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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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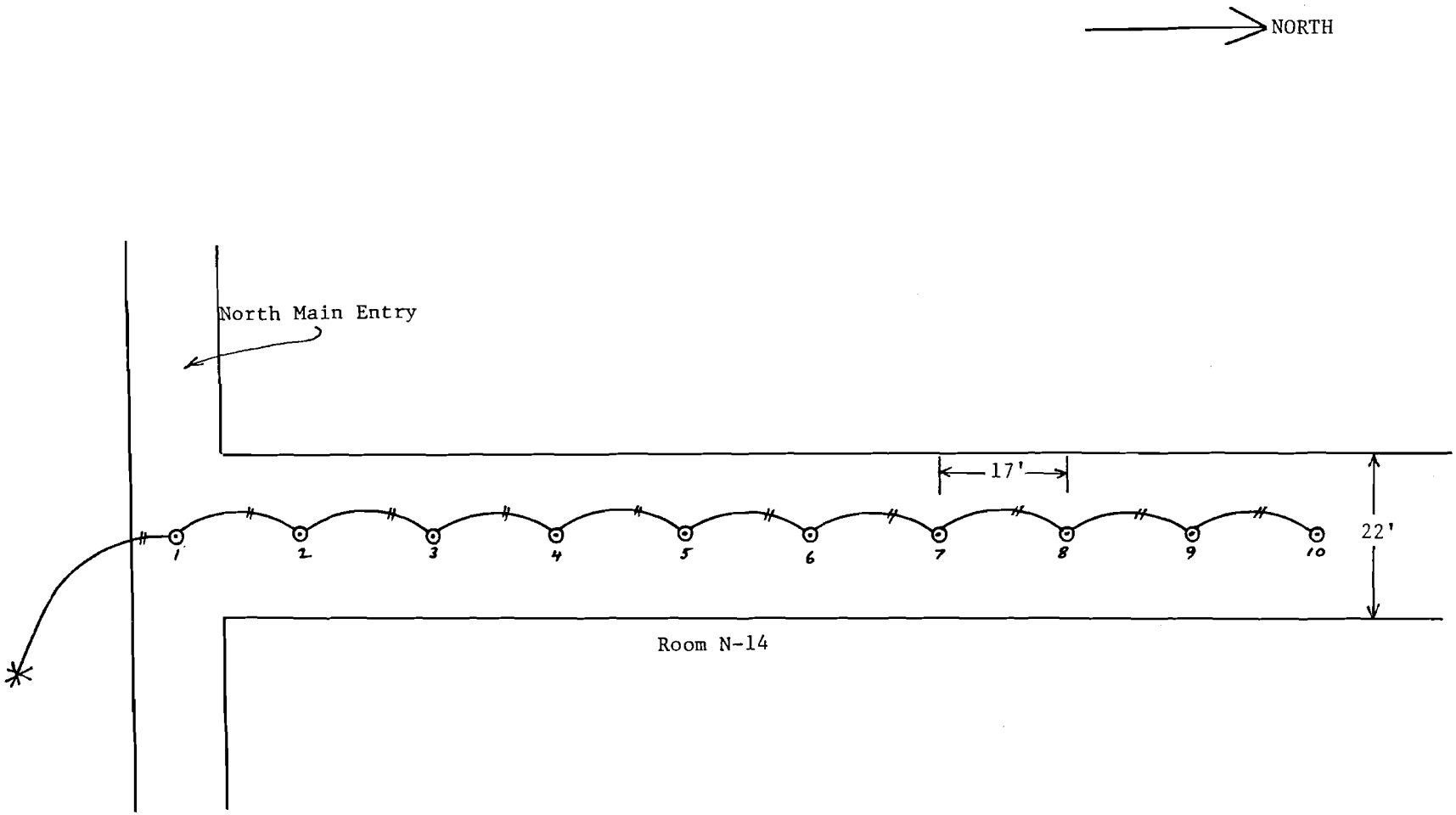
2

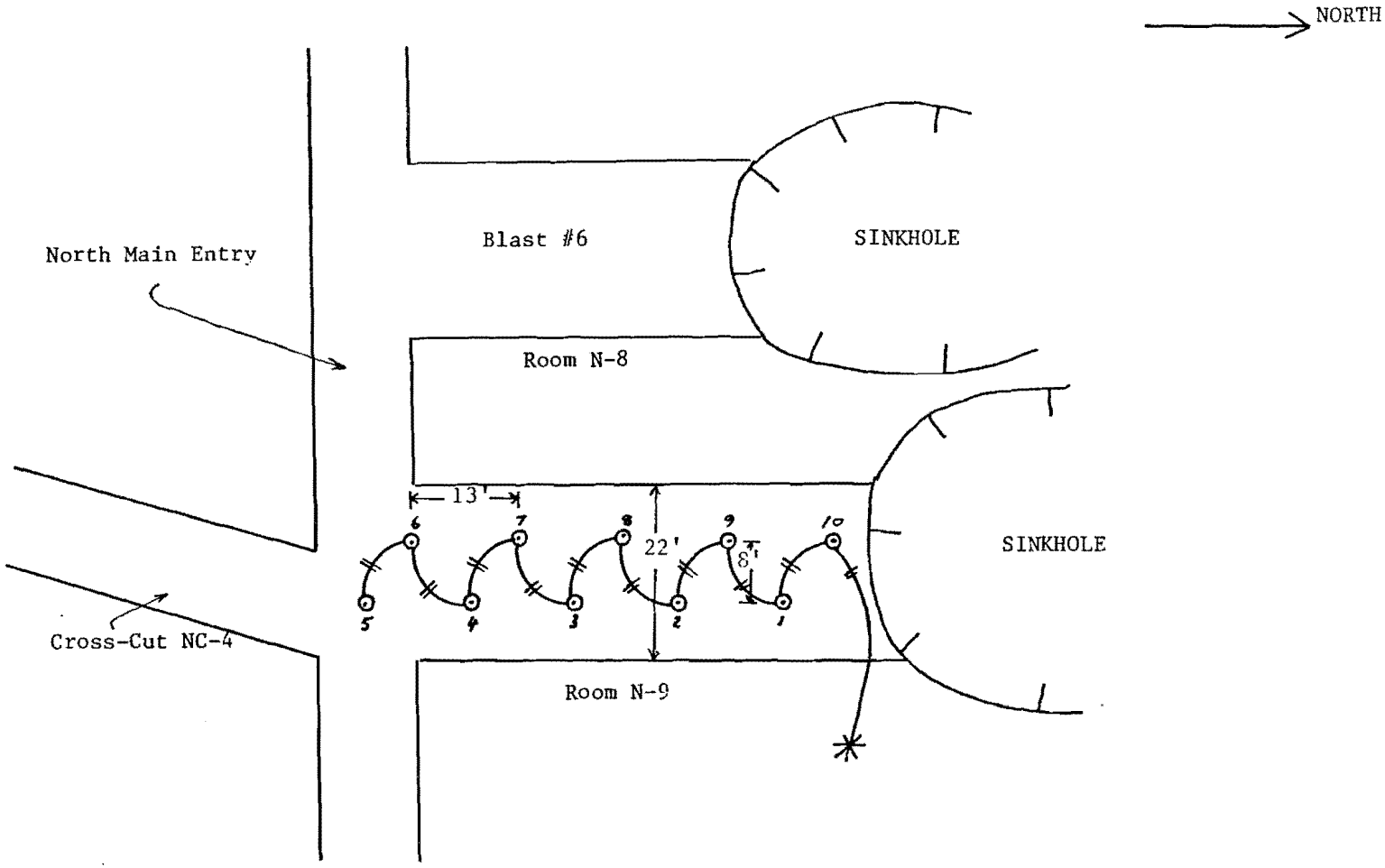
# APPENDIX A

## BLAST LAYOUT SKETCHES



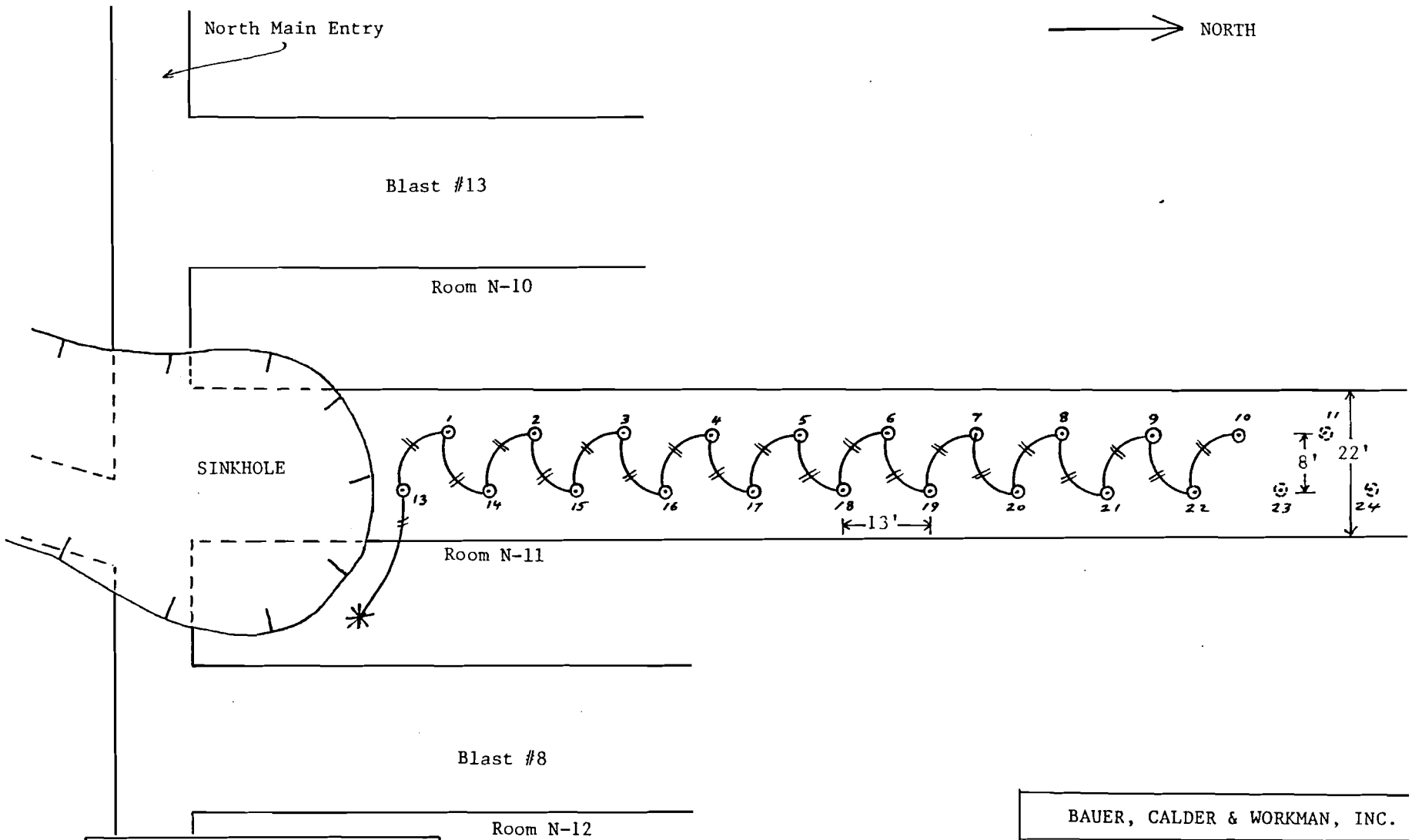

| LEGEND |
|---|
| ⊙ 6" Blasthole |
| 42ms Nonel Surface Delay |
| Point of Initiation |

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



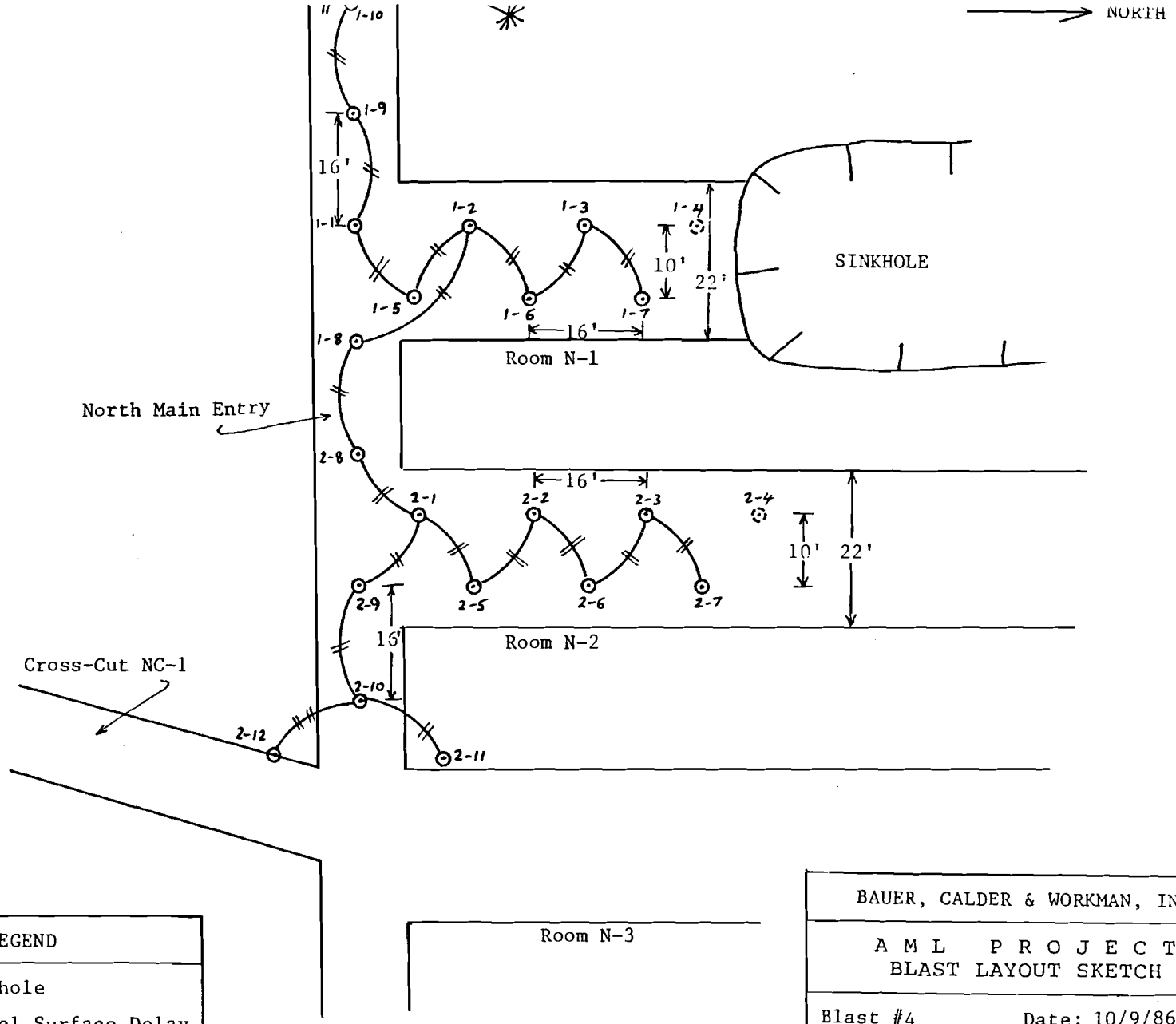

| LEGEND |
|---|
| ⊙ 6" Blasthole |
| 42ms Nonel Surface Delay |
| Point of Initiation |

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



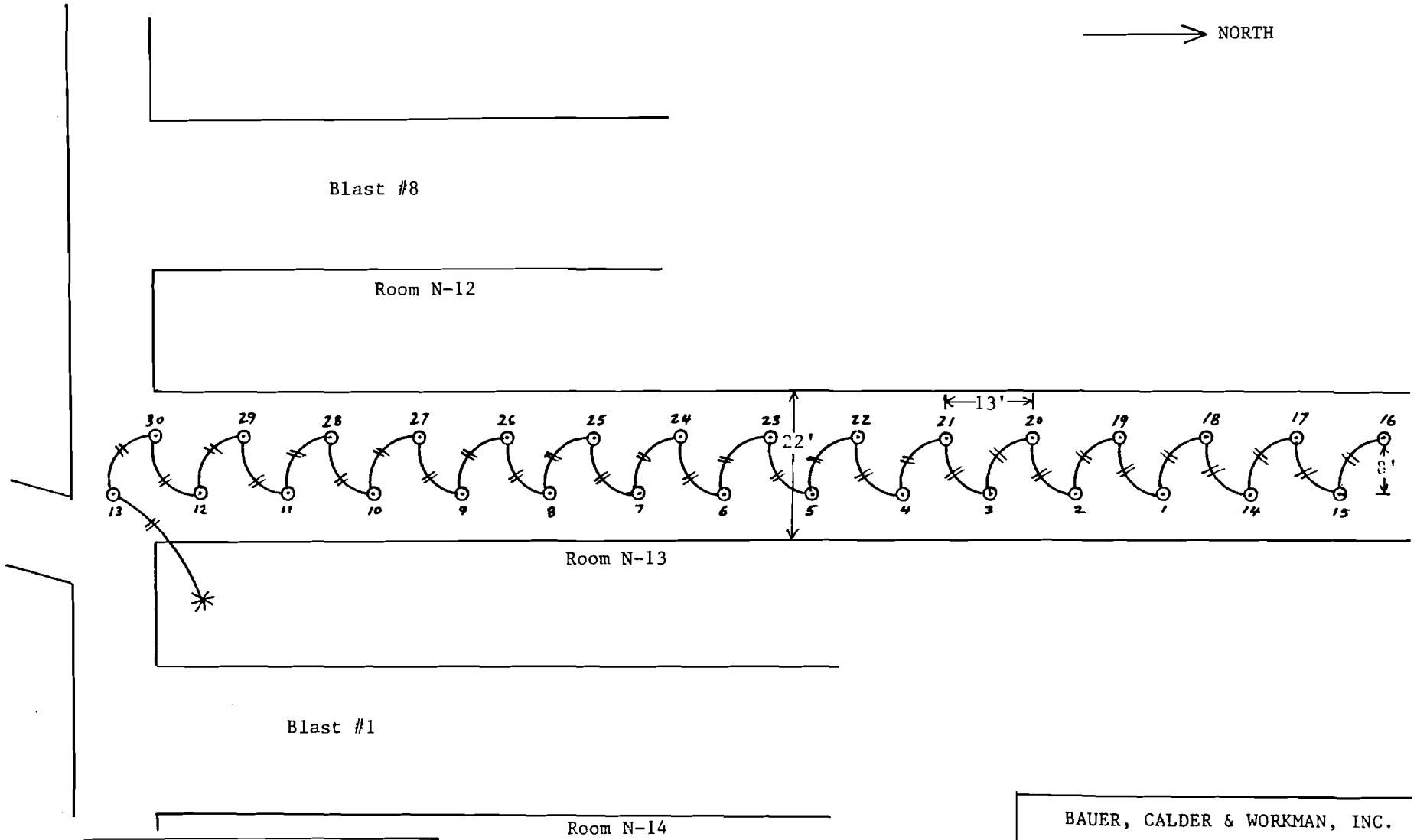

| LEGEND |
|---|
| ⊙ 6" Blasthole |
| 42ms Nonel Surface Delay |
| Point of Initiation |

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



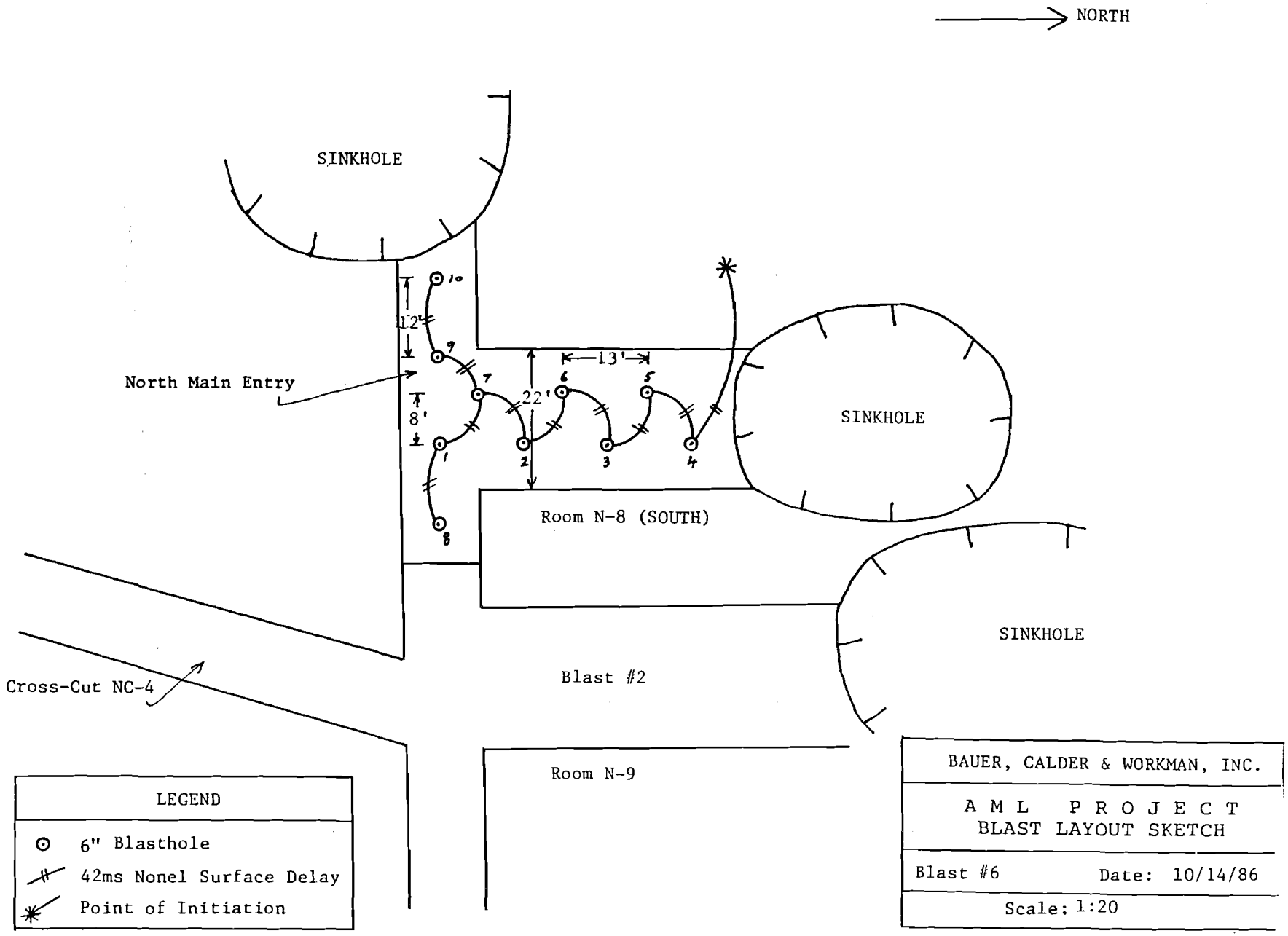

| LEGEND |
|---|
| ⊙ 8" Blasthole |
| 42ms Nonel Surface Delay |
| Point of Initiation |

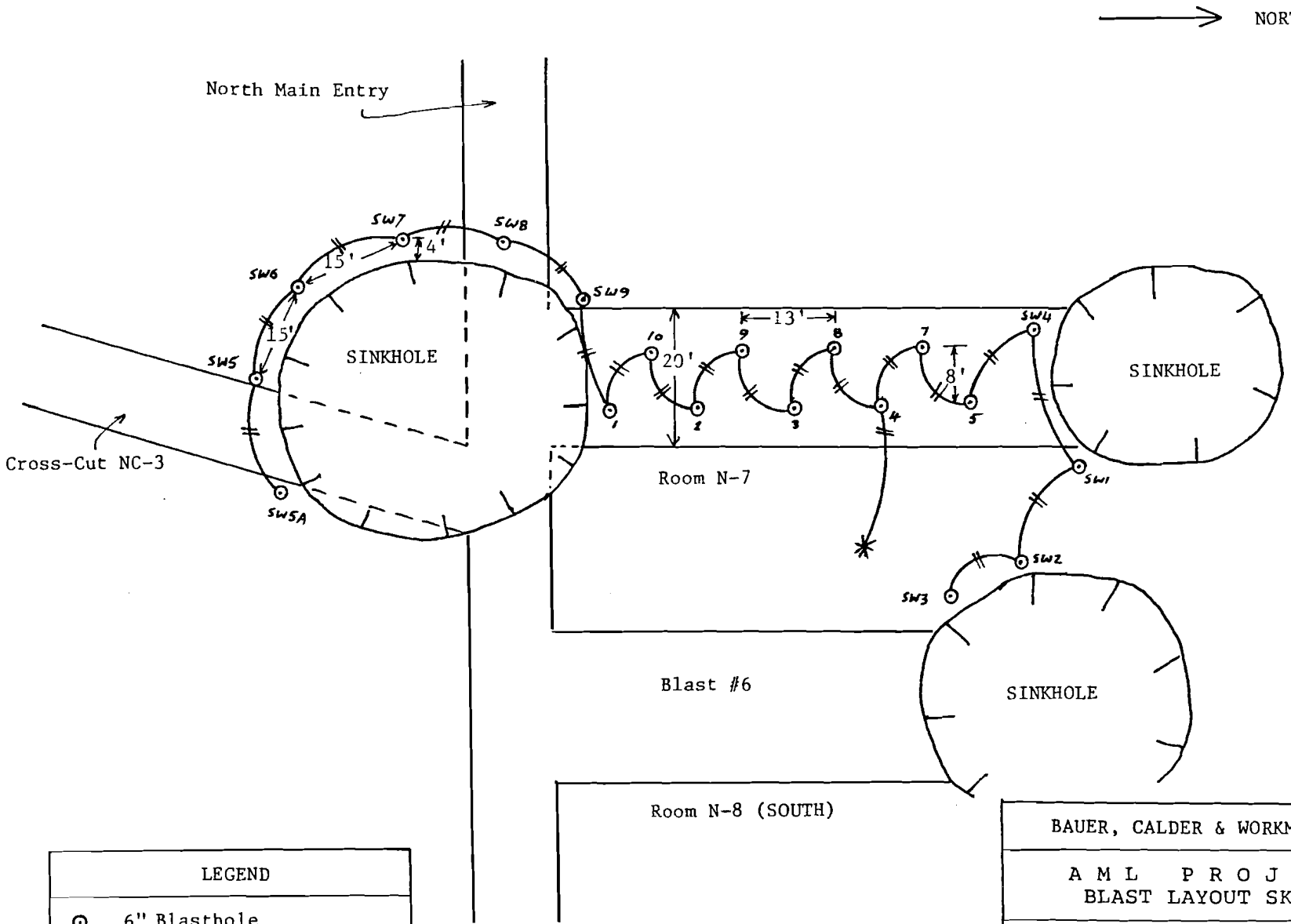
| BAUER, CALDER & WORKMAN, INC. | |
|---|---|
| A M L P R O J E C T<br>BLAST LAYOUT SKETCH | |
| Blast #4 | Date: 10/9/86 |
| Scale: 1:20 | |




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

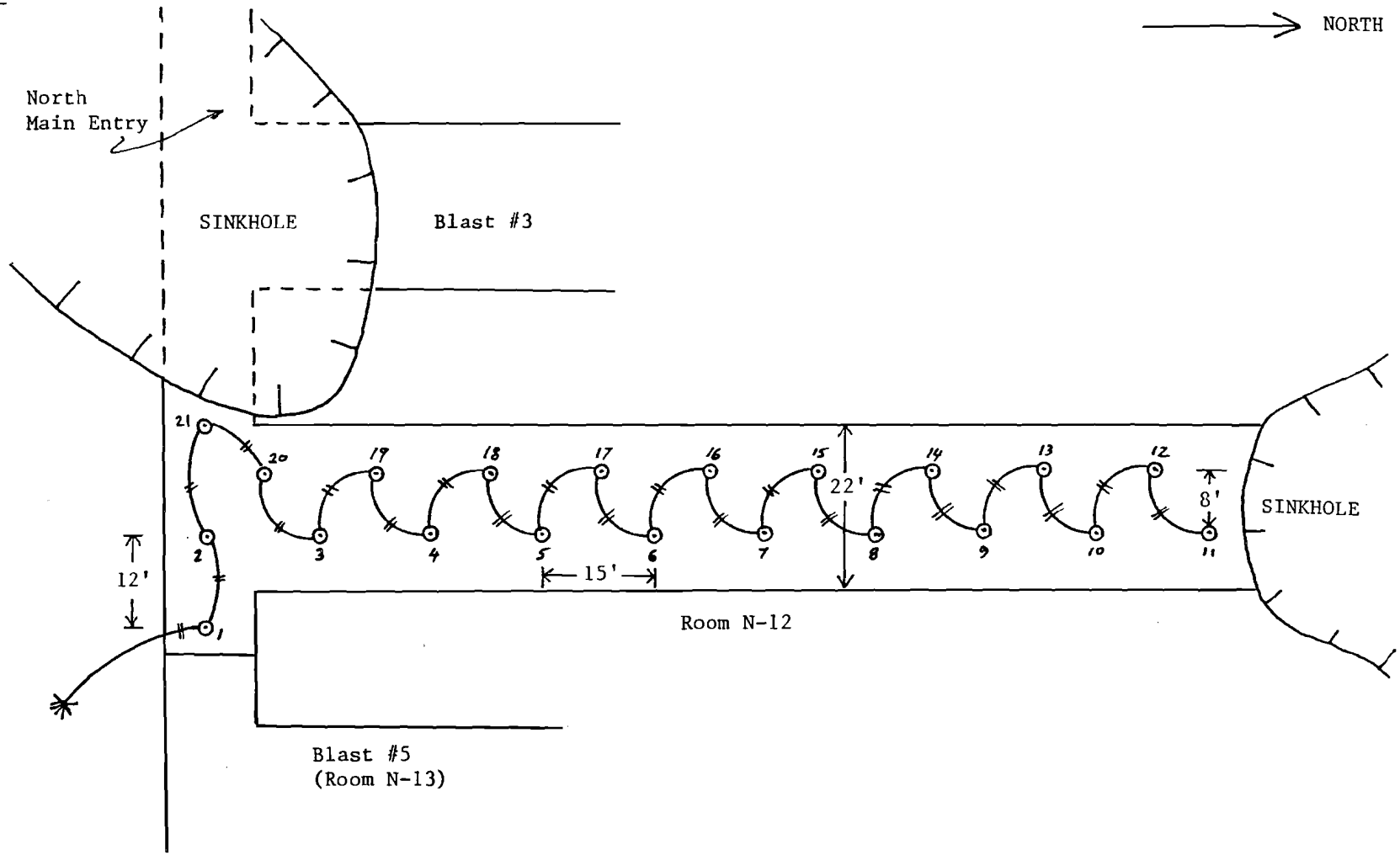
| BAUER, CALDER & WORKMAN, INC. | |
|---|---|
| A M L P R O J E C T<br>BLAST LAYOUT SKETCH | |
| Blast # 5 | Date: 10/13/86 |
| Scale: 1:20 | |


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 |

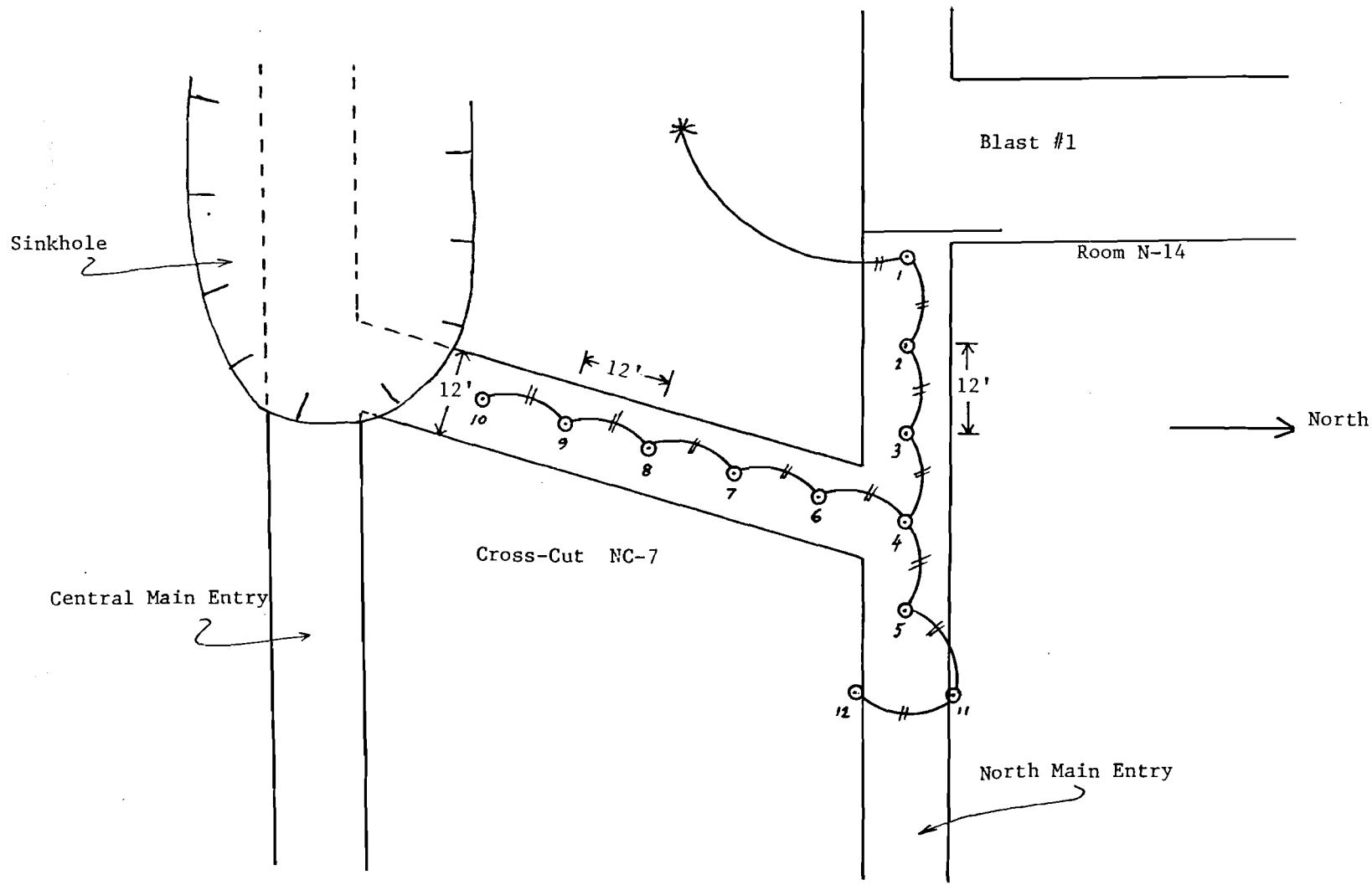
| BAUER, CALDER & WORKMAN, INC. | |
|---|---|
| A M L P R O J E C T<br>BLAST LAYOUT SKETCH | |
| Blast # 7 | Date: 10/16/86 |
| Scale: 1:20 | |




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

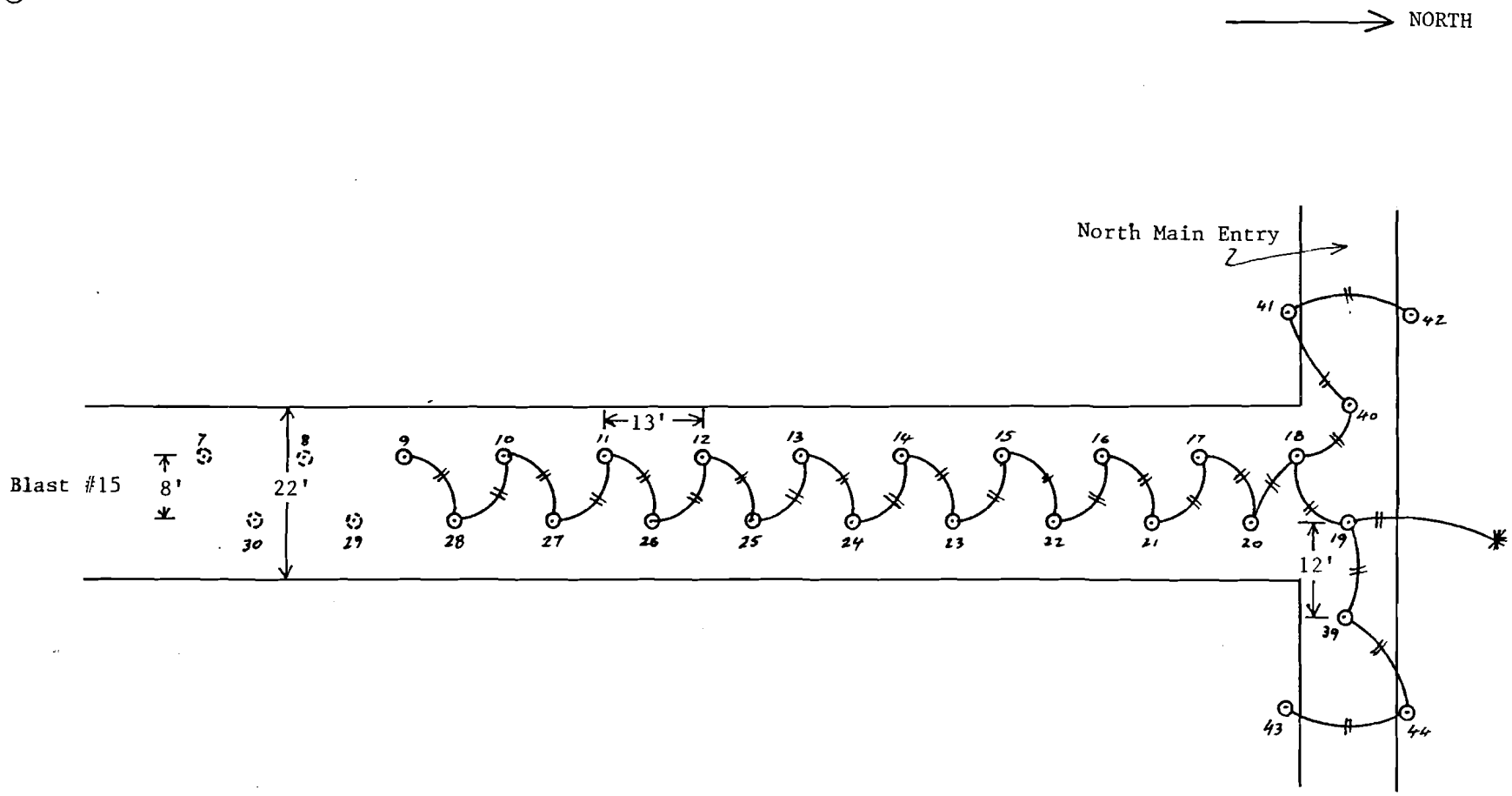
| BAUER, CALDER & WORKMAN, INC. | |
|---|---|
| A M L P R O J E C T<br>BLAST LAYOUT SKETCH | |
| Blast # 8 | Date: 10/17/86 |
| Scale: 1:20 | |

12




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

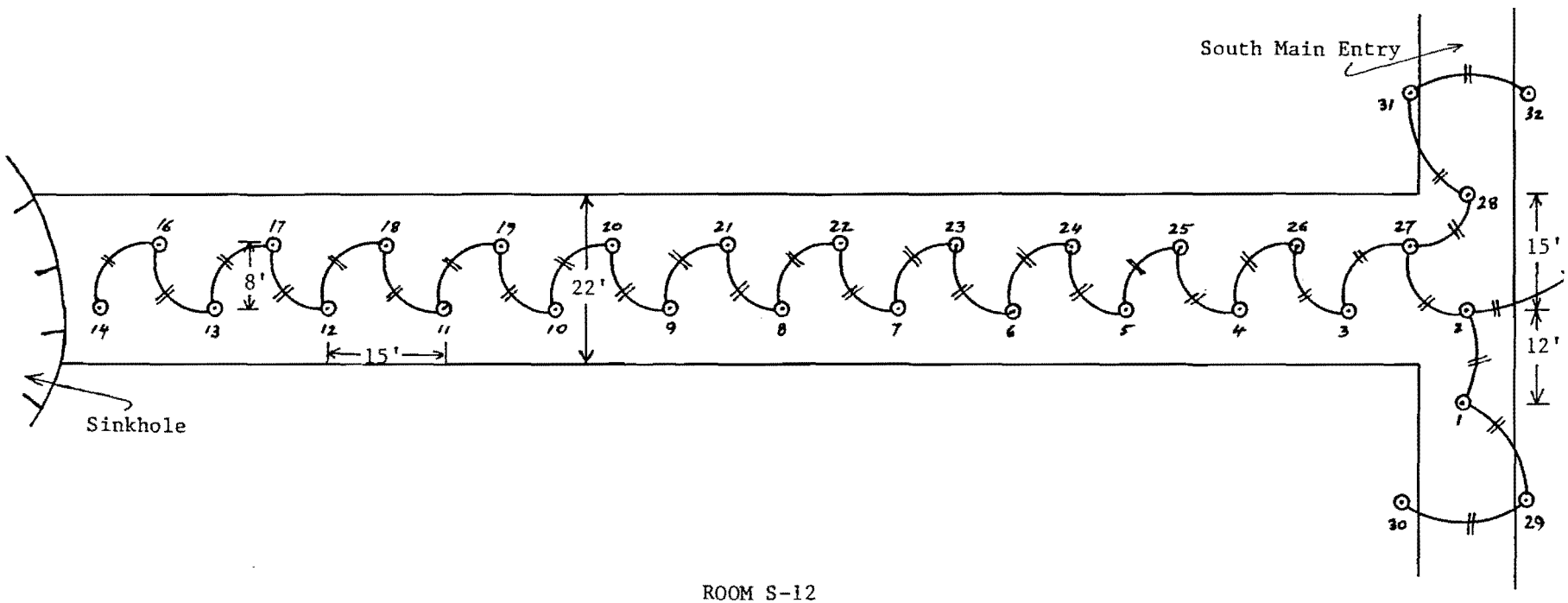
| BAUER, CALDER & WORKMAN, INC. | |
|---|---|
| A M L P R O J E C T<br>BLAST LAYOUT SKETCH | |
| Blast # 9 | Date: 10/20/86 |
| Scale: 1:20 | |




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<br>BLAST LAYOUT SKETCH | |
| Blast # 10 | Date: 10/21/86 |
| Scale: 1:20 | |

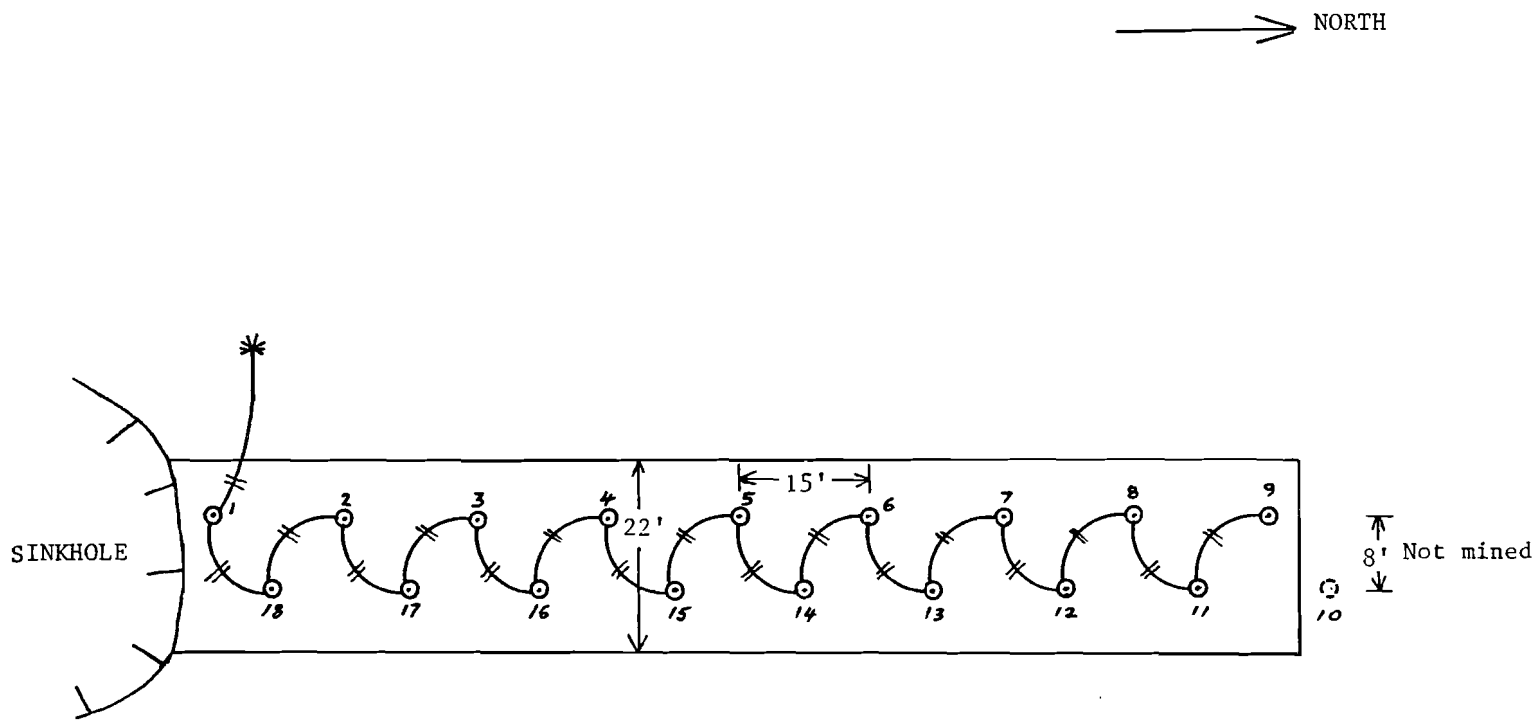



ROOM S-12

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

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

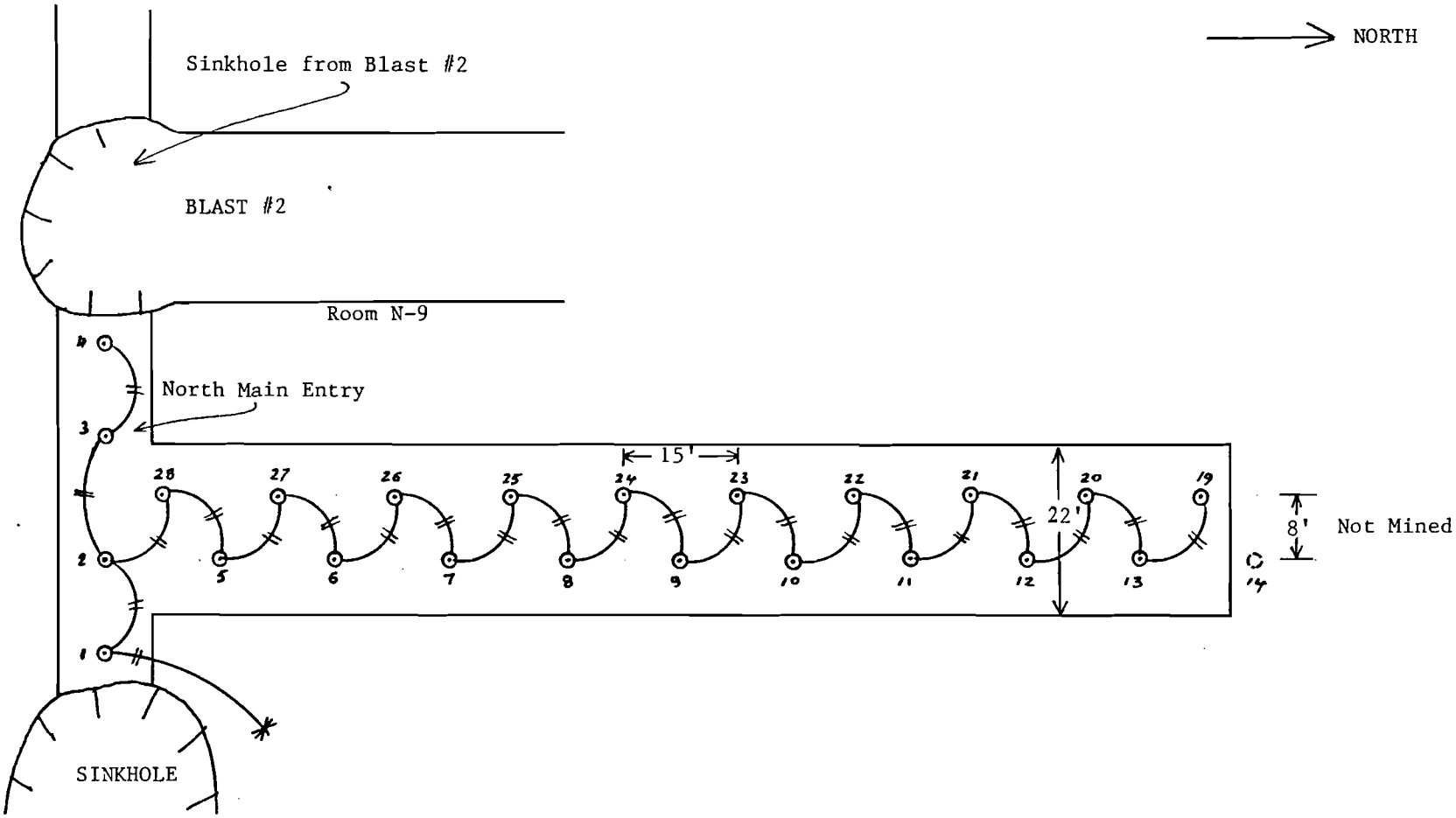
5




ROOM N-8 (NORTH)

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

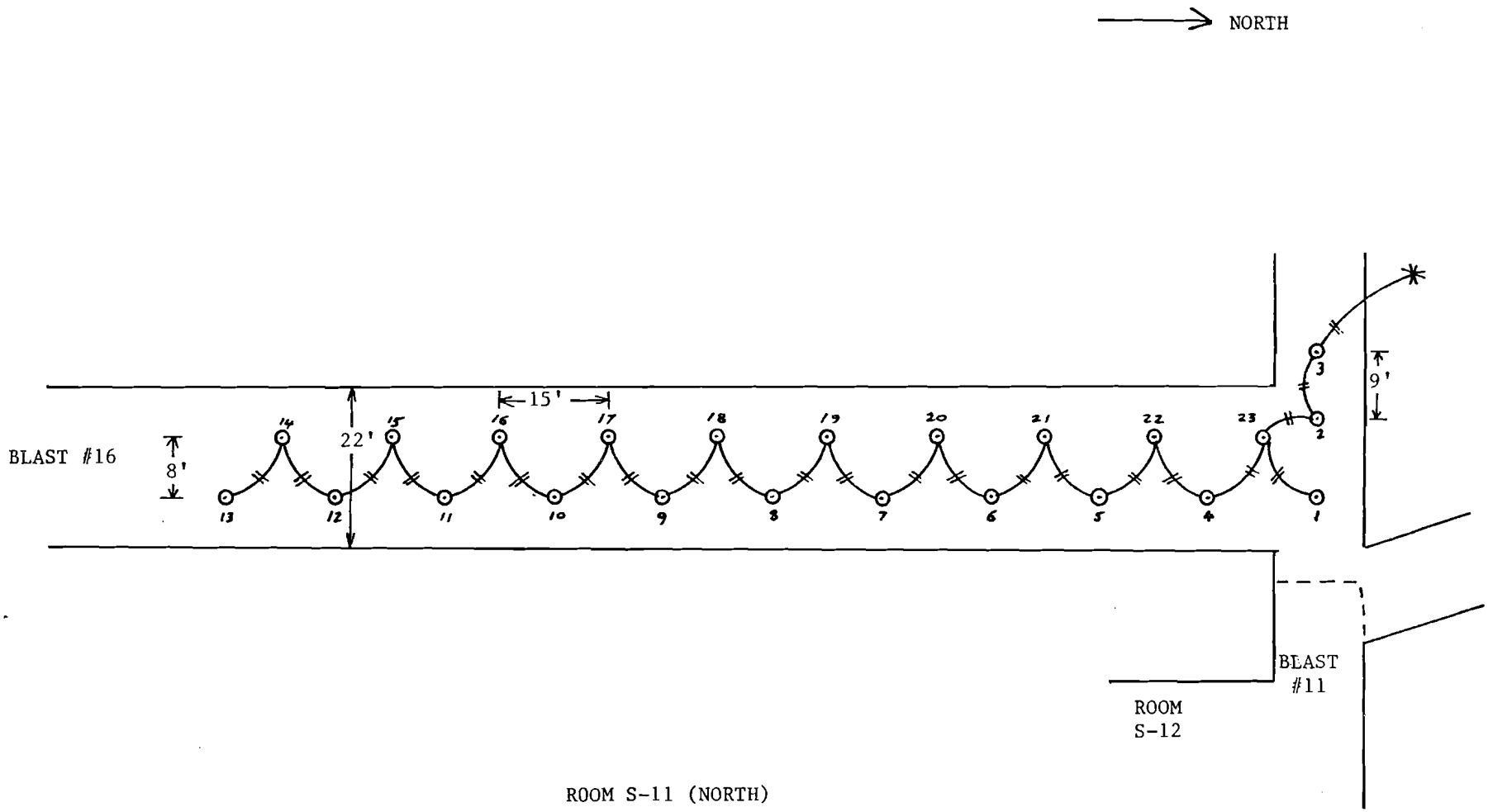
| BAUER, CALDER & WORKMAN, INC. | |
|---|---|
| A M L P R O J E C T<br>BLAST LAYOUT SKETCH | |
| Blast #12 | Date: 10/28/86 |
| Scale: 1:20 | |




ROOM N-10

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

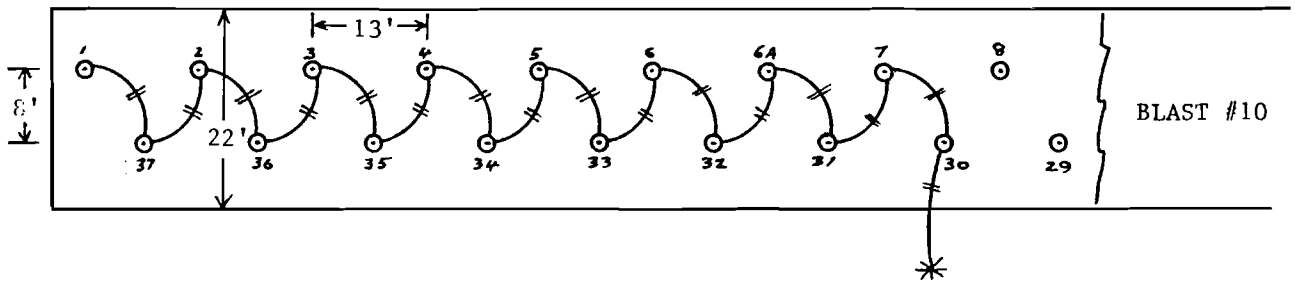
| BAUER, CALDER & WORKMAN, INC. | |
|---|---|
| A M L P R O J E C T<br>BLAST LAYOUT SKETCH | |
| Blast # 13 | Date: 10/30/86 |
| Scale: 1:20 | |




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

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

NORTH



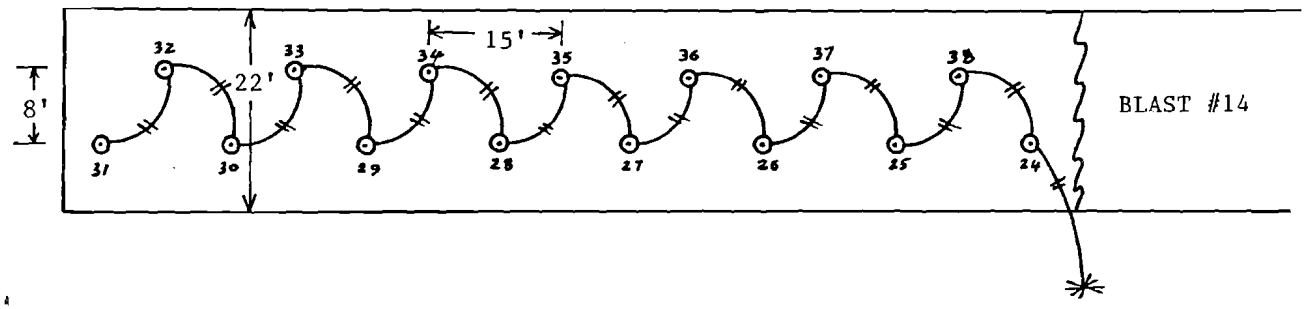

ROOM S-1 (SOUTH)

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

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

19

NORTH

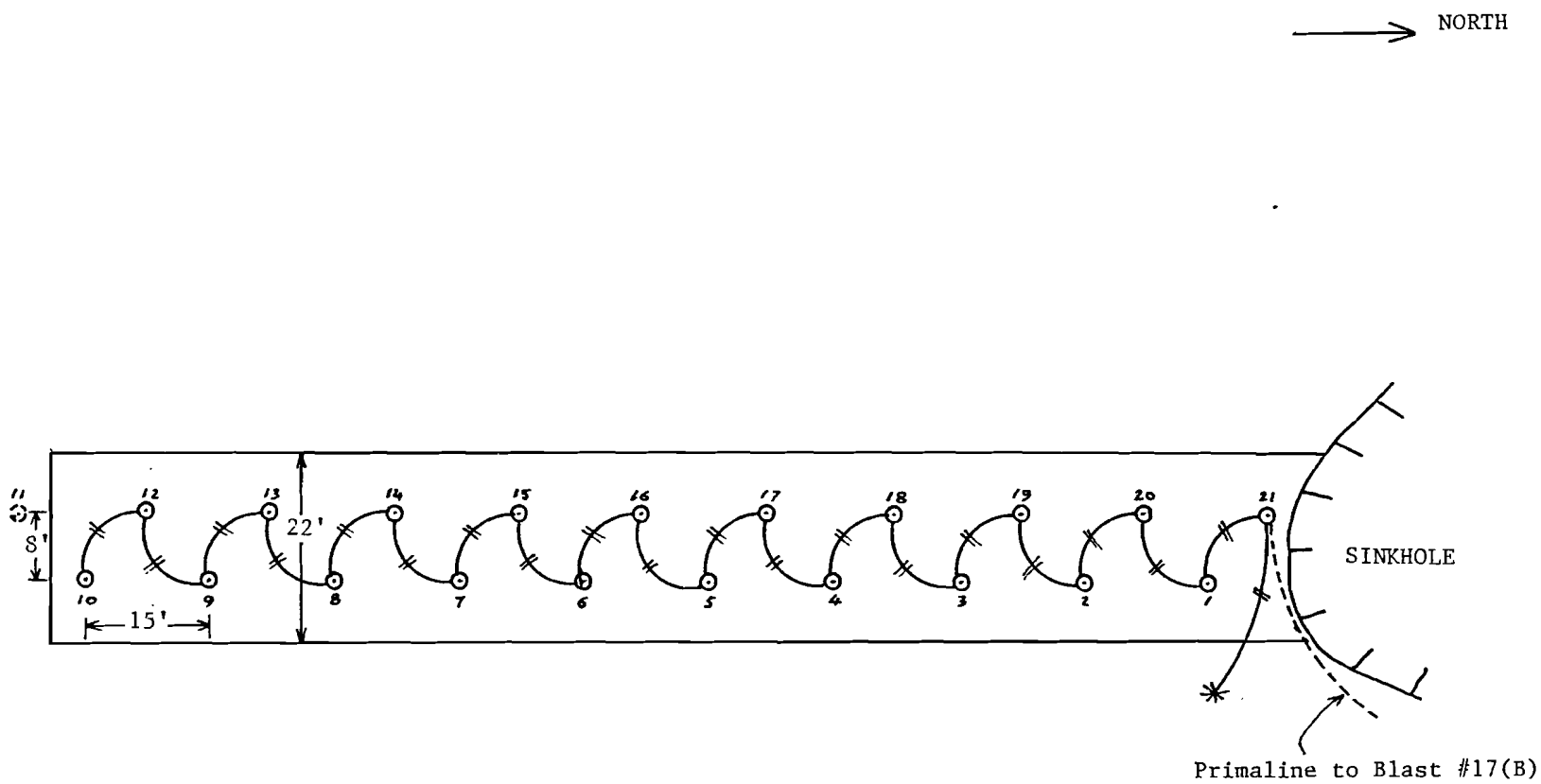



ROOM S-11 (SOUTH)

| LEGEND | |
|---|---|
| ⊙ | 6" Blasthole |
| ⊸ | 42ms Nonel Surface Delay |
| ✳ | Point of Initiation |

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

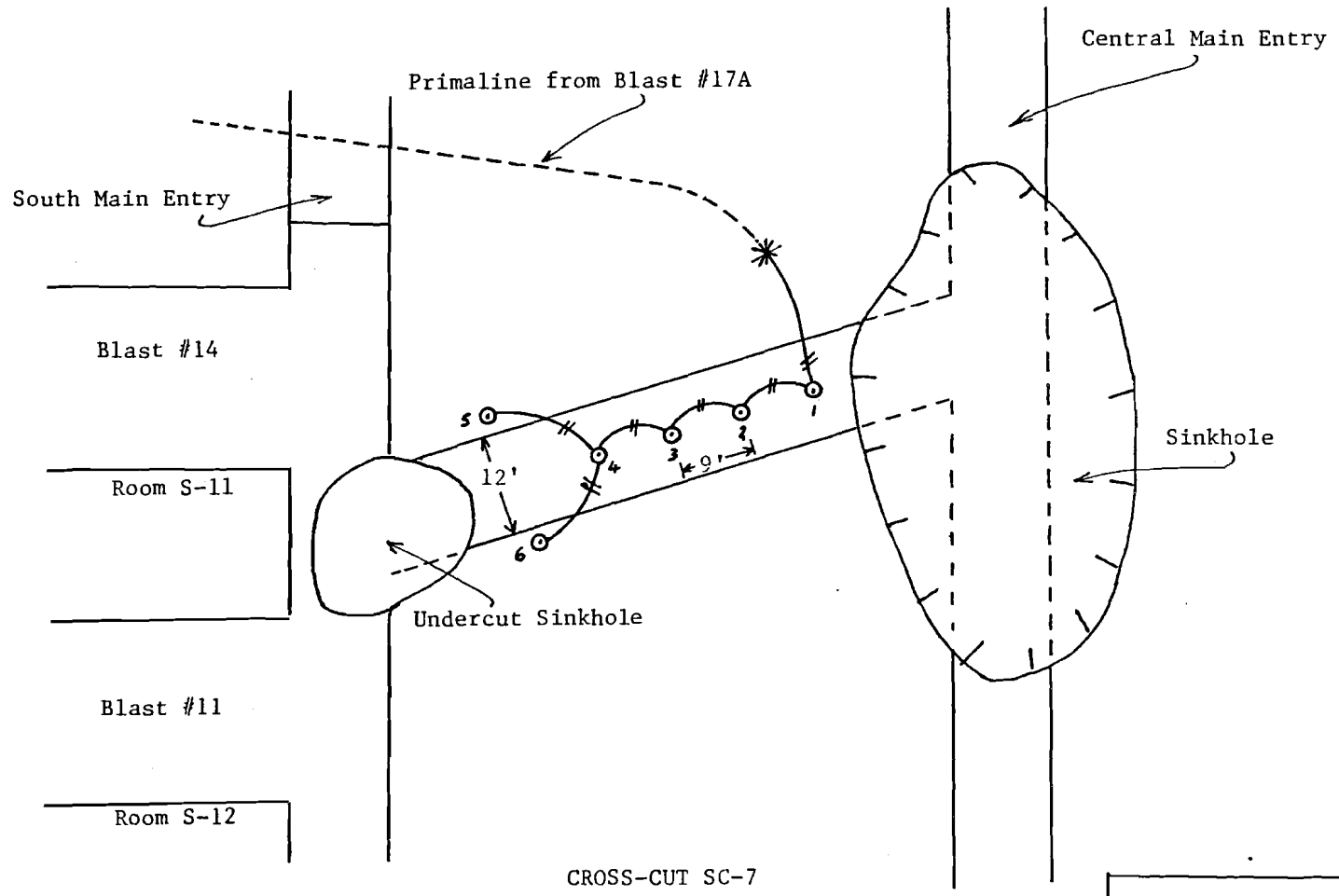
20




ROOM S-10

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

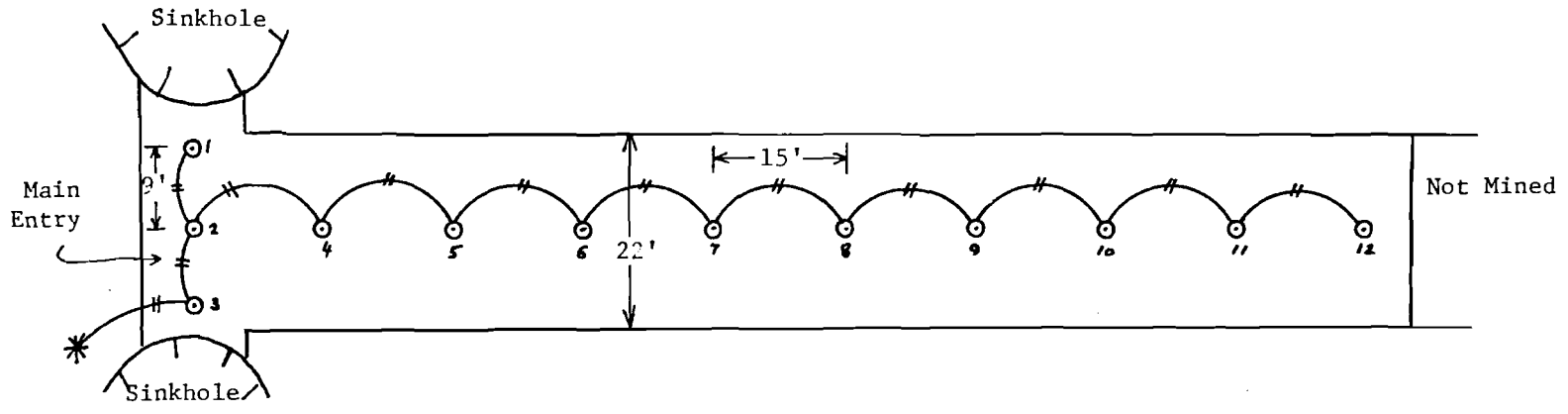
| BAUER, CALDER & WORKMAN, INC. | |
|---|---|
| A M L P R O J E C T<br>BLAST LAYOUT SKETCH | |
| Blast #17(A) | Date: 11/6/86 |
| Scale: 1:20 | |




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

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

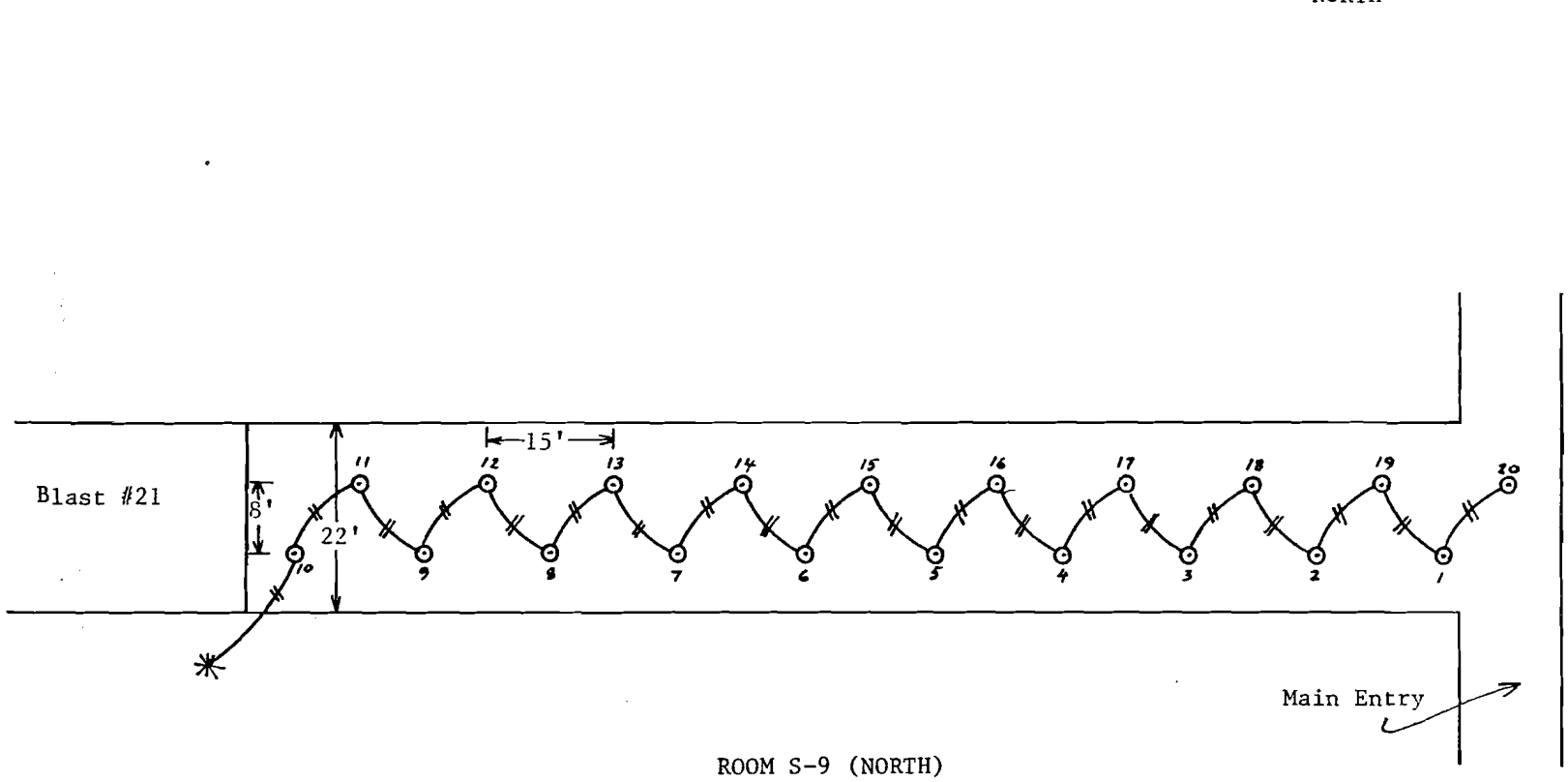
22




ROOM N-6

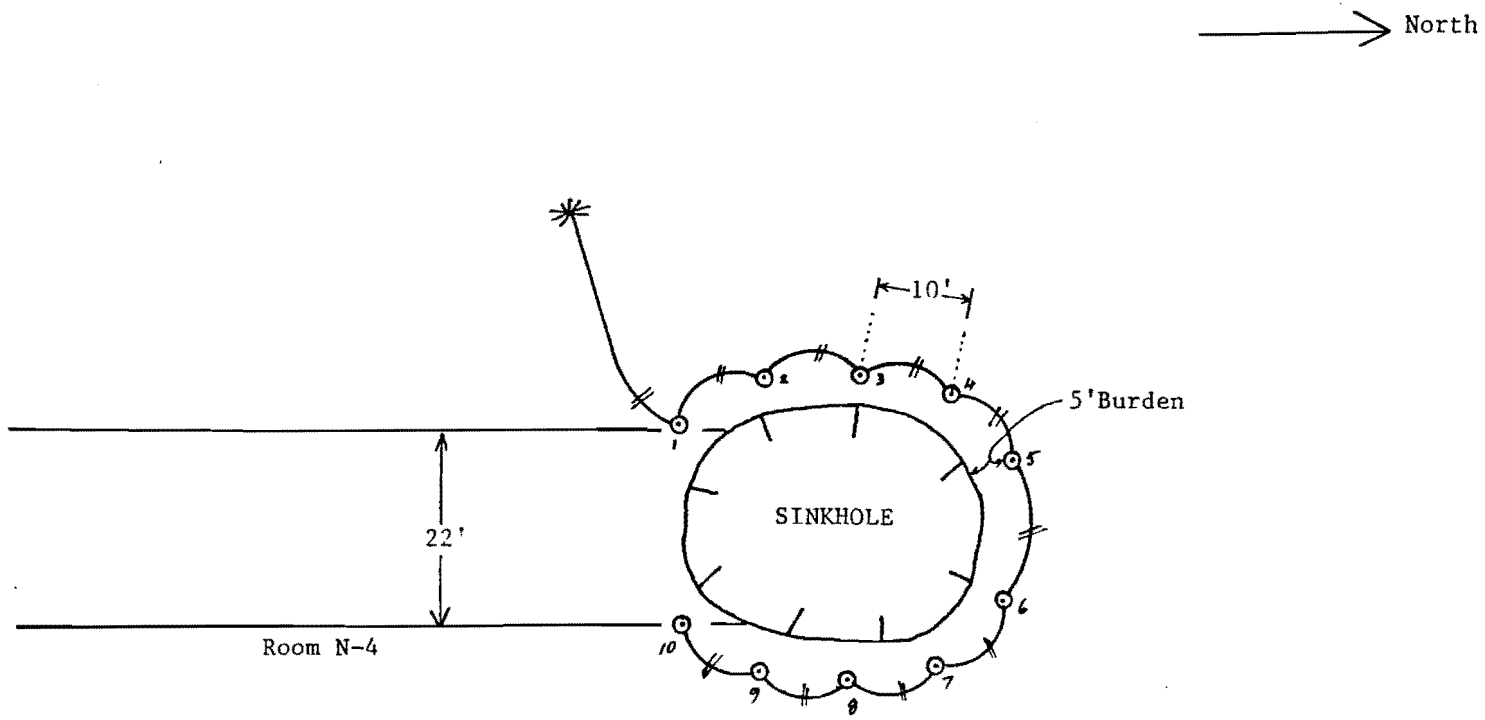
| LEGEND |
|---|
| ⊙ 8" Blasthole |
| 42ms Nonel Surface Delay |
| Point of Initiation |

| BAUER, CALDER & WORKMAN, INC. | |
|---|---|
| A M L P R O J E C T<br>BLAST LAYOUT SKETCH | |
| Blast #18 | Date: 11/17/86 |
| 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<br>BLAST LAYOUT SKETCH | |
| Blast # 19 | Date: 11/18/86 |
| Scale: 1:20 | |

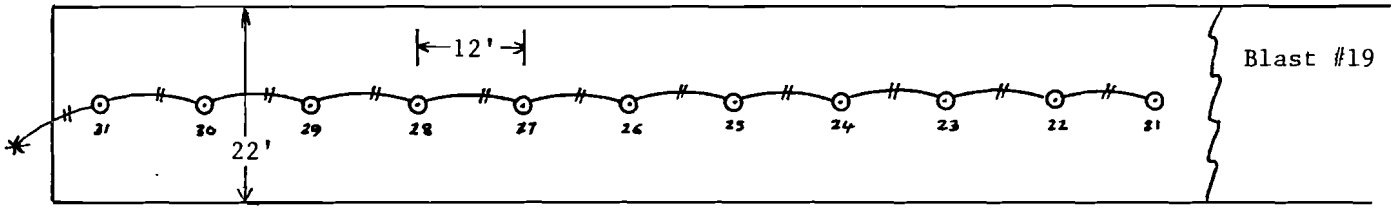



| LEGEND | |
|---|---|
| ⊙ | 6" Blasthole |
| ⫽ | 42ms Nonel Surface Delay |
| ✳ | Point of Initiation |

| BAUER, CALDER & WORKMAN, INC. | |
|---|---|
| A M L P R O J E C T<br>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<br>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 |

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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 | |

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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 | — | S/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(S) 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 | 67 | 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 CONSUMPTION

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

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 | 44.4 | 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.

40

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 | 39 | 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 | | 38.5 | 39 | 41 | 4 | 54 | 13 | | |
| 31 | 36.5 | 53.5 | | 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 | 39.4 | 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 | - | - | - | - | |

44

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 | | |

45

AML PROJECT - BLAST SUMMARY

BLAST #: 19

LOCATION: S-9(N)

DATE 11/18

HOLE DIAM 6"

NO. HOLES 20

EXPLOSIVES CONSUMPTION (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 | | |

46

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 | | | | | |

47

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

| 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 | 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 | | | |

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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

SHOREA 0.0 FT WT/UNIT LENGTH 12.27 PROREA 37-1.0

| | U E C K | | N U M B E R 3 | | | | | | | :: | D E C K | | N U M B E R 4 | | | | | | | :: | T O T A L | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NET # | TOP | BOT | EXPL TYPE | LGTH FT | WT. LB | SMOB | P.F. | :: | DEL # | TOP | BOT | EXPL TYPE | LGTH FT | WT. LB | SMOB | 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 | 30.0 | 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 | 2.00 | 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 |

Reproduced from best available copy.

# [illegible] PROJECT BLAST SUMMARY : TECHNICAL DATA

| | | | |
|---|---|---|---|
| EXPLOSIVE TYPE | ANFO | IRFG | ENER |
| EXPL. DENSITY | 0.85 | 1.00 | 0.85 |
| WT. STRENGTH | 1.00 | 0.96 | 0.55 |

BLAST # 1 LOCATION N-1-1 HOLE DIAM 6 ROW WIDTH [illegible] FT SPACING 12 FT ROW SEPARATION 0 FT

| | | DRILL HOLE | | | | | | | | | DRILL HOLE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| # | DEPTH | DEV # | TOP | BOT | EXPL TYPE | LGTH FT | WT. LB | SCOB | SHOB | P.F. | DEV # | TOP | BOT | EXPL TYPE | LGTH FT | WT. LB | SCOB | SHOB | 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 | 1.14 | 0.24 |
| 2 | 43.0 | 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 | 1.09 | [illegible] |
| 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 | 1.14 | 0.24 |
| 4 | 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 | 1.14 | 0.24 |
| 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 | 1.14 | 0.24 |
| 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 | 1.14 | 0.24 |
| 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 | 1.14 | 0.24 |
| 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 | 1.14 | 0.24 |
| 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 | 1.14 | 0.24 |
| 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 | 1.14 | 0.24 |
| AV. | 45.00 | 10 | | | | 3.10 | 32.3 | 3.13 | 1.52 | 0.16 | 10 | | | | 3.10 | 32.3 | [illegible] | [illegible] | [illegible] |
| MIN | 43.0 | | | | | 3.0 | 31.3 | 2.74 | 1.43 | 0.16 | | | | | 3.0 | 31.3 | 2.45 | 1.09 | 0.24 |
| MAX | 46.0 | | | | | 4.0 | 41.7 | 3.18 | 2.31 | 0.17 | | | | | 4.0 | 41.7 | 2.54 | [illegible] | [illegible] |
| STD | 1.22 | | | | | 0.32 | 3.3 | 0.14 | 0.29 | 0.01 | | | | | 0.32 | 3.3 | 0.03 | 0.02 | [illegible] |

# 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 | | |

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 |

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

| | ANFO | IREG | ENER |
|---|---|---|---|
| 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 |

# 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 | 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 | 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

| | 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 # 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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# AHL PROJECT - BLAST SUMMARY : TECHNICAL DATA

| NUMBERS | | | | | 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 | 250.9 | 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 | 250.9 | 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 |

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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 # 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 | 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 | | |

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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 |
| 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 | 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 |

# AML PROJECT - BLAST SUMMARY : TECH[illegible] 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 # 14 LOCATION S-11(ND) 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 | 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

| | ANFO | IREG | ENER |
|---|---|---|---|
| EXPLOSIVE TYPE | ANFO | IREG | ENER |
| EXPL. DENSITY | 0.85 | 1.00 | 0.85 |
| WT. STRENGTH | 1.00 | 0.36 | 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 | 0.33 | 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 | 0.33 | 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

| | D E C K N U M B E R 3 | | | | | | | | D E C K N U M B E R 4 | | | | | | | | T O T A L | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

| 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 |
| STO | 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 M-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

| | 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 # 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 PFARER 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

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

| | | | |
|---|---|---|---|
| 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

| | | | D E C K N U M B E R 1 | | | | | | | D E C K N U M B E R 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 | 109.3 | 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 | | |
| PERREA | 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 | 28.0 | 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 | |
| BOTTOM TWO DECKS: | WT/UNIT LENGTH | 12.27 | | |
| ENER | PFAREA | 165.0 | SQ. FT | |

| | | | 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

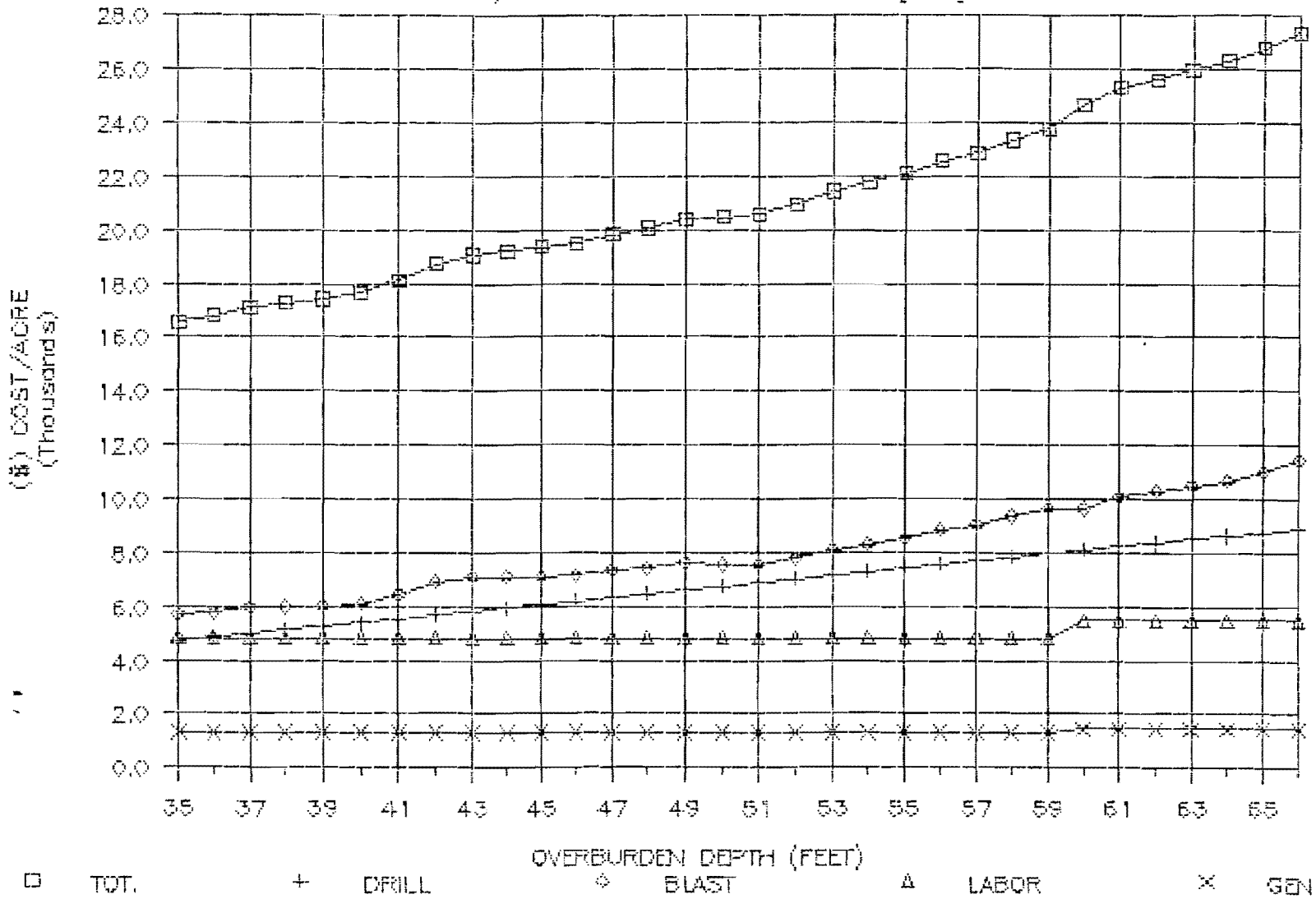
| | |
|---|---|
| MISC. FIELD EQUIPMENT | $750.00 |
| GENERAL SITE SERVICES | $450.00 |
| CONSUMABLE FIELD SUPPLIES | $300.00 |
| TOTAL FOR PROJECT | $1,500.00 |
| PER BLAST | $34.09 |

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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NIL 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 (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) = $2,367.14

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

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

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

121

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 (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) = $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

25

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 (RESEARCH COMPONENT) | 1200 FT @ | $ 0.057 /FT | = | | $68.40 |
| 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

128

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

130

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

132

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 | 1100 FT @ | $ 0.057 /FT | = | | $62.70 |
| | (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) = $3,869.88

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

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

134

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

135

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

136

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 (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) | | | | = | | $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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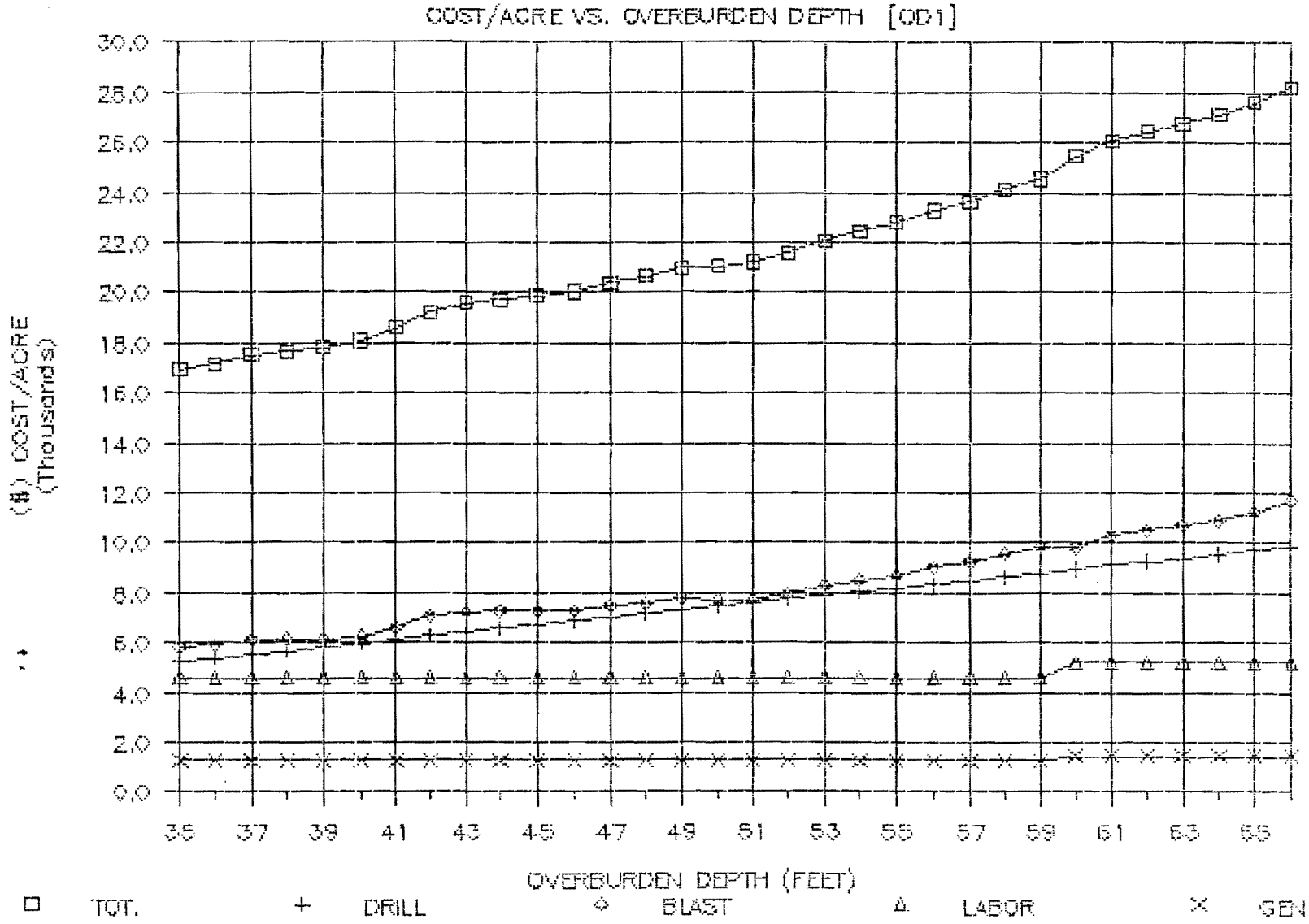
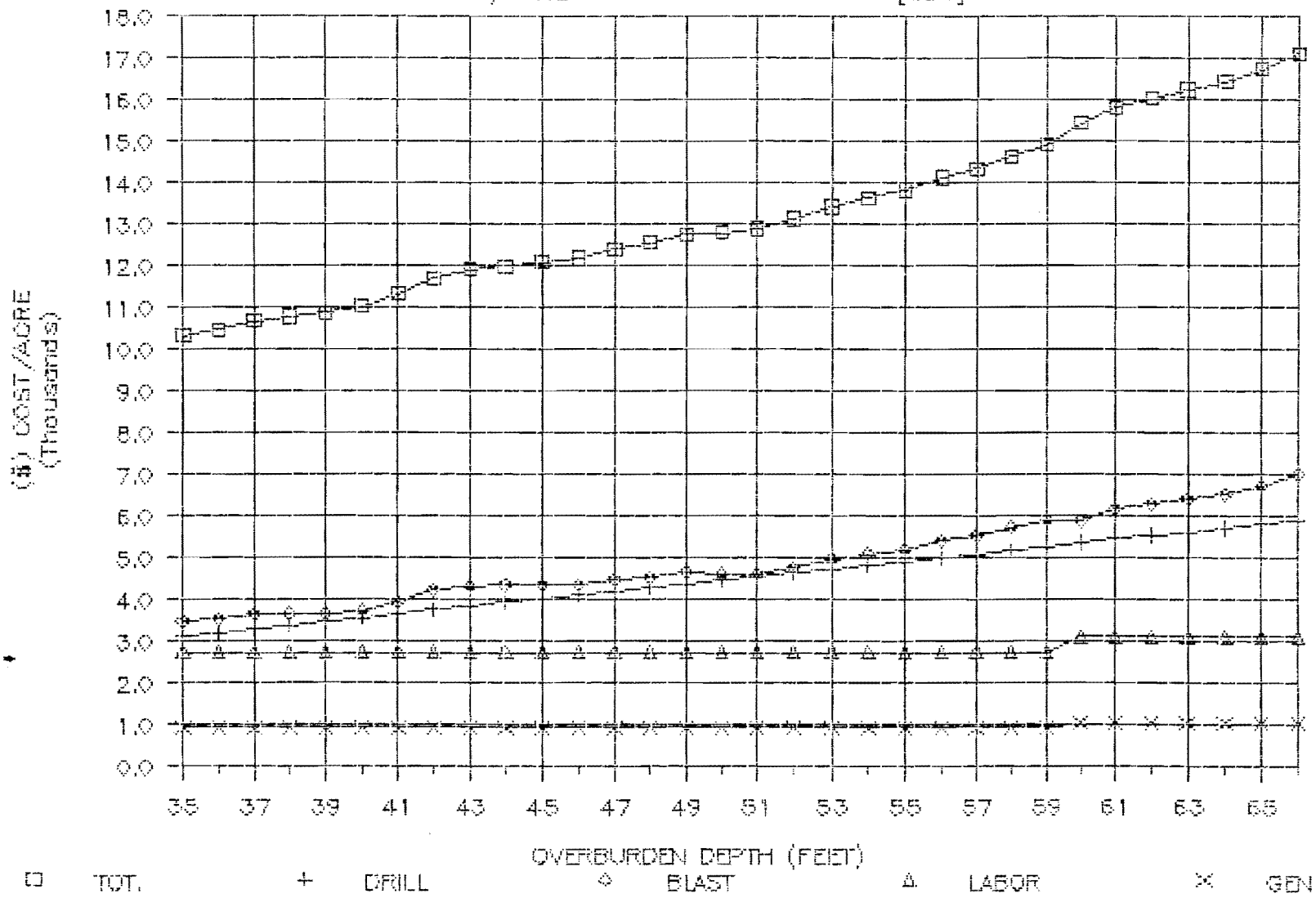
# AML BLASTING - COST MODEL



(h)

# 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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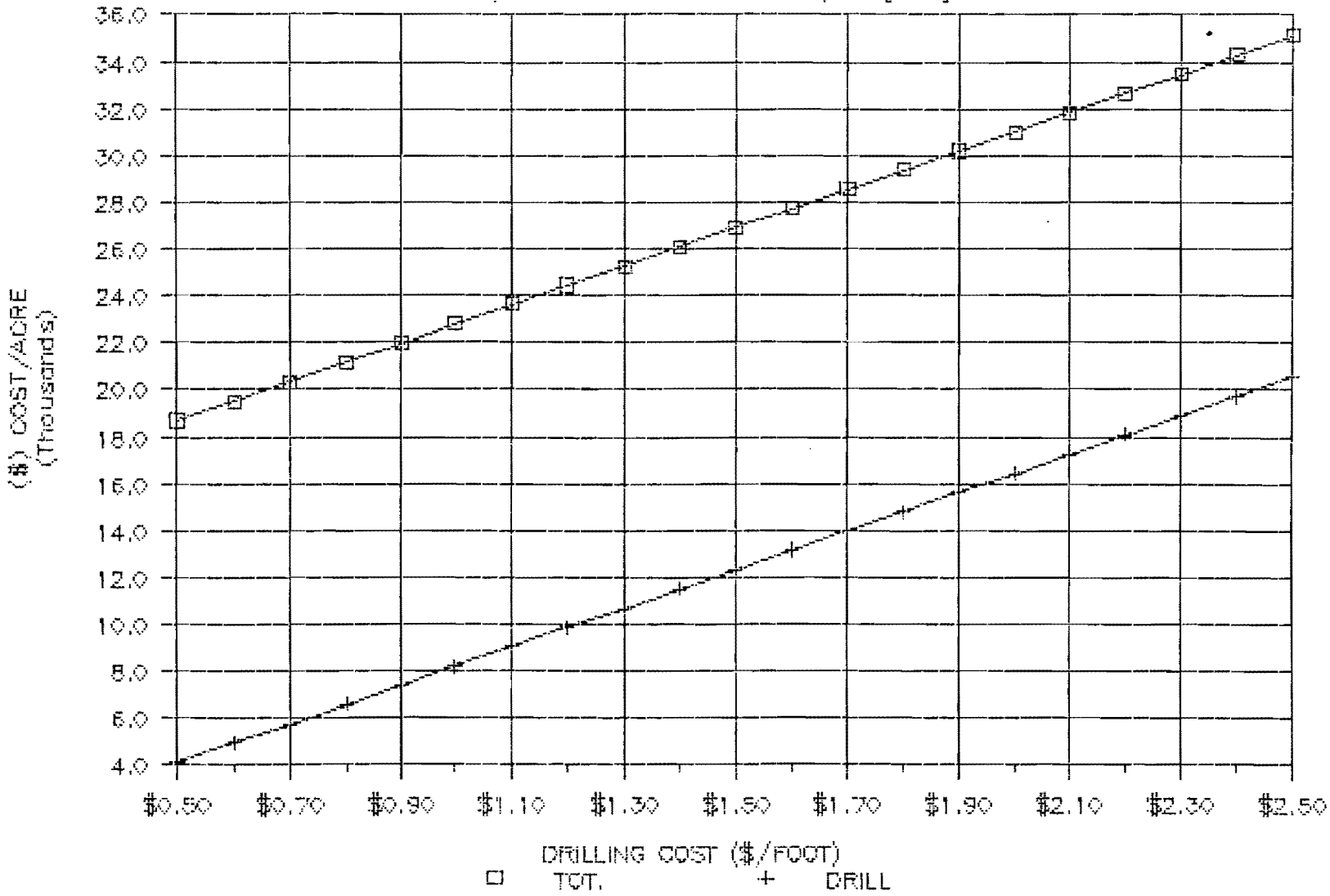
# AML BLASTING - COST MODEL

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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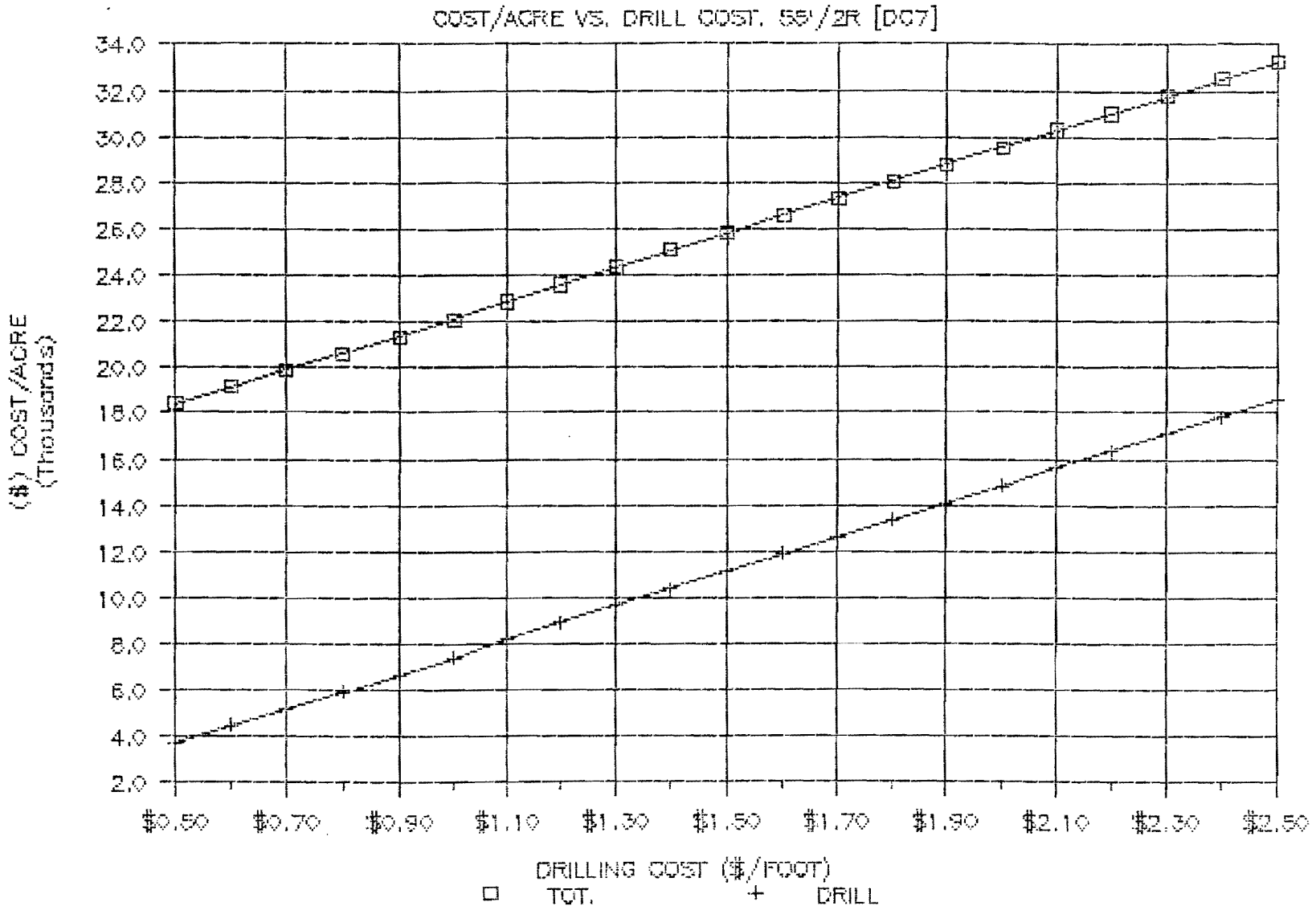
# AML BLASTING - COST MODEL



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 | | COST PER ACRE | | | | |
|---|---|---|---|---|---|---|
| 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 | | COST PER ACRE | | | | |
|---|---|---|---|---|---|---|
| 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.

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

'6/

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

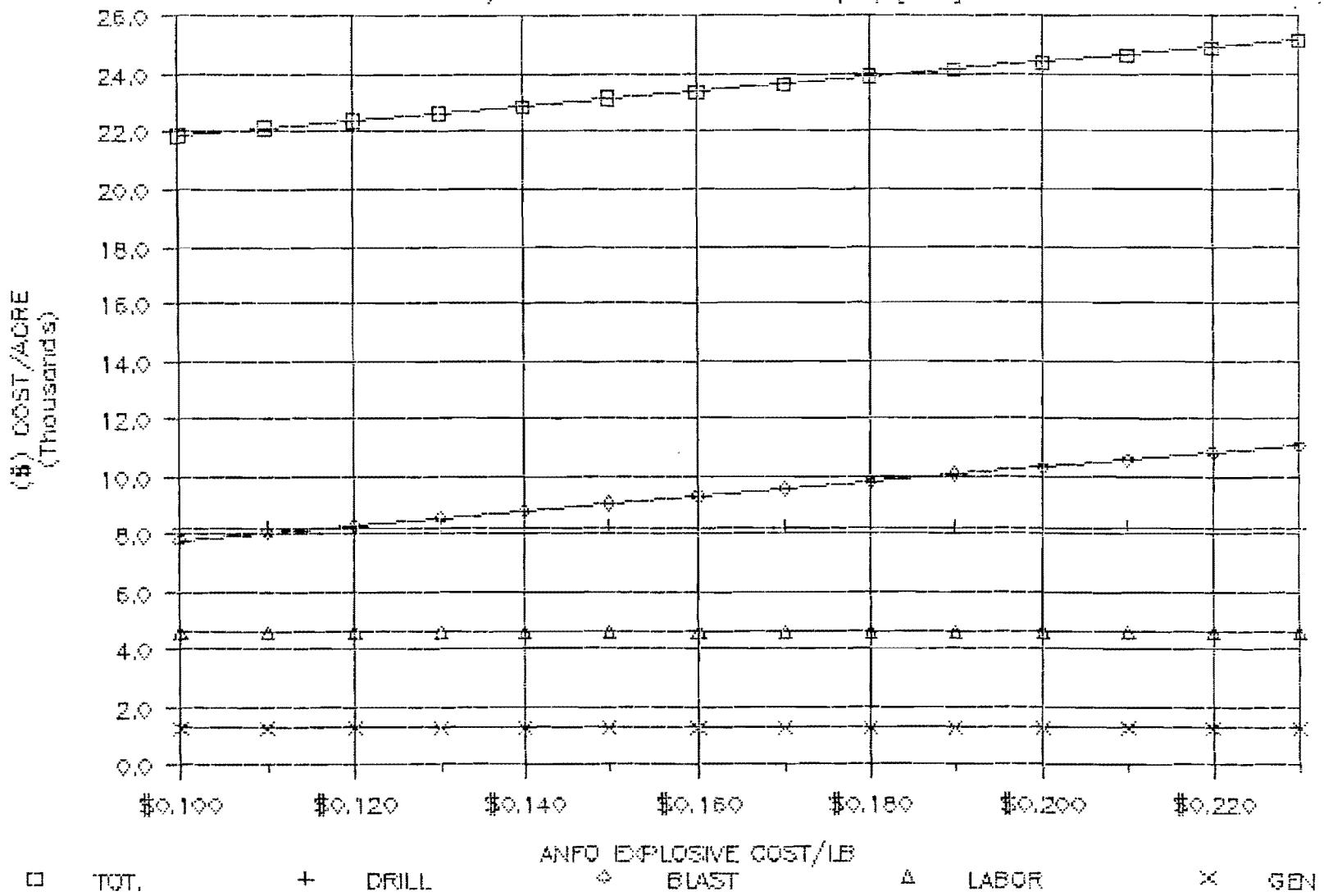
| PARAMETER | | COST PER ACRE | | | | |
|---|---|---|---|---|---|---|
| ANFO COST/LB | SLURRY COST/LB | DRILL COST | BLAST COST | LABOR COST | GENERAL COST | COST/ACRE |
| $0.100 | $0.350 | $8,214 | $7,780 | $4,605 | $1,285 | $21,883 |
| $0.110 | $0.360 | $8,214 | $8,033 | $4,605 | $1,285 | $22,136 |
| $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

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

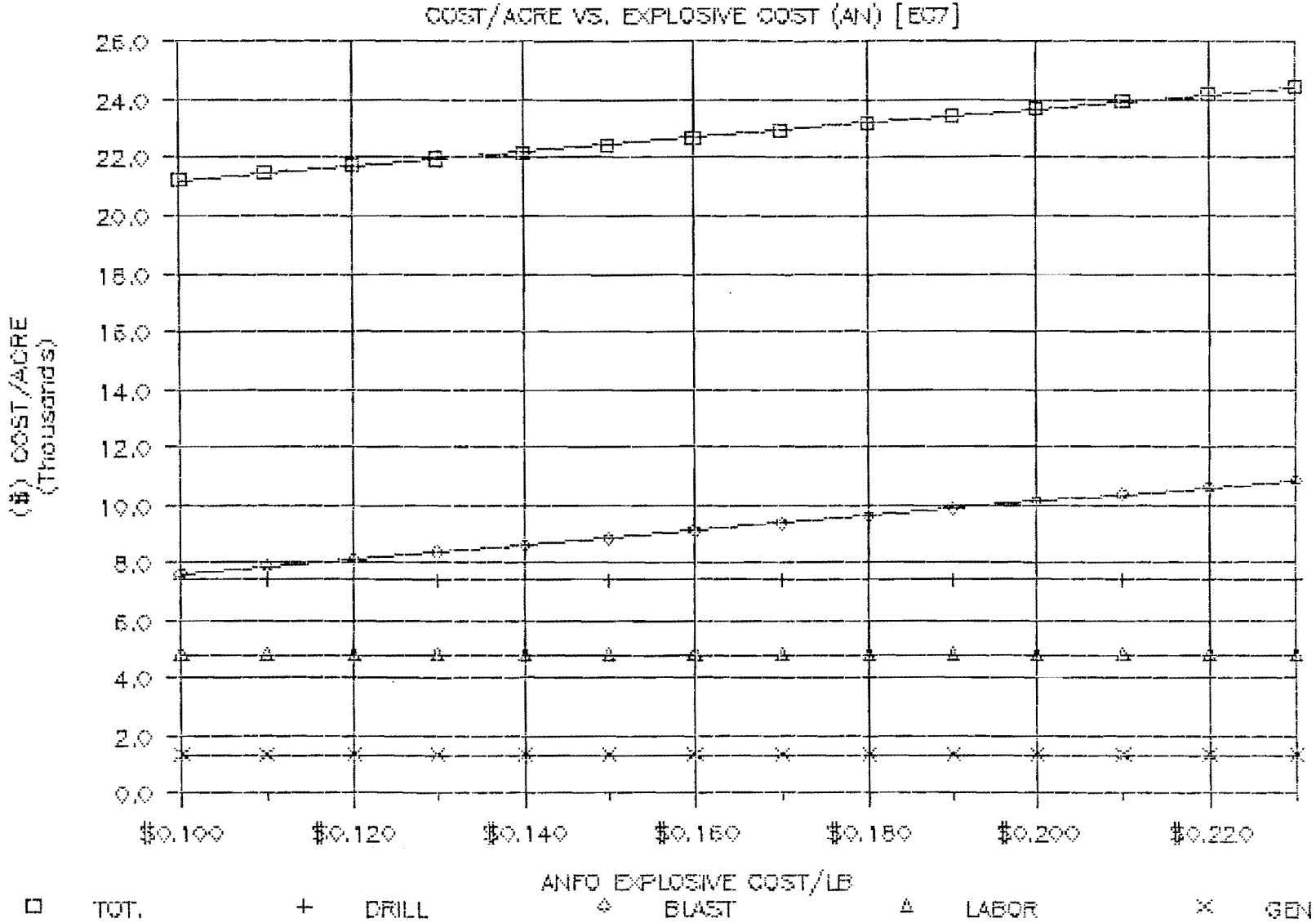
| PARAMETER | | COST PER ACRE | | | | |
|---|---|---|---|---|---|---|
| ANFO COST/LB | SLURRY COST/LB | DRILL COST | BLAST COST | LABOR COST | GENERAL COST | COST/ACRE |
| $0.100 | $0.350 | $7,427 | $7,627 | $4,835 | $1,328 | $21,217 |
| $0.110 | $0.360 | $7,427 | $7,875 | $4,835 | $1,328 | $21,465 |
| $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 |

Reproduced from best available copy.

# AML BLASTING - COST MODEL



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

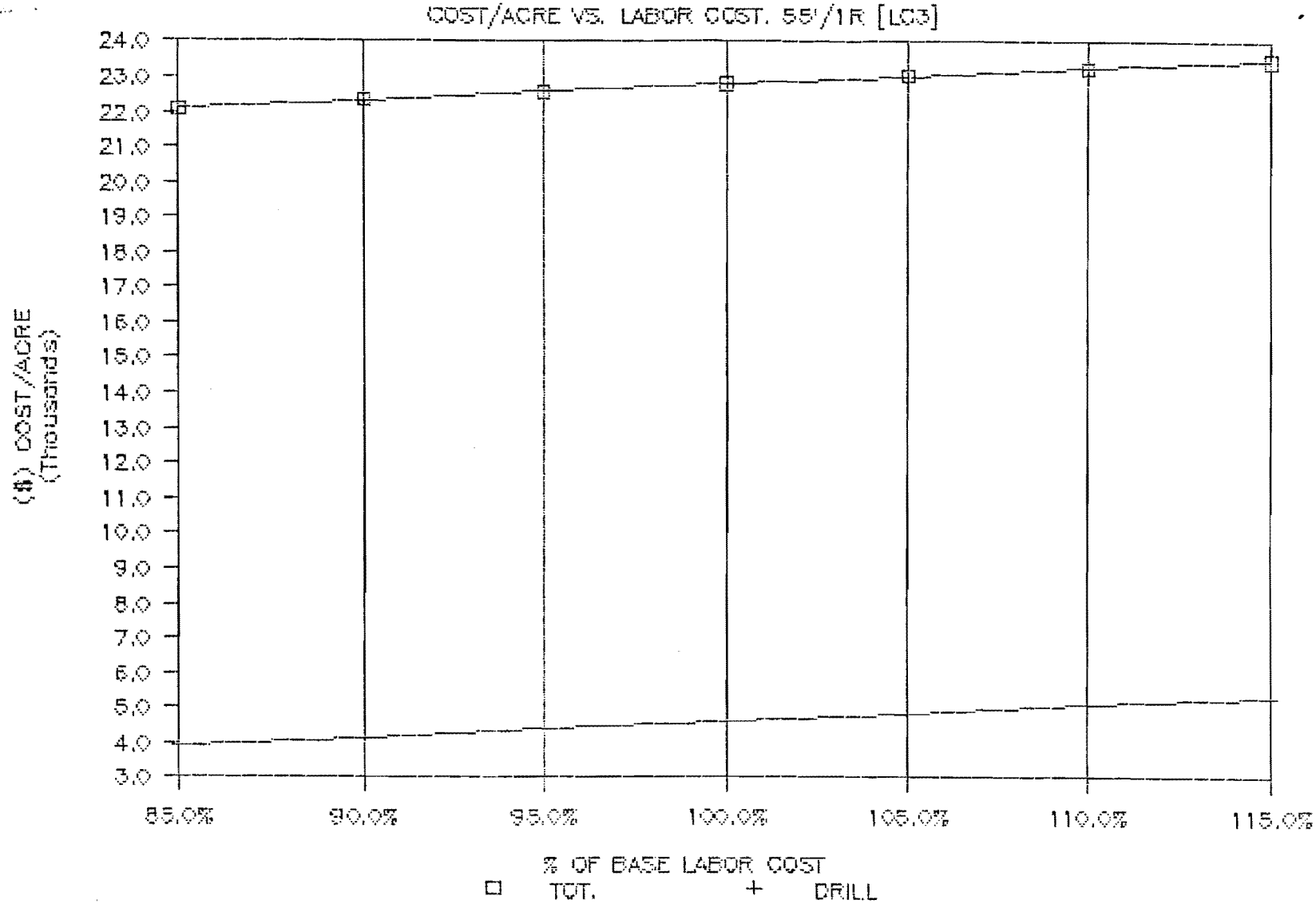
| | | | | |
|---|---|---|---|---|
| SEISMOGRAPH | @ | $500 /MONTH | = | $1,050.00 |
| MAGAZINES | @ | $400 /MONTH | = | $840.00 |
| TRAILER | @ | $350 /MONTH | = | $735.00 |
| TOTAL FOR PROJECT | | | | $2,625.00 |
| PER BLAST | | | | $62.50 |

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 |

Reproduced from best available copy.

# 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

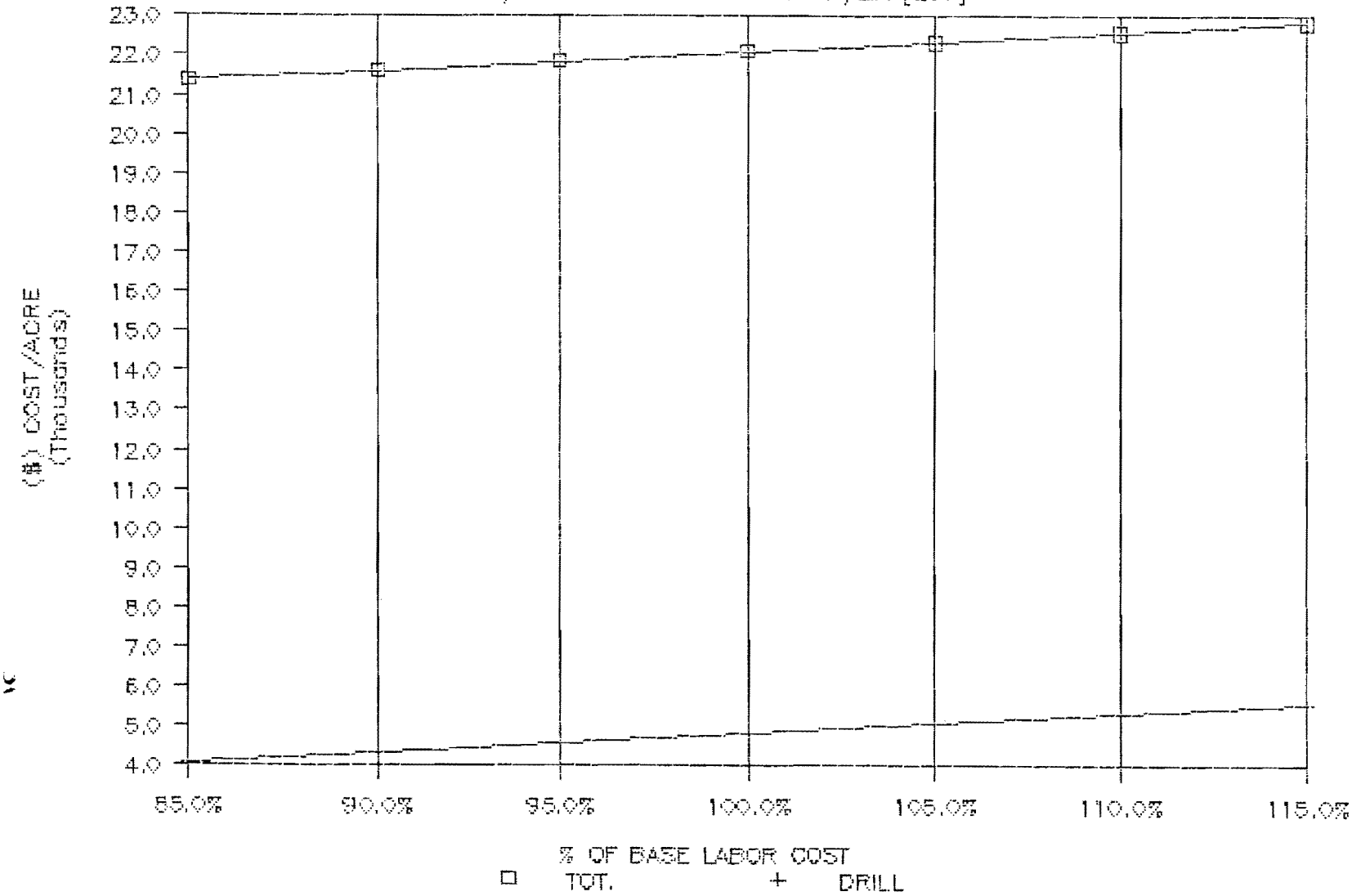
| | | | | |
|---|---|---|---|---|
| SEISMOGRAPH | @ | $500 /MONTH | = | $1,100.00 |
| MAGAZINES | @ | $400 /MONTH | = | $880.00 |
| TRAILER | @ | $350 /MONTH | = | $770.00 |
| TOTAL FOR PROJECT | | | | $2,750.00 |
| PER BLAST | | | | $62.50 |

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 |

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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

183

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 |

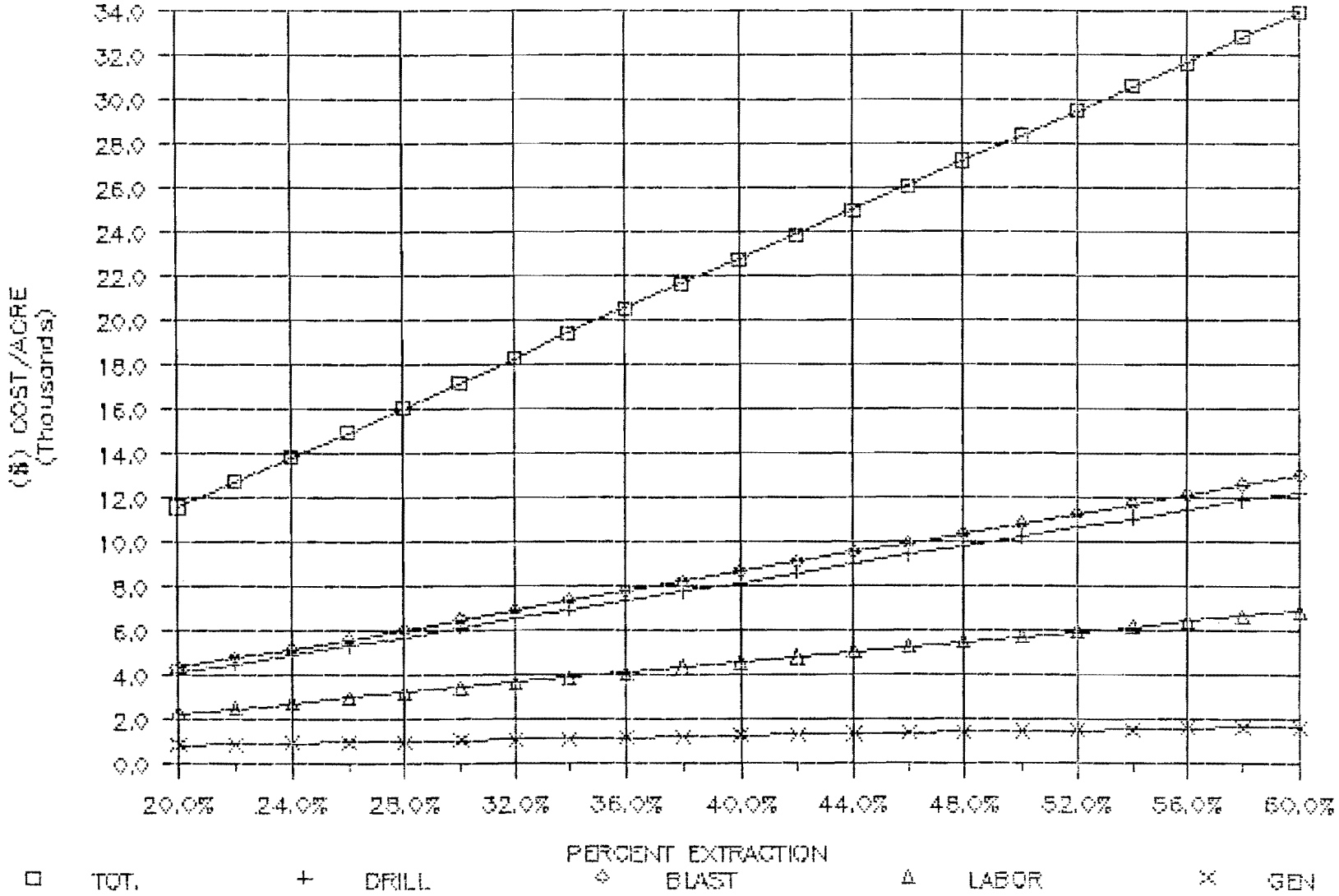
MISCELLANEOUS

| | |
|---|---|
| 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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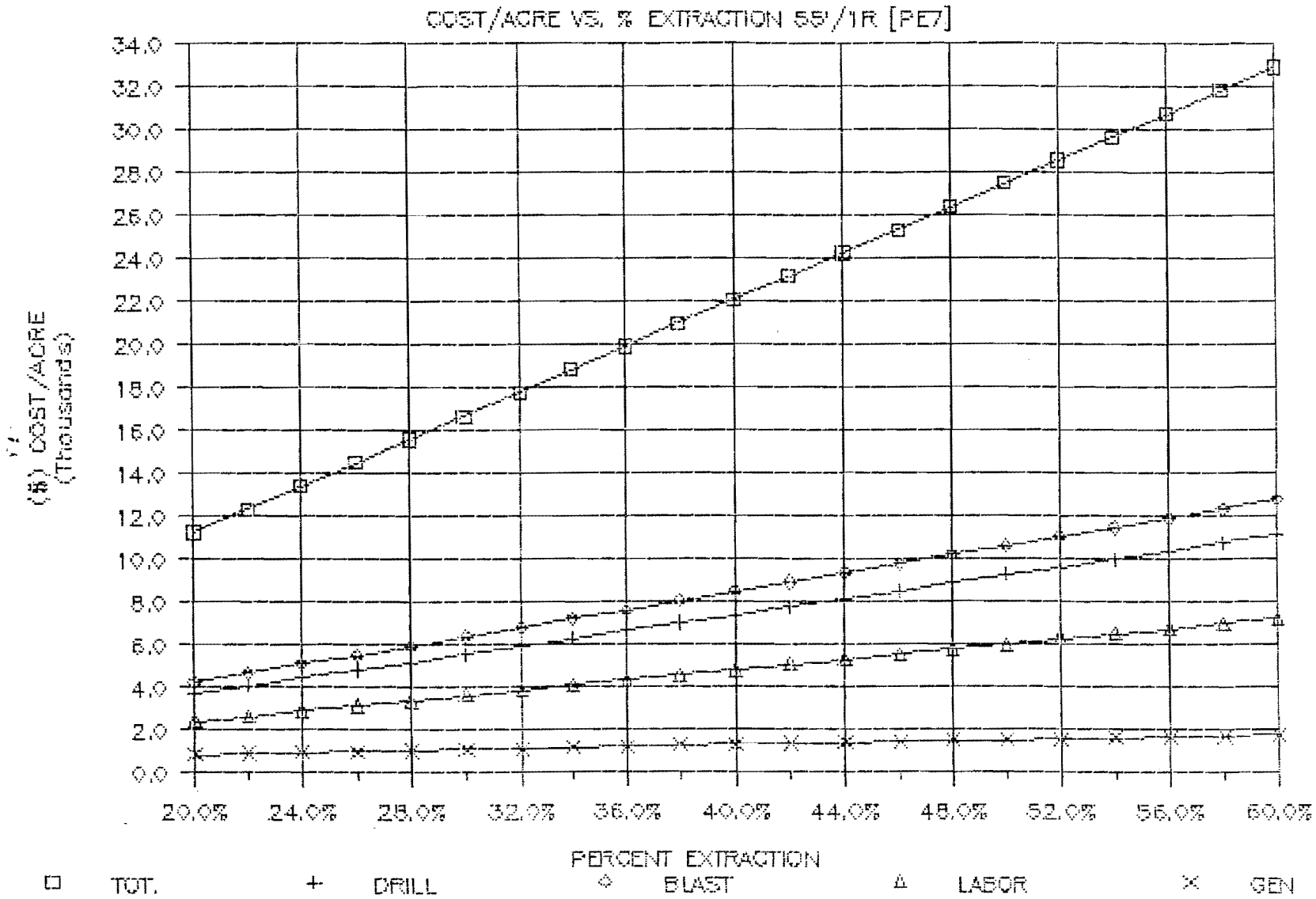
# AML BLASTING - COST MODEL



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 |