

Enclosure 3/1

List of Addressees Contacted for Nuclear Debris Materials

1. DOD

Air Force Cambridge Research Center

410459

Naval Research Laboratory

Nuclear Defense Laboratory

AFTAC, Headquarters & Air Force Sources

2. AEC

Argonne National Laboratory

# Health and Safety Laboratory NYO  
Lawrence Radiation Laboratory

Los Alamos Scientific Laboratory

Robert A. Tart Sanitation and Engineering Center

3. Universities

Columbia (Lamont Geological Observatory)

California (UCRL) Berkeley

U.C.L.A. (Biology and Medicine) Nuclear

Washington (Laboratory of Radiation Biology)

Hawaii (Marine Laboratory)

Scripps Institute of Oceanography

4. Other Organizations

USDA Soil Conservation Service

PHS Laboratory of Physical Biology

Sandia Corp

Tracerlab (Richmond, Calif. and Waltham, Mass.)

Woods Hole Oceanographic Institution

Isotopes, Inc.

Reynolds Electrical and Engineering Corp.

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DOE ARCHIVES

|                                |
|--------------------------------|
| US DOE ARCHIVES                |
| 320 US STATION BLDG ENERGY     |
| RC                             |
| Collection DSM-EC FILES        |
| Box 2703 Job# 7239             |
| Folder U.S. Naval Radiological |

M-079-A

## Nuclear Debris Samples From IASL

| <u>Operation</u> | <u>Shot</u>      | <u>Solid Sample No.</u> | <u>Liquid Sample No.</u> |
|------------------|------------------|-------------------------|--------------------------|
| Upshot Knothole  | Nancy            | 2028L                   | 311                      |
|                  | Dixie            | 4037                    | 331A                     |
| Castle           | Bravo            | 1-032L                  | 416A-1                   |
|                  | Union            | 4-1086R                 | 441A-1                   |
| Teapot           | Wasp             | 1-049R                  | 471A                     |
|                  | Moth             | 2-055R                  | 482A                     |
| Redwing          | Lacrosse         | 1-038R                  | 644A                     |
|                  | Eric             | 5-053L                  | 682A                     |
|                  | Flathead         | 7-504L 1/2              | 703A                     |
|                  | Osage            | 10-037R                 | 734A                     |
| Plumbbob         | Baltzmann        | 046R                    | 811A                     |
|                  | Priscilla        | 501L-1                  | 851A                     |
|                  | John             | 504RO-L                 | 883A                     |
|                  | P                |                         | 923A                     |
|                  | C                | 046R                    | 1021A                    |
| Hardtack I       | Cactus           | 503R2                   | 1133A                    |
|                  | Butternut        | 503L-1                  | 1151A                    |
|                  | Wahoo            | 503R-1                  | 1173A-1                  |
| Hardtack II      | Eddy             | 498R-1                  | 1494A                    |
|                  | Quay             | 504L-2                  | 1582A                    |
|                  | C                | 504L-1                  | 1562A                    |
| Dominic II       | Little Feller II | 827L 1/2                | 2-872A                   |
|                  | Little Feller I  | 842R-2                  | 2943A-1                  |

DOE ARCHIVES

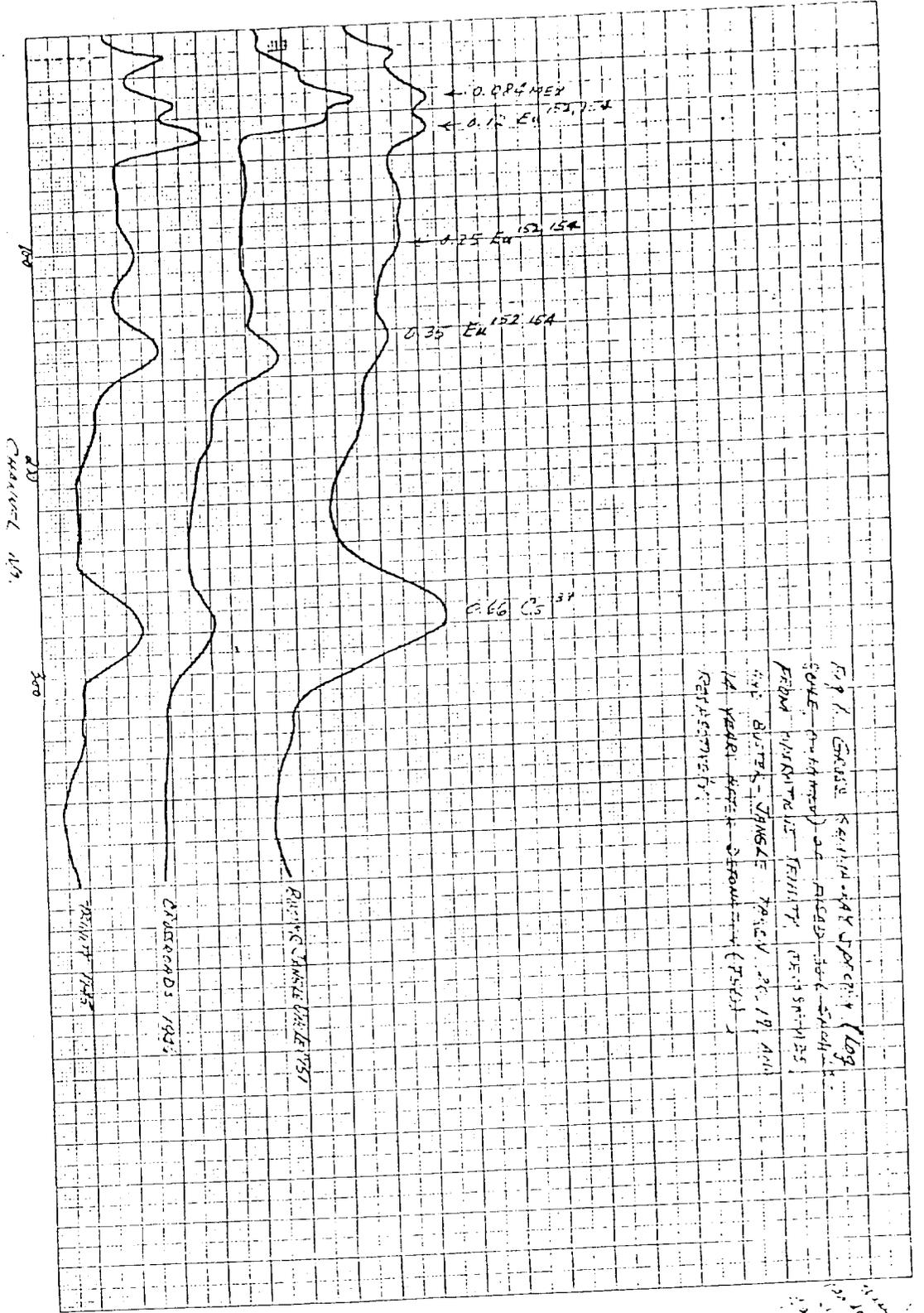
## NUCLEAR DEBRIS SAMPLES FROM LRL

| <u>Operation</u> | <u>Shot</u> | <u>Sample No.</u> |
|------------------|-------------|-------------------|
| Hardtack         | Fir         | 502RHSB-2         |
|                  | "           | 498 R HSB-1       |
|                  | Nutmeg      | 501 R 1/2 HS-2    |
|                  | "           | 496 R HS-1        |
|                  | Pine        | 980L HT-15        |
|                  | "           | 979 R HT-11       |
|                  | Poplar      | 981R 1/2 HT-15    |
|                  | "           | 496 R HT-2        |
| Redwing          | Redwood     | 977R H-T-11       |
|                  | "           | 498R HT-3         |
|                  | Apache      | 504R 1/2          |
|                  | "           | 502L              |
|                  | I           | 043R              |
|                  | "           | 038R              |
|                  | M           | 502 R1/2          |
|                  | "           | 500 R1/2          |
| Dominic          | TEWA        | 501 R 1/2A        |
|                  | "           | 046 R             |
|                  | A           | PS #1             |
|                  | Bighorn     | AC 982            |
|                  | "           | A/C 976, R1, R2   |
|                  | E           | 1x, 2x            |
|                  | Pamlico     | Pot 3A            |
|                  | "           | Pot 6             |

enclosure for

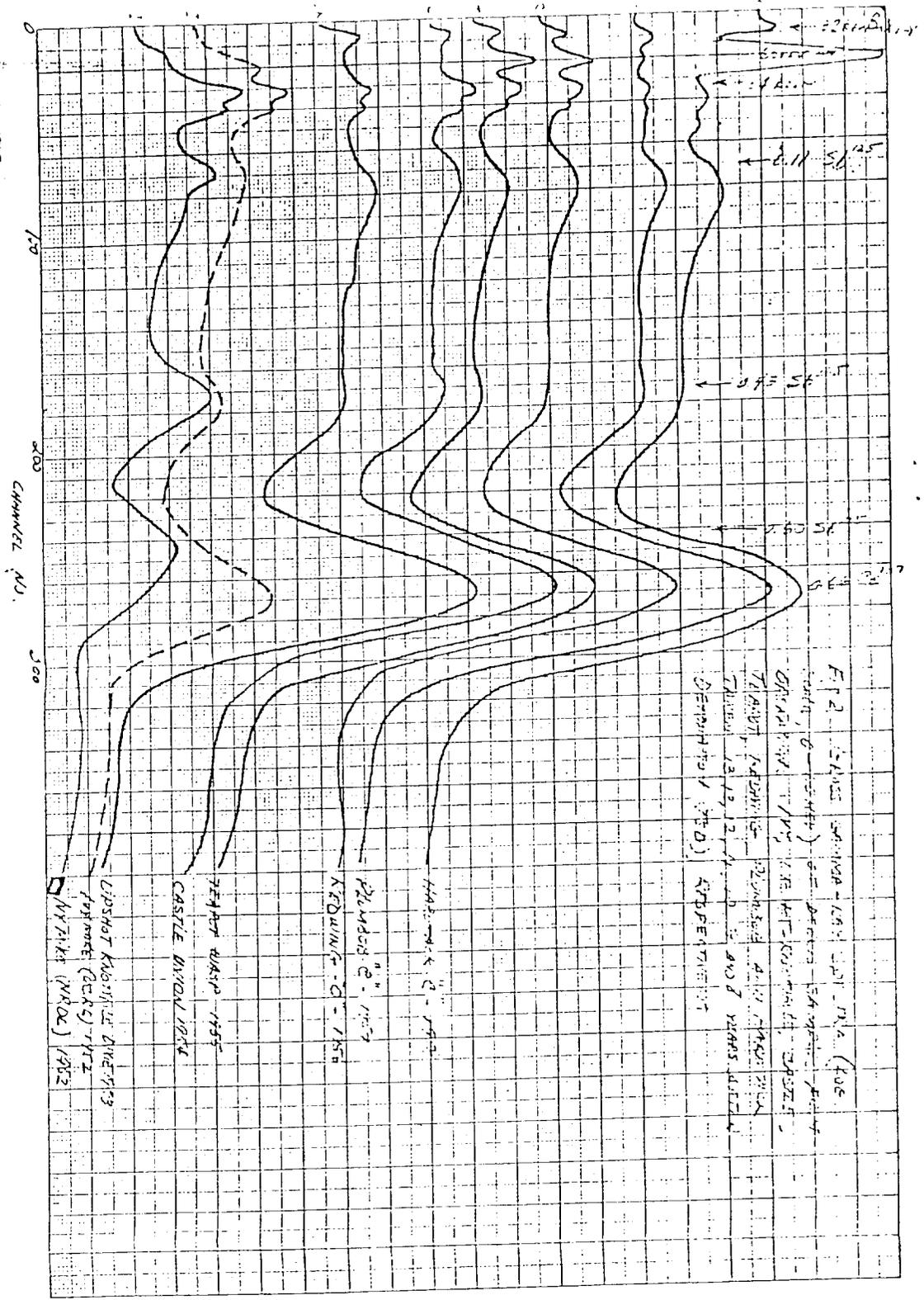
# ~~TABLE~~ NRDL INVENTORY OF NUCLEAR DEBRIS SAMPLES.

| Operation         | SHOT       | SAMPLE TYPE AND APPROXIMATE NO. OF SAMPLES AMOUNT | PREDOMINANT RADIONUCLIDES FOUND BY GAMMA-RAY SPECTROMETRY (1964)        |
|-------------------|------------|---|---|
| TRINITY 1945      | —          | FUSED ROCK 1                                      | $Cs^{137}, Co^{60}, Eu^{152,154}$                                       |
| CROSSROAD 1946    | BAKER      | BLACK SPHERES ABOUT 20 gm                         | $Cs^{137}, Eu^{152,154}$  |
| IVY 1952          | MIKE       | CORAL SOIL 25 GAL                                 | $Cs^{137}, Sb^{125}, Co^{60}$   |
| BUSTER-JANDE 1951 | UNCLE      | CRATER SOIL 1/4 lb                                | $Cs^{137}, Eu^{152,154}$  |
| CASTLE 1954       | BRAVO      | SOIL PROFILE ABOUT 100 TUBES                      | $Cs^{137}, Sb^{125}, Co^{60}$   |
| REDWING 1956      | ZUNI "I"   | CORAL AND CLOUD RESIDUE 10 gm<br>CORAL 5 lb       | $Cs^{137}, Sb^{125}, Co^{60}, Mn^{54}$<br>$Cs^{137}, Sb^{125}, Co^{60}$ |
| TEAPOT 1955       | -          | SOIL SAMPLES 8                                    | —   |
| DOMINIC 1962      | SWORDFISH  | SEA WATER 5 gal                                   | $Ce^{144}, Sb^{125}, Ru^{106}, Mn^{54}, Co^{60}$                        |
| "                 | JOHNNY BOY | SOIL, SIEVED, 32                                  | $Ce^{144}, Co^{60}, Cs^{137}$   |
| "                 | SMALL BOY  | SOIL, SIEVED, 100                                 | $Ce^{144}, Sb^{125}, Ru^{106}, Cs^{137}, Mn^{54}, Co^{60}$              |
| "                 | SEDAN      | SOIL 8 AND ONE SET SIEVED SAMPLES                 | $W^{181}, Sb^{125}, Ru^{106}, Cs^{137}, Mn^{54}, Co^{60}, Zn^{65(?)}$   |



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DOE ARCHIVES



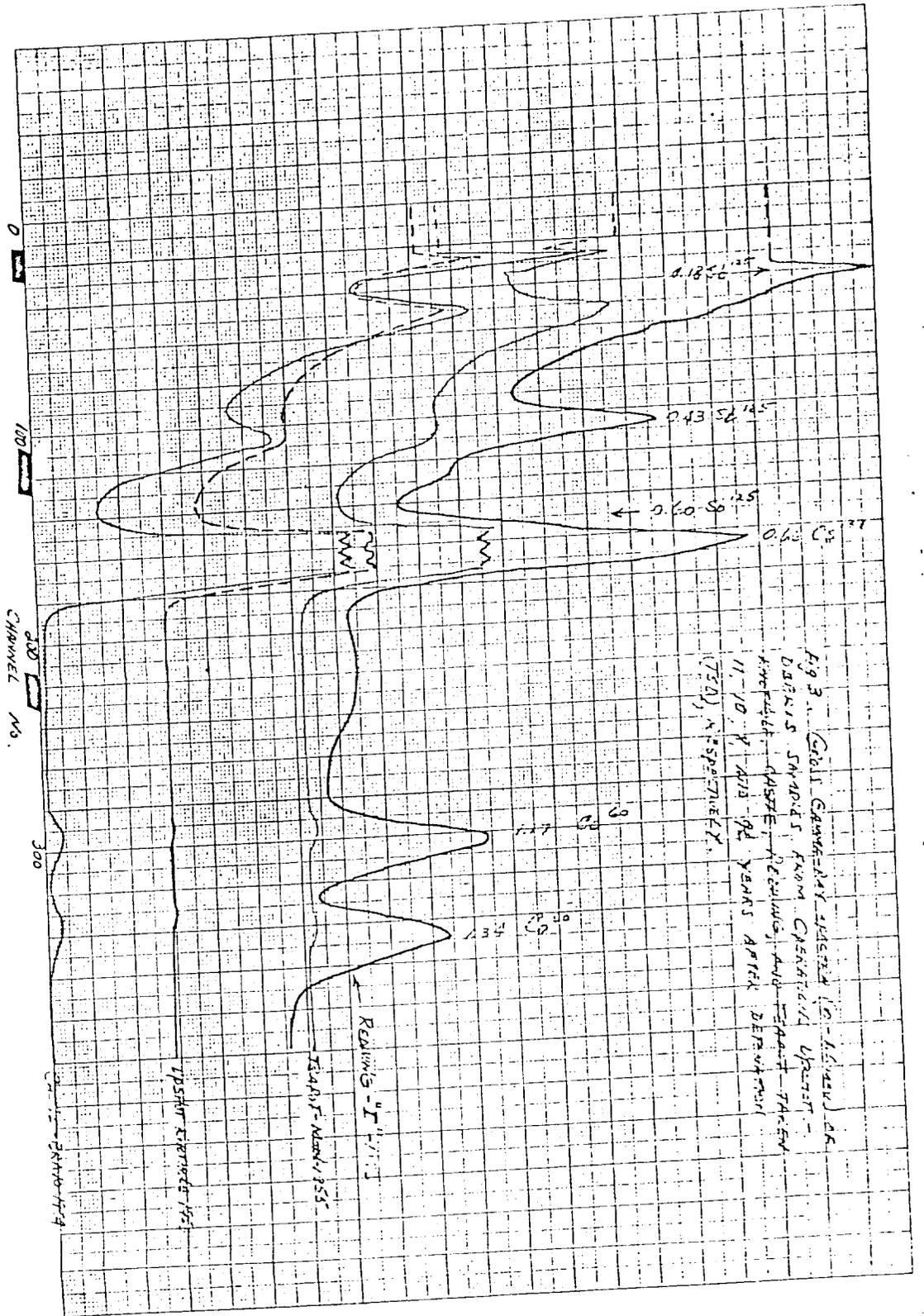
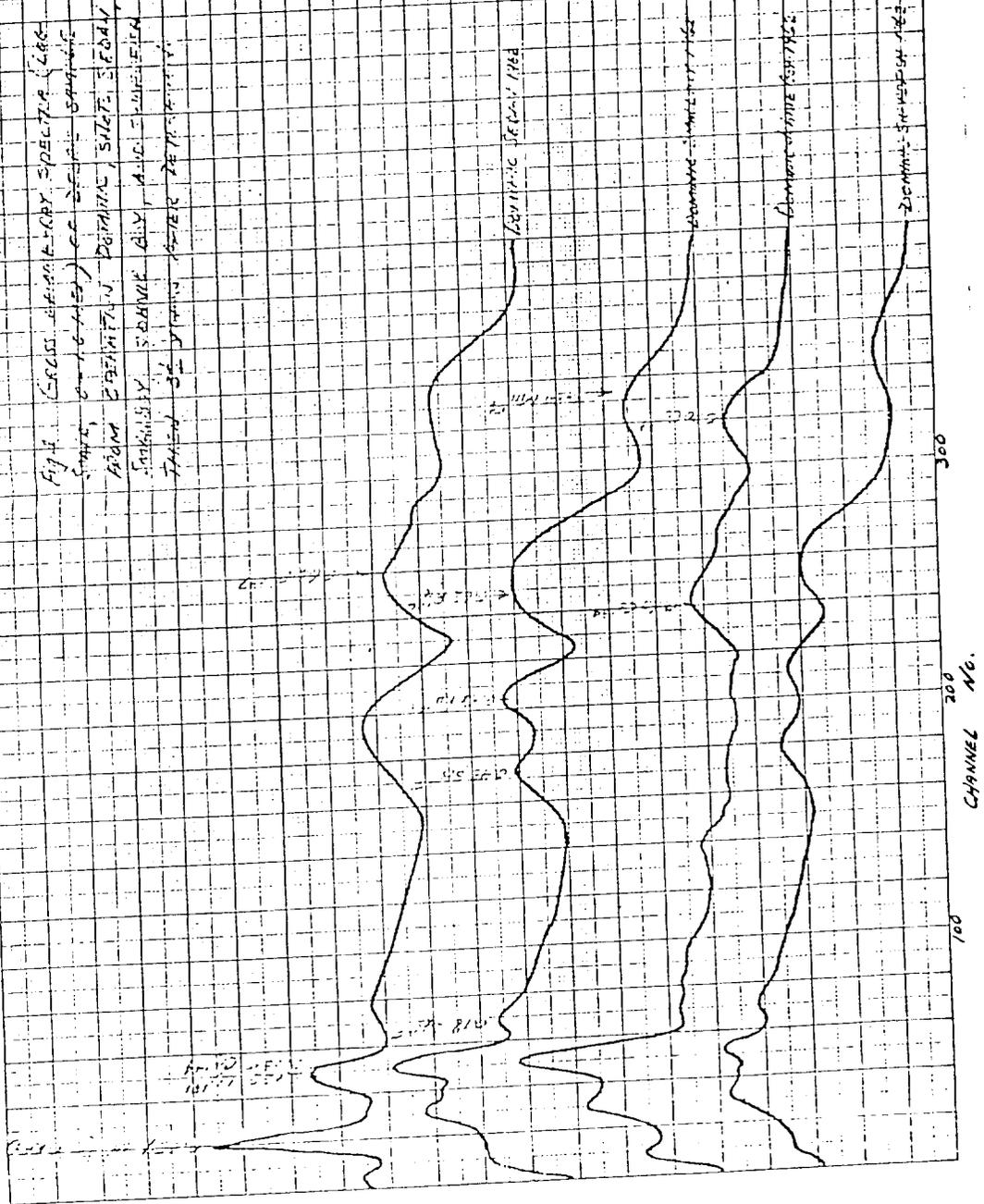


Fig 4. CROSS-CORRELATORY SPECTRA (LSC) OF SAMPLES OF SEVERAL SAMPLES FROM EXPERIMENTAL POINTS, SURET, FORD, PROBABILITY, STANLEY, AND FINE, TAKEN ON VARIOUS TESTS.



CHANNEL NO.

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Enclosure 3 1

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|                          |
|--------------------------|
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| Collection 1001-ER-1115  |
| Box 2001 JAN 11 1981     |
| Folder 1001-ER-1115-1115 |

DOE ARCHIVES

## Nuclear Debris Samples From IASL

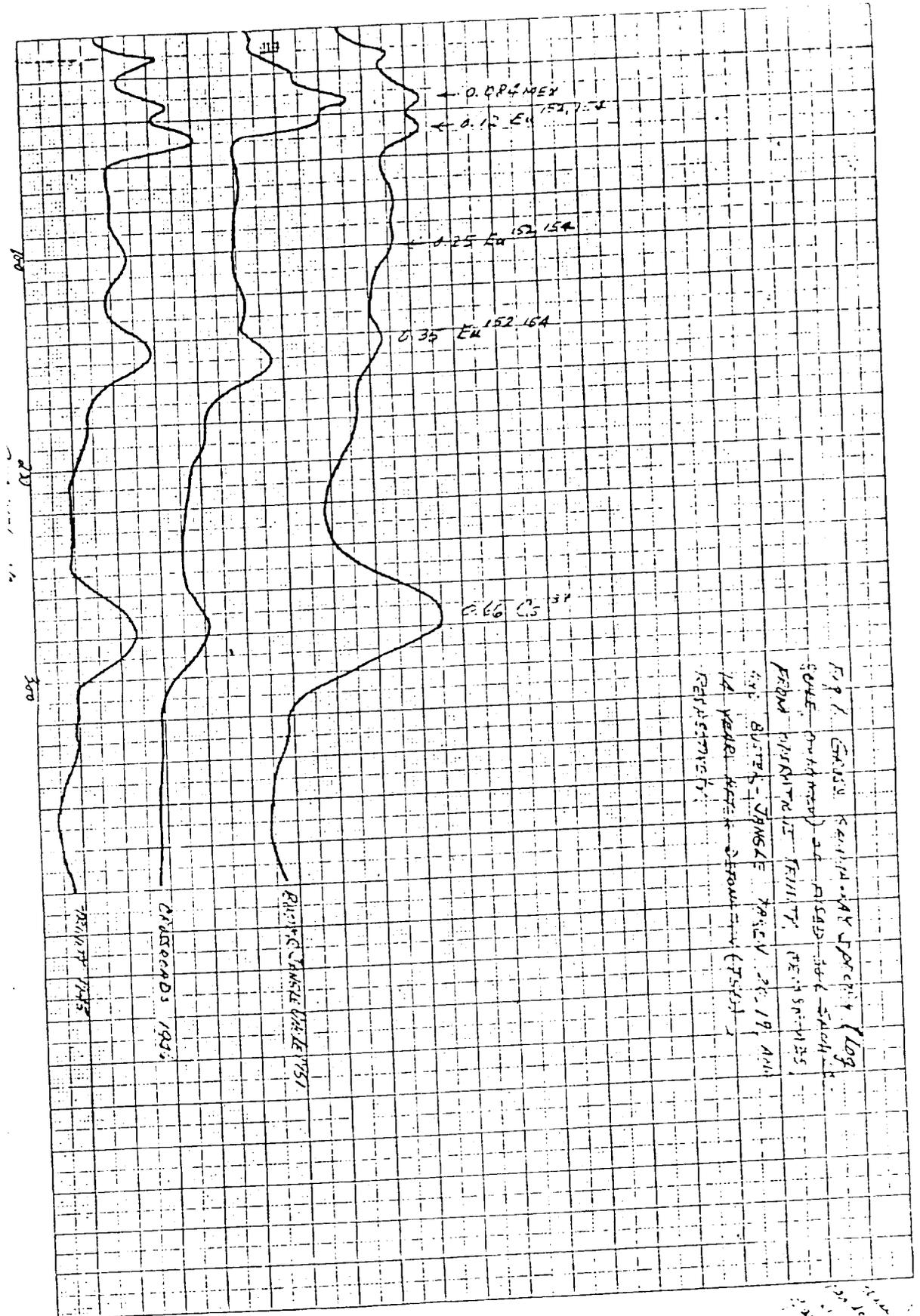
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|                  | Eric             | 5-053L                  | 682A                     |
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|                  | Osage            | 10-037R                 | 734A                     |
| Plumbbob         | Baltzmann        | 046R                    | 811A                     |
|                  | Priscilla        | 501L-1                  | 851A                     |
|                  | John             | 504RO-L                 | 883A                     |
|                  | P                |                         | 923A                     |
|                  | C                | 046R                    | 1021A                    |
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|                  | Butternut        | 503L-1                  | 1151A                    |
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|                  | Quaey            | 504L-2                  | 1582A                    |
|                  | C                | 504L-1                  | 1562A                    |
| Dominic II       | Little Feller II | 827L 1/2                | 2-872A                   |
|                  | Little Feller I  | 842R-2                  | 2943A-1                  |

## NUCLEAR DEBRIS SAMPLES FROM IRL

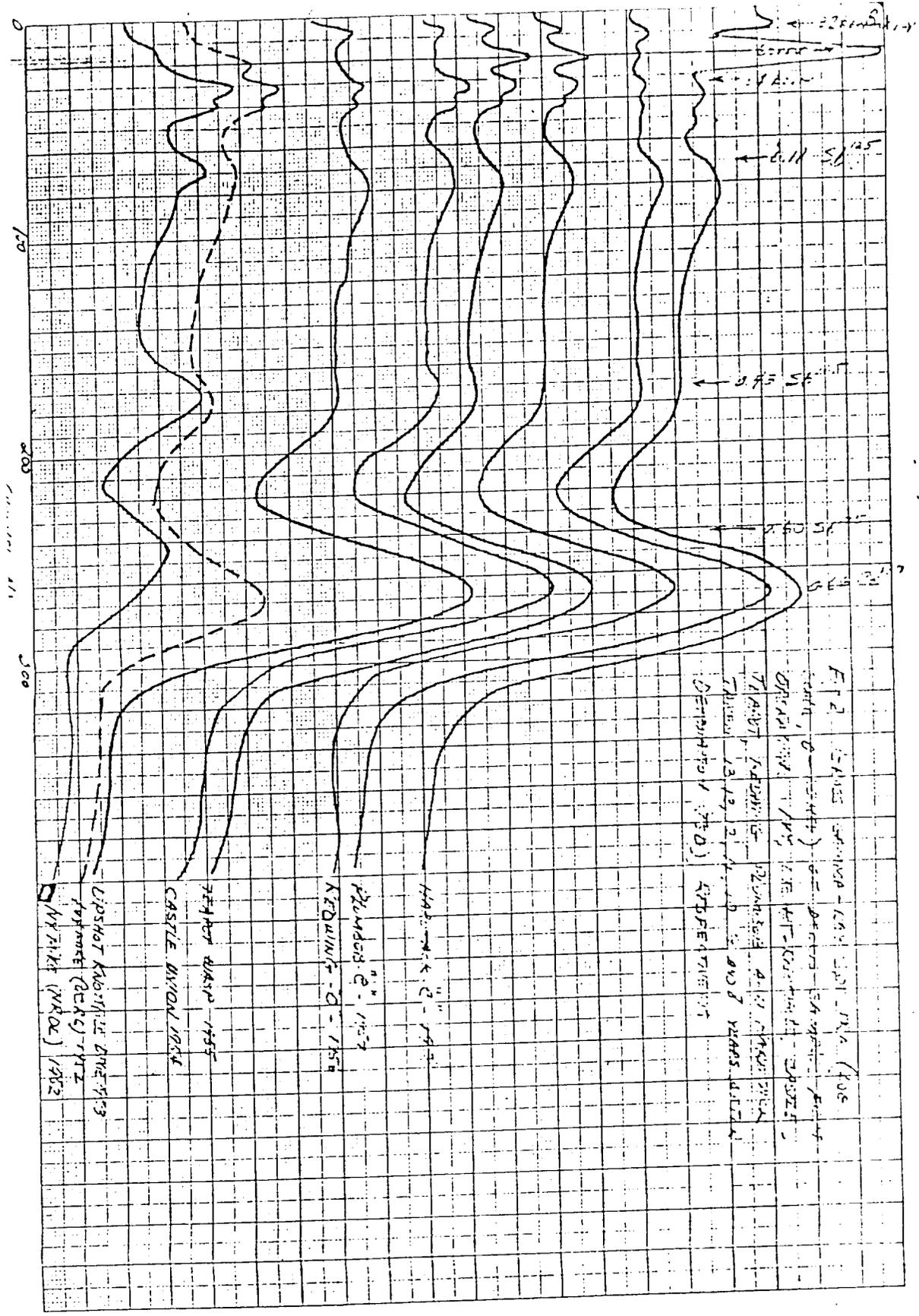
| <u>Operation</u> | <u>Shot</u> | <u>Sample No.</u> |
|------------------|-------------|-------------------|
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|                  | "           | 498 R HSB-1       |
|                  | Nutmeg      | 501 R 1/2 HS-2    |
|                  | "           | 496 R HS-1        |
|                  | Pine        | 980L HT-15        |
|                  | "           | 979 R HT-11       |
|                  | Poplar      | 981R 1/2 HT-15    |
|                  | "           | 496 R HT-2        |
|                  | Redwood     | 977R H-T-11       |
| "                | 498R HT-3   |                   |
| Redwing          | Apache      | 504R 1/2          |
|                  | "           | 502L              |
|                  | I           | 043R              |
|                  | "           | 038R              |
|                  | M           | 502 R1/2          |
|                  | "           | 500 R1/2          |
|                  | TEWA        | 501 R 1/2A        |
|                  | "           | 046 R             |
| Dominic          | A           | PS #1             |
|                  | Bighorn     | AC 982            |
|                  | "           | A/C 976, R1, R2   |
|                  | E           | 1x, 2x            |
|                  | Pamlico     | Pot 3A            |
| "                | Pot 6       |                   |

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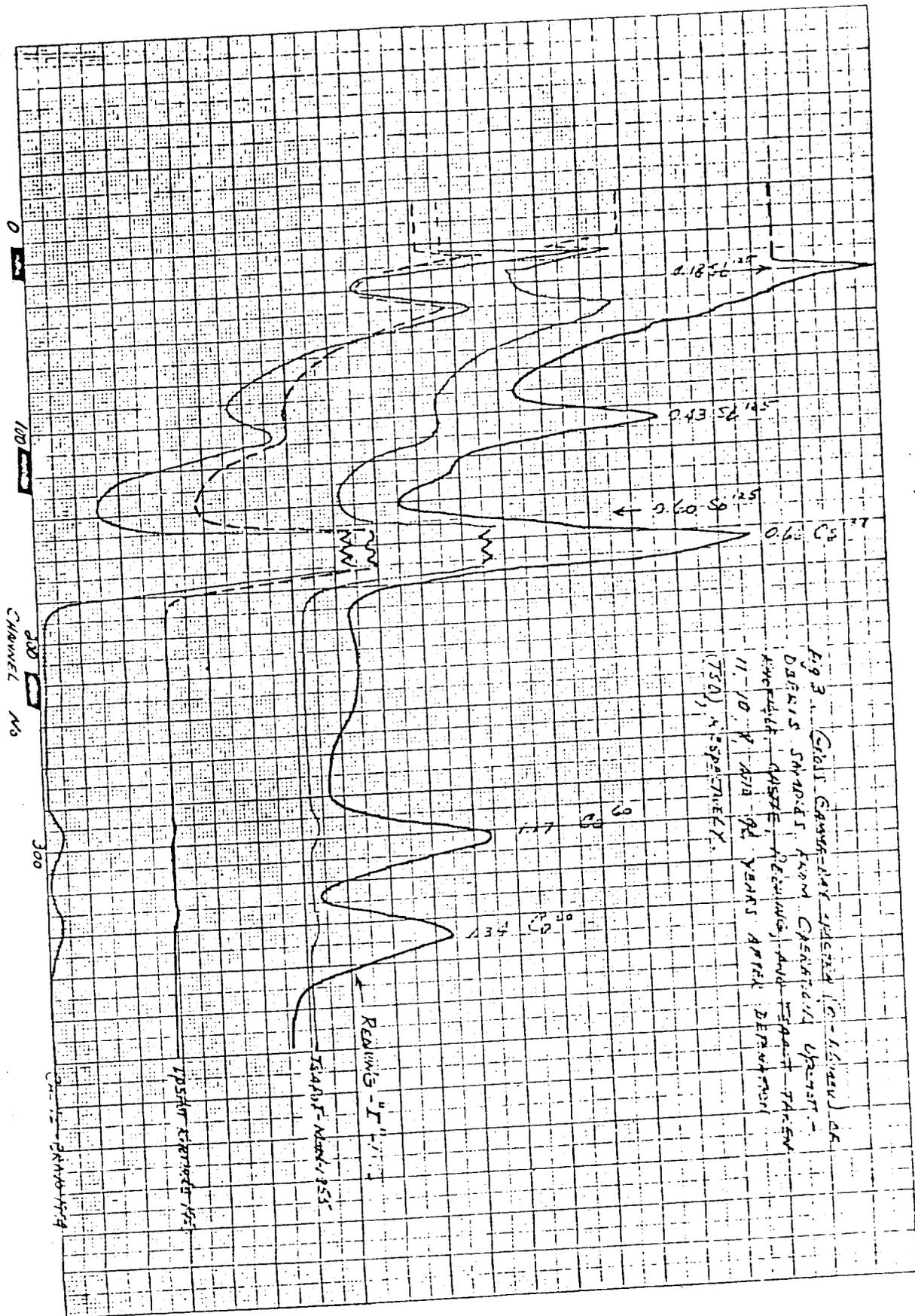
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| "                 | SMALLBOY    | SOIL, SIEVED, 100                                 | $Ce^{144}, Sb^{125}, Ru^{106}, Cs^{137}, Mn^{54}, Co^{60}$              |
| "                 | SEDAN       | SOIL 8 AND ONE SET SIEVED SAMPLES                 | $W^{181}, Sb^{125}, Ru^{106}, Cs^{137}, Mn^{54}, Co^{60}, Zn^{65} (?)$  |



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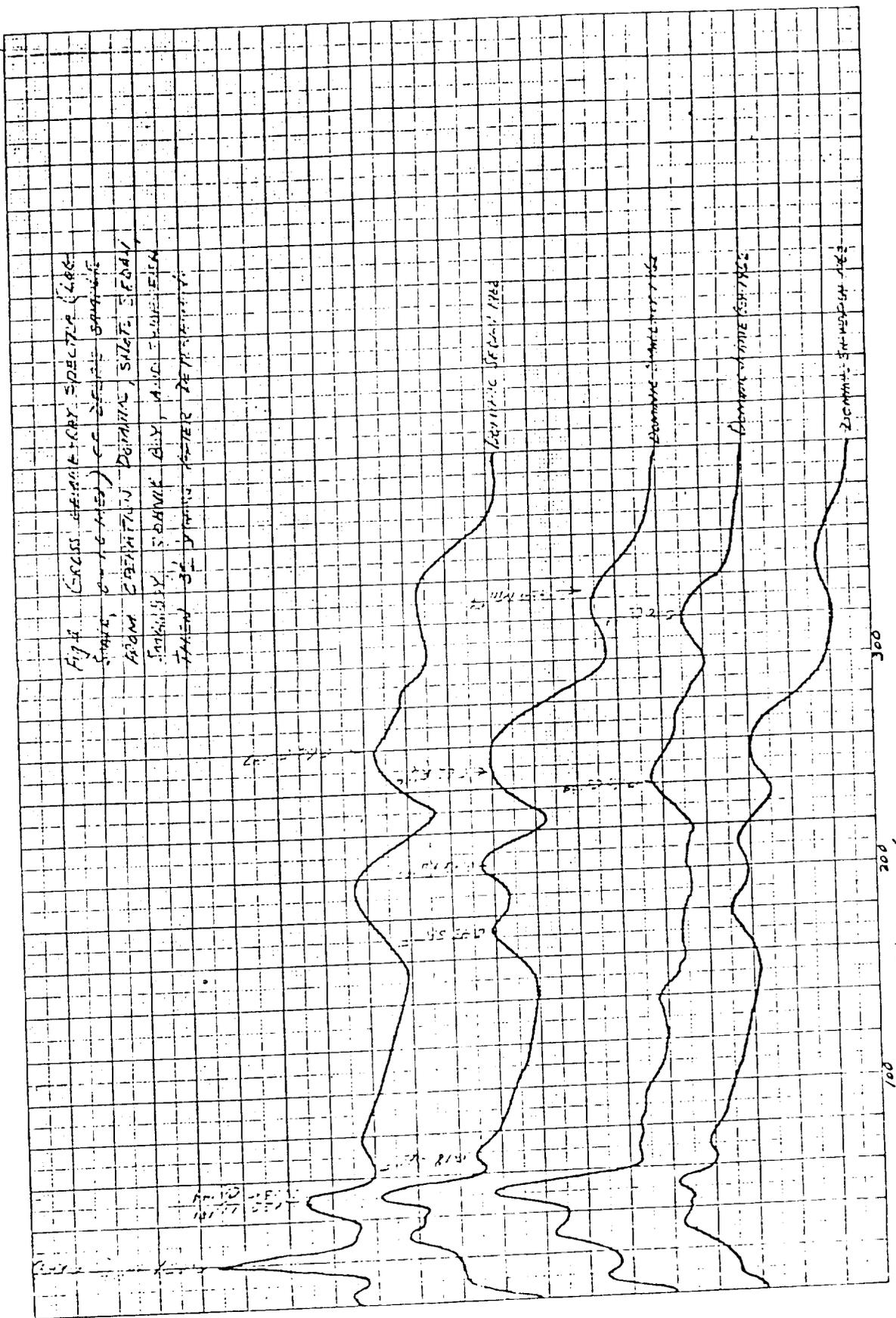


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Fig. CROSS-CORRELATION SPECTRA (LAC  
 SPECTRA) OF SEVERAL SAMPLES  
 FROM CEMENTATION DEPOSIT, SILATE, FORDAN,  
 INDIANLY, SANDRICK BLY, AND - LIME FISH  
 TAKEN BY YOUNG FOSTER DEPARTMENT.



CHANNEL NO.

100

200

300