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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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SE*

*Encl To
Reg Files
Contains
OverSized
Drawing, Etc.*

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8001210

270

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

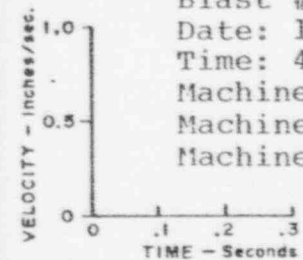
Attachment to letter dated January 15, 1980

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	AMPLITUDE	ENERGY RATIO
LO. F.	LO. F.	LO. F.
.05	.05	.03
<i>J. Burns</i>		DATE 12-27-75

124596

FREQUENCY	AMPLITUDE	ENERGY RATIO
LO. F.	LO. F.	LO. F.
.05	.03	.04
<i>J. Burns</i>		DATE 12-27-75

124597

FREQUENCY	AMPLITUDE	ENERGY RATIO
LO. F.	LO. F.	LO. F.
.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

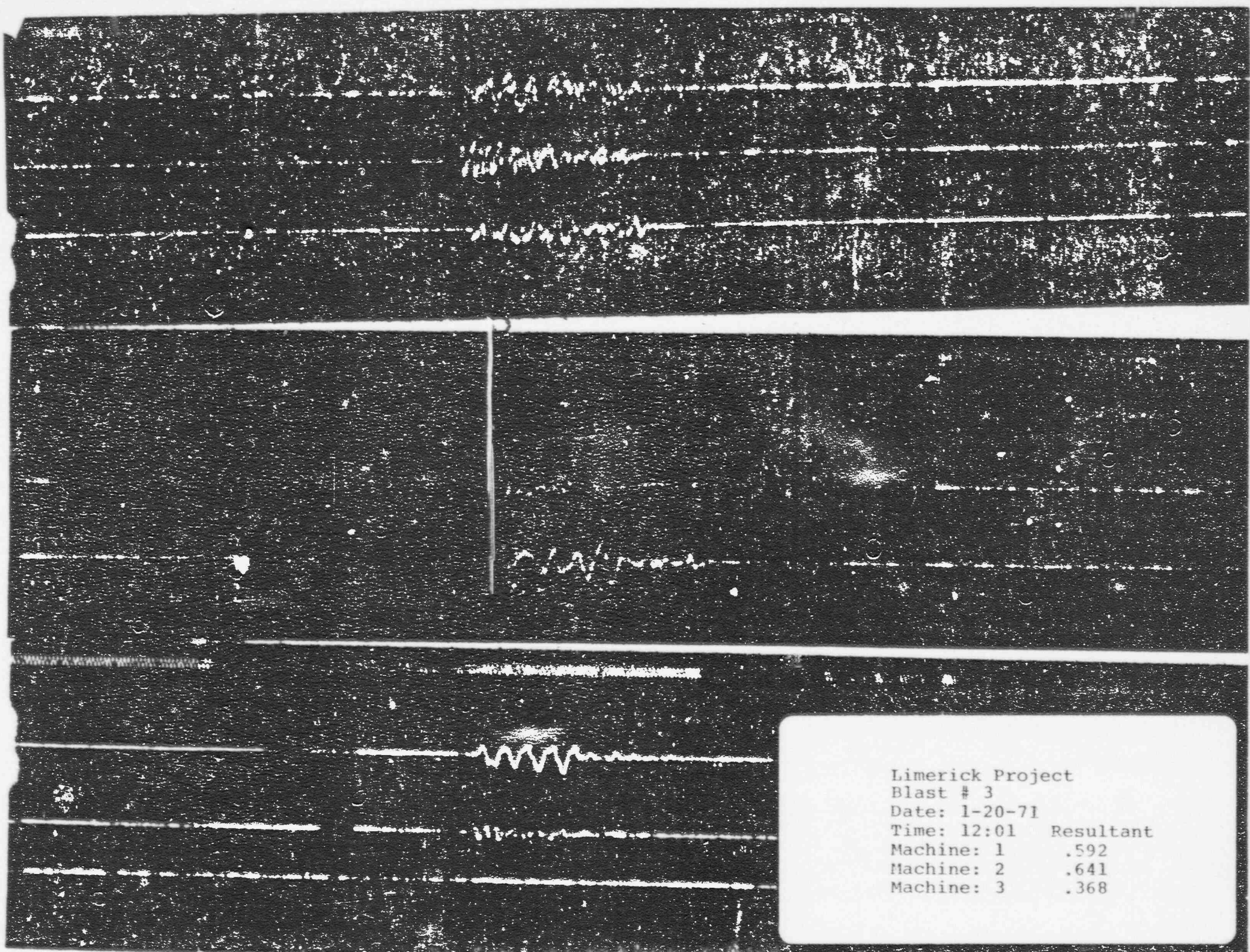
FREQUENCY	DISPLACEMENT	ENERGY RATIO
LONG.	VERT.	TRANS.
.14	.03	.08
J. Burns DATE 12-22-79		

124599

FREQUENCY	DISPLACEMENT	ENERGY RATIO
LONG.	VERT.	TRANS.
.08	.06	.03
J. Burns DATE 12-22-79		

124600

FREQUENCY	DISPLACEMENT	ENERGY RATIO
LONG.	VERT.	TRANS.
.03	.02	.08
J. Burns 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
J. Burns		DATE 12-27-79

124602

FREQUENCY	DISPLACEMENT	ENERGY RATIO
LONG.	VERT.	TRANS.
.38	.30	.42
J. Burns		DATE 12-27-79

124603

.32	.18	.02
J. Burns		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

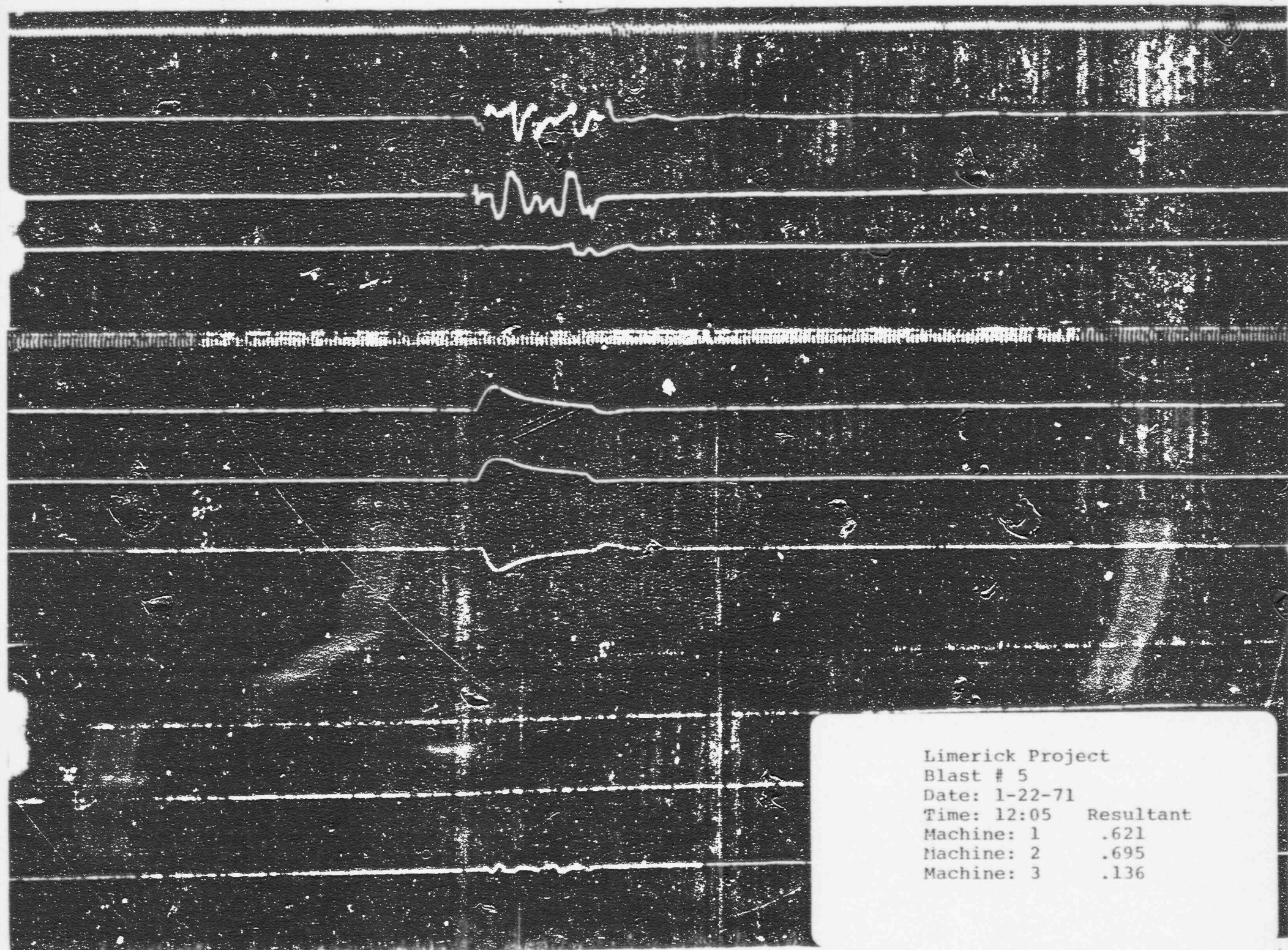
FREQUENCY	DISPLACEMENT	ENERGY RATIO
LONG.	VERT.	TRANS.
.28	.24	.06
J. Burns DATE 12-27-74		

124605

FREQUENCY	DISPLACEMENT	ENERGY RATIO
LONG.	VERT.	TRANS.
.16	.10	.10
J. Burns DATE 12-27-74		

124606

FREQUENCY	DISPLACEMENT	ENERGY RATIO
LONG.	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

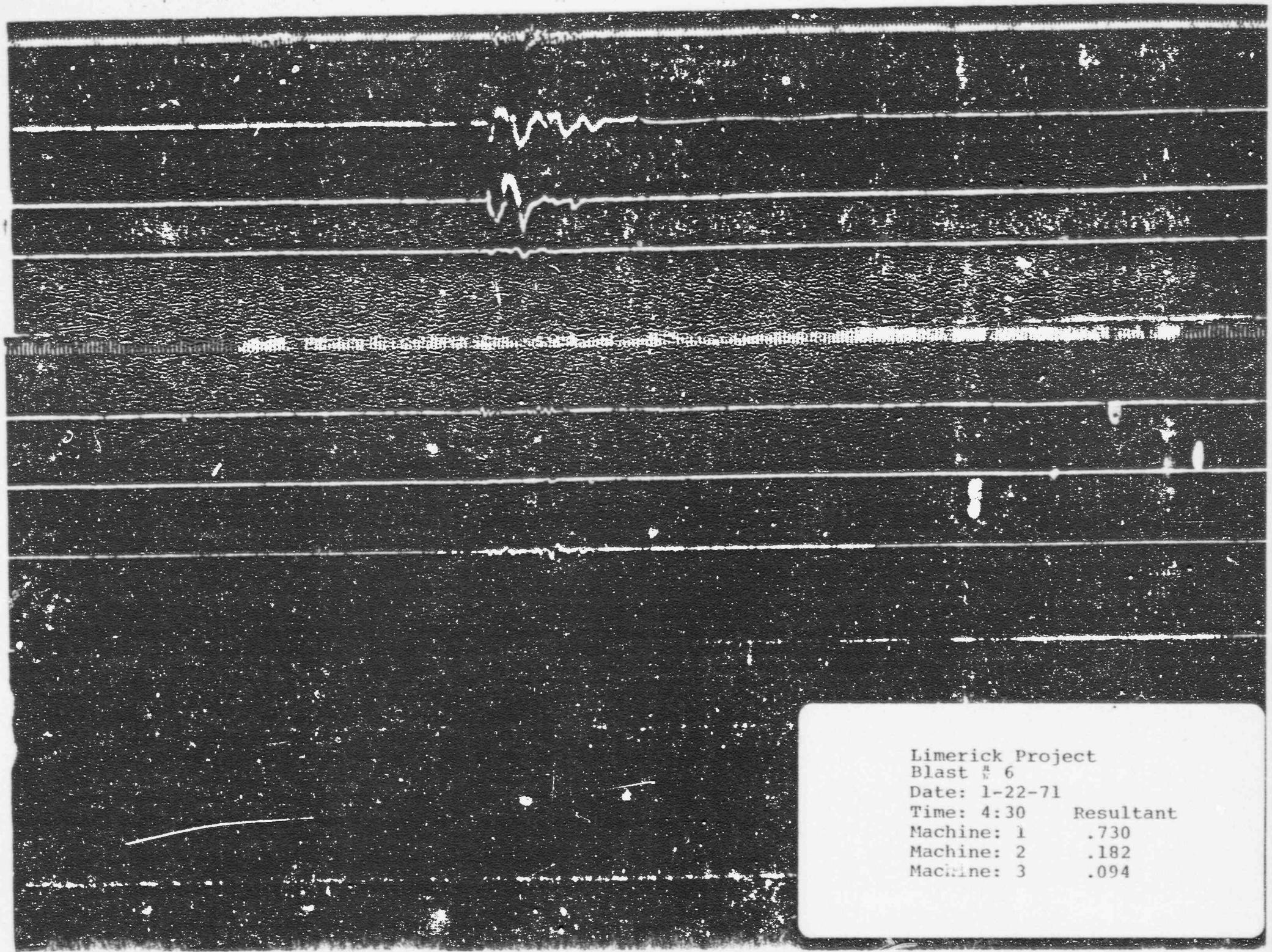
FREQUENCY	DISPLACEMENT	ENERGY RATIO
LONG.	TRANS.	TRANS.
.40	.44	.15
<i>J. Burns</i>		DATE 12-27-79

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

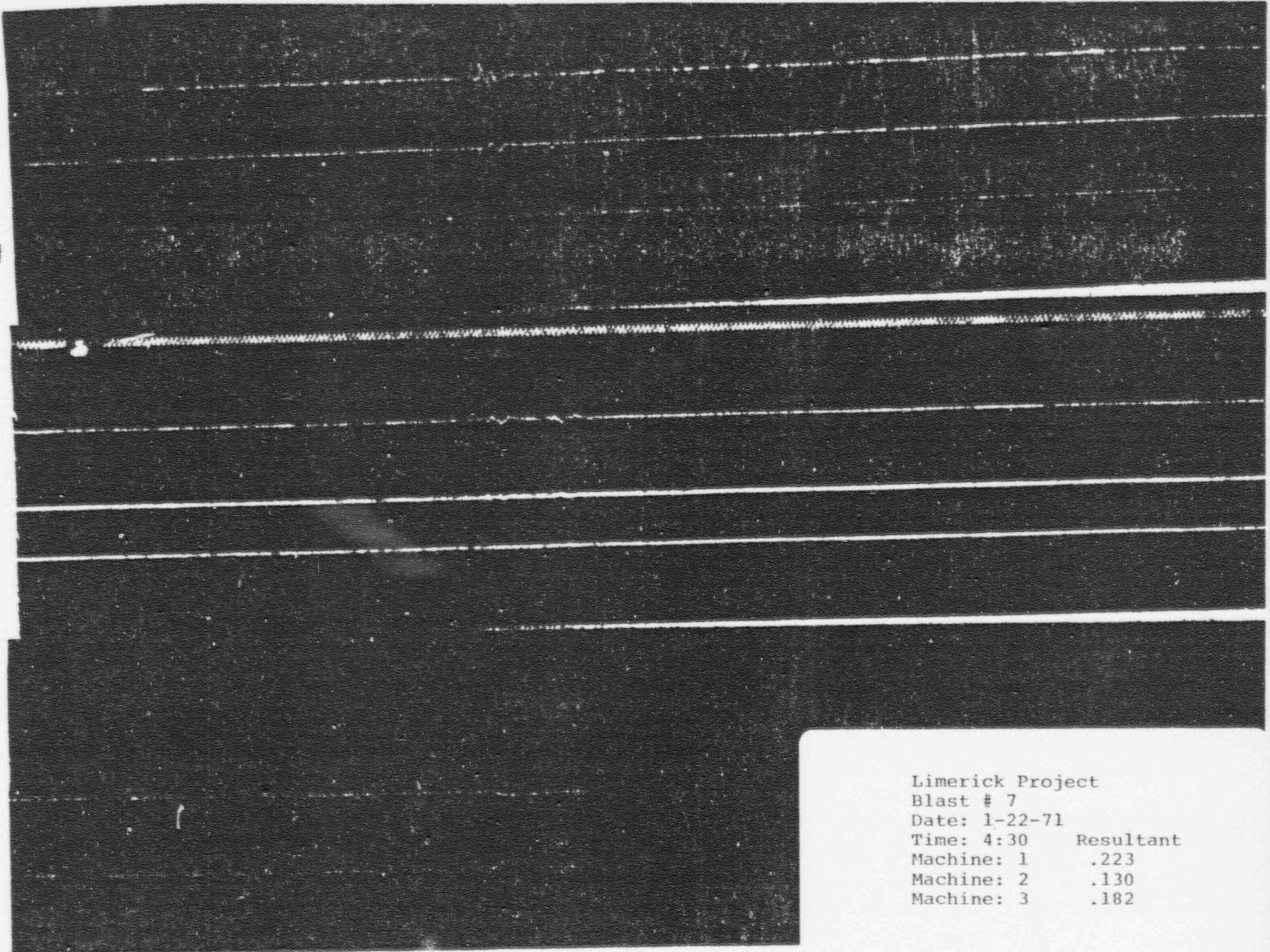
FREQUENCY	DISTANCE	ENERGY RATIO
LONG.	WAVELENGTH	WAVELENGTH
.42	.58	.14
J. Burns DATE 12-27-79		

124611

FREQUENCY	DISTANCE	ENERGY RATIO
LONG.	WAVELENGTH	WAVELENGTH
.10	.06	.14
J. Burns DATE 12-27-79		

124612

FREQUENCY	DISTANCE	ENERGY RATIO
LONG.	WAVELENGTH	WAVELENGTH
.06	.04	.06
J. Burns 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
LC.		IN W.S.
.18	.10	.10
<i>J. Burns</i>		DATE 12-27-74

124614

FREQUENCY	DISPLACEMENT	ENERGY RATIO
LC.		
.10	.08	.02
<i>J. Burns</i>		DATE 12-27-74

124615

FREQUENCY	DISPLACEMENT	ENERGY RATIO
LC.		
.06	.10	.14
<i>J. Burns</i>		DATE 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

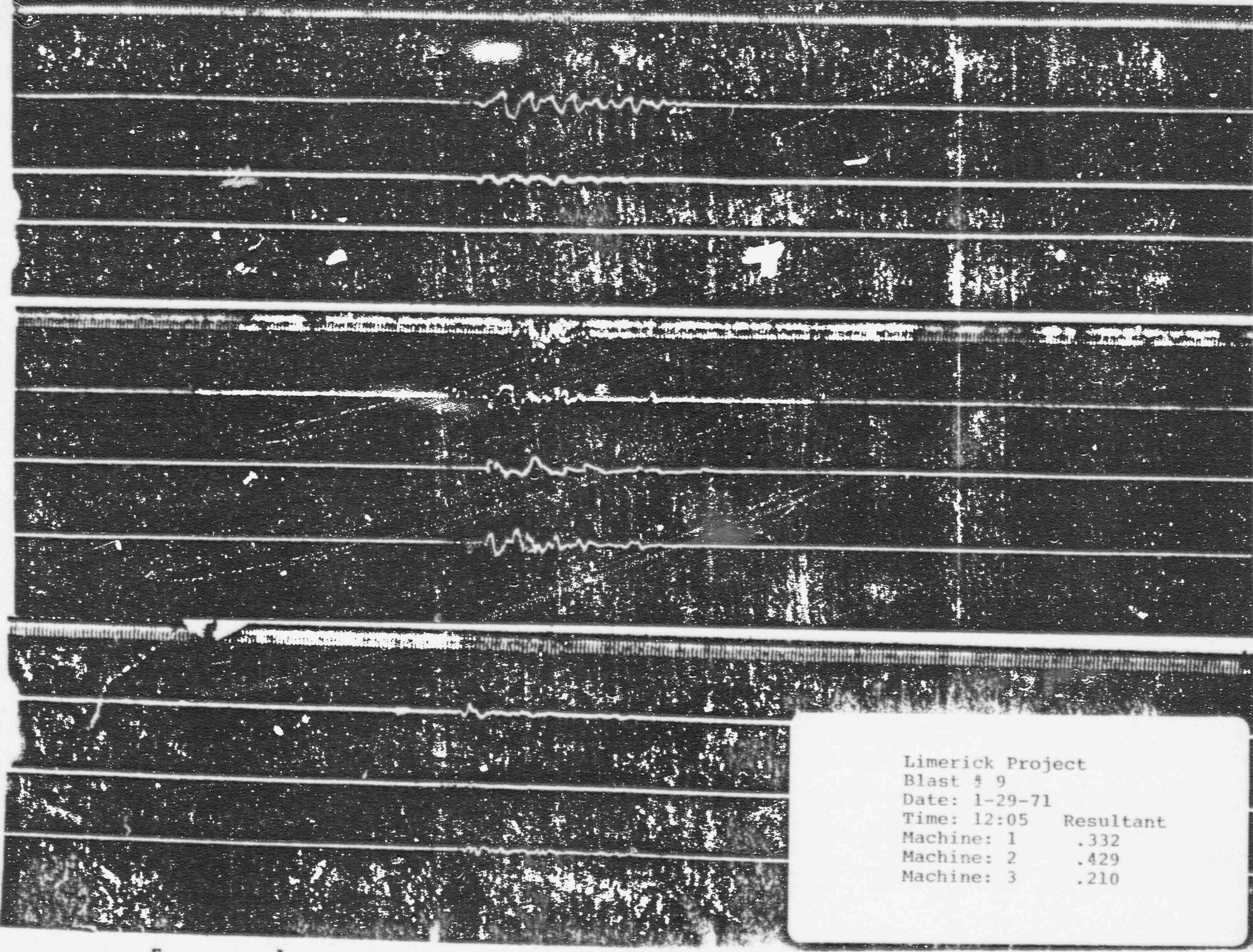
FREQUENCY	DISPLACEMENT	ENERGY RATIO
LC		1.00
.22	.18	.34
<i>J. Burns</i> DATE 12-27-74		

124617

FREQUENCY	DISPLACEMENT	ENERGY RATIO
LC		1.00
.18	.02	.10
<i>J. Burns</i> DATE 12-27-74		

124618

FREQUENCY	DISPLACEMENT	ENERGY RATIO
LC		1.00
.12	2.02	2.02
<i>J. Burns</i> DATE 12-27-74		



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

124619

CRUSBY RATIO	
.30	.14
<i>Johns</i> 12-27-74	

124620

CRUSBY RATIO	
.24	.28
<i>Johns</i> DATE 12-27-74	

124621

CRUSBY RATIO	
.18	.04
<i>Johns</i> 12-27-74	