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January 15, 1980

Mr. Robert L. Baer, Chief  
Light Water Reactors Branch No. 2  
Division of Project Management  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Docket No. 50-352 and  
No. 50-353

Subject: Limerick Generating Station

Dear Mr. Baer:

Attached is a copy of the data which your Mr. Tibbitts requested, and we agreed to provide at the December 18, 1979 meeting held at the Limerick Information Center to consider the effects of blasting at the Trap Rock Quarry on plant structures.

A comparison of the blast response spectra with the OBE response will be provided in March, 1980.

Sincerely,

EUGENE J. BRADLEY

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Encl To  
Reg Files  
Contains  
Over sized  
Drawing, etc.

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Philadelphia Electric Company  
 Limerick Generating Station  
 Docket Nos. 50-352 and  
 50-353

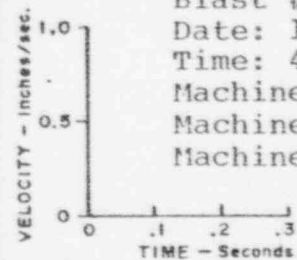
Attachment to letter dated January 15, 1980

1. Following is tabulated pertinent data on maximum pounds of powder per delay, distance from recorder to the blast for each of 27 records, and peak particle velocity recorded as measured by VME.

| <u>Blast No.</u> | <u>Max. lbs of powder per delay</u> | <u>Machine number and distance from blast</u> | <u>Peak particle velocity</u> |
|------------------|-------------------------------------|---|-------------------------------|
| 1                | 35 lbs.                             | #1 - 80 ft.                                   | .05                           |
| 1                | 35 lbs.                             | #2 - 160 ft.                                  | .05                           |
| 1                | 35 lbs.                             | #3 - 360 ft.                                  | .02                           |
| 2                | 321 lbs.                            | #1 - 250 ft.                                  | .14                           |
| 2                | 321 lbs.                            | #2 - 250 ft.                                  | .08                           |
| 2                | 321 lbs.                            | #3 - 250 ft.                                  | .08                           |
| 3                | 193 lbs.                            | #1 - 60 ft.                                   | .38                           |
| 3                | 193 lbs.                            | #2 - 120 ft.                                  | .42                           |
| 3                | 193 lbs.                            | #3 - 180 ft.                                  | .32                           |
| 4                | 112 lbs.                            | #1 - 30 ft.                                   | .28                           |
| 4                | 112 lbs.                            | #2 - 120 ft.                                  | .16                           |
| 4                | 112 lbs.                            | #3 - 200 ft.                                  | .08                           |
| 5                | 77 lbs.                             | #1 - 20 ft.                                   | .44                           |
| 5                | 77 lbs.                             | #2 - 20 ft.                                   | .44                           |
| 5                | 77 lbs.                             | #3 - 100 ft.                                  | .12                           |
| 6                | 63 lbs.                             | #1 - 20 ft.                                   | .58                           |
| 6                | 63 lbs.                             | #2 - 150 ft.                                  | .14                           |
| 6                | 63 lbs.                             | #3 - 240 ft.                                  | .06                           |
| 7                | 92 lbs.                             | #1 - 60 ft.                                   | .18                           |
| 7                | 92 lbs.                             | #2 - 100 ft.                                  | .10                           |
| 7                | 92 lbs.                             | #3 - 120 ft.                                  | .14                           |
| 8                | 200 lbs.                            | #1 - 60 ft.                                   | .34                           |
| 8                | 200 lbs.                            | #2 - 110 ft.                                  | .18                           |
| 8                | 200 lbs.                            | #3 - 150 ft.                                  | .12                           |
| 9                | 169 lbs.                            | #1 - 100 ft.                                  | .30                           |
| 9                | 169 lbs.                            | #2 - 120 ft.                                  | .28                           |
| 9                | 169 lbs.                            | #3 - 150 ft.                                  | .18                           |

2. A copy of the oscillograph chart for each of the 9 blasts. Peak particle velocity for each plane is shown on the back of each record.
3. A copy of the Operating Manual for the Model C Velocity Recorder instrument used to record these vibrations.
4. A copy of drawing No. SK-C-679 Rev. C which shows the location of the Trap Rock Quarry and the distances from the property line adjacent to the quarry to critical structures.
5. A copy of the monitoring data for blasting performed on June 24, 1970, September 4, 1974, and April 8, 1976.

Time scale is average. Varies from 3.0 to 3.83 inches per second. For accurate reading, measure time marks at place where velocity motions are recorded.



Limerick Project

Blast # 1

Date: 1-18-71

Time: 4:30

Resultant

Machine: 1

.077

Machine: 2

.071

Machine: 3

.035

124595

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
|                 |              |               |
| .05             | .05          | .03           |
| <i>J. Burns</i> |              | DATE 12-27-75 |

124596

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
|                 |              |               |
| .05             | .03          | .04           |
| <i>J. Burns</i> |              | DATE 12-27-75 |

124597

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
|                 |              |               |
| .02             | .02          | .02           |
| <i>J. Burns</i> |              | DATE 12-27-75 |



Limerick Project

Blast # 2

Date: 1-19-71

Time: 4:30

Resultant

Machine: 1

.164

Machine: 2

.104

Machine: 3

.088

124598

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | VERT.        | TRANS.        |
| .14             | .03          | .08           |
| <i>J. Burns</i> |              | DATE 12-22-79 |

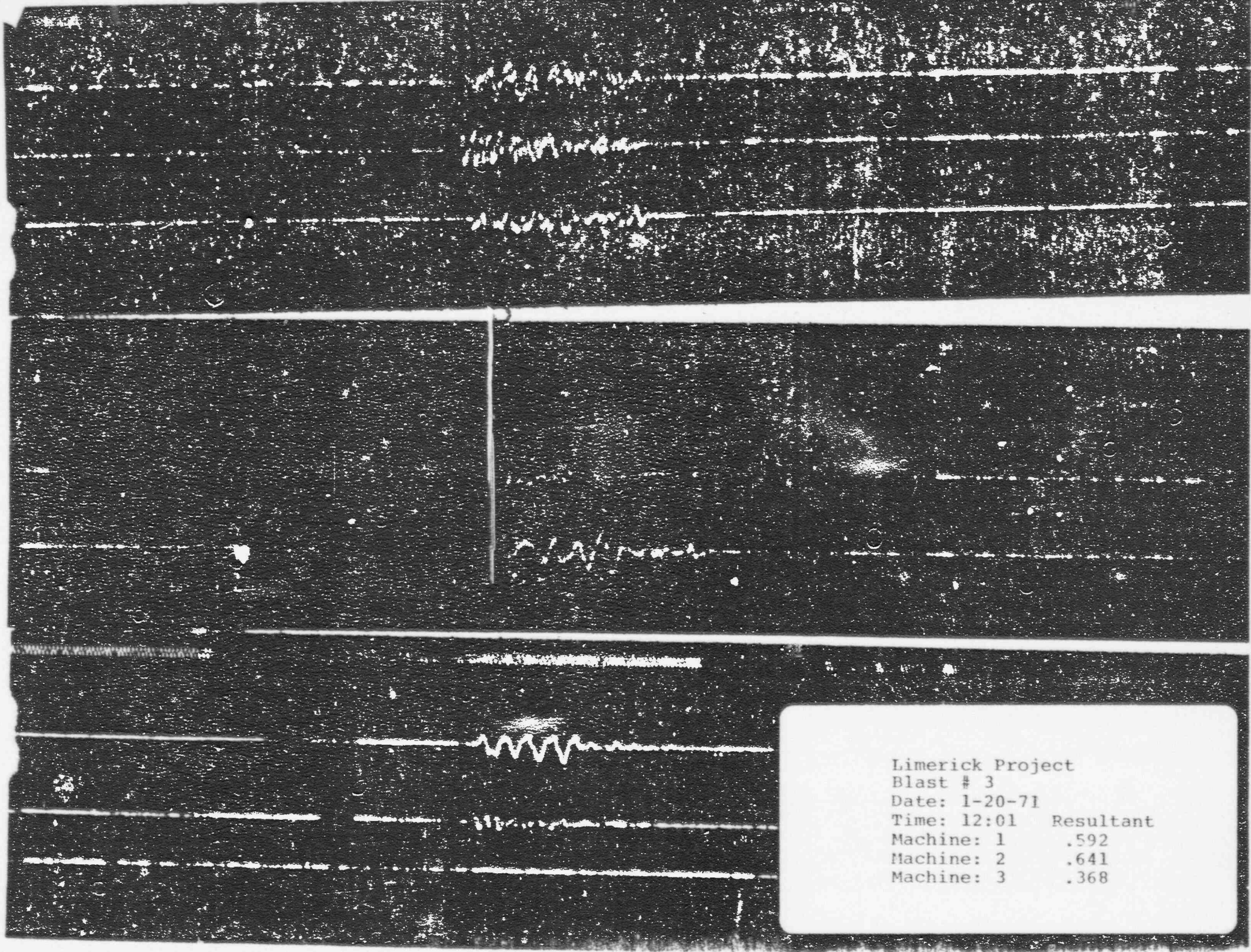
124599

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | VERT.        | TRANS.        |
| .08             | .06          | .03           |
| <i>J. Burns</i> |              | DATE 12-22-79 |

124600

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | VERT.        | TRANS.        |
| .03             | .02          | .08           |
| <i>J. Burns</i> |              | DATE 12-22-79 |





Limerick Project  
Blast # 3  
Date: 1-20-71  
Time: 12:01    Resultant  
Machine: 1     .592  
Machine: 2     .641  
Machine: 3     .368

124601

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | VERT.        | TRANS.        |
| .38             | .34          | .30           |
| <i>J. Burns</i> |              | DATE 12-27-79 |

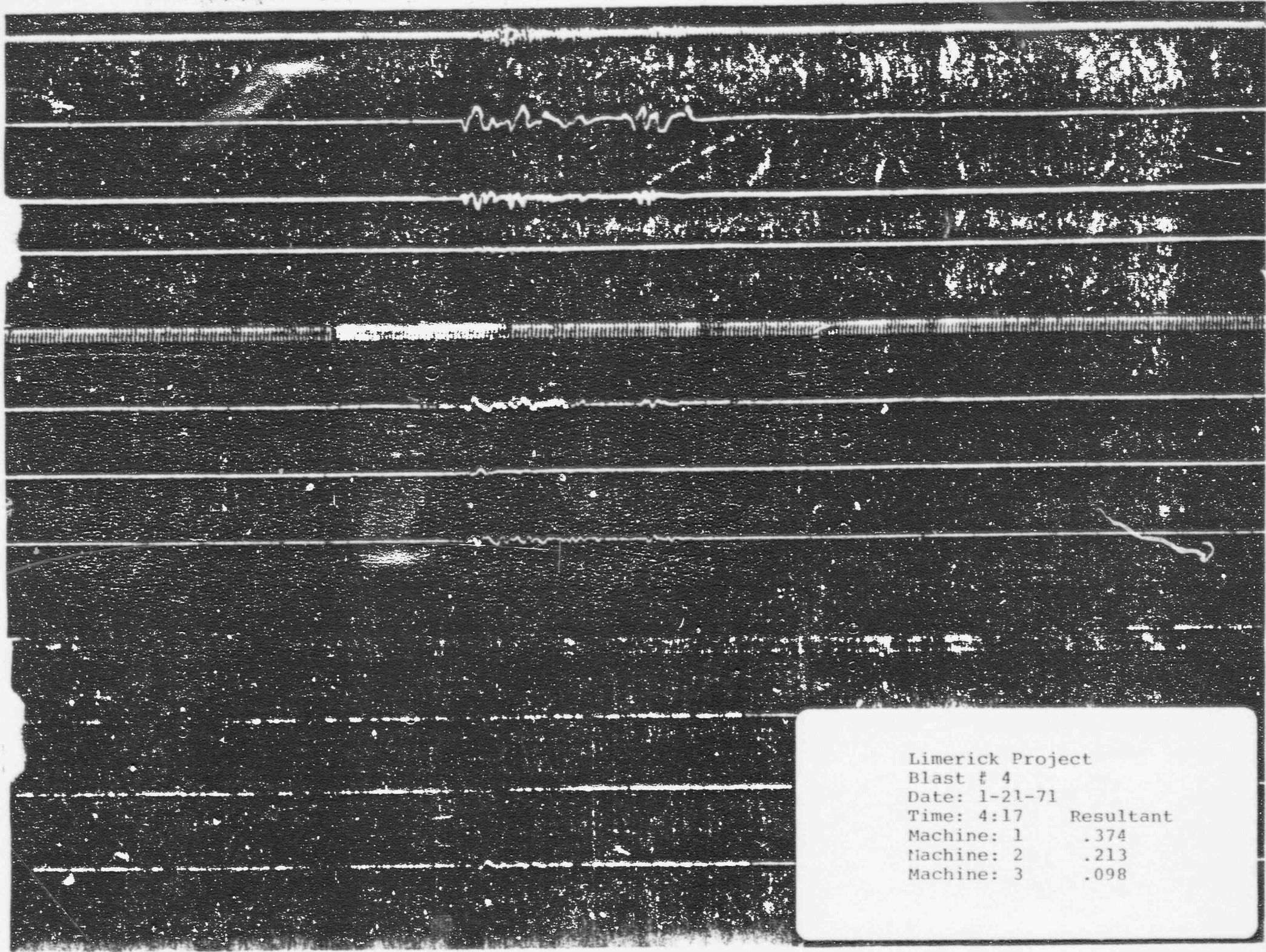
124602

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | VERT.        | TRANS.        |
| .38             | .30          | .42           |
| <i>J. Burns</i> |              | DATE 12-27-79 |

124603

|                 |     |               |
|-----------------|-----|---------------|
| .32             | .18 | .02           |
| <i>J. Burns</i> |     | DATE 12-27-79 |





Limerick Project  
Blast # 4  
Date: 1-21-71  
Time: 4:17      Resultant  
Machine: 1      .374  
Machine: 2      .213  
Machine: 3      .098

124604

| FREQUENCY | DISPLACEMENT | ENERGY RATIO |
|-----------|--------------|--------------|
| LOGG.     | VERT.        | TRANS.       |
| .28       | .24          | .06          |

*J. Burns* DATE 12-27-74

124605

| FREQUENCY | DISPLACEMENT | ENERGY RATIO |
|-----------|--------------|--------------|
| LOGG.     | VERT.        | TRANS.       |
| .16       | .10          | .10          |

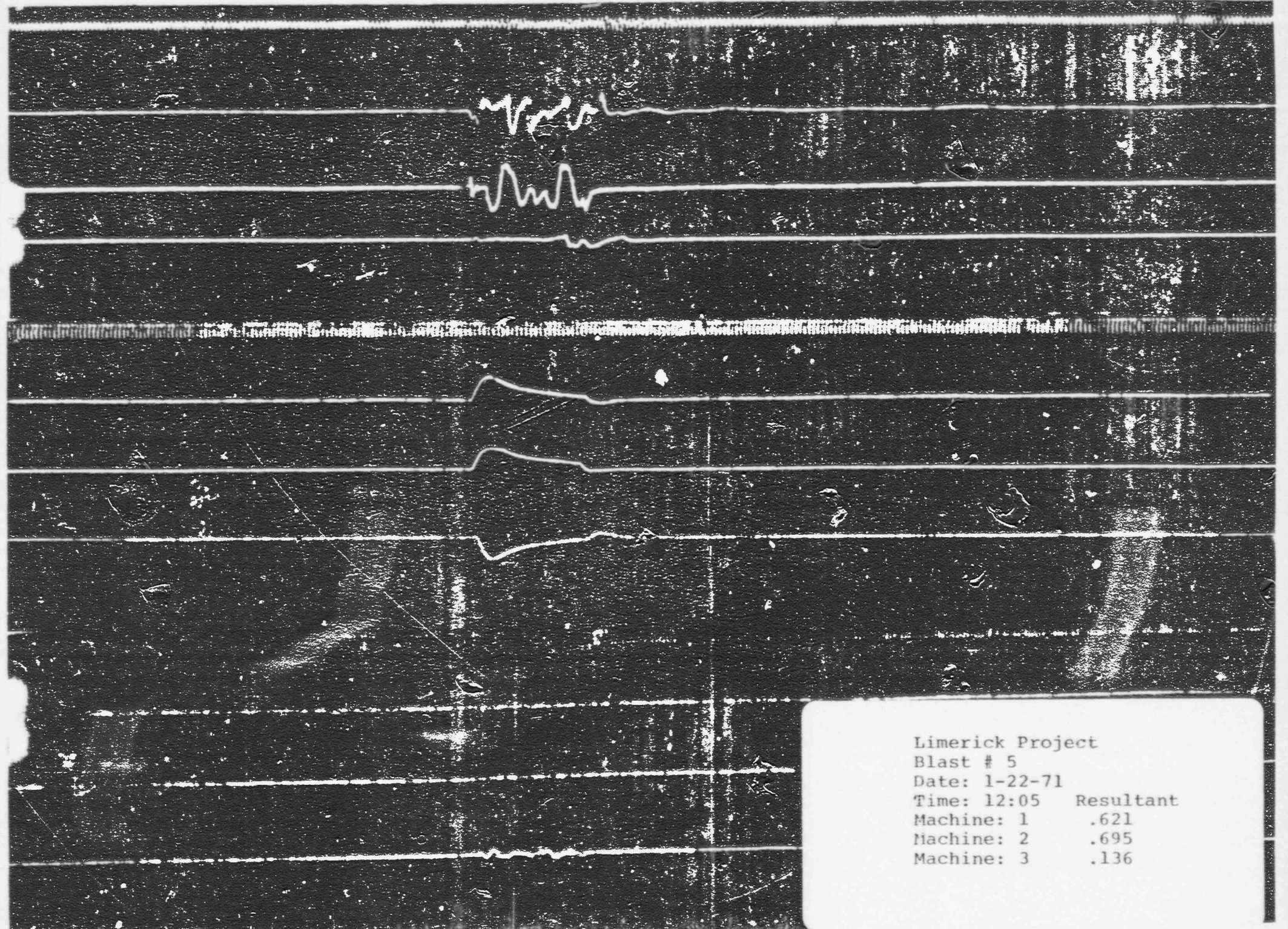
*J. Burns* DATE 12-27-74

124606

| FREQUENCY | DISPLACEMENT | ENERGY RATIO |
|-----------|--------------|--------------|
| LOGG.     | VERT.        | TRANS.       |
| .04       | .04          | .08          |

*J. Burns* DATE 12-27-74





Limerick Project  
Blast # 5  
Date: 1-22-71  
Time: 12:05      Resultant  
Machine: 1      .621  
Machine: 2      .695  
Machine: 3      .136

124607

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | TRANS.       | TRANS.        |
| .40             | .44          | .15           |
| <i>J. Burns</i> |              | DATE 12-27-79 |

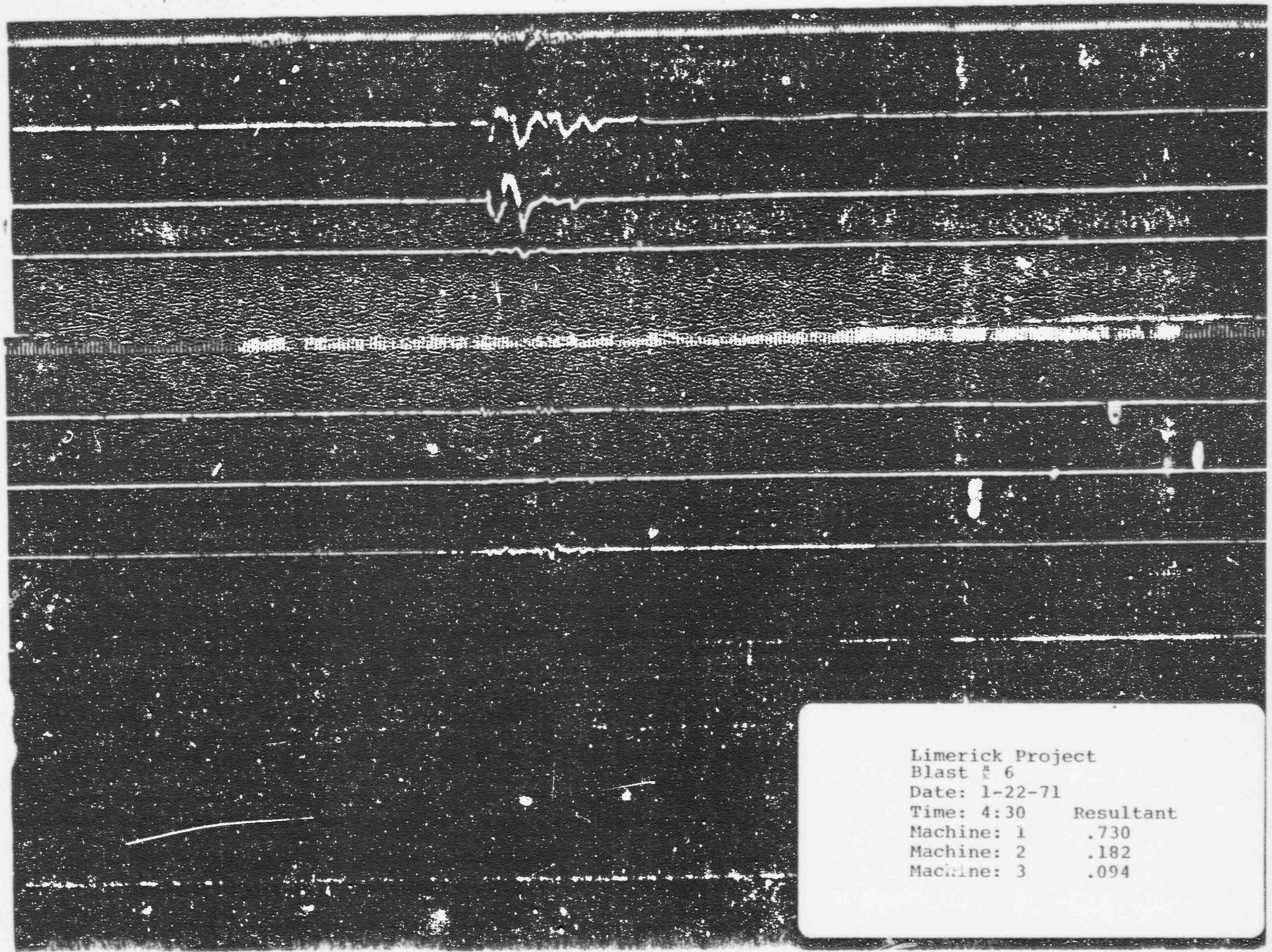
124608

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | TRANS.       | TRANS.        |
| .44             | .38          | .38           |
| <i>J. Burns</i> |              | DATE 12-27-79 |

124609

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | TRANS.       | TRANS.        |
| .06             | .02          | .12           |
| <i>J. Burns</i> |              | DATE 12-27-79 |





Limerick Project

Blast # 6

Date: 1-22-71

Time: 4:30      Resultant

Machine: 1      .730

Machine: 2      .182

Machine: 3      .094

124610

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | WAVELENGTH   | PERCENT       |
| .42             | .58          | .14           |
| <i>J. Burns</i> |              | DATE 12-27-79 |

124611

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | WAVELENGTH   | PERCENT       |
| .10             | .06          | .14           |
| <i>J. Burns</i> |              | DATE 12-27-79 |

124612

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LONG.           | WAVELENGTH   | PERCENT       |
| .06             | .04          | .06           |
| <i>J. Burns</i> |              | DATE 12-27-79 |





Limerick Project

Blast # 7

Date: 1-22-71

Time: 4:30      Resultant

Machine: 1      .223

Machine: 2      .130

Machine: 3      .182

124613

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LOG.            |              | IN U.S.       |
| .18             | .10          | .10           |
| <i>J. Burns</i> |              | DATE 12-27-74 |

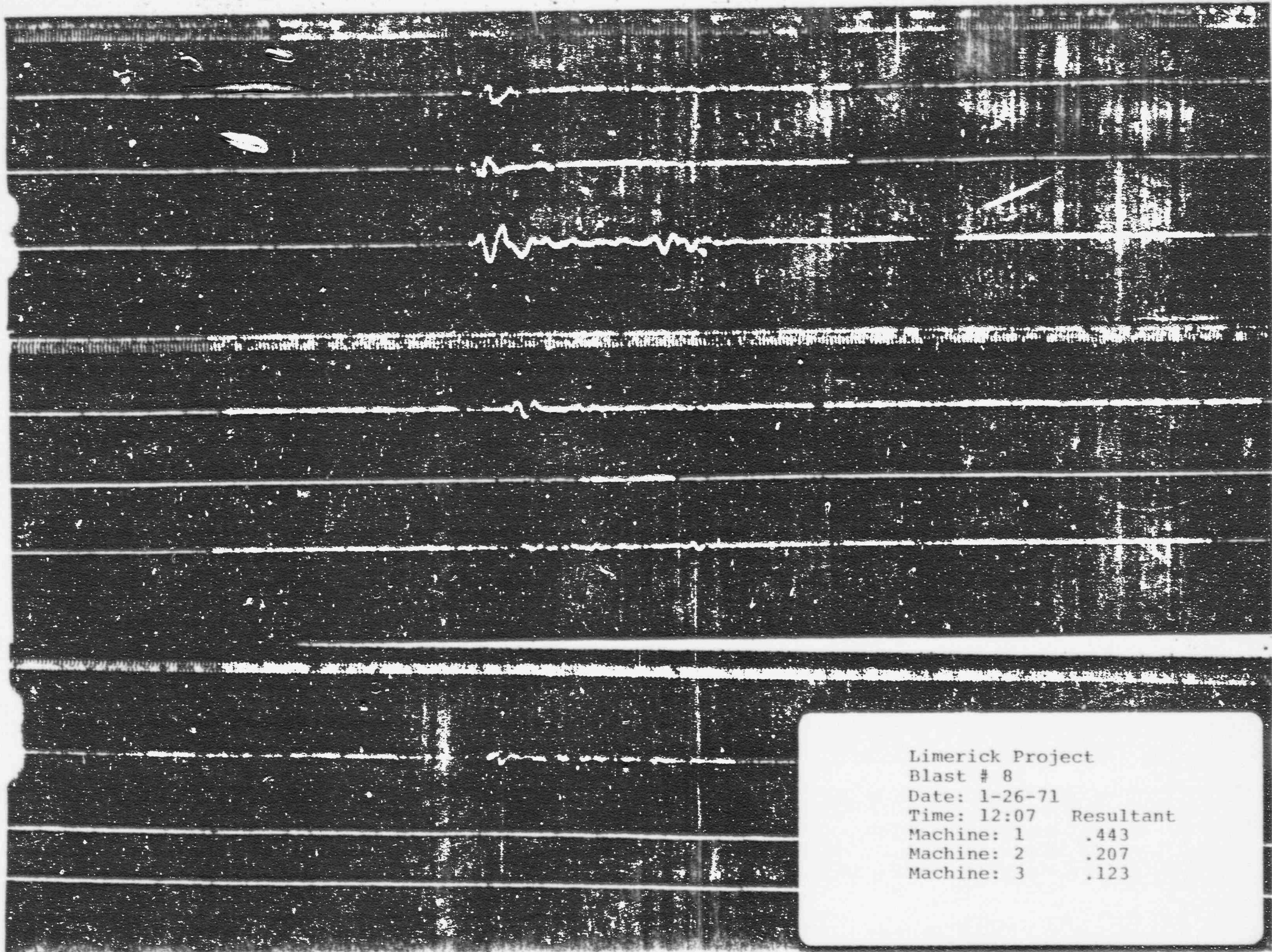
124614

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO  |
|-----------------|--------------|---------------|
| LOG.            |              |               |
| .10             | .05          | .02           |
| <i>J. Burns</i> |              | DATE 12-27-74 |

124615

| FREQUENCY       | DISPLACEMENT | ENERGY RATIO |
|-----------------|--------------|--------------|
| LOG.            |              |              |
| .06             | .10          | .14          |
| <i>J. Burns</i> |              | 12-27-74     |





Limerick Project  
Blast # 8  
Date: 1-26-71  
Time: 12:07     Resultant  
Machine: 1     .443  
Machine: 2     .207  
Machine: 3     .123

124616

| FREQUENCY | DISPLACEMENT | ENERGY RATIO |
|-----------|--------------|--------------|
| LC        |              | EMERSON      |
| .22       | .18          | .34          |

*J. Burns* DATE 12 27 79

124617

| FREQUENCY | DISPLACEMENT | ENERGY RATIO |
|-----------|--------------|--------------|
| LC        |              | EMERSON      |
| .18       | .02          | .10          |

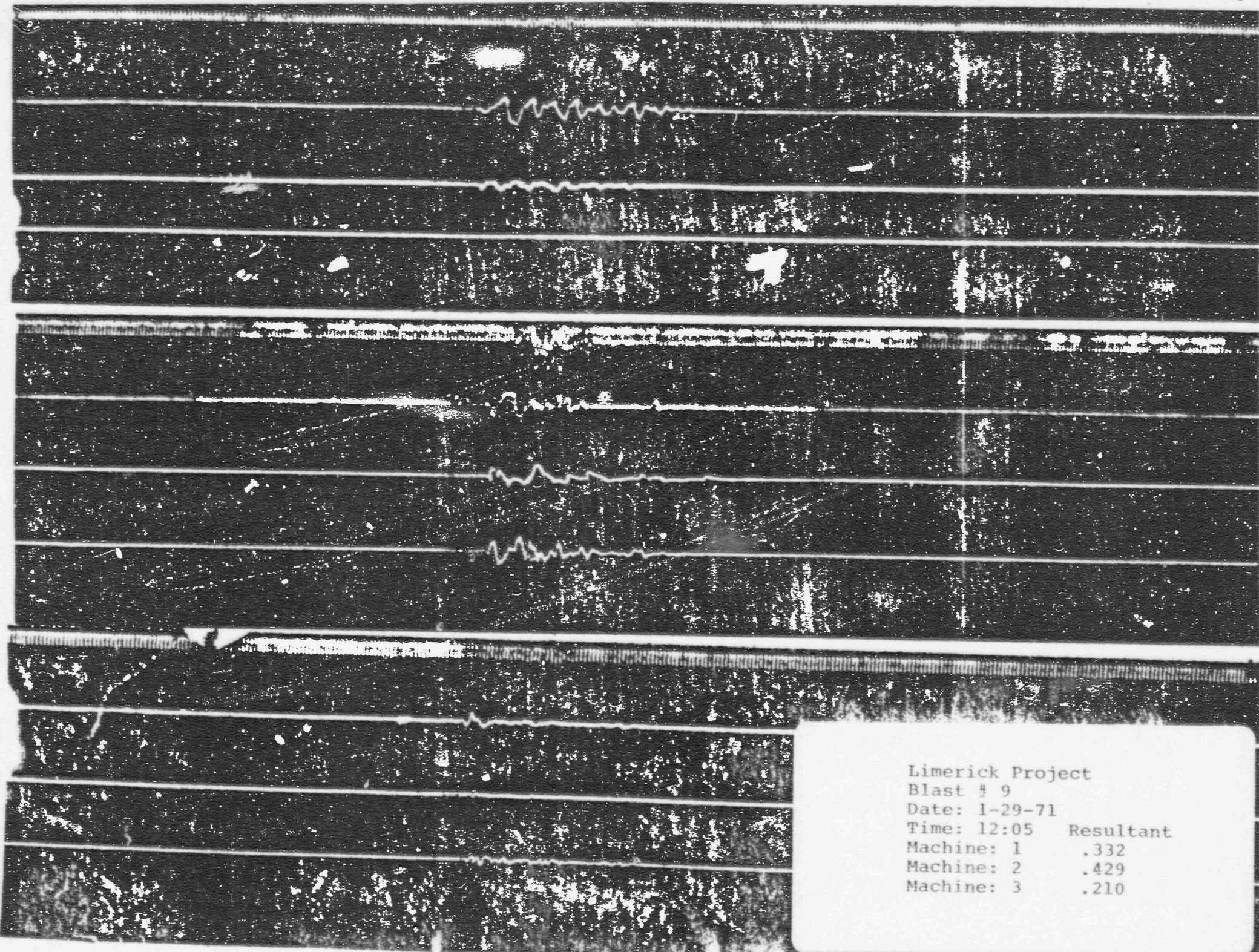
*J. Burns* DATE 12 27 79

124618

| FREQUENCY | DISPLACEMENT | ENERGY RATIO |
|-----------|--------------|--------------|
| LC        |              | EMERSON      |
| .12       | 2.02         | 2.02         |

*J. Burns* DATE 12 27 79





Limerick Project  
Blast # 9  
Date: 1-29-71  
Time: 12:05      Resultant  
Machine: 1      .332  
Machine: 2      .429  
Machine: 3      .210

