTING						
	ANFO	4233.7 LBS	@	$ 0.145 /LB	=	$613.88
	SLURRY	1459.9 LBS	@	$ 0.360 /LB	=	$525.56
	BOOSTERS	114	@	3.200 EACH	=	$364.80
	DTH DELAYS	114	@	1.750 EACH	=	$199.50
	SURF. DELAYS	28	@	2.250 EACH	=	$63.00
	HOLE PLUGS	28	@	1.850 EACH	=	$51.80
	CAPS	1	@	2.000 EACH	=	$2.00
	PRIMALINE	1624 FT	@	$ 0.079 /FT	=	$127.48
	BALER TWINE	3248 FT	@	$ 0.003 /FT	=	$8.12
	TOTAL					$1,956.14
LABOR						
	LINEUP	1.75 HRS	@	$ 20.00 /HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00 /HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00 /HR	=	$600.00
	TOTAL					$740.00
	OVERHEADS	50 % DIR LAB			=	$370.00
	TOTAL					$1,110.00
GENERAL						
	TRAVEL	/BLAST			=	$68.18
	SUBSISTENCE	/BLAST			=	$140.00
	RENTALS	/BLAST			=	$62.50
	MISC.	/BLAST			=	$34.09
	TOTAL	/BLAST				$304.77

TOTAL COST = $5,075.91

COST/ACRE (BASED ON THIS BLAST) = $22,110.68

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AML PROJECT - BLAST COSTING MODEL.

COSTS USED

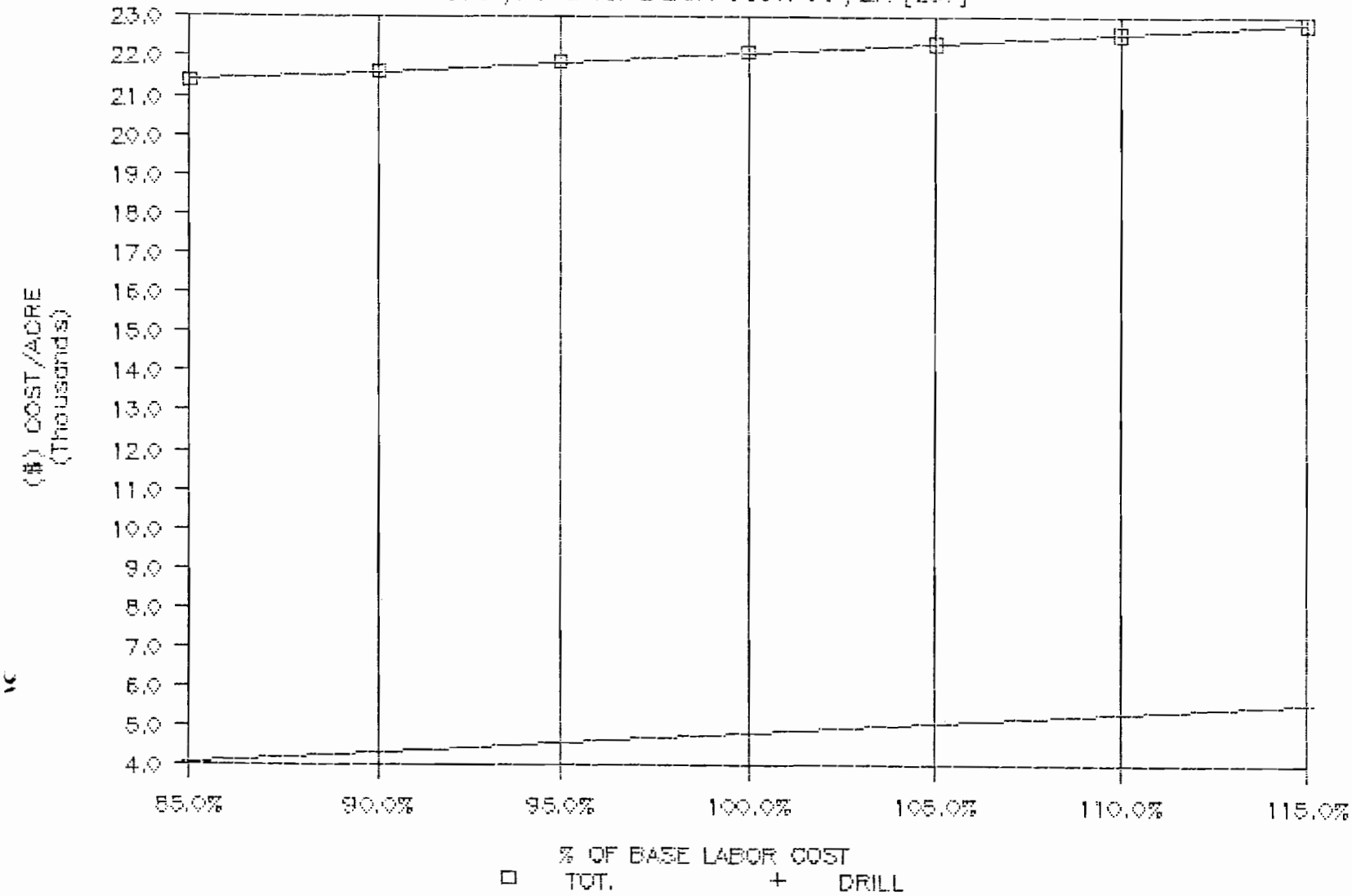
		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000
EXPLOSIVES COSTS			BATCH 1
ANFO	/LB		$0.145
SLURRY	/LB		$0.360
BOOSTERS	EACH		$3.200
DTH DELAYS	EACH		$1.750
SURF. DELAYS	EACH		$2.250
HOLE PLUGS	EACH		$1.850
CAPS	EACH		$2.000
PRIMALINE	/FT		$0.079
NONEL T'LINE	/FT		$0.057
BALER TWINE	/FT		$0.003
LABOR COSTS			
BLAST. ENGR.	/HR		$30.00
FIELD ENGR.	/HR		$20.00
LABORER	/HR		$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)			
TOTAL FOR PROJECT			$3,000.00
PER BLAST			$68.18
SUBSISTENCE			
ENGINEERS	@	$50 /DAY =	$4,400.00
LABORERS	@	$40 /DAY =	$1,760.00
TOTAL FOR PROJECT			$6,160.00
PER BLAST			$140.00
RENTALS			
SEISMOGRAPH	@	$500 /MONTH =	$1,100.00
MAGAZINES	@	$400 /MONTH =	$880.00
TRAILER	@	$350 /MONTH =	$770.00
TOTAL FOR PROJECT			$2,750.00
PER BLAST			$62.50
MISCELLANEOUS			
MISC. FIELD EQUIPMENT			$750.00
GENERAL SITE SERVICES			$450.00
CONSUMABLE FIELD SUPPLIES			$300.00
TOTAL FOR PROJECT			$1,500.00
PER BLAST			$34.09

AML BLASTING - COST MODEL

COST/ACRE VS. LABOR COST, 55'/2R [LC7]



APPENDIX G-5

COST MODEL ANALYSIS
VARIATION OF AML BLASTING COST PER ACRE WITH
PERCENTAGE EXTRACTION FROM A SITE

AML PROJECT COST MODEL - VARIABLE % EXTR, 35'/1R (PE1

PARAMETER	C O S T	P E R	A C R E		
% EXTRACT.	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
20.0%	$2,614	$2,900	$2,302	$865	$8,681
22.0%	$2,875	$3,190	$2,533	$908	$9,506
24.0%	$3,136	$3,480	$2,763	$952	$10,332
26.0%	$3,398	$3,770	$2,993	$995	$11,157
28.0%	$3,659	$4,060	$3,223	$1,024	$11,967
30.0%	$3,920	$4,350	$3,454	$1,068	$12,792
32.0%	$4,182	$4,641	$3,684	$1,111	$13,618
34.0%	$4,443	$4,931	$3,914	$1,155	$14,443
36.0%	$4,704	$5,221	$4,144	$1,198	$15,268
38.0%	$4,966	$5,511	$4,375	$1,241	$16,093
40.0%	$5,227	$5,801	$4,605	$1,285	$16,917
42.0%	$5,489	$6,091	$4,835	$1,328	$17,742
44.0%	$5,750	$6,381	$5,065	$1,371	$18,567
46.0%	$6,011	$6,671	$5,296	$1,413	$19,391
48.0%	$6,273	$6,961	$5,526	$1,456	$20,215
50.0%	$6,534	$7,251	$5,756	$1,499	$21,040
52.0%	$6,795	$7,541	$5,986	$1,542	$21,864
54.0%	$7,057	$7,831	$6,217	$1,576	$22,681
56.0%	$7,318	$8,121	$6,447	$1,619	$23,505
58.0%	$7,579	$8,411	$6,677	$1,662	$24,329
60.0%	$7,841	$8,701	$6,907	$1,705	$25,154

AML PROJECT COST MODEL - VARIABLE % EXTR. 45'/1R (PE2

PARAMETER	C O S T	P E R	A C R E		
% EXTRACT.	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
20.0%	$3,360	$3,637	$2,302	$865	$10,164
22.0%	$3,696	$4,000	$2,533	$908	$11,138
24.0%	$4,032	$4,364	$2,763	$952	$12,111
26.0%	$4,368	$4,728	$2,993	$995	$13,085
28.0%	$4,704	$5,091	$3,223	$1,024	$14,043
30.0%	$5,041	$5,455	$3,454	$1,068	$15,017
32.0%	$5,377	$5,819	$3,684	$1,111	$15,991
34.0%	$5,713	$6,182	$3,914	$1,155	$16,964
36.0%	$6,049	$6,546	$4,144	$1,198	$17,937
38.0%	$6,385	$6,910	$4,375	$1,241	$18,910
40.0%	$6,721	$7,273	$4,605	$1,285	$19,884
42.0%	$7,057	$7,637	$4,835	$1,328	$20,857
44.0%	$7,393	$8,001	$5,065	$1,371	$21,829
46.0%	$7,729	$8,364	$5,296	$1,413	$22,802
48.0%	$8,065	$8,728	$5,526	$1,456	$23,775
50.0%	$8,401	$9,092	$5,756	$1,499	$24,748
52.0%	$8,737	$9,455	$5,986	$1,542	$25,720
54.0%	$9,073	$9,819	$6,217	$1,576	$26,685
56.0%	$9,409	$10,183	$6,447	$1,619	$27,658
58.0%	$9,745	$10,546	$6,677	$1,662	$28,630
60.0%	$10,081	$10,910	$6,907	$1,705	$29,603

AML PROJECT COST MODEL - VARIABLE % EXTR. 55'/1R (PE3

PARAMETER	C O S T		P E R	A C R E	
% EXTRACT.	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
20.0%	$4,107	$4,346	$2,302	$865	$11,620
22.0%	$4,518	$4,780	$2,533	$908	$12,739
24.0%	$4,929	$5,215	$2,763	$952	$13,858
26.0%	$5,339	$5,649	$2,993	$995	$14,977
28.0%	$5,750	$6,084	$3,223	$1,024	$16,081
30.0%	$6,161	$6,518	$3,454	$1,068	$17,200
32.0%	$6,571	$6,953	$3,684	$1,111	$18,320
34.0%	$6,982	$7,388	$3,914	$1,155	$19,439
36.0%	$7,393	$7,822	$4,144	$1,198	$20,558
38.0%	$7,803	$8,257	$4,375	$1,241	$21,676
40.0%	$8,214	$8,691	$4,605	$1,285	$22,795
42.0%	$8,625	$9,126	$4,835	$1,328	$23,914
44.0%	$9,036	$9,560	$5,065	$1,371	$25,032
46.0%	$9,446	$9,995	$5,296	$1,413	$26,150
48.0%	$9,857	$10,430	$5,526	$1,456	$27,269
50.0%	$10,268	$10,864	$5,756	$1,499	$28,387
52.0%	$10,678	$11,299	$5,986	$1,542	$29,505
54.0%	$11,089	$11,733	$6,217	$1,576	$30,615
56.0%	$11,500	$12,168	$6,447	$1,619	$31,734
58.0%	$11,911	$12,602	$6,677	$1,662	$32,852
60.0%	$12,321	$13,037	$6,907	$1,705	$33,970

AML PROJECT COST MODEL - VARIABLE % EXTR. 65'/1R (PE4

PARAMETER	C O S T		P E R	A C R E	
% EXTRACT.	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
20.0%	$4,854	$5,621	$2,614	$948	$14,036
22.0%	$5,339	$6,183	$2,875	$1,000	$15,397
24.0%	$5,825	$6,745	$3,136	$1,052	$16,757
26.0%	$6,310	$7,307	$3,398	$1,103	$18,118
28.0%	$6,795	$7,869	$3,659	$1,140	$19,463
30.0%	$7,281	$8,431	$3,920	$1,192	$20,824
32.0%	$7,766	$8,993	$4,182	$1,244	$22,185
34.0%	$8,252	$9,555	$4,443	$1,296	$23,546
36.0%	$8,737	$10,117	$4,704	$1,348	$24,906
38.0%	$9,222	$10,679	$4,966	$1,399	$26,266
40.0%	$9,708	$11,241	$5,227	$1,451	$27,627
42.0%	$10,193	$11,803	$5,489	$1,502	$28,987
44.0%	$10,678	$12,365	$5,750	$1,553	$30,347
46.0%	$11,164	$12,927	$6,011	$1,604	$31,707
48.0%	$11,649	$13,489	$6,273	$1,655	$33,067
50.0%	$12,135	$14,052	$6,534	$1,706	$34,426
52.0%	$12,620	$14,614	$6,795	$1,757	$35,786
54.0%	$13,105	$15,176	$7,057	$1,800	$37,138
56.0%	$13,591	$15,738	$7,318	$1,851	$38,498
58.0%	$14,076	$16,300	$7,579	$1,903	$39,858
60.0%	$14,561	$16,862	$7,841	$1,954	$41,218

AML PROJECT - BLAST COST MODEL. ANALISYS NO. PE3

COMMENTS: VARIABLE % EXTRACTION.
10 ACRE SITE. BASE CASE. 1 ROW, 55' O/

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	1
LENGTH	350 FT	ROOM WIDTH	12 FT
ROW SEPARAT.	8 FT	HOLE SPACING	12 FT
# HOLES	30	AV. DEPTH TO VOID	55 FT
PILLAR WIDTH	12.0 FT	AREA OF INFLUENCE	4200 SQ. FT
% EXTRACTION	50.0%	VOID/ACRE	21780 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	52

LOADING PARAMETERS : CHOICE ------> 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

						COST
DRILLING						
	ROOM LINE-UP	330 FT	@	$ 1.000 /FT	=	$330.00
	PRODUCTION	1650 FT	@	$ 1.000 /FT	=	$1,650.00
	TOTAL					$1,980.00
BLASTING						
	ANFO	4536.1 LBS	@	$ 0.145 /LB	=	$657.73
	SLURRY	1564.2 LBS	@	$ 0.360 /LB	=	$563.10
	BOOSTERS	122	@	3.200 EACH	=	$390.40
	DTH DELAYS	122	@	1.750 EACH	=	$213.50
	SURF. DELAYS	30	@	2.250 EACH	=	$67.50
	HOLE PLUGS	30	@	1.850 EACH	=	$55.50
	CAPS	1	@	2.000 EACH	=	$2.00
	PRIMALINE	1740 FT	@	$ 0.079 /FT	=	$136.59
	BALER TWINE	3480 FT	@	$ 0.003 /FT	=	$8.70
	TOTAL					$2,095.02
LABOR						
	LINEUP	1.75 HRS	@	$ 20.00 /HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00 /HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00 /HR	=	$600.00
	TOTAL					$740.00
	OVERHEADS	50 % DIR LAB			=	$370.00
	TOTAL					$1,110.00
GENERAL						
	TRAVEL	/BLAST			=	$57.69
	SUBSISTENCE	/BLAST			=	$140.00
	RENTALS	/BLAST			=	$62.50
	MISC.	/BLAST			=	$28.85
	TOTAL	/BLAST				$289.04

TOTAL COST = $5,474.05

COST/ACRE (BASED ON THIS BLAST) = $28,386.88

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AML PROJECT - BLAST COSTING MODEL.

COSTS USED

		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000

EXPLOSIVES COSTS		BATCH 1
ANFO	/LB	$0.145
SLURRY	/LB	$0.360
BOOSTERS	EACH	$3.200
DTH DELAYS	EACH	$1.750
SURF. DELAYS	EACH	$2.250
HOLE PLUGS	EACH	$1.850
CAPS	EACH	$2.000
PRIMALINE	/FT	$0.079
NONEL T'LINE	/FT	$0.057
BALER TWINE	/FT	$0.003

LABOR COSTS		
BLAST. ENGR.	/HR	$30.00
FIELD ENGR.	/HR	$20.00
LABORER	/HR	$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)

TOTAL FOR PROJECT	$3,000.00
PER BLAST	$57.69

SUBSISTENCE

ENGINEERS	@	$50 /DAY	=	$5,200.00
LABORERS	@	$40 /DAY	=	$2,080.00
TOTAL FOR PROJECT				$7,280.00
PER BLAST				$140.00

RENTALS

SEISMOGRAPH	@	$500 /MONTH	=	$1,300.00
MAGAZINES	@	$400 /MONTH	=	$1,040.00
TRAILER	@	$350 /MONTH	=	$910.00
TOTAL FOR PROJECT				$3,250.00
PER BLAST				$62.50

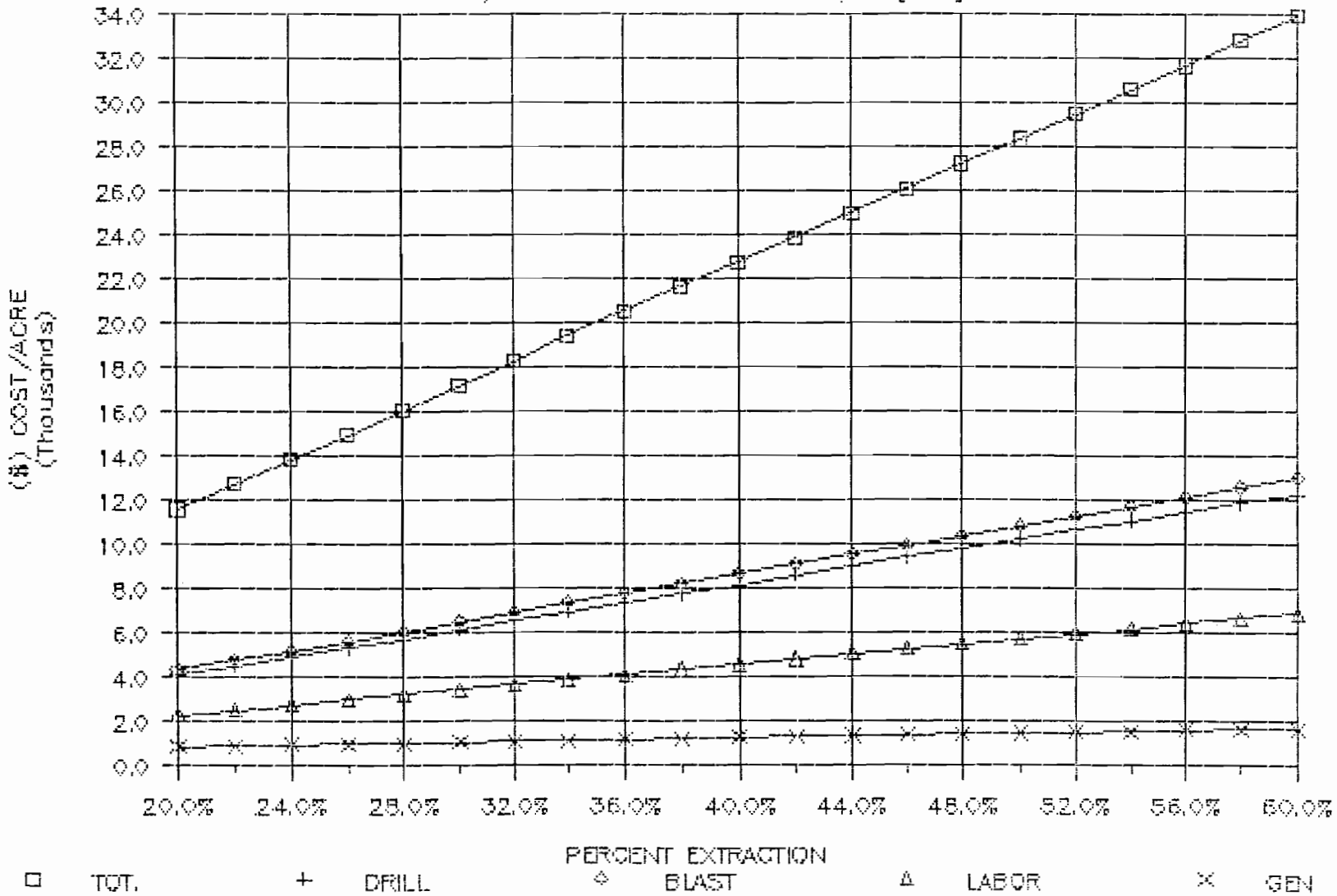
MISCELLANEOUS

MISC. FIELD EQUIPMENT	$750.00
GENERAL SITE SERVICES	$450.00
CONSUMABLE FIELD SUPPLIES	$300.00
TOTAL FOR PROJECT	$1,500.00
PER BLAST	$28.85

185

AML BLASTING - COST MODEL

COST/ACRE VS. % EXTRACTION 55'/1R [PE3]



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AML PROJECT COST MODEL - VARIABLE % EXTR. 35'/2R (PE5

PARAMETER	C O S T		P E R	A C R E	
% EXTRACT.	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
20.0%	$2,363	$2,844	$2,418	$887	$8,511
22.0%	$2,599	$3,128	$2,659	$934	$9,322
24.0%	$2,836	$3,413	$2,901	$965	$10,115
26.0%	$3,072	$3,697	$3,143	$1,013	$10,925
28.0%	$3,308	$3,982	$3,385	$1,060	$11,735
30.0%	$3,545	$4,266	$3,626	$1,107	$12,544
32.0%	$3,781	$4,550	$3,868	$1,154	$13,353
34.0%	$4,017	$4,835	$4,110	$1,188	$14,150
36.0%	$4,254	$5,119	$4,352	$1,235	$14,959
38.0%	$4,490	$5,404	$4,593	$1,281	$15,768
40.0%	$4,726	$5,688	$4,835	$1,328	$16,577
42.0%	$4,963	$5,973	$5,077	$1,374	$17,386
44.0%	$5,199	$6,257	$5,319	$1,420	$18,194
46.0%	$5,435	$6,541	$5,560	$1,456	$18,993
48.0%	$5,672	$6,826	$5,802	$1,502	$19,802
50.0%	$5,908	$7,110	$6,044	$1,548	$20,610
52.0%	$6,144	$7,395	$6,286	$1,594	$21,418
54.0%	$6,380	$7,679	$6,527	$1,639	$22,226
56.0%	$6,617	$7,963	$6,769	$1,685	$23,034
58.0%	$6,853	$8,248	$7,011	$1,723	$23,835
60.0%	$7,089	$8,532	$7,253	$1,769	$24,643

AML PROJECT COST MODEL - VARIABLE % EXTR. 45'/2R (PE6

PARAMETER	C O S T		P E R	A C R E	
% EXTRACT.	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
20.0%	$3,038	$3,566	$2,418	$887	$9,908
22.0%	$3,342	$3,922	$2,659	$934	$10,858
24.0%	$3,646	$4,279	$2,901	$965	$11,791
26.0%	$3,950	$4,635	$3,143	$1,013	$12,741
28.0%	$4,254	$4,992	$3,385	$1,060	$13,690
30.0%	$4,557	$5,349	$3,626	$1,107	$14,639
32.0%	$4,861	$5,705	$3,868	$1,154	$15,588
34.0%	$5,165	$6,062	$4,110	$1,188	$16,525
36.0%	$5,469	$6,418	$4,352	$1,235	$17,474
38.0%	$5,773	$6,775	$4,593	$1,281	$18,422
40.0%	$6,077	$7,131	$4,835	$1,328	$19,371
42.0%	$6,380	$7,488	$5,077	$1,374	$20,319
44.0%	$6,684	$7,844	$5,319	$1,420	$21,267
46.0%	$6,988	$8,201	$5,560	$1,456	$22,206
48.0%	$7,292	$8,558	$5,802	$1,502	$23,154
50.0%	$7,596	$8,914	$6,044	$1,548	$24,102
52.0%	$7,900	$9,271	$6,286	$1,594	$25,050
54.0%	$8,203	$9,627	$6,527	$1,639	$25,998
56.0%	$8,507	$9,984	$6,769	$1,685	$26,945
58.0%	$8,811	$10,340	$7,011	$1,723	$27,886
60.0%	$9,115	$10,697	$7,253	$1,769	$28,833

AML PROJECT COST MODEL - VARIABLE % EXTR. 55'/2R (PE7

PARAMETER	C O S T	P E R	A C R E		
% EXTRACT.	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
20.0%	$3,713	$4,260	$2,418	$887	$11,278
22.0%	$4,085	$4,687	$2,659	$934	$12,365
24.0%	$4,456	$5,113	$2,901	$965	$13,435
26.0%	$4,828	$5,539	$3,143	$1,013	$14,522
28.0%	$5,199	$5,965	$3,385	$1,060	$15,608
30.0%	$5,570	$6,391	$3,626	$1,107	$16,694
32.0%	$5,942	$6,817	$3,868	$1,154	$17,780
34.0%	$6,313	$7,243	$4,110	$1,188	$18,854
36.0%	$6,684	$7,669	$4,352	$1,235	$19,940
38.0%	$7,056	$8,095	$4,593	$1,281	$21,025
40.0%	$7,427	$8,521	$4,835	$1,328	$22,111
42.0%	$7,798	$8,947	$5,077	$1,374	$23,196
44.0%	$8,170	$9,373	$5,319	$1,420	$24,281
46.0%	$8,541	$9,799	$5,560	$1,456	$25,357
48.0%	$8,912	$10,225	$5,802	$1,502	$26,442
50.0%	$9,284	$10,651	$6,044	$1,548	$27,527
52.0%	$9,655	$11,077	$6,286	$1,594	$28,612
54.0%	$10,026	$11,503	$6,527	$1,639	$29,697
56.0%	$10,398	$11,929	$6,769	$1,685	$30,781
58.0%	$10,769	$12,355	$7,011	$1,723	$31,859
60.0%	$11,140	$12,781	$7,253	$1,769	$32,943

AML PROJECT COST MODEL - VARIABLE % EXTR. 65'/2R (PE8

PARAMETER	C O S T	P E R	A C R E		
% EXTRACT.	DRILL COST	BLAST COST	LABOR COST	GENERAL COST	COST/ACRE
20.0%	$4,389	$5,510	$2,744	$974	$13,617
22.0%	$4,828	$6,061	$3,019	$1,030	$14,937
24.0%	$5,266	$6,612	$3,293	$1,069	$16,241
26.0%	$5,705	$7,163	$3,568	$1,126	$17,562
28.0%	$6,144	$7,714	$3,842	$1,182	$18,882
30.0%	$6,583	$8,265	$4,116	$1,238	$20,202
32.0%	$7,022	$8,816	$4,391	$1,293	$21,522
34.0%	$7,461	$9,367	$4,665	$1,336	$22,829
36.0%	$7,900	$9,918	$4,940	$1,392	$24,149
38.0%	$8,338	$10,469	$5,214	$1,447	$25,468
40.0%	$8,777	$11,020	$5,489	$1,502	$26,788
42.0%	$9,216	$11,571	$5,763	$1,557	$28,107
44.0%	$9,655	$12,122	$6,037	$1,611	$29,425
46.0%	$10,094	$12,673	$6,312	$1,657	$30,735
48.0%	$10,533	$13,224	$6,586	$1,711	$32,054
50.0%	$10,972	$13,775	$6,861	$1,766	$33,373
52.0%	$11,411	$14,326	$7,135	$1,820	$34,692
54.0%	$11,849	$14,877	$7,410	$1,875	$36,010
56.0%	$12,288	$15,428	$7,684	$1,929	$37,329
58.0%	$12,727	$15,979	$7,958	$1,976	$38,640
60.0%	$13,166	$16,530	$8,233	$2,030	$39,959

AML PROJECT - BLAST COST MODEL. ANALISYS NO. 7

COMMENTS: VARIABLE % EXTRACTION.
10 ACRE SITE. BASE CASE. 2 ROW, 55' O/

DESIGN PARAMETERS :

HOLE DIAM.	6 INCH	NO. ROWS :	2
LENGTH	200 FT	ROOM WIDTH	20 FT
ROW SEPARAT.	8 FT	HOLE SPACING	15 FT
# HOLES	28	AV. DEPTH TO VOID	55 FT
PILLAR WIDTH	20.0 FT	AREA OF INFLUENCE	4000 SQ. FT
% EXTRACTION	50.0%	VOID/ACRE	21780 SQ. FT
SITE AREA	10 ACRES	NO. BLASTS	55

LOADING PARAMETERS : CHOICE -------> 2

1. ALL ANFO
2. BOTTOM DECK ENERGEL
3. BOTTOM DECK IREGEL
4. BOTTOM 2 DECKS ENERGEL
5. BOTTOM 2 DECKS IREGEL

							COST
DRILLING							
	ROOM LINE-UP	165 FT	@	$ 1.000	/FT	=	$165.00
	PRODUCTION	1540 FT	@	$ 1.000	/FT	=	$1,540.00
	TOTAL						$1,705.00
BLASTING							
	ANFO	4233.7 LBS	@	$ 0.145	/LB	=	$613.88
	SLURRY	1459.9 LBS	@	$ 0.360	/LB	=	$525.56
	BOOSTERS	114	@	3.200	EACH	=	$364.80
	DTH DELAYS	114	@	1.750	EACH	=	$199.50
	SURF. DELAYS	28	@	2.250	EACH	=	$63.00
	HOLE PLUGS	28	@	1.850	EACH	=	$51.80
	CAPS	1	@	2.000	EACH	=	$2.00
	PRIMALINE	1624 FT	@	$ 0.079	/FT	=	$127.48
	BALER TWINE	3248 FT	@	$ 0.003	/FT	=	$8.12
	TOTAL						$1,956.14
LABOR							
	LINEUP	1.75 HRS	@	$ 20.00	/HR	=	$35.00
	PREPARATION	3.50 HRS	@	$ 30.00	/HR	=	$105.00
	BLASTING	10.00 HRS	@	$ 60.00	/HR	=	$600.00
	TOTAL						$740.00
	OVERHEADS	50 % DIR LAB				=	$370.00
	TOTAL						$1,110.00
GENERAL							
	TRAVEL	/BLAST				=	$54.55
	SUBSISTENCE	/BLAST				=	$140.00
	RENTALS	/BLAST				=	$62.50
	MISC.	/BLAST				=	$27.27
	TOTAL	/BLAST					$284.32

TOTAL COST = $5,055.46

88 COST/ACRE (BASED ON THIS BLAST) = $27,526.98

AML PROJECT - BLAST COSTING MODEL.

COSTS USED

		8 INCH	6 INCH
DRILLING COST	/FT	$1.500	$1.000
EXPLOSIVES COSTS			BATCH 1
ANFO	/LB		$0.145
SLURRY	/LB		$0.360
BOOSTERS	EACH		$3.200
DTH DELAYS	EACH		$1.750
SURF. DELAYS	EACH		$2.250
HOLE PLUGS	EACH		$1.850
CAPS	EACH		$2.000
PRIMALINE	/FT		$0.079
NONEL T'LINE	/FT		$0.057
BALER TWINE	/FT		$0.003
LABOR COSTS			
BLAST. ENGR.	/HR		$30.00
FIELD ENGR.	/HR		$20.00
LABORER	/HR		$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS, MOBILIZATION)

TOTAL FOR PROJECT	$3,000.00
PER BLAST	$54.55

SUBSISTENCE

ENGINEERS	@	$50	/DAY	= $5,500.00
LABORERS	@	$40	/DAY	= $2,200.00

TOTAL FOR PROJECT	$7,700.00
PER BLAST	$140.00

RENTALS

SEISMOGRAPH	@	$500	/MONTH	= $1,375.00
MAGAZINES	@	$400	/MONTH	= $1,100.00
TRAILER	@	$350	/MONTH	= $962.50

TOTAL FOR PROJECT	$3,437.50
PER BLAST	$62.50

MISCELLANEOUS

MISC. FIELD EQUIPMENT	$750.00
GENERAL SITE SERVICES	$450.00
CONSUMABLE FIELD SUPPLIES	$300.00
TOTAL FOR PROJECT	$1,500.00
PER BLAST	$27.27

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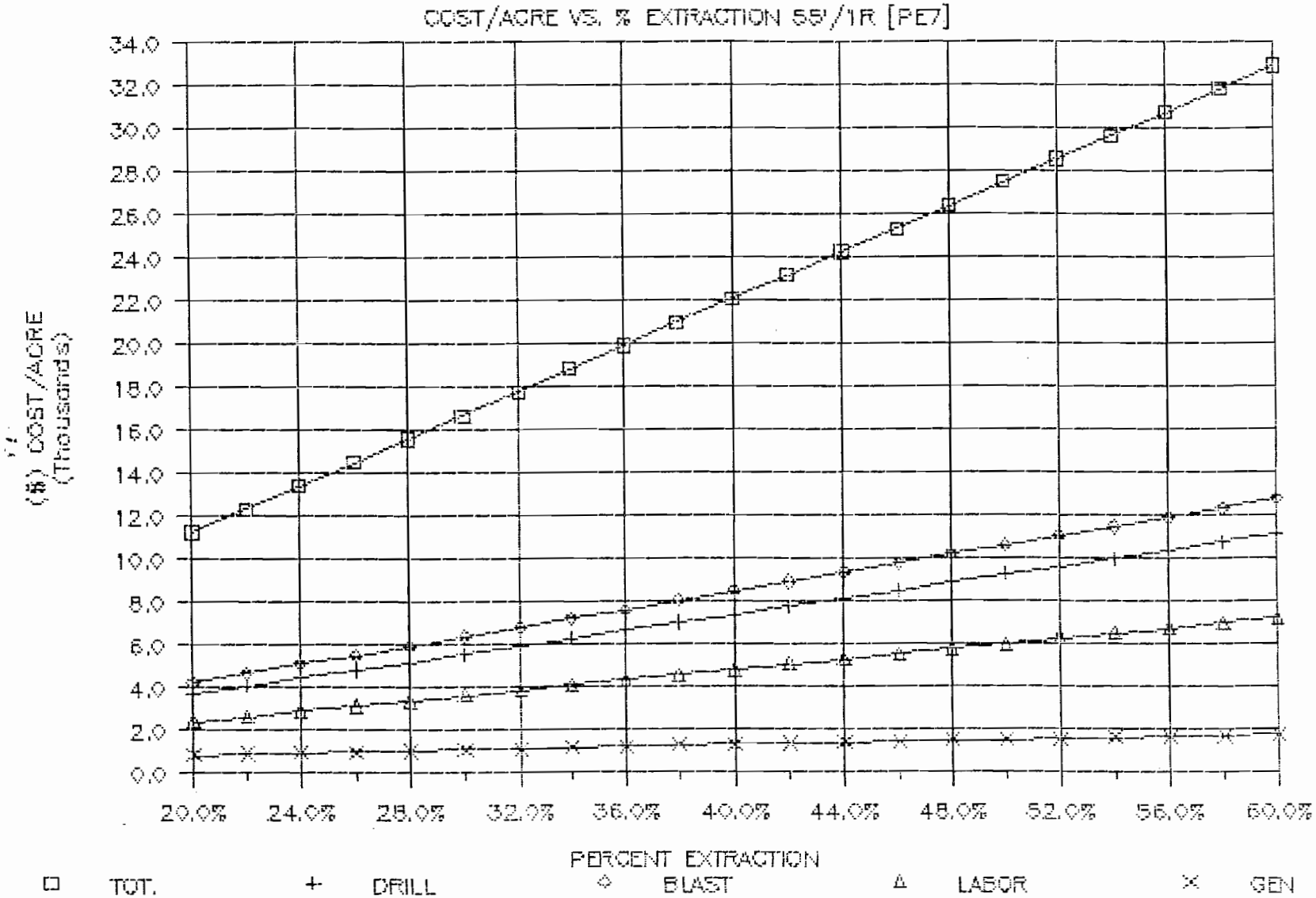
AML BLASTING - COST MODEL



1L PROJECT - BLAST COST ANALYSIS.

		COSTS USED	
		8 INCH	6 INCH
DRILLING COST	/FT	$0.900	$0.750
EXPLOSIVES COSTS		BATCH 2	BATCH 1
ANFO	/LB	$0.212	$0.161
SLURRY	/LB	$0.451	$0.386
BOOSTERS	EACH		$3.120
DTH DELAYS	EACH		$1.680
SURF. DELAYS	EACH		$2.200
HOLE PLUGS	EACH		$1.820
CAPS	EACH		$1.976
PRIMALINE	/FT		$0.079
NONEL T'LINE	/FT		$0.057
BALER TWINE	/FT		$0.003
LABOR COSTS			
BLAST. ENGR.	/HR		$27.00
FIELD ENGR.	/HR		$18.50
LABORER	/HR		$10.00

GENERAL COSTS

TRAVEL (PICKUP RENTAL, MILEAGE, GAS)	
TOTAL FOR PROJECT	$2,566.00
PER BLAST	$122.19
SUBSISTENCE	
TOTAL FOR PROJECT	$831.00
PER BLAST	$39.57
RENTALS	
SEISMOGRAPH	$1,120.00
MAGAZINES	$665.00
TRAILER	$621.00
TOTAL FOR PROJECT	$2,406.00
PER BLAST	$114.57
MISCELLANEOUS	
MISC. FIELD EQUIPMENT	$419.00
GRAVEL (STEMMING)	$263.00
SNOW REMOVAL, BOBCAT HIRE	$340.00
WOODEN STAKES	$275.00
TOTAL FOR PROJECT	$1,297.00
PER BLAST	$61.76
STAKES, TARGETS ETC. (RESEARCH COMPONENT)	$380.00
PER BLAST	$27.14