

DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Radiometric Ages on File in the Radiometric Age Data
Bank (RADB) of Rocks from Massachusetts

by

Robert E. Zartman¹ and Richard F. Marvin¹

Open-File Report 87-170

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

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Radiometric Ages on File in the Radiometric Age Data
Bank (RADB) of Rocks from Massachusetts

Robert E. Zartman and Richard F. Marvin

This Open-File Report contains the records of radiometric ages for Massachusetts from the Radiometric Age Data Bank of the U.S. Geological Survey. These data were compiled for use in the assignment of ages to rock units portrayed on a new bedrock geologic map of Massachusetts (Zen, 1983). The compilation is believed to document all radiometric ages on samples from the state that have appeared in the published scientific literature through the year 1986. Most of the information contained herein is self-explanatory, although the reader is advised to consult the User's Guide to the Radiometric Age Data Bank (Zartman and others, 1976) in order to fully understand the construction of the record. For brevity, certain material is entered on the record in coded format, and to facilitate the reading of this report, crucial code listings are included as an appendix. Also, repetition of full literature references has been avoided by giving those citations only at the end of the report keyed to the reference number contained on each record.

All radiometric ages contained in this compilation have been recalculated to common values of the decay constants (Steiger and Jager, 1977) regardless of the usage of the original authors. Thus, a consistent, direct intercomparison of ages is possible among all of the data regardless of the laboratory where the analysis was made. The decay constants to which the age reported herein have been calculated are:

Potassium⁴⁰

$$\lambda_{\beta}=4.962 \times 10^{-10} \text{yr}^{-1}; \quad \lambda_e=0.581 \times 10^{-10} \text{yr}^{-1}$$

$$^{40}\text{K}/\text{K}=0.01167 \text{ atom percent}$$

Rubidium⁸⁷

$$\lambda_e=1.42 \times 10^{-11} \text{yr}^{-1}$$

Uranium²³⁸

$$\lambda=1.55125 \times 10^{-10} \text{yr}^{-1}; \quad ^{238}\text{U}/^{235}\text{U}=137.88$$

Uranium²³⁵

$$\lambda=9.8485 \times 10^{-10} \text{yr}^{-1}$$

Thorium²³²

$$\lambda=4.9475 \times 10^{-11} \text{yr}^{-1}$$

Uranium fission

$$\lambda_f = 8.46 \times 10^{-17} \text{ yr}^{-1}$$

Lead-alpha

$$t(\text{million years}) = [\text{Pb}(\text{ppm}) / \text{Alpha activity}(\alpha/\text{mg-hr})] \times 2580$$

Records are arranged in the same order as they will appear in a forthcoming U.S. Geological Professional Paper to accompany the bedrock geologic map. Primary classification is by geologic terrane, and within each terrane rock units are presented according to increasing age as they appear on the Bedrock Geologic Map of Massachusetts (Zen, 1983).

Steiger, R. H., and Jager, E., 1977, Convention on the use of decay constants in geo- and cosmochemistry: Earth and Planetary Science Letters, v. 36, p. 359-362.

Zartman, R. E., Cole, J. C., and Marvin, R. F., 1976, User's guide to the Radiometric Age Data Bank (RADB): U.S. Geological Survey Open-File Report 76-674, 77p.

Zen, E-an, editor, and Goldsmith, Richard, Ratcliffe, N. M., Robinson, Peter, and Stanley, R. S., compilers, 1983, Bedrock geologic map of Massachusetts: Reston, VA., U.S. Geological Survey, scale 1:250,000.

SECTION I

PUBLISHED K-AR, RB-SR, AND U-PB AGES OF ROCKS FROM MASSACHUSETTS

TACONIC-BERKSHIRE ZONE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0020003
 REFERENCE NUMBER..... 86-00019
 LABORATORY(IES)..... SD

QUAD SCALE QUAD NO. / NAME
 1: 24000 BECKET
 LATITUDE..... 42-15-10 N
 LONGITUDE..... 73-00-31 W

COMPILED BY

NAME: ZARTMAN, R.E.
 DATE: 86 11

COMMENT..... SMALL QUARRY--350-M EAST OF CUSHMAN BROOK, BECKET

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

ROCK TYPE: GRANITE

LEXICON AGE(S): 361

PETROGRAPHIC CODE: B240

DESCRIPTION: WHITE, CATACLASTIC MUSCOVITE GRANITE; BERKSHIRE MASSIF

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 4

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 100-150 MESH FRACTION

ANALYTICAL DATA:

U (PPM)..... 323
 TH (PPM)..... 27.2
 PB (PPM)..... 32.4

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.111	85.33	7.154	7.404

206PB/238U AGE..... 597 +/- 6 MILLION YEARS

207PB/235U AGE..... 635 +/- 6 MILLION YEARS

207PB/206PB AGE..... 774 +/- 4 MILLION YEARS

208PB/232TH AGE..... 840 +/- 8 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800

COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 4

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 150-200 MESH FRACTION

ANALYTICAL DATA:

U (PPM)..... 298
 TH (PPM)..... 24.7
 PB (PPM)..... 29.0

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.108	85.62	7.072	7.198

206PB/238U AGE..... 582 +/- 6 MILLION YEARS

207PB/235U AGE..... 619 +/- 6 MILLION YEARS
 207PB/206PB AGE..... 757 +/- 4 MILLION YEARS
 208PB/232TH AGE..... 813 +/- 8 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800
 COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 4
 ROCK/MINERAL CODE: MC1
 COMMENT: 250-325 MESH FRACTION
 ANALYTICAL DATA:

ZIRCON

U (PPM)..... 276
 TH (PPM)..... 21.6
 PB (PPM)..... 24.6
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.117 85.62 7.078 7.190

206PB/238U AGE..... 534 +/- 5 MILLION YEARS
 207PB/235U AGE..... 568 +/- 6 MILLION YEARS
 207PB/206PB AGE..... 705 +/- 4 MILLION YEARS
 208PB/232TH AGE..... 698 +/- 7 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800
 COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 4
 ROCK/MINERAL CODE: MC1
 COMMENT: -400 MESH FRACTION
 ANALYTICAL DATA:

ZIRCON

U (PPM)..... 387
 TH (PPM)..... 33.3
 PB (PPM)..... 34.0
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.130 85.00 7.169 7.705

206PB/238U AGE..... 522 +/- 5 MILLION YEARS
 207PB/235U AGE..... 553 +/- 6 MILLION YEARS
 207PB/206PB AGE..... 683 +/- 4 MILLION YEARS
 208PB/232TH AGE..... 635 +/- 6 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800
 COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0020004
 REFERENCE NUMBER..... 86-00019
 LABORATORY(IES)..... SD

QUAD SCALE QUAD NO. / NAME
 1: 24000 OTIS
 LATITUDE..... 42-14-03 N
 LONGITUDE..... 73-04-15 W

COMPILED BY
 NAME: ZARTMAN, R.E.
 DATE: 86 11

COMMENT..... NEW WHITING QUARRY, OTIS

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

ROCK TYPE: GRANITE

LEXICON AGE(S): 361
 PETROGRAPHIC CODE: B240

DESCRIPTION: LIGHT-GRAY, FINE-GRAINED, WEAKLY FOLIATED GRANITE;
 BERKSHIRE MASSIF

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 5
 ROCK/MINERAL CODE: MC1
 COMMENT: 100-150 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 417
 TH (PPM)..... 49.8
 PB (PPM)..... 47.1

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.011	88.91	6.272	4.804

206PB/238U AGE.....	711 +/- 7	MILLION YEARS
207PB/235U AGE.....	756 +/- 8	MILLION YEARS
207PB/206PB AGE.....	891 +/- 5	MILLION YEARS
208PB/232TH AGE.....	923 +/- 9	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800

COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 5
 ROCK/MINERAL CODE: MC1
 COMMENT: 150-200 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 372
 TH (PPM)..... 39.2
 PB (PPM)..... 36.1

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.012	89.46	6.126	4.401

206PB/238U AGE.....	619 +/- 6	MILLION YEARS
207PB/235U AGE.....	665 +/- 7	MILLION YEARS
207PB/206PB AGE.....	825 +/- 5	MILLION YEARS
208PB/232TH AGE.....	813 +/- 8	MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0		
ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.		
REFLECTS TIME OF INTRUSION		

SAMPLE SUITE: 00800

COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0020006
 REFERENCE NUMBER..... 86-00019
 LABORATORY(IES)..... SD

QUAD SCALE QUAD NO. / NAME
 1: 24000 OTIS
 LATITUDE..... 42-13-55 N
 LONGITUDE..... 73-01-22 W

COMPILED BY
 NAME: ZARTMAN, R.E.
 DATE: 86 11

COMMENT..... WILLIAMS QUARRY, OTIS

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

ROCK TYPE: GRANITE

LEXICON AGE(S): 361
 PETROGRAPHIC CODE: B240

DESCRIPTION: GRAY, MEDIUM-GRAINED, WELL-FOLIATED BIOTITE GRANITE;
 BERKSHIRE MASSIF

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 7
 ROCK/MINERAL CODE: MC1
 COMMENT: 100-150 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 119
 TH (PPM)..... 25.2
 PB (PPM)..... 10.1

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.024	85.96	6.011	8.004

206PB/238U AGE..... 557 +/- 6 MILLION YEARS

207PB/235U AGE..... 608 +/- 6 MILLION YEARS

207PB/206PB AGE..... 802 +/- 5 MILLION YEARS

208PB/232TH AGE..... 638 +/- 6 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800

COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 7
 ROCK/MINERAL CODE: MC1
 COMMENT: 150-200 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 153
 TH (PPM)..... 18.9
 PB (PPM)..... 12.3

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.019	88.92	5.919	5.147

206PB/238U AGE..... 510 +/- 5 MILLION YEARS
 207PB/235U AGE..... 551 +/- 6 MILLION YEARS
 207PB/206PB AGE..... 722 +/- 4 MILLION YEARS
 208PB/232TH AGE..... 641 +/- 6 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800
 COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 7
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: -200 MESH FRACTION

ANALYTICAL DATA:

U (PPM)..... 253
 TH (PPM)..... 32.6
 PB (PPM)..... 18.8
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.068 87.83 6.018 6.088

206PB/238U AGE..... 467 +/- 5 MILLION YEARS
 207PB/235U AGE..... 473 +/- 5 MILLION YEARS
 207PB/206PB AGE..... 503 +/- 3 MILLION YEARS
 208PB/232TH AGE..... 457 +/- 5 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800
 COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0020005
 REFERENCE NUMBER..... 86-00019
 LABORATORY(IES)..... SD

QUAD SCALE QUAD NO. / NAME
 1: 24000 OTIS
 LATITUDE..... 42-14-42 N
 LONGITUDE..... 73-00-59 W

COMPILED BY

NAME: ZARTMAN, R.E.
 DATE: 86 11

COMMENT..... WINN QUARRY, BECKET

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

ROCK TYPE: GRANITE

LEXICON AGE(S): 361

PETROGRAPHIC CODE: B240

DESCRIPTION: GRAY, COARSE-GRAINED BINARY GRANITE; BERKSHIRE MASSIF

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 6
 ROCK/MINERAL CODE: MC1
 COMMENT: 100-150 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1162
 TH (PPM)..... 169.5
 PB (PPM)..... 102.6
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.004 90.61 5.887 3.498

206PB/238U AGE..... 573 +/- 6 MILLION YEARS
 207PB/235U AGE..... 611 +/- 6 MILLION YEARS
 207PB/206PB AGE..... 754 +/- 4 MILLION YEARS
 208PB/232TH AGE..... 457 +/- 5 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800
 COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 6
 ROCK/MINERAL CODE: MC1
 COMMENT: 200-250 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1311
 TH (PPM)..... 203.8
 PB (PPM)..... 94.5
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.006 91.59 5.558 2.844

206PB/238U AGE..... 477 +/- 5 MILLION YEARS

207PB/235U AGE..... 498 +/- 5 MILLION YEARS
 207PB/206PB AGE..... 597 +/- 3 MILLION YEARS
 208PB/232TH AGE..... 276 +/- 3 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800

COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 6

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 325-400 MESH FRACTION

ANALYTICAL DATA:

U (PPM)..... 1315

TH (PPM)..... 247.7

PB (PPM)..... 80.7

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB

0.006 92.03 5.257 2.708

206PB/238U AGE..... 410 +/- 4 MILLION YEARS

207PB/235U AGE..... 418 +/- 4 MILLION YEARS

207PB/206PB AGE..... 460 +/- 3 MILLION YEARS

208PB/232TH AGE..... 184 +/- 2 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
 REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800

COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0020000
STATE CODE.....	25	REFERENCE NUMBER.....	86-00019
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	HAMPDEN		
 QUAD SCALE		 COMPILED BY	
1: 24000	QUAD NO. / NAME	NAME:	ZARTMAN, R.E.
	WEST GRANVILLE	DATE:	86 11
LATITUDE.....	42-03-20 N		
LONGITUDE.....	72-57-47 W		

COMMENT..... HUBBARD RIVER IN GRANVILLE STATE FOREST, GRANVILLE

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

ROCK TYPE: GRANITE

LEXICON AGE(S): 361
PETROGRAPHIC CODE: B240

DESCRIPTION: GRAY, MEDIUM-GRAINED GNEISSIC GRANITE; BERKSHIRE MASSIF

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 1

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 100-150 MESH FRACTION

ANALYTICAL DATA:

U (PPM)..... 2920

TH (PPM)..... 83.4

PB (PPM)..... 192.2

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
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0.016	92.52	5.656	1.806
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206PB/238U AGE..... 440 +/- 4 MILLION YEARS

207PB/235U AGE..... 459 +/- 5 MILLION YEARS

207PB/206PB AGE..... 554 +/- 3 MILLION YEARS

208PB/232TH AGE..... 623 +/- 6 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800

COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 1

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 200-250 MESH FRACTION

ANALYTICAL DATA:

U (PPM)..... 2446

TH (PPM)..... 97.1

PB (PPM)..... 147.5

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
-------	-------	-------	-------

0.014	92.62	5.552	1.816
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206PB/238U AGE..... 405 +/- 4 MILLION YEARS

207PR/235U AGE..... 423 +/- 4 MILLION YEARS
207PR/206PB AGE..... 523 +/- 3 MILLION YEARS
208PB/232TH AGE..... 446 +/- 4 MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.6, 38.0
ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT AGE OF ABOUT 400 M.Y.
REFLECTS TIME OF INTRUSION

SAMPLE SUITE: 00800

COMMENTS: GRANITE IS ABOUT 400 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001753

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... HAMPDEN

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... SW

QUAD SCALE

1: 24000

QUAD NO. / NAME

WEST GRANVILLE

COMPILED BY

NAME: WILLIAMS, B. R.

LATITUDE..... 42-05-00 N

DATE: 77 06

LONGITUDE..... 72-59-00 W

COMMENT..... TOLLAND

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE DESCRIPTION

ROCK TYPE: PEGMATITE

LEXICON AGE(S): 340 350 360

PETROGRAPHIC CODE: B225

DESCRIPTION: GABBROIC PEGMATITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 1 (MASSACHUSETTS)

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 8.12

40AR-RAD (MOLES/GM)..... 47.04 X E-10

% RADIOGENIC..... 98

CALCULATED AGE..... 363 +/- 11 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: 1 (MASSACHUSETTS)

ROCK/MINERAL CODE: PC5

HORNBLende

ANALYTICAL DATA:

K20 (%)..... 1.265

40AR-RAD (MOLES/GM)..... 7.706 X E-10

% RADIOGENIC..... 88

CALCULATED AGE..... 381 +/- 12 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: MINIMUM AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0016213
STATE CODE.....	25	REFERENCE NUMBER.....	85-00011
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	BERKSHIRE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	HANCOCK	NAME: HANSEN, J.K.	
LATITUDE.....	42-31-18 N	DATE: 85 05	
LONGITUDE.....	73-19-12 W		

COMMENT..... DOTY HOLLOW AT ELEVATION OF 1600-FT, TACONIC RANGE

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME:

ROCK TYPE: PHYLLITE

GEOLOGIC NAME CODE:

LEXICON AGE(S): 340

PETROGRAPHIC CODE: C330

DESCRIPTION: PHYLLONITE FROM FAULT ZONE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: PW13-47

ROCK/MINERAL CODE: UA1

MUSCOVITE

COMMENT: (-200 MESH FRACTION)

ANALYTICAL DATA:

K20 (%)..... 7.079

40AR-RAD (MOLES/GM)..... 42.51 X E-10

% RADIOGENIC..... 86

CALCULATED AGE..... 375 +/- 13 MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... K=7.079%; 40AR-RAD=0.1699 PPM

COMMENTS: AGE OF UPLIFT AND COOLING

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES

STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE

QUAD SCALE QUAD NO. / NAME
 1: 24000 STOCKBRIDGE

LATITUDE..... 42-15-05 N
 LONGITUDE..... 73-17-06 W

COMMENT..... OUTCROP AT BM1363 ALONG REARTOWN MOUNTAIN ROAD, GREAT BARRINTON

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0009402

REFERENCE NUMBER..... 76-00048
 LABORATORY(IES)..... SD

COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 81 07

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: TYRINGHAM GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: TRGM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: C310

DESCRIPTION: GRANITIC TO GRANODIORITIC BIOTITE GNEISS, TYRINGHAM GNEISS, BERKSHIRE MASSIF

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: TYRINGHAM

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 150-200 MESH; ELONGATE, EUHEDRAL ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 1378

TH (PPM)..... 249.5

PB (PPM)..... 208.0

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB

0.013 87.71 6.683 5.598

206PB/238U AGE..... 921 +/- 10 MILLION YEARS

207PB/235U AGE..... 958 +/- 11 MILLION YEARS

207PB/206PB AGE..... 1044 +/- 8 MILLION YEARS

208PB/232TH AGE..... 949 +/- 11 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.0, 15.5, 36.8

COMMENTS: GNEISS CRYSTALLIZED ABOUT 1140 M.Y. AGO

LABORATORY SAMPLE NUMBER: TYRINGHAM

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 250-325 MESH; ELONGATE, EUHEDRAL ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 1264

TH (PPM)..... 217.6

PB (PPM)..... 191.2

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB

0.006 88.13 6.570 5.292

206PB/238U AGE..... 928 +/- 10 MILLION YEARS

207PB/235U AGE..... 959 +/- 10 MILLION YEARS
207PB/206PB AGE..... 1030 +/- 6 MILLION YEARS
208PB/232TH AGE..... 990 +/- 10 MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.0, 15.5, 36.8
COMMENTS: GNEISS CRYSTALLIZED ABOUT 1140 M.Y. AGO

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0016208
STATE CODE.....	25	REFERENCE NUMBER.....	85-00011
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	OH
COUNTY.....	BERKSHIRE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MONTEREY	NAME: HANSEN, J.K.	
LATITUDE.....	42-14-30 N	DATE: 85 05	
LONGITUDE.....	73-12-45 W		
COMMENT.....	AT COBBLE HILL, 0.5 KM SW OF TYRINGHAM		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 1			

SAMPLE DESCRIPTION

GEOLOGIC NAME:	GEOLOGIC NAME CODE: TRGM
ROCK TYPE: GNEISS	LEXICON AGE(S): 420
	PETROGRAPHIC CODE: C310
DESCRIPTION: BLASTOMYLONITIC TYRINGHAM GNEISS, BERKSHIRE MASSIF	

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-14B	
ROCK/MINERAL CODE: UAS	BIOTITE
ANALYTICAL DATA:	
CALCULATED AGE.....	402.1 +/- 4.4 MILLION YEARS
TYPE OF ANALYSIS.....	11
ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR	
ANALYTICAL DATA; TOTAL-GAS AGE IS 398 M.Y.	
COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE TACONIC	
OROGENY--465 M.Y. AGO.	

LABORATORY SAMPLE NUMBER: BM-14H	
ROCK/MINERAL CODE: PCS	HORNBLENDE
ANALYTICAL DATA:	
CALCULATED AGE.....	404.0 +/- 4.5 MILLION YEARS
TYPE OF ANALYSIS.....	11
ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR	
ANALYTICAL DATA; TOTAL-GAS AGE IS 407 M.Y.	
COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE TACONIC	
OROGENY--465 M.Y. AGO.	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0016215
 REFERENCE NUMBER..... 85-00011
 LABORATORY(IES)..... GC

QUAD SCALE QUAD NO. / NAME
 1: 24000 EAST LEE
 LATITUDE..... 42-21-30 N
 LONGITUDE..... 73-12-30 W

COMPILED BY
 NAME: HANSEN, J.K.
 DATE: 85 05

COMMENT.....

PRECISION OF LOCATION: 4
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME:
 ROCK TYPE: APLITE

GEOLOGIC NAME CODE:
 LEXICON AGE(S): 340 350
 PETROGRAPHIC CODE: B230

DESCRIPTION: APLITE CUTTING BLASTOMYLONITE SHEAR ZONE IN TYRINGHAM GNEISS
 ON WESTERN EDGE OF BERKSHIRE MASSIF

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: EL-15
 ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 9.027
 40AR-RAD (MOLES/GM)..... 60.57 X E-10
 % RADIOGENIC..... 71

CALCULATED AGE..... 414 +/- 15 MILLION YEARS
 TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... K=7.493%; 40AR-RAD=0.2421 PPM

COMMENTS: AGE OF UPLIFT AND COOLING

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0016200

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... BERKSHIRE

REFERENCE NUMBER..... 85-00011

LABORATORY(IES)..... OH

QUAD SCALE

1: 24000

QUAD NO. / NAME

WINDSOR

COMPILED BY

NAME: HANSEN, J.K.

DATE: 85 05

LATITUDE..... 42-37-15 N

LONGITUDE..... 73-05-00 W

COMMENT..... 3.5 KM NW OF SAVOY CENTER ALONG SAVOY CENTER ROAD;
HOOSAC RANGE (PUBLISHED LAT., LONG. VALUES ARE IN ERROR--COMPILER)

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME:

ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: SMFD

LEXICON AGE(S): 420

PETROGRAPHIC CODE: C310

DESCRIPTION: STAMFORD GRANITE GNEISS, BERKSHIRE MASSIF

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-4

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

CALCULATED AGE..... 379.6 +/- 4.2 MILLION YEARS

TYPE OF ANALYSIS..... 11

ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR

ANALYTICAL DATA; TOTAL-GAS AGE IS 372 M.Y.

COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE ACADIAN
OROGENY--376 M.Y. AGO.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0016201

STATE CODE..... 25

STATE..... MASSACHUSETTS

REFERENCE NUMBER..... 85-00011

COUNTY..... BERKSHIRE

LABORATORY(IES)..... OH

QUAD SCALE

QUAD NO. / NAME

COMPILED BY

1: 24000

WINDSOR

NAME: HANSEN, J.K.

LATITUDE..... 42-36-50 N

DATE: 85 05

LONGITUDE..... 73-04-30 W

COMMENT..... 3.0 KM NW OF SAVOY CENTER ALONG SAVOY CENTER ROAD;
HOOSAC RANGE

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME:

GEOLOGIC NAME CODE: SMFD

ROCK TYPE: GNEISS

LEXICON AGE(S): 420

PETROGRAPHIC CODE: C310

DESCRIPTION: STAMFORD GRANITE GNEISS, BERKSHIRE MASSIF

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-5

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

CALCULATED AGE..... 362.9 +/- 4.1 MILLION YEARS

TYPE OF ANALYSIS..... 11

ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR

ANALYTICAL DATA; TOTAL-GAS AGE IS 360 M.Y.

COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE ACADIAN
OROGENY--376 M.Y. AGO.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0016202
STATE CODE.....	25	REFERENCE NUMBER.....	85-00011
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	OH
COUNTY.....	BERKSHIRE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WINDSOR	NAME: HANSEN, J.K.	
LATITUDE.....	42-36-45 N	DATE: 85 05	
LONGITUDE.....	73-03-15 W		
COMMENT.....	ALONG ADAMS ROAD, 1.3 KM NW OF SAVOY CENTER; HOOSAC RANGE		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME:	GEOLOGIC NAME CODE: SMFD
ROCK TYPE: GNEISS	LEXICON AGE(S): 420
	PETROGRAPHIC CODE: C310
DESCRIPTION: STAMFORD GRANITE GNEISS, BERKSHIRE MASSIF	

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-6	
ROCK/MINERAL CODE: UAS	BIOTITE
ANALYTICAL DATA:	
CALCULATED AGE.....	351.0 +/- 2.7 MILLION YEARS
TYPE OF ANALYSIS.....	11
ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR	
ANALYTICAL DATA; TOTAL-GAS AGE IS 340 M.Y.	
COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE ACADIAN	
OROGENY--376 M.Y. AGO.	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE
 QUAD SCALE QUAD NO. / NAME
 1: 24000 PITTSFIELD EAST
 LATITUDE..... 42-28-45 N
 LONGITUDE..... 73-07-40 W
 COMMENT..... 0.2 KM WEST OF THE JUNCTION BETWEEN OLD WINDSOR AND JOHNSON ROADS

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0016203
 REFERENCE NUMBER..... 85-00011
 LABORATORY(IES)..... OH
 COMPILED BY
 NAME: HANSEN, J.K.
 DATE: 85 05

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: GEOLOGIC NAME CODE: SMFD
 ROCK TYPE: GNEISS LEXICON AGE(S): 420
 PETROGRAPHIC CODE: C310
 DESCRIPTION: STAMFORD GRANITE GNEISS, BERKSHIRE MASSIF

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-7
 ROCK/MINERAL CODE: JAS BIOTITE
 ANALYTICAL DATA:
 CALCULATED AGE..... 356.5 +/- 3.8-MILLION YEARS
 TYPE OF ANALYSIS..... 11
 ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR
 ANALYTICAL DATA; TOTAL-GAS AGE IS 356 M.Y.
 COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE ACADIAN
 OROGENY--376 M.Y. AGO.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... WILLIAMSTOWN
 LATITUDE..... 42-42-48 N
 LONGITUDE..... 73-13-06 W
 COMMENT..... BUXTON HILL, WILLIAMSTOWN
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0016214
 REFERENCE NUMBER..... 85-00011
 LABORATORY(IES)..... GC

COMPILED BY
 NAME: HANSEN, J.K.
 DATE: 85 05

SAMPLE DESCRIPTION
 GEOLOGIC NAME:
 ROCK TYPE: GNEISS
 DESCRIPTION: BLASTOMYLONITIC STAMFORD GRANITE GNEISS FROM FAULT ZONE

GEOLOGIC NAME CODE: SMFD
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: C310

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: WT-86
 ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 7.599
 40AR-RAD (MOLES/GM)..... 48.36 X E-10
 % RADIOGENIC..... 91
 CALCULATED AGE..... 395 +/- 14 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... K=6.308%; 40AR-RAD=0.1933 PPM
 COMMENTS: AGE OF UPLIFT AND COOLING

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... BERKSHIRE

QUAD SCALE

1: 24000

QUAD NO. / NAME

PITTSFIELD EAST

LATITUDE..... 42-27-30 N

LONGITUDE..... 73-10-00 W

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0016204

REFERENCE NUMBER..... 85-00011

LABORATORY(IES)..... OH

COMPILED BY

NAME: HANSEN, J.K.

DATE: 85 05

COMMENT..... BASE OF DAY MOUNTAIN, ALONG GRANGE ROBINSON ROAD

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME:

ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:

LEXICON AGE(S): 420

PETROGRAPHIC CODE: C310

DESCRIPTION: GRANITE GNEISS OF BERKSHIRE MASSIF (DAY MOUNTAIN SLICE)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-10H

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

CALCULATED AGE..... 421.6 +/- 4.6 MILLION YEARS

TYPE OF ANALYSIS..... 11

ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR

ANALYTICAL DATA; TOTAL-GAS AGE IS 413 M.Y.

COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE TACONIC
OROGENY--465 M.Y. AGO.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GREAT BARRINTON
 LATITUDE..... 42-11-15 N
 LONGITUDE..... 73-18-50 W
 COMMENT..... 0.3 KM WEST OF THE JUNCTION BETWEEN MONUMENT VALLEY ROAD
 AND MASSACHUSETTS ROUTE 23

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0016207
 REFERENCE NUMBER..... 85-00011
 LABORATORY(IES)..... OH

COMPILED BY
 NAME: HANSEN, J.K.
 DATE: 85 05

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
 GEOLOGIC NAME:
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:
 LEXICON AGE(S): 420
 PETROGRAPHIC CODE: C310

DESCRIPTION: GNEISS OF THE BERKSHIRE MASSIF

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-16B
 ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

CALCULATED AGE..... 397.7 +/- 3.0 MILLION YEARS

TYPE OF ANALYSIS..... 11

ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR

ANALYTICAL DATA; TOTAL-GAS AGE IS 394 M.Y.

COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE TACONIC
 OROGENY--465 M.Y. AGO.

LABORATORY SAMPLE NUMBER: BM-16H
 ROCK/MINERAL CODE: PC5

HORNBLENDE

ANALYTICAL DATA:

CALCULATED AGE..... 415.4 +/- 4.6 MILLION YEARS

TYPE OF ANALYSIS..... 11

ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR

ANALYTICAL DATA; TOTAL-GAS AGE IS 415 M.Y.

COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE
 TACONIC OROGENY--465 M.Y. AGO.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0016205
STATE CODE.....	25	REFERENCE NUMBER.....	85-00011
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	OH
COUNTY.....	BERKSHIRE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	EAST LEE	NAME: HANSEN, J.K.	
LATITUDE.....	42-18-00 N	DATE: 85 05	
LONGITUDE.....	73-13-30 W		
COMMENT.....	0.7 KM EAST OF THE JUNCTION OF MAPLE AND EAST STEETS IN LEE		
PRECISION OF LOCATION: 2			
SOURCE OF SAMPLE: 1			

SAMPLE DESCRIPTION

GEOLOGIC NAME:
ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:
LEXICON AGE(S): 420
PETROGRAPHIC CODE: C310

DESCRIPTION: LEE GNEISS, BERKSHIRE MASSIF

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-1

ROCK/MINERAL CODE: PC5

HORNBLende

ANALYTICAL DATA:

CALCULATED AGE..... 466.5 +/- 5.1 MILLION YEARS

TYPE OF ANALYSIS..... 11

ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR

ANALYTICAL DATA; TOTAL-GAS AGE IS 503 M.Y.

COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE TACONIC
OROGENY--465 M.Y. AGO.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LEE EAST
 LATITUDE..... 42-16-15 N
 LONGITUDE..... 73-08-30 W
 COMMENT..... 0.3 KM SE OF THE OVERPASS ON THE MASSACHUSETTS TURNPIKE
 NEAR GREENWATER POND.

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0016206
 REFERENCE NUMBER..... 85-00011
 LABORATORY(IES)..... OH

COMPILED BY
 NAME: HANSEN, J.K.
 DATE: 85 05

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
 GEOLOGIC NAME:
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:
 LEXICON AGE(S): 420
 PETROGRAPHIC CODE: C310

DESCRIPTION: LEE GNEISS, BERKSHIRE MASSIF

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-12
 ROCK/MINERAL CODE: PC5

HORNBLLENDE

ANALYTICAL DATA:

CALCULATED AGE..... 446.6 +/- 6.2 MILLION YEARS

TYPE OF ANALYSIS..... 11

ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR

ANALYTICAL DATA: TOTAL-GAS AGE IS 480 M.Y.

COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE TACONIC
 OROGENY--465 M.Y. AGO.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0016210
STATE CODE.....	25	REFERENCE NUMBER.....	85-00011
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	OH
COUNTY.....	BERKSHIRE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	OTIS	NAME: HANSEN, J.K.	
LATITUDE.....	42-11-15 N	DATE: 85 05	
LONGITUDE.....	73-03-45 W		
COMMENT.....	0.3 KM NW OF THE JUNCTION BETWEEN MASSACHUSETTS ROUTE 23 AND BECKET ROAD		

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME:
ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:
LEXICON AGE(S): 420
PETROGRAPHIC CODE: C310

DESCRIPTION: LEE GNEISS, BERKSHIRE MASSIF

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-13

ROCK/MINERAL CODE: PC5

HORNBLende

ANALYTICAL DATA:

CALCULATED AGE..... 364.2 +/- 4.1 MILLION YEARS

TYPE OF ANALYSIS..... 11

ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR

ANALYTICAL DATA; TOTAL-GAS AGE IS 363 M.Y.

COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE TACONIC
OROGENY--465 M.Y. AGO.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0016209
STATE CODE.....	25	REFERENCE NUMBER.....	85-00011
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	OH
COUNTY.....	BERKSHIRE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MONTEREY	NAME: HANSEN, J.K.	
LATITUDE.....	42-11-30 N	DATE: 85 05	
LONGITUDE.....	73-09-30 W		

COMMENT..... ALONG WEBB ROAD, 1.2 KM NW OF WEST OTIS

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME:	GEOLOGIC NAME CODE:
ROCK TYPE: GNEISS	LEXICON AGE(S): 420
	PETROGRAPHIC CODE: C310
DESCRIPTION: LEE GNEISS, BERKSHIRE MASSIF	

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: BM-19	
ROCK/MINERAL CODE: PC5	HORNBLende
ANALYTICAL DATA:	
CALCULATED AGE.....	406.2 +/- 4.5 MILLION YEARS
TYPE OF ANALYSIS.....	11
ANALYTICAL COMMENTS..... 40-39AR PLATEAU AGE, SEE ARTICLE FOR	
ANALYTICAL DATA; TOTAL-GAS AGE IS 411 M.Y.	
COMMENTS: UPLIFT AND COOLING AGE; GNEISS WAS INVOLVED IN THE TACONIC	
OROGENY--465 M.Y. AGO.	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BERKSHIRE
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GREAT BARRINGTON
 LATITUDE..... 42-12-54 N
 LONGITUDE..... 73-17-32 W
 COMMENT..... OUTCROP AT 1870-FT ELEVATION ON WILDCAT TRAIL, 850-M NW
 OF BENEDICT POND, GREAT BARRINGTON
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0009403
 REFERENCE NUMBER..... 76-00048
 LABORATORY(IES)..... SD

COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 81 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: WASHINGTON GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: WSNB
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: C310

DESCRIPTION: BLUE QUARTZ-BEARING GRAPHIC BIOTITE GNEISS
 WASHINGTON GNEISS, UNIT 1; BERKSHIRE MASSIF

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: WASHINGTON
 ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 100-150 MESH; STUBBY, ROUNDED ZIRCON, PROBABLY A MIXTURE OF
 DETRITAL ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 743.9
 TH (PPM)..... 54.8
 PB (PPM)..... 115.8

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.032	89.37	6.997	3.603

206PB/238U AGE	207PB/235U AGE	207PB/206PB AGE	208PB/232TH AGE	
961 +/- 11	979 +/- 12	1019 +/- 11	1134 +/- 15	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.0, 15.5, 36.8

COMMENTS: GNEISS CRYSTALLIZED ABOUT 1040 M.Y. AGO

LABORATORY SAMPLE NUMBER: WASHINGTON
 ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 150-200 MESH; STUBBY, ROUNDED ZIRCON, PROBABLY A MIXTURE OF
 DETRITAL ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 757.3
 TH (PPM)..... 57.0
 PB (PPM)..... 121.5

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.031	89.33	7.033	3.608

206PB/238U AGE..... 989 +/- 11 MILLION YEARS
 207PB/235U AGE..... 1003 +/- 12 MILLION YEARS
 207PB/206PB AGE..... 1036 +/- 11 MILLION YEARS
 208PB/232TH AGE..... 1163 +/- 15 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.0, 15.5, 36.8
 COMMENTS: GNEISS CRYSTALLIZED ABOUT 1040 M.Y. AGO

LABORATORY SAMPLE NUMBER: WASHINGTON

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 250-325 MESH; STURBY, ROUNDED ZIRCON, PROBABLY A MIXTURE OF
DETITAL ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 824.4

TH (PPM)..... 59.2

Pb (PPM)..... 129.8

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.026	89.49	7.043	3.443

206PB/238U AGE..... 974 +/- 11 MILLION YEARS

207PB/235U AGE..... 1000 +/- 12 MILLION YEARS

207PB/206PB AGE..... 1057 +/- 9 MILLION YEARS

208PB/232TH AGE..... 1204 +/- 13 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.0, 15.5, 36.8

COMMENTS: GNEISS CRYSTALLIZED ABOUT 1040 M.Y. AGO

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0020002
STATE CODE.....	25	REFERENCE NUMBER.....	86-00019
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	HAMPDEN		
QUAD SCALE		COMPILED BY	
1: 24000	QUAD NO. / NAME	NAME: ZARTMAN, R.E.	
LATITUDE.....	WEST GRENVILLE	DATE: 86 11	
LONGITUDE.....	42-07-22 N		
	72-59-41 W		

COMMENT..... 400 METERS WEST OF BABB HILL, TOLLAND

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: WASHINGTON GNEISS	GEOLOGIC NAME CODE: WSNB
ROCK TYPE: GNEISS	LEXICON AGE(S): 420
	PETROGRAPHIC CODE: C310

DESCRIPTION: TECTONIC SLIVER OF WASHINGTON(?) GNEISS

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 3
ROCK/MINERAL CODE: MC1
COMMENT: 100-150 MESH FRACTION
ANALYTICAL DATA:

U (PPM).....	290		
TH (PPM).....	48.2		
PB (PPM).....	48.9		

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.128	82.38	7.939	9.556

206PB/238U AGE..... 941 +/- 9 MILLION YEARS
207PB/235U AGE..... 975 +/- 10 MILLION YEARS
207PB/206PB AGE..... 1051 +/- 6 MILLION YEARS
208PB/232TH AGE..... 1093 +/- 11 MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.0, 15.5, 36.8
COMMENTS: GNEISS CRYSTALLIZED ABOUT 1040 M.Y. AGO.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 3
ROCK/MINERAL CODE: MC1
COMMENT: 200-250 MESH FRACTION
ANALYTICAL DATA:

U (PPM).....	351		
TH (PPM).....	55.0		
PB (PPM).....	53.5		

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.067	85.29	7.230	7.416

206PB/238U AGE..... 895 +/- 9 MILLION YEARS
207PB/235U AGE..... 934 +/- 9 MILLION YEARS
207PB/206PB AGE..... 1029 +/- 6 MILLION YEARS

208PB/232TH AGE..... 1065 +/- 11 MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.0, 15.5, 36.8
COMMENTS: GNEISS CRYSTALLIZED ABOUT 1040 M.Y. AGO.

ROWE-HAWLEY ZONE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... FRANKLIN

QUAD SCALE

1: 24000

LATITUDE..... 42-41-00 N

LONGITUDE..... 72-52-00 W

COMMENT..... ROWE

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001756

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: HAWLEY SCHIST

ROCK TYPE: SCHIST

GEOLOGIC NAME CODE: HWLY

LEXICON AGE(S): 360 370 400

PETROGRAPHIC CODE: C320

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 4 (MASSACHUSETTS)

ROCK/MINERAL CODE: UA1

MUSCOVITE

ANALYTICAL DATA:

K20 (%)..... 8.58

40AR-RAD (MOLES/GM)..... 48.04 X E-10

% RADIOGENIC..... 83

CALCULATED AGE..... 351 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... FRANKLIN

QUAD SCALE

1: 24000

QUAD NO. / NAME

HEATH

LATITUDE..... 42-41-00 N

LONGITUDE..... 72-52-00 W

COMMENT..... ROWE

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001757

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: HAWLEY SCHIST

ROCK TYPE: SCHIST

GEOLOGIC NAME CODE: HWLY

LEXICON AGE(S): 360 370 400

PETROGRAPHIC CODE: C320

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 5 (MASSACHUSETTS)

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 5.71

40AR-RAD (MOLES/GM)..... 31.28 X E-10

% RADIOGENIC..... 66

CALCULATED AGE..... 344 +/- 12 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001758
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	FRANKLIN		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	HEATH	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-41-00 N	DATE: 77 06	
LONGITUDE.....	72-52-00 W		
COMMENT.....	ROWE		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 6			

SAMPLE DESCRIPTION	
GEOLOGIC NAME: HAWLEY SCHIST	GEOLOGIC NAME CODE: HWLY
ROCK TYPE: SCHIST	LEXICON AGE(S): 360 370 400
	PETROGRAPHIC CODE: C320

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 6 (MASSACHUSETTS)	
ROCK/MINERAL CODE: PC5	HORNBLende
ANALYTICAL DATA:	
K20 (%).....	0.403
40AR-RAD (MOLES/GM).....	2.019 X E-10
% RADIOGENIC.....	41
CALCULATED AGE.....	318 +/- 9
TYPE OF ANALYSIS.....	10
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM	MILLION YEARS

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001759
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	FRANKLIN		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	ROWE	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-41-00 N	DATE: 77 06	
LONGITUDE.....	72-53-00 W		
COMMENT.....	ROWE		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 6

SAMPLE DESCRIPTION

GEOLOGIC NAME: HAWLEY-SCHIST
ROCK TYPE: SCHIST

GEOLOGIC NAME CODE: HWLY
LEXICON AGE(S): 360 370 400
PETROGRAPHIC CODE: C320

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 7 (MASSACHUSETTS)

ROCK/MINERAL CODE: UA5

ANALYTICAL DATA:

BIOTITE

K20 (%)..... 1.117
40AR-RAD (MOLES/GM)..... 9.433 X E-10
% RADIOGENIC..... 56

CALCULATED AGE.....

507 +/- 15 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE MEANING UNCERTAIN

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0005379
STATE CODE.....	25	REFERENCE NUMBER.....	66-00016
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GP
COUNTY.....	HAMPDEN		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	CHESTER	NAME: GODOY, M.M.	
LATITUDE.....	42-16-40 N	DATE: 79 05	
LONGITUDE.....	72-58-55 W		
COMMENT..... NEAR US ROUTE 20 AT CHESTER			

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: MORETOWN FORMATION
ROCK TYPE: SCHIST

GEOLOGIC NAME CODE: SV0Y
LEXICON AGE(S): 360
PETROGRAPHIC CODE: C320

DESCRIPTION: SAVOY SCHIST (NOW MORETOWN FORMATION)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: UA1

MUSCOVITE

COMMENT: MUSCOVITE CONCENTRATE CONTAINS QUARTZ AND ROCK FRAGMENTS

ANALYTICAL DATA:

K20 (%)..... 6.00

40AR-RAD (MOLES/GM)..... 32.0 X E-10

% RADIOGENIC..... 81

CALCULATED AGE..... 338 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... HAMPDEN
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... CHESTER
 LATITUDE..... 42-16-30 N
 LONGITUDE..... 73-00-00 W
 COMMENT..... ABOUT 1 MILE WEST OF CHESTER ON US ROUTE 20
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0005378
 REFERENCE NUMBER..... 66-00016
 LABORATORY(IES)..... GP
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 79 05

SAMPLE DESCRIPTION
 GEOLOGIC NAME: ROWE SCHIST
 ROCK TYPE: SCHIST
 GEOLOGIC NAME CODE: ROWE
 LEXICON AGE(S): 370 360
 PETROGRAPHIC CODE: C320
 DESCRIPTION: ROWE SCHIST, 200 FEET WEST OF CONTACT WITH CHESTER AMPHIBOLITE MEMBER

POTASSIUM-ARGON
 LABORATORY SAMPLE NUMBER: (NOT GIVEN)
 ROCK/MINERAL CODE: JA5
 COMMENT: BIOTITE CONCENTRATE CONTAINS CONSIDERABLE CHLORITE
 ANALYTICAL DATA:
 K20 (%)..... 4.23
 40AR-RAD (MOLES/GM)..... 21.4 X E-10
 % RADIOGENIC..... 91
 CALCULATED AGE..... 321 +/- 10 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... HAMPDEN
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... CHESTER
 LATITUDE..... 42-16-55 N
 LONGITUDE..... 72-58-45 W
 COMMENT..... EMERY DEPOSIT AT CHESTER
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 4

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0005377
 REFERENCE NUMBER..... 66-00016
 LABORATORY(IES)..... GP
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 79 05

SAMPLE DESCRIPTION

GEOLOGIC NAME: ROWE SCHIST
 ROCK TYPE: SCHIST

GEOLOGIC NAME CODE: ROWE
 LEXICON AGE(S): 370 360
 PETROGRAPHIC CODE: C320

DESCRIPTION: EMERY-BEARING SCHIST WITHIN THE CHESTER AMPHIBOLE MEMBER OF THE ROWE SCHIST

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: UA8

MARGARITE

ANALYTICAL DATA:

K20 (%)..... 0.0620

40AR-RAD (MOLES/GM)..... 0.297 X E-10

% RADIOGENIC..... 22

CALCULATED AGE..... 306 +/- 30 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: V00

CHLORITE

ANALYTICAL DATA:

K20 (%)..... 0.00258

% RADIOGENIC..... 1-2

CALCULATED AGE..... 494 +/- MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... RADIOGENIC AR-40 VALUE LESS THAN
0.021XE-10MOL/GM

COMMENTS: AGE MEANING UNCERTAIN

CONNECTICUT VALLEY MESOZOIC BASIN

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015596
STATE CODE.....	25	REFERENCE NUMBER.....	84-00032
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	YA
COUNTY.....	HAMPSHIRE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MOUNT HOLYOKE	NAME: MARVIN, R.F.	
LATITUDE.....	42-18-06 N	DATE: 85 01	
LONGITUDE.....	72-31-35 W		

COMMENT..... QUARRY AT THE NOTCH, SOUTH HADLEY, HARTFORD BASIN

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: HOLYOKE BASALT
ROCK TYPE: BASALT

GEOLOGIC NAME CODE: HLYK
LEXICON AGE(S): 220
PETROGRAPHIC CODE: A131

DESCRIPTION: LAVA-FLOW UNIT OF NEWARK GROUP

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: MA L-20

ROCK/MINERAL CODE: RCO

PLAGIOCLASE

COMMENT: PLAGIOCLASE ETCHED WITH HNO3 ACID

ANALYTICAL DATA:

K20 (%)..... 0.334, 0.331

40AR-RAD (MOLES/GM)..... 0.9370 X E-10

CALCULATED AGE.....

186 +/- 7 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF VOLCANISM; AVERAGE OF 2 AGES

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004634
STATE CODE.....	25	REFERENCE NUMBER.....	68-00028
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	HAMPDEN OR HAMPSHIRE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MT. TOM	NAME: GODOY, M.M.	
LATITUDE.....	42-13-00 N	DATE: 78 07	
LONGITUDE.....	72-40-00 W		
COMMENT.....	NEAR HOLYOKE		

PRECISION OF LOCATION: 4
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION		
GEOLOGIC NAME: HOLYOKE BASALT		GEOLOGIC NAME CODE: HLYK
ROCK TYPE: BASALT		LEXICON AGE(S): 231
		PETROGRAPHIC CODE: A131
DESCRIPTION: LAVA-FLOW UNIT OF NEWARK GROUP		

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)	
ROCK/MINERAL CODE: AAO	WHOLE-ROCK(?)
ANALYTICAL DATA:	
CALCULATED AGE.....	197 +/- 6 MILLION YEARS
TYPE OF ANALYSIS.....	10
ANALYTICAL COMMENTS.....	NO ANALYTICAL DATA GIVEN
COMMENTS: AGE OF VOLCANISM	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... FRANKLIN

QUAD SCALE

1: 24000

LATITUDE..... 42-32-00 N

LONGITUDE..... 72-35-00 W

QUAD NO. / NAME

GREENFIELD

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004635

REFERENCE NUMBER..... 68-00028

LABORATORY(IES)..... GC

COMPILED BY

NAME: GODOY, M.M.

DATE: 78 07

COMMENT..... NEAR DEERFIELD

PRECISION OF LOCATION: 4

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEERFIELD BASALT

ROCK TYPE: BASALT

GEOLOGIC NAME CODE: DFLD

LEXICON AGE(S): 231

PETROGRAPHIC CODE: A131

DESCRIPTION: LAVA-FLOW UNIT OF NEWARK GROUP

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: AA0

WHOLE-ROCK(?)

ANALYTICAL DATA:

CALCULATED AGE..... 195 +/- 6 MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: AGE OF VOLCANISM

CONNECTICUT VALLEY SYNCLINORIUM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0009621
STATE CODE.....	25	REFERENCE NUMBER.....	70-00031
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	HAMPSHIRE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	CHESTER	NAME: MARVIN, R.F.	
LATITUDE.....	42-20-57 N	DATE: 81 06	
LONGITUDE.....	72-57-58 W		

COMMENT..... 500 FT SOUTH OF GLENDALE FALLS, MIDDLEFIELD

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: MIDDLEFIELD GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: MDFD
LEXICON AGE(S): 347
PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

RB (PPM).....	632.7	
SR (PPM).....	30.9	N
87SR-RAD (PPM).....	0.913	
% RADIOGENIC 87SR.....	30	
CALCULATED AGE.....		358 +/- 15 MILLION YEARS
INITIAL 87SR/86SR.....	0.705	
TYPE OF ANALYSIS.....	20	

COMMENTS: MINIMUM AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... HAMPDEN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LUDLOW
 LATITUDE..... 42-11-13 N
 LONGITUDE..... 72-22-43 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0006660
 REFERENCE NUMBER..... 79-00005
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 79 11
 COMMENT..... ABANDONED RAILROAD CUT ABOUT 1.6 KM WNW OF INTERSECTION
 OF MAIN STREET AND THREE RIVERS ROAD, THREE RIVERS, BELCHERTOWN
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BELCHERTOWN COMPLEX
 ROCK TYPE: MONZODIORITE
 GEOLOGIC NAME CODE: BLCR
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B270
 DESCRIPTION: 2-PYROXENE QUARTZ MONZODIORITE FROM INNER CORE OF COMPLEX

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 71-GWL-120
 ROCK/MINERAL CODE: MC1
 COMMENT: -100+150 MESH SIZE
 ANALYTICAL DATA:
 U (PPM)..... 230.5
 TH (PPM)..... 300
 PB (PPM)..... 18.47
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.0481 65.99 4.290 29.67
 206PB/238U AGE..... 378.9 +/- MILLION YEARS
 207PB/235U AGE..... 379.1 +/- MILLION YEARS
 207PB/206PB AGE..... 382.2 +/- MILLION YEARS
 208PB/232TH AGE..... 385 +/- MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.2, 15.6, 38.0
 ANALYTICAL COMMENTS..... THORIUM VALUE ACCURATE TO ONLY +/- 4%
 COMMENTS: AGE OF INTRUSION IS 380 +/- 5 M.Y.

ZIRCON

LABORATORY SAMPLE NUMBER: 71-GWL-120
 ROCK/MINERAL CODE: MC1
 COMMENT: -200+270 MESH SIZE
 ANALYTICAL DATA:

U (PPM)..... 294.4
 TH (PPM)..... 290
 PB (PPM)..... 21.53
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.0225 71.33 4.201 24.45
 206PB/238U AGE..... 377.0 +/- MILLION YEARS
 207PB/235U AGE..... 377.2 +/- MILLION YEARS

ZIRCON

207PB/206PB AGE..... 380.0 +/- MILLION YEARS
208PB/232TH AGE..... 390 +/- MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.2, 15.6, 38.0
ANALYTICAL COMMENTS..... THORIUM VALUE ACCURATE TO ONLY +/- 4%
COMMENTS: AGE OF INTRUSION IS 380 +/- 5 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0006659
STATE CODE.....	25	REFERENCE NUMBER.....	79-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	HAMPDEN		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	LUDLOW	NAME: MARVIN, R.F.	
LATITUDE.....	42-11-13 N	DATE: 79 11	
LONGITUDE.....	72-22-43 W		

COMMENT..... RAILROAD CUT (ABANDONED) ABOUT 1.6 KM WNW OF
INTERSECTION OF MAIN STREET AND THREE RIVERS ROAD, THREE RIVERS,
BELCHERTOWN

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BELCHERTOWN COMPLEX
ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: BLCR
LEXICON AGE(S): 340
PETROGRAPHIC CODE: C310

DESCRIPTION: HORNBLende-BIOTITE QUARTZ MONZODIORITE GNEISS FROM A
RECRYSTALLIZED SHEAR ZONE, INNER ZONE OF COMPLEX

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: A13-1
ROCK/MINERAL CODE: PC5

HORNBLende

ANALYTICAL DATA:

K20 (%).....	0.704	
40AR-RAD (MOLES/GM).....	3.61	X E-10
% RADIOGENIC.....	70	
CALCULATED AGE.....		325 +/- 6
TYPE OF ANALYSIS.....	10	

MILLION YEARS

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0006658
STATE CODE.....	25	REFERENCE NUMBER.....	79-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	HAMPDEN		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	LUDLOW	NAME: MARVIN, R.F.	
LATITUDE.....	42-10-33 N	DATE: 79 11	
LONGITUDE.....	72-22-55 W		

COMMENT..... SOUTH BANK OF CHICOPEE RIVER DIRECTLY NORTH OF
INTERSECTION OF BAPTIST HILL AND RED BRIDGE ROADS, BELCHERTOWN

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION		
GEOLOGIC NAME: BELCHERTOWN COMPLEX	GEOLOGIC NAME CODE: BLCR	
ROCK TYPE: GNEISS	LEXICON AGE(S): 340	
	PETROGRAPHIC CODE: C310	
DESCRIPTION: HORNBLende-BIOTITE QUARTZ MONZODIORITE GNEISS FROM OUTER ZONE OF COMPLEX		

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 71-GWL-119-1		
ROCK/MINERAL CODE: PC5		HORNBLende
ANALYTICAL DATA:		
K20 (%).....	0.926	
40AR-RAD (MOLES/GM).....	5.33	X E-10
% RADIOGENIC.....	93	
CALCULATED AGE.....	361 +/- 6	MILLION YEARS
TYPE OF ANALYSIS.....	10	
COMMENTS: INITIAL AGE DISTURBED BY LATE METAMORPHISM		

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 QUABBIN RESERVOIR
 LATITUDE..... 42-25-00 N
 LONGITUDE..... 72-22-00 W
 COMMENT..... SOUTH OF NEW SALEM VILLAGE

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0005199

REFERENCE NUMBER..... 69-00023
 LABORATORY(IES)..... MT

COMPILED BY
 NAME: GODOY, M.M.
 DATE: 79 03

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: PRESCOTT COMPLEX
 ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: PRSC
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B220

DESCRIPTION: INTRUSIVE COMPLEX COMPOSED OF GABBRO, QUARTZ DIORITE,
 GRANODIORITE, AND QUARTZ MONZONITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

CALCULATED AGE..... 377 +/- 20 MILLION YEARS

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... WHOLE ROCK ISOCHRON BASED ON UNSPECIFIED

NUMBER OF SAMPLES; NO ANALYTICAL DATA GIVEN

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 SHELBURNE FALLS
 LATITUDE..... 42-36-00 N
 LONGITUDE..... 72-39-00 W
 COMMENT..... GREENFIELD
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001760
 REFERENCE NUMBER..... 70-00005
 LABORATORY(IES)..... GC
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION
 GEOLOGIC NAME: GILE MOUNTAIN FORMATION GEOLOGIC NAME CODE: CNWY
 ROCK TYPE: SCHIST LEXICON AGE(S): 360 370 400
 PETROGRAPHIC CODE: C320
 DESCRIPTION: CONWAY SCHIST (NOW GILE MOUNTAIN FORMATION)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 8 (MASSACHUSETTS)
 ROCK/MINERAL CODE: AAO WHOLE-ROCK
 ANALYTICAL DATA:
 K20 (%)..... 4.025
 40AR-RAD (MOLES/GM)..... 20.82 - X E-10
 % RADIOGENIC..... 85
 CALCULATED AGE..... 327 +/- 9 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

BRONSON HILL ZONE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001762
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	ASHBURNHAM	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-44-00 N	DATE: 77 06	
LONGITUDE.....	71-56-00 W		
COMMENT.....	ASHBURNHAM		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 6			

SAMPLE DESCRIPTION

GEOLOGIC NAME: PARTRIDGE FORMATION	GEOLOGIC NAME CODE: BMFD
ROCK TYPE: SCHIST	LEXICON AGE(S): 360 370 400
	PETROGRAPHIC CODE: C320
DESCRIPTION: BRIMFIELD SCHIST (NOW PARTRIDGE FORMATION)	

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 10 (MASSACHUSETTS)		
ROCK/MINERAL CODE: UA5		BIOTITE
ANALYTICAL DATA:		
K20 (%).....	9.22	
40AR-RAD (MOLES/GM).....	36.78	X E-10
% RADIOGENIC.....	91	
CALCULATED AGE.....	258 +/- 3	MILLION YEARS
TYPE OF ANALYSIS.....	10	
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM		

LABORATORY SAMPLE NUMBER: 10 (MASSACHUSETTS)		
ROCK/MINERAL CODE: UA1		MUSCOVITE
ANALYTICAL DATA:		
K20 (%).....	10.36	
40AR-RAD (MOLES/GM).....	38.03	X E-10
% RADIOGENIC.....	84	
CALCULATED AGE.....	238 +/- 8	MILLION YEARS
TYPE OF ANALYSIS.....	10	
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM		

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... HAMPDEN

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0014187
 REFERENCE NUMBER..... 84-00007
 LABORATORY(IES)..... SD

QUAD SCALE QUAD NO. / NAME
 1: 24000 PALMER
 LATITUDE..... 42-09-30 N
 LONGITUDE..... 72-22-00 W

COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 04

COMMENT..... LARGE ROADCUT ON MASSACHUSETTS TURNPIKE (I-90), JUST EAST OF KELLY HILL STREET OVERPASS, PALMER

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: GLASTONBURY GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: GLBR
 LEXICON AGE(S): 360 350
 PETROGRAPHIC CODE: C310

DESCRIPTION: EQUIGRANULAR QUARTZO-FELDSPATHIC GNEISS--NORTHERN GLASTONBURY GNEISS

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 2
 ROCK/MINERAL CODE: MC1
 COMMENT: 100-150 MESH SIZE

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 754
 TH (PPM)..... 261
 PB (PPM)..... 54.0

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0670	83.68	5.671	10.58

206PB/238U AGE.....	428 +/-	MILLION YEARS
207PB/235U AGE.....	432 +/-	MILLION YEARS
207PB/206PB AGE.....	456 +/-	MILLION YEARS
208PB/232TH AGE.....	374 +/-	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

COMMENTS: AVERAGE AGE OF SIX 207PB/206PB AGES IS 456+/-10 M.Y.; A PROBABLE MINIMUM AGE OF FORMATION

LABORATORY SAMPLE NUMBER: 2
 ROCK/MINERAL CODE: MC1
 COMMENT: 200-270 MESH SIZE

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 978
 TH (PPM)..... 376
 PB (PPM)..... 67.0

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0873	82.25	5.901	11.76

206PB/238U AGE.....	401 +/-	MILLION YEARS
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207PB/235U AGE..... 410 +/- MILLION YEARS
207PB/206PB AGE..... 463 +/- MILLION YEARS
208PB/232TH AGE..... 339 +/- MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

COMMENTS: AVERAGE AGE OF SIX 207PB/206PB AGES IS 456+/-10 M.Y.; A PROBABLE
MINIMUM AGE OF FORMATION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0014191
STATE CODE.....	25	REFERENCE NUMBER.....	84-00007
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	NM
COUNTY.....	HAMPDEN		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	PALMER	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-09-30 N	DATE: 84 04	
LONGITUDE.....	72-22-00 W		
COMMENT.....	LARGE ROADCUT ON MASSACHUSETTS TURNPIKE (I-90), JUST EAST OF KELLY HILL STREET OVERPASS, PALMER		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION		
GEOLOGIC NAME: GLASTONBURY GNEISS	GEOLOGIC NAME CODE: GLBR	
ROCK TYPE: GNEISS	LEXICON AGE(S): 360 350	
	PETROGRAPHIC CODE: C310	
DESCRIPTION: EQUIGRANULAR QUARTZO-FELDSPATHIC GNEISS--NORTHERN GLASTONBURY GNEISS		

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 2A	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	83.5
SR (PPM).....	80.0 T
87RB/86SR.....	3.02
87SR/86SR.....	0.7297
CALCULATED AGE.....	536 +/- 130 MILLION YEARS
INITIAL 87SR/86SR.....	0.7066
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON	
SAMPLE SUITE: 00582	
COMMENTS: AGE IS TOO OLD; ROCK PROBABLY FORMED 420-470 M.Y. AGO	

LABORATORY SAMPLE NUMBER: 2A	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	83.5
SR (PPM).....	80.0 T
87RB/86SR.....	3.02
87SR/86SR.....	0.7297
CALCULATED AGE.....	375 +/- 80 MILLION YEARS
INITIAL 87SR/86SR.....	0.7093
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS..... 24-POINT WHOLE-ROCK ISOCHRON	
SAMPLE SUITE: 00583	
COMMENTS: AGE IS APPARENTLY TOO YOUNG; ROCK PROBABLY FORMED 420-470 M.Y. AGO	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0014192
STATE CODE.....	25	REFERENCE NUMBER.....	84-00007
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	NM
COUNTY.....	HAMPDEN		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	HAMPDEN	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-02-00 N	DATE: 84 04	
LONGITUDE.....	72-24-00 W		
COMMENT.....	EAST SIDE OF CHAPIN ROAD, 0.8 KM ESE OF SUMMIT OF PINE MOUNTAIN, HAMPDEN		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION		
GEOLOGIC NAME: GLASTONBURY GNEISS	GEOLOGIC NAME CODE: GLBR	
ROCK TYPE: GNEISS	LEXICON AGE(S): 360 370	
	PETROGRAPHIC CODE: C310	
DESCRIPTION: FINE-GRAINED, PIN-STRIPED, GNEISS--NORTHERN GLASTONBURY GNEISS	DELICATELY FOLIATED	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 5	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
Rb (PPM).....	48.2
SR (PPM).....	128 T
87RB/86SR.....	1.09
87SR/86SR.....	0.7124
CALCULATED AGE.....	536 +/- 130 MILLION YEARS
INITIAL 87SR/86SR.....	0.7066
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS.....	5-POINT WHOLE-ROCK ISOCHRON
SAMPLE SUITE: 00582	
COMMENTS: AGE IS TOO OLD; ROCK PROBABLY FORMED 420-470 M.Y. AGO	

LABORATORY SAMPLE NUMBER: 5	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	48.2
SR (PPM).....	128 T
87RB/86SR.....	1.09
87SR/86SR.....	0.7124
CALCULATED AGE.....	375 +/- 80 MILLION YEARS
INITIAL 87SR/86SR.....	0.7093
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS.....	24-POINT WHOLE-ROCK ISOCHRON
SAMPLE SUITE: 00583	
COMMENTS: AGE IS APPARENTLY TOO YOUNG; ROCK PROBABLY FORMED 420-460 M.Y. AGO	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... ORANGE
 LATITUDE..... 42-37-08 N
 LONGITUDE..... 72-21-54 W
SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0016131
 REFERENCE NUMBER..... 85-00009
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 85 05
 COMMENT..... ABANDONED QUARRY 1.0-KM NE OF LAUREL LAKE, OFF QUARRY ROAD. (ARTICLE MISTAKENLY LISTS NORTHFIELD QUAD, INSTEAD OF ORANGE QUAD.--COMPILER)

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME:
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: PCHG
 LEXICON AGE(S): 361
 PETROGRAPHIC CODE: 8240

DESCRIPTION: SLIGHTLY-FOLIATED GRANITE--TYPICAL OF THE SOUTHERN PART OF THE PAUCHAUG GNEISS

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 7
 ROCK/MINERAL CODE: MC1
 COMMENT: 150-200 MESH FRACTION
 ANALYTICAL DATA:

ZIRCON

U (PPM)..... 2520.2
 TH (PPM)..... 786.8
 PB (PPM)..... 168.8

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0101	85.94	4.917	9.138

206PB/238U AGE..... 417 +/- MILLION YEARS

207PB/235U AGE..... 419 +/- MILLION YEARS

207PB/206PB AGE..... 432 +/- MILLION YEARS

208PB/232TH AGE..... 423 +/- MILLION YEARS

CONCORDIA INTERCEPT AGE.. 444 +/- 8 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 14-POINT CHORD ON CONCORDIA DIAGRAM, LOWER

CONCORDIA INTERCEPT IS 95+/-55 M.Y.

SAMPLE SUITE: 00645

COMMENTS: THESE PLUTONS FORMED ABOUT 444 M.Y. AGO.

LABORATORY SAMPLE NUMBER: 7
 ROCK/MINERAL CODE: MC1
 COMMENT: 250-325 MESH FRACTION
 ANALYTICAL DATA:

ZIRCON

U (PPM)..... 2622.5

TH (PPM)..... 731.9

PB (PPM)..... 168.6

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0104	86.63	4.961	8.397
206PB/238U AGE.....	404 +/-		MILLION YEARS
207PB/235U AGE.....	408 +/-		MILLION YEARS
207PB/206PB AGE.....	433 +/-		MILLION YEARS
208PB/232TH AGE.....	415 +/-		MILLION YEARS
CONCORDIA INTERCEPT AGE..	444 +/- 8		MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 14-POINT CHORD ON CONCORDIA DIAGRAM, LOWER

CONCORDIA INTERCEPT IS 95+/-55 M.Y.

SAMPLE SUITE: 00645

COMMENTS: THESE PLUTONS FORMED ABOUT 444 M.Y. AGO

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES

STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN

QUAD SCALE QUAD NO. / NAME
 1: 24000 MT GRACE

LATITUDE..... 42-38-25 N
 LONGITUDE..... 72-19-45 W

COMMENT..... EAST SIDE OF ROUTE 78 ON BARBER HILL, ORANGE

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002240

REFERENCE NUMBER..... 68-00013
 LABORATORY(IES)..... MT KS

COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: AMMONOOSUC VOLCANICS
 ROCK TYPE: SCHIST

GEOLOGIC NAME CODE: AMSC
 LEXICON AGE(S): 364
 PETROGRAPHIC CODE: C320

DESCRIPTION: MUSCOVITE-KFELDSPAR-QUARTZ SCHIST WITH MINOR BIOTITE, APATITE, GARNET, MAGNETITE. SOME OF THE K-FELDSPAR MAY BE SECONDARY.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-1027A

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 12.31

87SR/86SR..... 0.7885

CALCULATED AGE..... 450 +/- 15 MILLION YEARS

INITIAL 87SR/86SR..... 0.706

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 17-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00113

COMMENTS: MINIMUM AGE OF VOLCANISM

LABORATORY SAMPLE NUMBER: R1027A

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 12.31

87SR/86SR..... 0.7885

CALCULATED AGE..... 450 +/- 15 MILLION YEARS

INITIAL 87SR/86SR..... 0.706

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00114

COMMENTS: MINIMUM AGE OF VOLCANISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MT GRACE
 LATITUDE..... 42-38-25 N
 LONGITUDE..... 72-19-45 W
 COMMENT..... EAST SIDE OF ROUTE 78 ON BARBER HILL, ORANGE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002241
 REFERENCE NUMBER..... 68-00013
 LABORATORY(IES)..... MT KS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION
 GEOLOGIC NAME: AMMONOOSUC VOLCANICS
 ROCK TYPE: SCHIST
 GEOLOGIC NAME CODE: AMSC
 LEXICON AGE(S): 364
 PETROGRAPHIC CODE: C320
 DESCRIPTION: MUSCOVITE-KFELDSPAR-QUARTZ SCHIST WITH MINOR BIOTITE, APATITE,
 GARNET, MAGNETITE. SOME OF THE K-FELDSPAR MAY BE SECONDARY.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-1027B
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 87RB/86SR..... 4.62
 87SR/86SR..... 0.7388
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 17-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00113
 COMMENTS: MINIMUM AGE OF VOLCANISM

WHOLE-ROCK

LABORATORY SAMPLE NUMBER: R-1027B
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 87RB/86SR..... 4.62
 87SR/86SR..... 0.7388
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00114
 COMMENTS: MINIMUM AGE OF VOLCANISM

WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002242
STATE CODE.....	25	REFERENCE NUMBER.....	68-00013
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT KS
COUNTY.....	FRANKLIN		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MT GRACE	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-38-25 N	DATE: 77 08	
LONGITUDE.....	72-19-45 W		
COMMENT..... EAST SIDE OF ROUTE 78 ON BARBER HILL, ORANGE			
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 1			

SAMPLE DESCRIPTION

GEOLOGIC NAME: AMMONOOSUC VOLCANICS
 ROCK TYPE: SCHIST

GEOLOGIC NAME CODE: AMSC
 LEXICON AGE(S): 364
 PETROGRAPHIC CODE: C320

DESCRIPTION: MUSCOVITE-KFELDSPAR-QUARTZ SCHIST WITH MINOR BIOTITE, APATITE,
 GARNET, MAGNETITE. SOME OF THE K-FELDSPAR MAY BE SECONDARY.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-1027C

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 6.46

87SR/86SR..... 0.7476

CALCULATED AGE..... 450 +/- 15 MILLION YEARS

INITIAL 87SR/86SR..... 0.706

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 17-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00113

COMMENTS: MINIMUM AGE OF VOLCANISM

LABORATORY SAMPLE NUMBER: R-1027C

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 6.46

87SR/86SR..... 0.7476

CALCULATED AGE..... 450 +/- 15 MILLION YEARS

INITIAL 87SR/86SR..... 0.706

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00114

COMMENTS: MINIMUM AGE OF VOLCANISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... MT GRACE
 LATITUDE..... 42-38-25 N
 LONGITUDE..... 72-19-45 W
 COMMENT..... EAST SIDE OF ROUTE 78 ON BARBER HILL, ORANGE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002243
 REFERENCE NUMBER..... 68-00013
 LABORATORY(IES)..... MT KS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION
 GEOLOGIC NAME: AMMONOOSUC VOLCANICS
 ROCK TYPE: SCHIST
 GEOLOGIC NAME CODE: AMSC
 LEXICON AGE(S): 364
 PETROGRAPHIC CODE: C320
 DESCRIPTION: MUSCOVITE-KFELDSPAR-QUARTZ SCHIST WITH MINOR BIOTITE, APATITE, GARNET, MAGNETITE. SOME OF THE K-FELDSPAR MAY BE SECONDARY.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-1027D
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 87RB/86SR..... 13.13
 87SR/86SR..... 0.7866
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 17-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00113
 COMMENTS: MINIMUM AGE OF VOLCANISM

LABORATORY SAMPLE NUMBER: R-1027D
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 87RB/86SR..... 13.13
 87SR/86SR..... 0.7866
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00114
 COMMENTS: MINIMUM AGE OF VOLCANISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MT GRACE
 LATITUDE..... 42-38-25 N
 LONGITUDE..... 72-19-45 W
 COMMENT..... EAST SIDE OF ROUTE 78 ON BARBER HILL, ORANGE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002244
 REFERENCE NUMBER..... 68-00013
 LABORATORY(IES)..... MT KS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: AMMONOOSUC VOLCANICS
 ROCK TYPE: SCHIST
 DESCRIPTION: MUSCOVITE-KFELDSPAR-QUARTZ SCHIST WITH MINOR BIOTITE, APATITE, GARNET, MAGNETITE. SOME OF THE K-FELDSPAR MAY BE SECONDARY.

GEOLOGIC NAME CODE: AMSC
 LEXICON AGE(S): 364
 PETROGRAPHIC CODE: C320

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-1027E
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 87RB/86SR..... 10.27
 87SR/86SR..... 0.7745
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 17-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00113
 COMMENTS: MINIMUM AGE OF VOLCANISM

WHOLE-ROCK

LABORATORY SAMPLE NUMBER: R-1027E
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 87RB/86SR..... 10.27
 87SR/86SR..... 0.7745
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00114
 COMMENTS: MINIMUM AGE OF VOLCANISM

WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ORANGE
 LATITUDE..... 42-35-35 N
 LONGITUDE..... 72-16-43 W
 COMMENT..... SMALL QUARRY ON THE SOUTH SIDE OF FISHER HILL IN ORANGE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002245
 REFERENCE NUMBER..... 68-00013
 LABORATORY(IES)..... MT KS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: AMMONOOSUC VOLCANICS
 ROCK TYPE: GNEISS
 DESCRIPTION: MICROCLINE-QUARTZ-BIOTITE-(MUSCOVITE-PLAGIOCLASE) GNEISS
 GEOLOGIC NAME CODE: AMSC
 LEXICON AGE(S): 364
 PETROGRAPHIC CODE: C310

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-1029
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 87RB/86SR..... 2.81
 87SR/86SR..... 0.7257
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 17-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00113
 COMMENTS: MINIMUM AGE OF VOLCANISM

LABORATORY SAMPLE NUMBER: R-1029
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 87RB/86SR..... 2.81
 87SR/86SR..... 0.7257
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00114
 COMMENTS: MINIMUM AGE OF VOLCANISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ORANGE
 LATITUDE..... 42-35-35 N
 LONGITUDE..... 72-16-43 W
 COMMENT..... SMALL QUARRY ON THE SOUTH SIDE OF FISHER HILL IN ORANGE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002246
 REFERENCE NUMBER..... 68-00013
 LABORATORY(IES)..... MT KS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: AMMONOOSUC VOLCANICS
 ROCK TYPE: GNEISS
 DESCRIPTION: MICROCLINE-QUARTZ-BIOTITE-(MUSCOVITE-PLAGIOCLASE) GNEISS
 GEOLOGIC NAME CODE: AMSC
 LEXICON AGE(S): 364
 PETROGRAPHIC CODE: C310

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-1030
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 87RB/86SR..... 2.17
 87SR/86SR..... 0.7196
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 17-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00113
 COMMENTS: MINIMUM AGE OF VOLCANISM

LABORATORY SAMPLE NUMBER: R-1030
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 87RB/86SR..... 2.17
 87SR/86SR..... 0.7196
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00114
 COMMENTS: MINIMUM AGE OF VOLCANISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ORANGE
 LATITUDE..... 42-35-35 N
 LONGITUDE..... 72-16-43 W
 COMMENT..... SMALL QUARRY ON THE SOUTH SIDE OF FISHER HILL IN ORANGE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002247
 REFERENCE NUMBER..... 68-00013
 LABORATORY(IES)..... MT KS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION
 GEOLOGIC NAME: AMMONOOSUC VOLCANICS. GEOLOGIC NAME CODE: AMSC
 ROCK TYPE: GNEISS LEXICON AGE(S): 364
 PETROGRAPHIC CODE: C310
 DESCRIPTION: MICROCLINE-QUARTZ-BIOTITE-(MUSCOVITE-PLAGIOCLASE) GNEISS

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-1031
 ROCK/MINERAL CODE: AA0 WHOLE-ROCK
 ANALYTICAL DATA:
 87RB/86SR..... 2.61
 87SR/86SR..... 0.7217
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 17-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00113
 COMMENTS: MINIMUM AGE OF VOLCANISM

LABORATORY SAMPLE NUMBER: R-1031
 ROCK/MINERAL CODE: AA0 WHOLE-ROCK
 ANALYTICAL DATA:
 87RB/86SR..... 2.61
 87SR/86SR..... 0.7217
 CALCULATED AGE..... 450 +/- 15 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00114
 COMMENTS: MINIMUM AGE OF VOLCANISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... ORANGE
 LATITUDE..... 42-35-35 N
 LONGITUDE..... 72-16-43 W
 COMMENT..... SMALL QUARRY ON SOUTH SIDE OF FISHER HILL, ORANGE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002248
 REFERENCE NUMBER..... 68-00013
 LABORATORY(IES)..... MT KS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: AMMONOOSUC VOLCANICS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: AMSC
 LEXICON AGE(S): 364
 PETROGRAPHIC CODE: C310

DESCRIPTION: MICROCLINE-QUARTZ-BIOTITE-(MUSCOVITE-PLAGIOCLASE) GNEISS.
 BIOTITE REPLACES MUSCOVITE; MICROCLINE SERICITIZED.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-1032

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 2.90

87SR/86SR..... 0.7264

CALCULATED AGE..... 450 +/- 15 MILLION YEARS

INITIAL 87SR/86SR..... 0.706

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 17-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00113

COMMENTS: MINIMUM AGE OF VOLCANISM

LABORATORY SAMPLE NUMBER: R1032

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 2.90

87SR/86SR..... 0.7264

CALCULATED AGE..... 450 +/- 15 MILLION YEARS

INITIAL 87SR/86SR..... 0.706

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00114

COMMENTS: MINIMUM AGE OF VOLCANISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... FRANKLIN

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001754

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

QUAD SCALE

1: 24000

QUAD NO. / NAME

SHELBURNE FALLS

LATITUDE..... 42-35-00 N

LONGITUDE..... 72-43-00 W

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

COMMENT..... SHELBURNE FALLS

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE DESCRIPTION

GEOLOGIC NAME: COLLINSVILLE FORMATION

ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:

LEXICON AGE(S): 360 370 400

PETROGRAPHIC CODE: C310

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 2 (MASSACHUSETTS)

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 8.36

40AR-RAD (MOLES/GM)..... 41.53 X E-10

% RADIOGENIC..... 81

CALCULATED AGE..... 315 +/- 9 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001755

STATE CODE..... 25

STATE..... MASSACHUSETTS

REFERENCE NUMBER..... 70-00005

COUNTY..... FRANKLIN

LABORATORY(IES)..... GC

QUAD SCALE

QUAD NO. / NAME

COMPILED BY

1: 24000

SHELBURNE FALLS

NAME: WILLIAMS, B. R.

LATITUDE..... 42-35-00 N

DATE: 77 06

LONGITUDE..... 72-43-00 W

COMMENT..... SHELBURNE FALLS

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE DESCRIPTION

GEOLOGIC NAME: COLLINSVILLE FORMATION

GEOLOGIC NAME CODE:

ROCK TYPE: GNEISS

LEXICON AGE(S): 360 370 400

PETROGRAPHIC CODE: C310

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 3 (MASSACHUSETTS)

ROCK/MINERAL CODE: PC5

HORNBLende

ANALYTICAL DATA:

K20 (%)..... 0.680

40AR-RAD (MOLES/GM)..... 3.328 X E-10

% RADIOGENIC..... 78

CALCULATED AGE..... 310 +/- 15 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES

STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN

QUAD SCALE QUAD NO. / NAME
 1: 24000 ORANGE

LATITUDE..... 42-33-30 N
 LONGITUDE..... 72-18-16 W

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015168

REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT

COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

COMMENT..... ROADCUT ON SW SIDE OF INTERCHANGE BETWEEN MASSACHUSETTS
 2 AND SOUTH MAIN ST., ORANGE

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: MONSON GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: MNSN
 LEXICON AGE(S): 360 350
 PETROGRAPHIC CODE: C310

DESCRIPTION: INTERLAYERED FELSIC AND MAFIC BIOTITE AND HORNBLende GNEISS

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 70
 ROCK/MINERAL CODE: MC1
 COMMENT: 100-150 MESH FRACTION
 ANALYTICAL DATA:

ZIRCON

U (PPM)..... 383.4
 TH (PPM)..... 137.4
 PB (PPM)..... 24.32

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0079	85.29	4.861	9.843

206PB/238U AGE	207PB/235U AGE	207PB/206PB AGE	208PB/232TH AGE	CONCORDIA INTERCEPT AGE
393 +/- 4	399 +/- 4	438 +/- 3	381 +/- 4	440 +/- 10

MILLION YEARS
 MILLION YEARS
 MILLION YEARS
 MILLION YEARS
 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80

ANALYTICAL COMMENTS..... 2-POINT CHORD ON A U-PB CONCORDIA DIAGRAM
 COMMENTS: APPROXIMATE AGE OF MONSON GNEISS IS 440 M.Y.

LABORATORY SAMPLE NUMBER: 70
 ROCK/MINERAL CODE: MC1
 COMMENT: 270-325 MESH FRACTION
 ANALYTICAL DATA:

ZIRCON

U (PPM)..... 454.9
 TH (PPM)..... 156.0
 PB (PPM)..... 30.32

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0167	84.81	4.967	10.20

206PB/238U AGE..... 409 +/- 4 MILLION YEARS

207PB/235U AGE..... 414 +/- 4 MILLION YEARS
207PB/206PB AGE..... 440 +/- 4 MILLION YEARS
208PB/232TH AGE..... 419 +/- 4 MILLION YEARS
CONCORDIA INTERCEPT AGE.. 440 +/- 10 MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80
ANALYTICAL COMMENTS..... 2-POINT CHORD ON A U-PB CONCORDIA DIAGRAM
COMMENTS: APPROXIMATE AGE OF MONSON GNEISS IS 440 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ORANGE
 LATITUDE..... 42-34-00 N
 LONGITUDE..... 72-17-00 W
 COMMENT..... ORANGE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001761
 REFERENCE NUMBER..... 70-00005
 LABORATORY(IES)..... GC
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION
 GEOLOGIC NAME: MONSON-GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: MNSN
 LEXICON AGE(S): 360 370 400
 PETROGRAPHIC CODE: C310

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 9 (MASSACHUSETTS)
 ROCK/MINERAL CODE: UAS BIOTITE
 ANALYTICAL DATA:
 K20 (%)..... 6.46
 40AR-RAD (MOLES/GM)..... 26.95 X E-10
 % RADIOGENIC..... 92
 CALCULATED AGE..... 267 +/- 3 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... FRANKLIN

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0002205

REFERENCE NUMBER..... 67-00006

LABORATORY(IES)..... MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

ORANGE

LATITUDE..... 42-33-50 N

LONGITUDE..... 72-15-30 W

COMPILED BY

NAME: WILLIAMS, B.R.

DATE: 77 08

COMMENT..... NORTH SIDE OF KELTON HILL FROM THE SOUTH SIDE OF ROUTE 2,
ORANGE

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: MONSON GNEISS

ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: MNSN

LEXICON AGE(S): 367 370 400

PETROGRAPHIC CODE: C310

DESCRIPTION: QUARTZ-PLAGIOCLASE-HORNBLENDE-PYROXENE-BIOTITE-MICROCLINE
GNEISS

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R1034

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 0.53

87SR/86SR..... 0.7099

CALCULATED AGE..... 250 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 23

ANALYTICAL COMMENTS..... INITIAL 87SR/86SR CLOSE TO 0.707; 2-POINT

MINERAL-WHOLE-ROCK ISOCHRON

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: B1034

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

87RB/86SR..... 49.08

87SR/86SR..... 0.8830

CALCULATED AGE..... 250 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 23

ANALYTICAL COMMENTS..... INITIAL 87SR/86SR CLOSE TO 0.707; 2-POINT

MINERAL-WHOLE-ROCK ISOCHRON

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ORANGE
 LATITUDE..... 42-33-50 N
 LONGITUDE..... 72-15-30 W
 COMMENT..... NORTH SIDE OF KELTON HILL FROM THE SOUTH SIDE OF ROUTE 2,
 ORANGE

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002206
 REFERENCE NUMBER..... 67-00006
 LABORATORY(IES)..... MT

COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: MONSON GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: MNSN
 LEXICON AGE(S): 367 370 400
 PETROGRAPHIC CODE: C310

DESCRIPTION: QUARTZ-PLAGIOCLASE-BIOTITE-MICROCLINE GNEISS WITH MINOR
 HORNBLLENDE AND DIOPSIDE

RUBIDIUM-STROMTIUM

LABORATORY SAMPLE NUMBER: R1042
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 0.37
 87SR/86SR..... 0.7108

CALCULATED AGE..... 250 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 23

ANALYTICAL COMMENTS..... INITIAL 87SR/86SR CLOSE TO 0.707; 3-POINT
 MINERAL-WHOLE-ROCK ISOCHRON

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: F1042

ROCK/MINERAL CODE: RC0

PLAGIOCLASE

ANALYTICAL DATA:

87RB/86SR..... 0.03
 87SR/86SR..... 0.7075

CALCULATED AGE..... 250 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 23

ANALYTICAL COMMENTS..... INITIAL 87SR/86SR CLOSE TO 0.707; 3-POINT
 MINERAL-WHOLE-ROCK ISOCHRON

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: B-1042

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

87RB/86SR..... 18.41
 87SR/86SR..... 0.7712

CALCULATED AGE..... 250 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 23

ANALYTICAL COMMENTS..... INITIAL 87SR/86SR CLOSE TO 0.707; 3-POINT
 MINERAL-WHOLE-ROCK ISOCHRON

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES

STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... HAMPDEN

QUAD SCALE QUAD NO. / NAME
 1: 24000 PALMER

LATITUDE..... 42-10-30 N
 LONGITUDE..... 72-19-00 W

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0014189

REFERENCE NUMBER..... 84-00007
 LABORATORY(IES)..... SD

COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 04

COMMENT..... NORTH SIDE OF ROADCUT ON MASSACHUSETTS TURNPIKE (I-90),
 JUST EAST OF BRECKENRIDGE STREET OVERPASS, PALMER

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: MONSON GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: MNSN
 LEXICON AGE(S): 360 350
 PETROGRAPHIC CODE: C310

DESCRIPTION: WEAKLY FOLIATED AND COMPOSITIONALLY LAMINATED FELSIC GNEISS

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 31
 ROCK/MINERAL CODE: MC1
 COMMENT: 150-200 MESH SIZE

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1304
 TH (PPM)..... 396
 PB (PPM)..... 81.1

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0108	88.32	5.062	6.602

206PB/238U AGE	207PB/235U AGE	207PB/206PB AGE	208PB/232TH AGE	
398 +/-	404 +/-	434 +/-	287 +/-	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

COMMENTS: 207PB/206PB AGE IS APPARENTLY TOO YOUNG, ROCK PROBABLY FORMED
 AROUND 460 M.Y. AGO

LABORATORY SAMPLE NUMBER: 31
 ROCK/MINERAL CODE: MC1
 COMMENT: 250-325 MESH RANGE

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1365
 TH (PPM)..... 370
 PB (PPM)..... 87.8

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0043	88.76	4.996	6.240

206PB/238U AGE	207PB/235U AGE	
414 +/-	417 +/-	MILLION YEARS

207PB/206PB AGE..... 436 +/- MILLION YEARS

208PB/232TH AGE..... 325 +/- MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

COMMENTS: 207PB/206PB AGE IS APPARENTLY TOO YOUNG; ROCK PROBABLY FORMED
AROUND 460 M.Y. AGO

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... FRANKLIN

QUAD SCALE QUAD NO. / NAME
1: 24000 MILLERS FALLS
LATITUDE..... 42-37-03 N
LONGITUDE..... 72-25-58 W

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0015167

REFERENCE NUMBER..... 84-00020
LABORATORY(IES)..... SD MT

COMPILED BY
NAME: MARVIN, R.F.
DATE: 84 10

COMMENT..... SMALL ABANDONED QUARRY ABOUT 2 KM INSIDE NE GATE OF
NORTHFIELD MOUNTAIN PUMPING STORAGE PROJECT OFF MOUNTAIN ROAD, ERVING

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DRY HILL GNEISS
ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: DRHL
LEXICON AGE(S): 410 370
PETROGRAPHIC CODE: C310

DESCRIPTION: STRONGLY-FOLIATED MASSIVE GNEISS (QUARTZ, MICROCLINE,
OLIGOCLASE, BIOTITE, HORNBLLENDE)

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 69
ROCK/MINERAL CODE: MC1

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 768.3
PB (PPM)..... 58.07

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0524	83.69	5.674	10.59

206PB/238U AGE..... 453 +/- 5 MILLION YEARS

207PB/235U AGE..... 470 +/- 5 MILLION YEARS

207PB/206PB AGE..... 556 +/- 5 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80

COMMENTS: GNEISS HAS A MINIMUM AGE OF 556 M.Y., BUT PRIMARY AGE IS
PROBABLY CLOSE TO 600 M.Y.

MERRIMACK SYNCLINORIUM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015150
STATE CODE.....	25	REFERENCE NUMBER.....	84-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD MT
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WORCESTER NORTH	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-16-24 N	DATE: 84 10	
LONGITUDE.....	71-46-58 W		

COMMENT..... ROADCUT ON NORTH SIDE OF BELMONT ST., 50-M WEST OF
INTERSECTION WITH SKYLINE DRIVE, WORCESTER

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
ROCK TYPE: GRANITE

LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240

DESCRIPTION: MUSCOVITE-BIOTITE GRANITE AT MILLSTONE HILL

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 53
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	354
SR (PPM).....	16.2 T
87RB/86SR.....	65.61
87SR/86SR.....	1.0504

CALCULATED AGE..... 372 +/- 7 MILLION YEARS

INITIAL 87SR/86SR..... 0.706

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 4-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00628

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 WORCESTER NORTH
 LATITUDE..... 42-16-17 N
 LONGITUDE..... 71-46-56 W
 COMMENT..... ABANDONED QUARRY ON SE SIDE OF BELMONT HILL, 300-M WEST
 OF ADAMS STREET SCHOOL, WORCESTER
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015151
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

SAMPLE DESCRIPTION
 ROCK TYPE: GRANITE

LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240

DESCRIPTION: MUSCOVITE-BIOTITE GRANITE AT MILLSTONE HILL

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 54
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 342
 SR (PPM)..... 14.8 T
 87RB/86SR..... 69.35
 87SR/86SR..... 1.0738
 CALCULATED AGE..... 372 +/- 7 MILLION YEARS
 INITIAL 87SR/86SR..... 0.706
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 4-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00628
 COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015152
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	84-00020
COUNTY.....	WORCESTER	LABORATORY(IES).....	SD MT
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WORCESTER NORTH	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-16-46 N	DATE: 84 10	
LONGITUDE.....	71-46-51 W		
COMMENT.....	LARGE ABANDONED QUARRY 100-M SW OF ARMORY ATOP MILLSTONE HILL, WORCESTER		

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION
ROCK TYPE: GRANITE

LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240

DESCRIPTION: MUSCOVITE-BIOTITE GRANITE AT MILLSTONE HILL

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 55

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	398		
SR (PPM).....	14.8	T	
87RB/86SR.....	82.77		
87SR/86SR.....	1.1485		
CALCULATED AGE.....		372 +/- 7	MILLION YEARS
INITIAL 87SR/86SR.....	0.706		
TYPE OF ANALYSIS.....	22		
ANALYTICAL COMMENTS.....	4-POINT WHOLE-ROCK ISOCHRON		
SAMPLE SUITE: 00628			
COMMENTS: AGE OF INTRUSION			

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 WORCESTER NORTH
 LATITUDE..... 42-16-44 N
 LONGITUDE..... 71-46-51 W
 COMMENT..... LARGE ABANDONED QUARRY SW OF ARMORY ATOP MILLSTONE HILL,
 WORCESTER

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015153
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION
 ROCK TYPE: APLITE

LEXICON AGE(S): 340
 PETROGRAPHIC CODE: 8230

DESCRIPTION: APLITE DIKE IN THE MUSCOVITE-BIOTITE GRANITE AT MILLSTONE HILL

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 56

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 458

SR (PPM)..... 3.39 T

87RB/86SR..... 484.1

87SR/86SR..... 3.265

CALCULATED AGE..... 372 +/- 7 MILLION YEARS

INITIAL 87SR/86SR..... 0.706

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 4-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00628

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001652
STATE CODE.....	25	REFERENCE NUMBER.....	65-00003
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SW
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WORCESTER NORTH	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-17-00 N	DATE: 77 06	
LONGITUDE.....	71-47-00 W		
COMMENT..... LARGE QUARRY EXPOSURE ON TOP OF MILLSTONE HILL, WORCESTER			
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 3			

SAMPLE DESCRIPTION

ROCK TYPE: GRANITE

LEXICON AGE(S): 337 341

PETROGRAPHIC CODE: C310

DESCRIPTION: GRAY GRANULAR QUARTZ-ALBITE-MICROCLINE PERTHITE-MUSCOVITE-BIOTITE-GARNET GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 1710

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 386

SR (PPM)..... 14.2 N

87RB/86SR..... 78.8

87SR/86SR..... 1.100

CALCULATED AGE..... 365 +/- 15 MILLION YEARS

INITIAL 87SR/86SR..... 0.700

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 3-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00081

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001650
STATE CODE.....	25	REFERENCE NUMBER.....	65-00003
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SW
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WORCESTER NORTH	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-17-00 N	DATE: 77 06	
LONGITUDE.....	71-46-00 W		
COMMENT.....	FIELD OUTCROP 0.35 MILE W OF SUMMIT OF WIGWAM HILL AND 0.25 MILE SW OF WORCESTER COAL MINE, WORCESTER		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
ROCK TYPE: GRANITE

LEXICON AGE(S): 337 341
PETROGRAPHIC CODE: C310

DESCRIPTION: GRAY GRANULAR ALBITE-MICROCLINE PERTHITE-QUARTZ-MUSCOVITE-
BIOTITE-GARNET GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 1105
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	312
SR (PPM).....	19.2 N
87RB/86SR.....	47.1
87SR/86SR.....	0.939

CALCULATED AGE..... 372 +/- 15 MILLION YEARS

INITIAL 87SR/86SR..... 0.700

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 3-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00081

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001651
STATE CODE.....	25	REFERENCE NUMBER.....	65-00003
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SW
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WORCESTER NORTH	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-17-00 N	DATE: 77 06	
LONGITUDE.....	71-46-00 W		
COMMENT.....	LARGE QUARRY EXPOSURE ON THE EAST SIDE OF MILLSTONE HILL, 0.15 MILE NW OF STATE HOSPITAL, WORCESTER		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 3			

SAMPLE DESCRIPTION

ROCK TYPE: GRANITE

LEXICON AGE(S): 340

PETROGRAPHIC CODE: C310

DESCRIPTION: GRAY GRANULAR MICROCLINE PERTHITE-QUARTZ-ALBITE-MUSCOVITE-BIOTITE GRANITE AT MILLSTONE HILL

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 1709

ROCK/MINERAL CODE: UA1

MUSCOVITE

ANALYTICAL DATA:

K20 (%)..... 10.36

40AR-RAD (MOLES/GM)..... 40.03 X E-10

% RADIOGENIC..... 94

CALCULATED AGE..... 250 +/- 12 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 1709

ROCK/MINERAL CODE: UA1

MUSCOVITE

ANALYTICAL DATA:

RB (PPM)..... 1877.5

SR (PPM)..... 4.8 N

87SR-RAD (PPM)..... 2.805

% RADIOGENIC 87SR..... 89.4

CALCULATED AGE..... 381 +/- 10 MILLION YEARS

INITIAL 87SR/86SR..... 0.706

TYPE OF ANALYSIS..... 20

COMMENTS: AGE OF INTRUSION

LABORATORY SAMPLE NUMBER: 1709

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 328

SR (PPM)..... 14.5 N

87RB/86SR..... 65.8

87SR/86SR..... 1.036
CALCULATED AGE..... 365 +/- 15 MILLION YEARS
INITIAL 87SR/86SR..... 0.700
TYPE OF ANALYSIS..... 22
ANALYTICAL COMMENTS..... 3-POINT WHOLE-ROCK ISOCHRON
SAMPLE SUITE: 00081
COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 FITCHBURG
 LATITUDE..... 42-34-55 N
 LONGITUDE..... 71-48-51 W
 COMMENT..... ABANDONED QUARRY (ROLLSTONE) ON NW SLOPE OF ROLLSTONE HILL, 150-M EAST OF BEECH STREET, FITCHBURG
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015142
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

SAMPLE DESCRIPTION

GEOLOGIC NAME: FITCHBURG COMPLEX
 ROCK TYPE: GRANITE
 DESCRIPTION: WHITE GRANITE, FITCHBURG COMPLEX (OF ROLLSTONE QUARRY)
 GEOLOGIC NAME CODE: FC86
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 45
 ROCK/MINERAL CODE: MC1
 COMMENT: 150-200 MESH FRACTION
 ANALYTICAL DATA:
 U (PPM)..... 138.3
 TH (PPM)..... 154.3
 PB (PPM)..... 12.31
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.2297 63.96 6.852 28.95
 206PB/238U AGE..... 386 +/- 4 MILLION YEARS
 207PB/235U AGE..... 388 +/- 7 MILLION YEARS
 207PB/206PB AGE..... 399 +/- 8 MILLION YEARS
 208PB/232TH AGE..... 363 +/- 5 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 390 +/- 15 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10
 ANALYTICAL COMMENTS..... 3-POINT CHORD ON A U-PB CONCORDIA DIAGRAM
 COMMENTS: GRANITE IS ABOUT 390 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 45
 ROCK/MINERAL CODE: MC1
 COMMENT: 200-270 MESH FRACTION
 ANALYTICAL DATA:
 U (PPM)..... 519.8
 TH (PPM)..... 174.1
 PB (PPM)..... 30.13
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.0408 84.85 5.227 9.882
 206PB/238U AGE..... 355 +/- 4 MILLION YEARS

207PB/235U AGE..... 361 +/- 4 MILLION YEARS
 207PB/206PB AGE..... 395 +/- 4 MILLION YEARS
 208PB/232TH AGE..... 325 +/- 4 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 390 +/- 15 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10
 ANALYTICAL COMMENTS..... 3-POINT CHORD ON A U-PB CONCORDIA DIAGRAM
 COMMENTS: GRANITE IS ABOUT 390 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 45

ZIRCON

ROCK/MINERAL CODE: MC1

COMMENT: 270-325 MESH FRACTION

ANALYTICAL DATA:

U (PPM)..... 583.8

TH (PPM)..... 183.8

PB (PPM)..... 32.37

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0161	86.40	4.900	8.682

206PB/238U AGE..... 348 +/- 4 MILLION YEARS

207PB/235U AGE..... 351 +/- 4 MILLION YEARS

207PB/206PB AGE..... 371 +/- 3 MILLION YEARS

208PB/232TH AGE..... 321 +/- 3 MILLION YEARS

CONCORDIA INTERCEPT AGE.. 390 +/- 15 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 3-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

COMMENTS: GRANITE IS ABOUT 390 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0015137

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... WORCESTER

REFERENCE NUMBER..... 84-00020

LABORATORY(IES)..... SD MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

WORCESTER NORTH

COMPILED BY

NAME: DEGOURVILLE, A.E.

DATE: 84 10

LATITUDE..... 42-21-37 N

LONGITUDE..... 71-48-28 W

COMMENT..... SMALL ABANDONED QUARRY NEAR SOUTH END OF MALDEN HILL,
80-M NW OF GOODALE ST., 200-M NE OF INTERSECTION WITH LEE ST., WEST
BOYLSTON

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: FITCHBURG COMPLEX

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: FCBG

LEXICON AGE(S): 340

PETROGRAPHIC CODE: B240

DESCRIPTION: MODERATELY-FOLIATED 2-MICA GRANITE, FITCHBURG COMPLEX OF
MALDEN HILL

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 40

ROCK/MINERAL CODE: AAO

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 414

SR (PPM)..... 120 T

87RB/86SR..... 10.02

87SR/86SR..... 0.7627

CALCULATED AGE..... 402 +/- 11 MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00627

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 WORCESTER NORTH
 LATITUDE..... 42-21-42 N
 LONGITUDE..... 71-48-26 W
 COMMENT..... SMALL ABANDONED QUARRY ON EAST SIDE OF MALDEN HILL, WEST BOYLSTON

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015138
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: FITCHBURG COMPLEX
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: FCBG
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: 8240

DESCRIPTION: MODERATELY-FOLIATED 2-MICA GRANITE, FITCHBURG COMPLEX OF MALDEN HILL

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 41
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 395
 SR (PPM)..... 188 T
 87RB/86SR..... 6.10
 87SR/86SR..... 0.7402

CALCULATED AGE..... 402 +/- 11 MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHON

SAMPLE SUITE: 00627

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015139
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	84-00020
COUNTY.....	WORCESTER	LABORATORY(IES).....	SD MT
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WORCESTER NORTH	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-21-21 N	DATE: 84 10	
LONGITUDE.....	71-48-33 W		

COMMENT..... OUTCROP NEAR SUMMIT OF MALDEN HILL, 300-M SOUTH OF
INTERSECTION BETWEEN GOODALE AND LEE STREETS, WEST BOYLSTON

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: FITCHBURG COMPLEX	GEOLOGIC NAME CODE: FCBG
ROCK TYPE: GRANITE	LEXICON AGE(S): 340
	PETROGRAPHIC CODE: B240
DESCRIPTION: MODERATELY-FOLIATED 2-MICA GRANITE, FITCHBURG COMPLEX OF MALDEN HILL	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 42	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	363
SR (PPM).....	158 T
87RB/86SR.....	6.67
87SR/86SR.....	0.7432
CALCULATED AGE.....	402 +/- 11 MILLION YEARS
INITIAL 87SR/86SR.....	0.705
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS.....	5-POINT WHOLE-ROCK ISOCHRON
SAMPLE SUITE: 00627	
COMMENTS: AGE OF INTRUSION	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 WORCESTER NORTH
 LATITUDE..... 42-21-48 N
 LONGITUDE..... 71-48-37 W

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015140
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT

COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

COMMENT..... OUTCROP NEAR SUMMIT OF MALDEN HILL, 50-M SW OF WHITING
 BENCHMARK, WEST BOYLSTON

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: FITCHBURG COMPLEX
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: FCBG
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240

DESCRIPTION: MODERATELY-FOLIATED 2-MICA GRANITE, FITCHBURG COMPLEX OF
 MALDEN HILL

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 43
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 387
 SR (PPM)..... 136 T
 87RB/86SR..... 8.28
 87SR/86SR..... 0.7519

CALCULATED AGE..... 402 +/- 11 MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00627

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015141
STATE CODE.....	25	REFERENCE NUMBER.....	84-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD MT
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WORCESTER NORTH	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-22-19 N	DATE: 84 10	
LONGITUDE.....	71-48-32 W		

COMMENT..... SMALL ABANDONED QUARRY ON EAST SIDE OF MALDEN HILL AT
HEAD OF SMALL STREAM, 200-M SW OF MALDEN ST., WEST BOYLSTON

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: FITCHBURG COMPLEX
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: FCBG
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240

DESCRIPTION: MODERATELY-FOLIATED 2-MICA GRANITE, FITCHBURG COMPLEX OF
MALDEN HILL

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 44
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	382	
SR (PPM).....	91.2	T
87RB/86SR.....	12.21	
87SR/86SR.....	0.7749	

CALCULATED AGE..... 402 +/- 11 MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00627

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001763

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... WORCESTER

REFERENCE NUMBER..... 70-00005

LABORATORY (IES)..... MT

QUAD SCALE	QUAD NO. / NAME
1	1 / 1
2	2 / 2
3	3 / 3
4	4 / 4
5	5 / 5
6	6 / 6
7	7 / 7
8	8 / 8
9	9 / 9
10	10 / 10
11	11 / 11
12	12 / 12
13	13 / 13
14	14 / 14
15	15 / 15
16	16 / 16
17	17 / 17
18	18 / 18
19	19 / 19
20	20 / 20
21	21 / 21
22	22 / 22
23	23 / 23
24	24 / 24
25	25 / 25
26	26 / 26
27	27 / 27
28	28 / 28
29	29 / 29
30	30 / 30
31	31 / 31
32	32 / 32
33	33 / 33
34	34 / 34
35	35 / 35
36	36 / 36
37	37 / 37
38	38 / 38
39	39 / 39
40	40 / 40
41	41 / 41
42	42 / 42
43	43 / 43
44	44 / 44
45	45 / 45
46	46 / 46
47	47 / 47
48	48 / 48
49	49 / 49
50	50 / 50
51	51 / 51
52	52 / 52
53	53 / 53
54	54 / 54
55	55 / 55
56	56 / 56
57	57 / 57
58	58 / 58
59	59 / 59
60	60 / 60
61	61 / 61
62	62 / 62
63	63 / 63
64	64 / 64
65	65 / 65
66	66 / 66
67	67 / 67
68	68 / 68
69	69 / 69
70	70 / 70
71	71 / 71
72	72 / 72
73	73 / 73
74	74 / 74
75	75 / 75
76	76 / 76
77	77 / 77
78	78 / 78
79	79 / 79
80	80 / 80
81	81 / 81
82	82 / 82
83	83 / 83
84	84 / 84
85	85 / 85
86	86 / 86
87	87 / 87
88	88 / 88
89	89 / 89
90	90 / 90
91	91 / 91
92	92 / 92
93	93 / 93
94	94 / 94
95	95 / 95
96	96 / 96
97	97 / 97
98	98 / 98
99	99 / 99
100	100 / 100

1: 24000 FITCHBURG

LATITUDE..... 42-33-00 N

LONGITUDE..... 71-48-00 W

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

COMMENT..... LEOMINSTER (LEAVITT QUARRY)

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: FITCHBURG COMPLEX

ROCK TYPE: DIORITE

GEOLOGIC NAME CODE: FCBG

LEXICON AGE(S): 340 350 360

PETROGRAPHIC CODE: B270

DESCRIPTION: DIORITE FROM FITCHBURG PLUTON (NOW FITCHBURG COMPLEX)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 11 (MASSACHUSETTS)

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 9.06

4GAR-RAD (MOLES/GM).....	34.78	X E-10
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% RADIOGENIC..... 92

CALCULATED AGE..... 246 +/- 13 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 AYER
 LATITUDE..... 42-34-29 N
 LONGITUDE..... 71-33-48 W
 COMMENT..... EXCAVATION FOR TELEPHONE CABLE 40-M EAST OF SNAKE HILL ROAD, 0.9 KM SE OF INTERSECTION WITH OLD AYER ROAD, AYER
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015149
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT

COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

SAMPLE DESCRIPTION

GEOLOGIC NAME: CHELMSFORD GRANITE
 ROCK TYPE: QUARTZ MONZONITE
 DESCRIPTION: STRONGLY-FOLIATED QUARTZ MONZONITE
 GEOLOGIC NAME CODE: CRPM
 LEXICON AGE(S): 360 350 340
 PETROGRAPHIC CODE: B250

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 52
 ROCK/MINERAL CODE: MC1
 COMMENT: 150-200 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1848
 TH (PPM)..... 456.0
 PB (PPM)..... 106.7
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.0733 86.78 5.857 7.285

206PB/238U AGE..... 360 +/- 4 MILLION YEARS
 207PB/235U AGE..... 368 +/- 4 MILLION YEARS
 207PB/206PB AGE..... 419 +/- 4 MILLION YEARS
 208PB/232TH AGE..... 238 +/- 3 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10
 COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; PRIMARY AGE ESTIMATED TO BE 430 M.Y.

LABORATORY SAMPLE NUMBER: 52
 ROCK/MINERAL CODE: MC1
 COMMENT: 200-325 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1964
 TH (PPM)..... 524.9
 PB (PPM)..... 114.0
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.0649 87.39 5.862 6.687
 206PB/238U AGE..... 365 +/- 4 MILLION YEARS

207PB/235U AGE..... 378 +/- 4 MILLION YEARS
207PB/206PB AGE..... 462 +/- 4 MILLION YEARS
208PB/232TH AGE..... 207 +/- 3 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; PRIMARY AGE ESTIMATED
TO BE 430 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... MIDDLESEXQUAD SCALE QUAD NO. / NAME
1: 24000 WESTFORD
LATITUDE..... 42-35-58 N
LONGITUDE..... 71-28-22 W

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0015148

REFERENCE NUMBER..... 84-00020
LABORATORY(IES)..... SD MTCOMPILED BY
NAME: DEGOURVILLE, A.E.
DATE: 84 10COMMENT..... LARGE ABANDONED QUARRY ON NE SIDE OF SNAKE MEADOW HILL,
1.0 KM NW OF GRANITEVILLE, WESTFORDPRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: CHELMSFORD GRANITE
ROCK TYPE: QUARTZ MONZONITEGEOLOGIC NAME CODE: CRPM
LEXICON AGE(S): 360 350 340
PETROGRAPHIC CODE: B250

DESCRIPTION: STRONGLY-FOLIATED QUARTZ MONZONITE

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 51
ROCK/MINERAL CODE: MC1
COMMENT: 100-150 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1309
TH (PPM)..... 268.8
PB (PPM)..... 74.10

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB
0.0432 86.99 5.636 7.600206PB/238U AGE..... 356 +/- 4 MILLION YEARS
207PB/235U AGE..... 360 +/- 4 MILLION YEARS
207PB/206PB AGE..... 388 +/- 3 MILLION YEARS
208PB/232TH AGE..... 371 +/- 4 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; PRIMARY AGE ESTIMATED
TO BE 430 M.Y.LABORATORY SAMPLE NUMBER: 51
ROCK/MINERAL CODE: MC1
COMMENT: 200-270 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1565
TH (PPM)..... 352.4
PB (PPM)..... 89.76

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB
0.0338 87.76 5.268 6.934206PB/238U AGE..... 364 +/- 4 MILLION YEARS
207PB/235U AGE..... 367 +/- 4 MILLION YEARS

207PB/206PB AGE..... 388 +/- 3 MILLION YEARS
 208PB/232TH AGE..... 324 +/- 3 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10
 COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; PRIMARY AGE ESTIMATED
 TO BE 430 M.Y.

LABORATORY SAMPLE NUMBER: 51

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 325-400 MESH FRACTION

ANALYTICAL DATA:

U (PPM)..... 2029

TH (PPM)..... 537.4

PB (PPM)..... 116.6

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0713	86.50	5.755	7.674

206PB/238U AGE..... 357 +/- 4 MILLION YEARS

207PB/235U AGE..... 362 +/- 4 MILLION YEARS

207PB/206PB AGE..... 391 +/- 4 MILLION YEARS

208PB/232TH AGE..... 243 +/- 3 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; PRIMARY AGE ESTIMATED
 TO BE 430 M.Y.

LABORATORY SAMPLE NUMBER: 51

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: -400 MESH FRACTION

ANALYTICAL DATA:

U (PPM)..... 2318

TH (PPM)..... 759.5

PB (PPM)..... 131.7

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0829	86.09	5.900	7.928

206PB/238U AGE..... 350 +/- 4 MILLION YEARS

207PB/235U AGE..... 356 +/- 4 MILLION YEARS

207PB/206PB AGE..... 390 +/- 4 MILLION YEARS

208PB/232TH AGE..... 187 +/- 2 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; PRIMARY AGE ESTIMATED
 TO BE 430 M.Y.

RADIOMETRIC AGE DATA BANK • U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0007708
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	65-00024
COUNTY.....	MIDDLESEX	LABORATORY(IES).....	MT
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NASHUA SOUTH	NAME: MARVIN, R.F.	
LATITUDE.....	42-38-46 N	DATE: 80 07	
LONGITUDE.....	71-25-58 W		

COMMENT..... OAK HILL QUARRY OFF OF TYNGSBORO ROAD IN WESTFORD
(APPROXIMATELY 1 MILE NW OF FLETCHER QUARRY).

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

\ GEOLOGIC NAME: CHELMSFORD GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CRPM
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240

DESCRIPTION: LIGHT GRAY, MEDIUM TO FINE GRAINED, SOMEWHAT GNEISSIC,
MUSCOVITE GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5617
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 11.7

87SR/86SR..... 0.7838

CALCULATED AGE..... 356 +/- 71 MILLION YEARS

INITIAL 87SR/86SR..... 0.7190

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00337

COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; SEE ZARTMAN AND NAYLOR,
1984 (REFERENCE NO. 84-00020)

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0007709
STATE CODE.....	25	REFERENCE NUMBER.....	65-00024
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NASHUA SOUTH	NAME: MARVIN, R.F.	
LATITUDE.....	42-37-55 N	DATE: 80 07	
LONGITUDE.....	71-25-05 W		

COMMENT..... NORTH SIDE OF THE FLETCHER QUARRY, 1.5 MILES WEST OF
NORTH CHELMSFORD ON MASS. ROUTE 40

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: CHELMSFORD GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CRPM
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240

DESCRIPTION: LIGHT GRAY, MEDIUM TO FINE GRAINED, SOMEWHAT GNEISSIC,
MUSCOVITE GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5618
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87Rb/86Sr..... 16.1

87Sr/86Sr..... 0.7981

CALCULATED AGE..... 356 +/- 71 MILLION YEARS

INITIAL 87Sr/86Sr..... 0.7190

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00337

COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; SEE ZARTMAN AND NAYLOR,
1984 (REFERENCE NO. 84-00020)

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 NASHUA SOUTH
 LATITUDE..... 42-37-54 N
 LONGITUDE..... 71-25-05 W
 COMMENT..... FLETCHER QUARRY WEST OF NORTH CHELMSFORD
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0007710
 REFERENCE NUMBER..... 65-00024
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 80 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: CHELMSFORD GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CRPM
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240

DESCRIPTION: LIGHT GRAY, MEDIUM TO FINE GRAINED, SOMEWHAT GNEISSIC,
 MUSCOVITE GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5619

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 21.0

87SR/86SR..... 0.8243

CALCULATED AGE..... 356 +/- 71 MILLION YEARS

INITIAL 87SR/86SR..... 0.7190

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00337

COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; SEE ZARTMAN AND NAYLOR,
 1984, (REFERENCE NO. 84-00020)

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... MIDDLESEX

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0007711

REFERENCE NUMBER..... 65-00024

LABORATORY(IES)..... MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

WESTFORD

LATITUDE..... 42-35-58 N

LONGITUDE..... 71-28-38 W

COMPILED BY

NAME: MARVIN, R.F.

DATE: 80 07

COMMENT..... NORTH FACE OF LARGE QUARRY ON SOUTH SIDE OF SNAKE MEADOW
HILL IN GRANITEVILLE

PRECISION OF LOCATION: 1

SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: CHELMSFORD GRANITE

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CRPM

LEXICON AGE(S): 340

PETROGRAPHIC CODE: B240

DESCRIPTION: LIGHT GRAY, MEDIUM TO FINE GRAINED, SOMEWHAT GNEISSIC,
MUSCOVITE GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5620

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 8.57

87SR/86SR..... 0.7587

CALCULATED AGE..... 356 +/- 71 MILLION YEARS

INITIAL 87SR/86SR..... 0.7190

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00337

COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; SEE ZARTMAN AND NAYLOR,
1984, (REFERENCE NO. 84-00020)

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0007712
STATE CODE.....	25	REFERENCE NUMBER.....	65-00024
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WESTFORD	NAME: MARVIN, R.F.	
LATITUDE.....	42-35-58 N	DATE: 80 07	
LONGITUDE.....	71-28-38 W		
COMMENT..... WEST FACE OF LARGE QUARRY ON SOUTH SIDE OF SNAKE MEADOW HILL IN GRANITEVILLE			

PRECISION OF LOCATION: 1
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: CHELMSFORD GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CRPM
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240

DESCRIPTION: LIGHT GRAY, MEDIUM TO FINE GRAINED, SOMEWHAT GNEISSIC,
MUSCOVITE GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5621
ROCK/MINERAL CODE: AAC

WHOLE-ROCK

ANALYTICAL DATA:

87Rb/86Sr..... 8.71

87Sr/86Sr..... 0.7616

CALCULATED AGE..... 356 +/- 71 MILLION YEARS

INITIAL 87Sr/86Sr..... 0.7190

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00337

COMMENTS: ISOTOPIC SYSTEM HAS BEEN DISTURBED; SEE ZARTMAN AND NAYLOR,
1984, (REFERENCE NO. 84-00020)

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE..... QUAD NO. / NAME
 1: 250000..... BOSTON
 LATITUDE..... 42-35-00 N
 LONGITUDE..... 71-28-00 W
 COMMENT..... NEAR GRANITEVILLE
 PRECISION OF LOCATION: 5
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0007713
 REFERENCE NUMBER..... 65-00024
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 80 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: CHELMSFORD GRANITE
 ROCK TYPE: GRANITE
 DESCRIPTION: LIGHT GRAY, MEDIUM TO FINE GRAINED, SOMEWHAT GNEISSIC,
 MUSCOVITE GRANITE
 GEOLOGIC NAME CODE: CRPM
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: B3108
 ROCK/MINERAL CODE: UA1
 ANALYTICAL DATA:
 RB (PPM)..... 568
 SR (PPM)..... 11.9 N
 87SR-RAD (PPM)..... 0.848
 CALCULATED AGE..... 371 +/- MILLION YEARS
 TYPE OF ANALYSIS..... 20
 ANALYTICAL COMMENTS..... 87 SR/ 87 RB = 0.00527
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: B3108
 ROCK/MINERAL CODE: UA5
 ANALYTICAL DATA:
 RB (PPM)..... 1630
 SR (PPM)..... 4.65 N
 87SR-RAD (PPM)..... 1.58
 CALCULATED AGE..... 292 +/- MILLION YEARS
 TYPE OF ANALYSIS..... 20
 ANALYTICAL COMMENTS..... 87 SR/ 87 RB = 0.00419
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES

STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX

QUAD SCALE QUAD NO. / NAME
 1: 24000 AYER

LATITUDE..... 42-33-48 N
 LONGITUDE..... 71-34-30 W

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015147

REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT

COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

COMMENT..... ROADCUT ON WEST SIDE OF OLD AYER ROAD, 0.7 KM NORTH OF
 INTERSECTION WITH CENTRAL AVE., AYER

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: AYER GRANITE
 ROCK TYPE: QUARTZ MONZONITE

GEOLOGIC NAME CODE: AYER
 LEXICON AGE(S): 350 360
 PETROGRAPHIC CODE: B250

DESCRIPTION: QUARTZ MONZONITE (WITH PORPHYROBLASTIC TEXTURE) STOCK

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 50
 ROCK/MINERAL CODE: MC1
 COMMENT: 100-150 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 480.1
 TH (PPM)..... 108.6
 PB (PPM)..... 32.53

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.1485	81.53	6.704	11.62

206PB/238U AGE	207PB/235U AGE	207PB/206PB AGE	208PB/232TH AGE	CONCORDIA INTERCEPT AGE	
388 +/- 4	396 +/- 5	439 +/- 6	402 +/- 5	433 +/- 5	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 6-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00634

COMMENTS: GRANITE IS ABOUT 433 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 50
 ROCK/MINERAL CODE: MC1
 COMMENT: 250-325 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1238
 TH (PPM)..... 319.7
 PB (PPM)..... 80.64

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0553	85.17	5.523	9.248

206PB/238U AGE.....	398 +/- 4	MILLION YEARS
207PB/235U AGE.....	403 +/- 5	MILLION YEARS
207PB/206PB AGE.....	427 +/- 4	MILLION YEARS
208PB/232TH AGE.....	406 +/- 4	MILLION YEARS
CONCORDIA INTERCEPT AGE..	433 +/- 5	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 6-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00634

COMMENTS: GRANITE IS ABOUT 433 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 SHREWSBURY
 LATITUDE..... 42-21-12 N
 LONGITUDE..... 71-43-18 W
 COMMENT..... OUTCROP 20-M WEST OF CENTRAL ST., 300-M SE OF
 INTERSECTION WITH LINDEN ST., BOYLSTON

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015146
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: AYER GRANITE
 ROCK TYPE: QUARTZ MONZONITE

GEOLOGIC NAME CODE: AYER
 LEXICON AGE(S): 350 360
 PETROGRAPHIC CODE: B250

DESCRIPTION: SMALL LENTICULAR BODY OF PORPHYRITIC QUARTZ MONZONITE

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 49
 ROCK/MINERAL CODE: MC1
 COMMENT: 100-150 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 278.2
 TH (PPM)..... 71.8
 PB (PPM)..... 21.96

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.2238	77.80	7.583	14.39

206PB/238U AGE.....	422 +/- 4	MILLION YEARS
207PB/235U AGE.....	424 +/- 8	MILLION YEARS
207PB/206PB AGE.....	432 +/- 8	MILLION YEARS
208PB/232TH AGE.....	404 +/- 6	MILLION YEARS
CONCORDIA INTERCEPT AGE..	433 +/- 5	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 6-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00634

COMMENTS: GRANITE IS ABOUT 433 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 49
 ROCK/MINERAL CODE: MC1
 COMMENT: 250-325 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 775.8
 TH (PPM)..... 231.7
 PB (PPM)..... 51.47

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0571	84.56	5.537	9.845

206PB/238U AGE..... 403 +/- 4 MILLION YEARS
207PB/235U AGE..... 408 +/- 5 MILLION YEARS
207PB/206PB AGE..... 438 +/- 4 MILLION YEARS
208PB/232TH AGE..... 384 +/- 4 MILLION YEARS
CONCORDIA INTERCEPT AGE.. 433 +/- 5 MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10
ANALYTICAL COMMENTS..... 6-POINT CHORD ON A U-PB CONCORDIA DIAGRAM
SAMPLE SUITE: 00634
COMMENTS: GRANITE IS ABOUT 433 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES

STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER

QUAD SCALE QUAD NO. / NAME
 1: 24000 CLINTON

LATITUDE..... 42-25-04 N
 LONGITUDE..... 71-39-23 W

COMMENT..... ROADCUT AT INTERSECTION OF LANCASTER AND WATAQUADOCK
 ROADS, BOLTON

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015145

REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT

COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: AYER GRANITE
 ROCK TYPE: QUARTZ MONZONITE

GEOLOGIC NAME CODE: AYER
 LEXICON AGE(S): 350 360
 PETROGRAPHIC CODE: B250

DESCRIPTION: SMALL LENTICULAR BODY OF PORPHYRITIC QUARTZ MONZONITE

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 48
 ROCK/MINERAL CODE: MC1
 COMMENT: 100-150 MESH FRACTION
 ANALYTICAL DATA:

ZIRCON

U (PPM)..... 1177
 TH (PPM)..... 319.7
 PB (PPM)..... 87.53
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.127 81.92 6.407 11.55

206PB/238U AGE..... 429 +/- 4 MILLION YEARS
 207PB/235U AGE..... 430 +/- 5 MILLION YEARS
 207PB/206PB AGE..... 436 +/- 5 MILLION YEARS
 208PB/232TH AGE..... 414 +/- 5 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 433 +/- 5 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 6-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00634

COMMENTS: GRANITE IS ABOUT 433 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 48
 ROCK/MINERAL CODE: MC1
 COMMENT: 250-325 MESH FRACTION
 ANALYTICAL DATA:

ZIRCON

U (PPM)..... 1679
 TH (PPM)..... 491.5
 PB (PPM)..... 114.5
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.0502 84.81 5.449 9.694

206PR/238U AGE.....	415 +/- 4	MILLION YEARS
207PR/235U AGE.....	419 +/- 5	MILLION YEARS
207PB/206PB AGE.....	437 +/- 4	MILLION YEARS
208PR/232TH AGE.....	408 +/- 4	MILLION YEARS
CONCORDIA INTERCEPT AGE..	433 +/- 5	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 6-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00634

COMMENTS: GRANITE IS ABOUT 433 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BOLTON
 QUAD SCALE QUAD NO. / NAME
 1: 24000 CLINTON
 LATITUDE..... 42-25-00 N
 LONGITUDE..... 71-39-00 W
 COMMENT..... NORTH OF WATAQUADOCK ROAD, 0.17 MILE ESE OF BOLTON STATION
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001636
 REFERENCE NUMBER..... 65-00003
 LABORATORY(IES)..... SW
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION
 GEOLOGIC NAME: AYER GRANITE
 ROCK TYPE: GNEISS
 DESCRIPTION: GRAY PORPHYRITIC QUARTZ-OLIGOCLEASE-MICROCLINE-BIOTITE GNEISS
 GEOLOGIC NAME CODE: AYER
 LEXICON AGE(S): 340 350
 PETROGRAPHIC CODE: C310

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: N-A1
 ROCK/MINERAL CODE: UA5 BIOTITE
 ANALYTICAL DATA:
 K20 (%)..... 8.02
 40AR-RAD (MOLES/GM)..... 31.78 X E-10
 % RADIOGENIC..... 97
 CALCULATED AGE..... 256 +/- 13 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: N-A1
 ROCK/MINERAL CODE: MC1 ZIRCON
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 573
 PB (PPM)..... 98
 CALCULATED AGE..... 410 +/- 50 MILLION YEARS
 COMMENTS: AGE MEANING UNCERTAIN (ANALYSIS QUESTIONABLE)
 AGE MEANING UNCERTAIN (GEOLOGIC FACTORS)

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001766
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WESTFORD	NAME: WILLIAMS. B.R.	
LATITUDE.....	42-37-00 N	DATE: 77 06	
LONGITUDE.....	71-24-00 W		
COMMENT.....	FLETCHER QUARRY, WEST CHELMSFORD		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: AYER GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: AYER
LEXICON AGE(S): 340 350 360
PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 14 (MASSACHUSETTS)

ROCK/MINERAL CODE: JA1

MUSCOVITE

ANALYTICAL DATA:

K2O (%)..... 10.09

40AR-RAD (MOLES/GM)..... 53.54 X E-10

% RADIOGENIC..... 92

CALCULATED AGE..... 334 +/- 17 MILLION YEARS

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME COMPILED BY
 1: 24000 NEWBURYPORT EAST NAME: DEGOURVILLE, A.E.
 LATITUDE..... 42-51-21 N DATE: 84 10
 LONGITUDE..... 70-51-24 W
 COMMENT..... SMALL ABANDONED QUARRY 20-M WEST OF SEABROOK ROAD, 0.7
 KM NORTH OF INTERSECTION WITH GERRISH ROAD, SALISBURY

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: NEWBURYPORT COMPLEX
 ROCK TYPE: GRANODIORITE
 DESCRIPTION: NONPORPHYRITIC GRANODIORITE OR QUARTZ MONZONITE
 GEOLOGIC NAME CODE: NBRP
 LEXICON AGE(S): 360 350
 PETROGRAPHIC CODE: B260

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 46
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: 100-150 MESH FRACTION, GENERALLY Euhedral ZIRCONS
 ANALYTICAL DATA:
 U (PPM)..... 664.9
 TH (PPM)..... 508.9
 PB (PPM)..... 53.26
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.1017 73.33 5.613 20.95
 206PB/238U AGE..... 415 +/- 4 MILLION YEARS
 207PB/235U AGE..... 423 +/- 5 MILLION YEARS
 207PB/206PB AGE..... 465 +/- 5 MILLION YEARS
 208PB/232TH AGE..... 402 +/- 5 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 450 +/- 15 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10
 ANALYTICAL COMMENTS..... 5-POINT CHORD ON A U-PB CONCORDIA DIAGRAM
 SAMPLE SUITE: 00633
 COMMENTS: AGE OF FORMATION IS 455 M.Y.

LABORATORY SAMPLE NUMBER: 46
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: 150-200 MESH FRACTION; GENERALLY Euhedral ZIRCONS
 ANALYTICAL DATA:
 U (PPM)..... 570.3
 TH (PPM)..... 369.4
 PB (PPM)..... 43.18
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.038 77.76 4.938 17.26

206PB/238U AGE..... 423 +/- 4 MILLION YEARS
 207PB/235U AGE..... 430 +/- 5 MILLION YEARS
 207PB/206PB AGE..... 467 +/- 4 MILLION YEARS
 208PB/232TH AGE..... 416 +/- 4 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 450 +/- 15 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10
 ANALYTICAL COMMENTS..... 5-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00633

COMMENTS: AGE OF FORMATION IS 455 M.Y.

LABORATORY SAMPLE NUMBER: 46

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 250-325 MESH FRACTION; GENERALLY EUHEDRAL ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 583.8

TH (PPM)..... 183.8

PB (PPM)..... 32.37

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0161	86.40	4.900	8.682

206PB/238U AGE..... 348 +/- 4 MILLION YEARS

207PB/235U AGE..... 351 +/- 4 MILLION YEARS

207PB/206PB AGE..... 371 +/- 3 MILLION YEARS

208PB/232TH AGE..... 321 +/- 3 MILLION YEARS

CONCORDIA INTERCEPT AGE.. 450 +/- 15 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 5-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00633

COMMENTS: AGE OF FORMATION IS 455 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 SHIRLEY
 LATITUDE..... 42-31-08 N
 LONGITUDE..... 71-44-17 W
 COMMENT..... LEOMINSTER
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0008144
 REFERENCE NUMBER..... 79-00012
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: SEWELL, J.W.
 DATE: 80 06

SAMPLE DESCRIPTION
 GEOLOGIC NAME: OAKDALE FORMATION
 ROCK TYPE: QUARTZITE
 GEOLOGIC NAME CODE: OKDL
 LEXICON AGE(S): 320 330
 PETROGRAPHIC CODE: C340

URANIUM-THORIUM-LEAD
 LABORATORY SAMPLE NUMBER: S1(+150)
 ROCK/MINERAL CODE: MC1
 COMMENT: MESH SIZE(+150)
 ANALYTICAL DATA:
 U (PPM)..... 351.3
 TH (PPM)..... 146.7
 PB (PPM)..... 45.7
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.094 78.40 7.556 13.94
 206PB/238U AGE..... 708 +/- 7 MILLION YEARS
 207PB/235U AGE..... 834 +/- 8 MILLION YEARS
 207PB/206PB AGE..... 1188 +/- 22 MILLION YEARS
 208PB/232TH AGE..... 731 +/- 7 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.0, 15.5, 37.5
 COMMENTS: ROUNDED, DETRITAL ZIRCON REFLECTING SEDIMENT PROVENANCE; 207 PB/
 206 PB AGE IS MAXIMUM FOR SEDIMENTATION

ZIRCON

NASHOBA ZONE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015114
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	84-00020
COUNTY.....	ESSEX	LABORATORY(IES).....	SD MT
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	GEORGETOWN	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-43-35 N	DATE: 84 10	
LONGITUDE.....	70-56-57 W		

COMMENT..... ROADCUT ON SE SIDE OF TENNEY ST., 350-M SW OF
INTERSECTION WITH JEWETT ST., GEORGETOWN

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: SHARPNERS POND DIORITE	GEOLOGIC NAME CODE: SPPD
ROCK TYPE: DIORITE	LEXICON AGE(S): 350
	PETROGRAPHIC CODE: B270
DESCRIPTION: SHARPNERS POND DIORITE (BIOTITE-HORNBLENDE FACIES)	

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 21
ROCK/MINERAL CODE: MC1
COMMENT: 100-150 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM).....	358.3
TH (PPM).....	411.4
PB (PPM).....	30.74

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0173	69.81	4.117	26.06

206PB/238U AGE.....	431 +/- 4	MILLION YEARS
207PB/235U AGE.....	431 +/- 4	MILLION YEARS
207PB/206PB AGE.....	427 +/- 3	MILLION YEARS
208PB/232TH AGE.....	427 +/- 4	MILLION YEARS
CONCORDIA INTERCEPT AGE..	424 +/- 5	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 4-POINT CHORD ON U-PB CONCORDIA DIAGRAM

COMMENTS: DIORITE FORMED 430 M.Y. AGO

LABORATORY SAMPLE NUMBER: 21
ROCK/MINERAL CODE: MC1
COMMENT: 200-270 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM).....	411.6
TH (PPM).....	316.5
PB (PPM).....	32.23

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0151	76.19	4.443	19.35

206PB/238U AGE.....	430 +/- 4	MILLION YEARS
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207PB/235U AGE..... 430 +/- 4 MILLION YEARS
207PB/206PB AGE..... 429 +/- 3 MILLION YEARS
208PB/232TH AGE..... 430 +/- 4 MILLION YEARS
CONCORDIA INTERCEPT AGE.. 424 +/- 5 MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10
ANALYTICAL COMMENTS..... 4-POINT CHORD ON U-PB CONCORDIA DIAGRAM
COMMENTS: DIORITE FORMED 430 M.Y. AGO

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... ESSEX

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0015115

REFERENCE NUMBER..... 84-00020

LABORATORY(IES)..... SD MT

QUAD SCALE QUAD NO. / NAME
1: 24000 NEWBURYPORT WEST
LATITUDE..... 42-45-48 N
LONGITUDE..... 70-54-58 W

COMPILED BY
NAME: DEGOURVILLE, A.E.
DATE: 84 10

COMMENT..... OUTCROP IS 300-M NORTH OF ORCHARD ST., 1.5 KM WEST OF
INTERSECTION WITH MIDDLE ST., NEWBURY

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: SHARPNERS POND DIORITE GEOLOGIC NAME CODE: SPPD
ROCK TYPE: GRANODIORITE LEXICON AGE(S): 350
PETROGRAPHIC CODE: B260

DESCRIPTION: GRANODIORITIC SHARPNERS POND DIORITE

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 22
ROCK/MINERAL CODE: MC1
COMMENT: 100-150 MESH FRACTION.

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1602
TH (PPM)..... 775.5
PB (PPM)..... 103.9

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0519	82.68	5.333	11.94

206PB/238U AGE	207PB/235U AGE	207PB/206PB AGE	208PB/232TH AGE	CONCORDIA INTERCEPT AGE	
385 +/- 4	391 +/- 5	436 +/- 4	301 +/- 4	424 +/- 5	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10

ANALYTICAL COMMENTS..... 4-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

COMMENTS: DIORITE FORMED 430 M.Y. AGO

LABORATORY SAMPLE NUMBER: 22
ROCK/MINERAL CODE: MC1
COMMENT: 270-325 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1823
TH (PPM)..... 1035
PB (PPM)..... 122.4

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.1106	80.53	6.076	13.28

206PB/238U AGE..... 383 +/- 4 MILLION YEARS

207PB/235U AGE..... 390 +/- 5 MILLION YEARS
207PB/206PB AGE..... 429 +/- 5 MILLION YEARS
208PB/232TH AGE..... 242 +/- 3 MILLION YEARS
CONCORDIA INTERCEPT AGE.. 424 +/- 5 MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.20, 15.60, 38.10
ANALYTICAL COMMENTS..... 4-POINT CHORD ON A U-PB CONCORDIA DIAGRAM
COMMENTS: DIORITE FORMED 430 M.Y. AGO

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001773
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	READING	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-37-00 N	DATE: 77 06	
LONGITUDE.....	71-01-00 W		
COMMENT.....	MIDDLETON		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 6			

SAMPLE DESCRIPTION		
GEOLOGIC NAME: SHARPNERS POND DIORITE	GEOLOGIC NAME CODE: SPPD	
ROCK TYPE: DIORITE	LEXICON AGE(S): 340 350 360	
	PETROGRAPHIC CODE: B270	

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 21 (MASSACHUSETTS)		
ROCK/MINERAL CODE: PCS		HORNBLLENDE
ANALYTICAL DATA:		
K20 (%).....	0.251	
40AR-RAD (MOLES/GM).....	1.239	X E-10
% RADIOGENIC.....	41	
CALCULATED AGE.....	313 +/- 15	MILLION YEARS
TYPE OF ANALYSIS.....	10	
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM		

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001768
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WILMINGTON	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-35-00 N	DATE: 77 06	
LONGITUDE.....	71-09-00 W		
COMMENT.....	WILMINGTON		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 6			

SAMPLE DESCRIPTION

GEOLOGIC NAME: SHARPNERS POND DIORITE	GEOLOGIC NAME CODE: SPPD
ROCK TYPE: DIORITE	LEXICON AGE(S): 340 350 360
	PETROGRAPHIC CODE: B270

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 16 (MASSACHUSETTS)	
ROCK/MINERAL CODE: PC5	HORNBLENDE
ANALYTICAL DATA:	
K20 (%).....	0.66
40AR-RAD (MOLES/GM).....	3.528 X E-10
% RADIOGENIC.....	66
CALCULATED AGE.....	336 +/- 18 MILLION YEARS
TYPE OF ANALYSIS.....	10
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001769
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	READING	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-37-00 N	DATE: 77 06	
LONGITUDE.....	71-06-00 W		
COMMENT.....	NORTH READING		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 6			

SAMPLE DESCRIPTION

GEOLOGIC NAME: SHARPNERS POND DIORITE
 ROCK TYPE: DIORITE

GEOLOGIC NAME CODE: SPPD.
 LEXICON AGE(S): 360 350 340
 PETROGRAPHIC CODE: B270

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 17 (MASSACHUSETTS)

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 7.06

40AR-RAD (MOLES/GM)..... 38.03 X E-10

% RADIOGENIC..... 93

CALCULATED AGE..... 340 +/- 9 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015116
STATE CODE.....	25	REFERENCE NUMBER.....	84-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD MT
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	LAWRENCE	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-37-35 N	DATE: 84 09	
LONGITUDE.....	71-10-47 W		
COMMENT..... ROADCUT ON EAST SIDE OF I-93, 200-M NORTH OF UNDERPASS AT DASCOMB ROAD, ANDOVER			

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
ROCK TYPE: PEGMATITE

GEOLOGIC NAME CODE: ADVR
LEXICON AGE(S): 360 350 340
PETROGRAPHIC CODE: B225

DESCRIPTION: PEGMATITE IN THE ANDOVER GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 23

ROCK/MINERAL CODE: RC0

PLAGIOCLASE

ANALYTICAL DATA:

RB (PPM)..... 18.5

SR (PPM)..... 22.7 T

87RB/86SR..... 2.36

87SR/86SR..... 0.7402

CALCULATED AGE..... 954 +/- 36 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 20

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
IS 408-446 M.Y. OLD

LABORATORY SAMPLE NUMBER: 23

ROCK/MINERAL CODE: RA1

MICROCLINE

ANALYTICAL DATA:

RB (PPM)..... 680

SR (PPM)..... 32.1 T

87RB/86SR..... 63.4

87SR/86SR..... 1.060

CALCULATED AGE..... 390 +/- 8 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 20

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
IS 408-446 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 23

ROCK/MINERAL CODE: UA1

MUSCOVITE

COMMENT: FINE-GRAINED MUSCOVITE

ANALYTICAL DATA:

RB (PPM)..... 762
 SR (PPM)..... 7.0 T
 87RB/86SR..... 350
 87SR/86SR..... 1.845
 CALCULATED AGE..... 228 +/- 6 MILLION YEARS
 INITIAL 87SR/86SR..... 0.708
 TYPE OF ANALYSIS..... 20
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
 IS 408-446 M.Y. OLD

LABORATORY SAMPLE NUMBER: 23
 ROCK/MINERAL CODE: RA1 MICROCLINE
 ANALYTICAL DATA:
 RB (PPM)..... 680
 SR (PPM)..... 32.1 T
 87RB/86SR..... 63.4
 87SR/86SR..... 1.060
 CALCULATED AGE..... 368 +/- 8 MILLION YEARS
 TYPE OF ANALYSIS..... 23
 ANALYTICAL COMMENTS..... 2-POINT MICROCLINE-PLAGIOCLASE ISOCHRON
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
 IS 408-446 M.Y. OLD

LABORATORY SAMPLE NUMBER: 23
 ROCK/MINERAL CODE: UA1 MUSCOVITE
 COMMENT: FINE-GRAINED MUSCOVITE
 ANALYTICAL DATA:
 RB (PPM)..... 762
 SR (PPM)..... 7.0 T
 87RB/86SR..... 350
 87SR/86SR..... 1.845
 CALCULATED AGE..... 228 +/- 6 MILLION YEARS
 INITIAL 87SR/86SR..... 0.708
 TYPE OF ANALYSIS..... 23
 ANALYTICAL COMMENTS..... 2-POINT MUSCOVITE-PLAGIOCLASE ISOCHRON
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
 IS 408-446 M.Y. OLD

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES

STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX

QUAD SCALE QUAD NO. / NAME
 1: 24000 WILMINGTON

LATITUDE..... 42-34-41 N
 LONGITUDE..... 71-08-35 W

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015117

REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT

COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

COMMENT..... ROADCUT IN MIDDLE OF I-93, 150-M SOUTH OF UNDERPASS AT
 SALEM ST., WILMINGTON

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
 GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: APLITE

GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 360 350 340
 PETROGRAPHIC CODE: B230

DESCRIPTION: APLITE IN THE ANDOVER GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 24A
 ROCK/MINERAL CODE: AA0

ANALYTICAL DATA:

RB (PPM).....	213	
SR (PPM).....	26.1	T
87RB/86SR.....	23.7	
87SR/86SR.....	0.8438	
CALCULATED AGE.....	408 +/- 22	MILLION YEARS
INITIAL 87SR/86SR.....	0.708	
TYPE OF ANALYSIS.....	22	
ANALYTICAL COMMENTS.....	9-POINT WHOLE-ROCK ISOCHRON	
SAMPLE SUITE:	00625	
COMMENTS:	GRANITE IS FROM 408 TO 446 M.Y. OLD	

WHOLE-ROCK.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... MIDDLESEX

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0015118

REFERENCE NUMBER..... 84-00020

LABORATORY(IES)..... SD MT

QUAD SCALE QUAD NO. / NAME

1: 24000 WILMINGTON

LATITUDE..... 42-34-41 N

LONGITUDE..... 71-08-35 W

COMPILED BY

NAME: DEGOURVILLE, A.E.

DATE: 84 09

COMMENT..... ROADCUT IN MIDDLE OF I-93, 150-M SOUTH OF UNDERPASS AT
SALEM STREET, WILMINGTON

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE

ROCK TYPE: PEGMATITE

GEOLOGIC NAME CODE: ADVR

LEXICON AGE(S): 360 350 340

PETROGRAPHIC CODE: B225

DESCRIPTION: PEGMATITE IN THE ANDOVER GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 24B

ROCK/MINERAL CODE: RCO

PLAGIOCLASE

ANALYTICAL DATA:

RB (PPM)..... 25.3

SR (PPM)..... 44.3 T

87RB/86SR..... 1.66

87SR/86SR..... 0.7341

CALCULATED AGE..... 1099 +/- 44 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 20

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
IS 408-446 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 24B

ROCK/MINERAL CODE: RA1

MICROCLINE

ANALYTICAL DATA:

RB (PPM)..... 476

SR (PPM)..... 50.8 T

87RB/86SR..... 27.5

87SR/86SR..... 0.8700

CALCULATED AGE..... 414 +/- 10 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 20

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
IS 408-446 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 24B

ROCK/MINERAL CODE: RA1

MICROCLINE

ANALYTICAL DATA:

RB (PPM)..... 476

SR (PPM)..... 50.8 T
 87RB/86SR..... 27.5
 87SR/86SR..... 0.8700
 CALCULATED AGE..... 369 +/- 9 MILLION YEARS
 TYPE OF ANALYSIS..... 23
 ANALYTICAL COMMENTS..... 2-POINT MICROCLINE=PLAGIOCLASE ISOCHRON
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
 IS 408-446 M.Y. OLD

LABORATORY SAMPLE NUMBER: 24B
 ROCK/MINERAL CODE: UA1 MUSCOVITE
 COMMENT: FINE-GRAINED MUSCOVITE
 ANALYTICAL DATA:
 RB (PPM)..... 635
 SR (PPM)..... 6.5 T
 87RB/86SR..... 309
 87SR/86SR..... 1.667
 CALCULATED AGE..... 218 +/- 6 MILLION YEARS
 INITIAL 87SR/86SR..... 0.708
 TYPE OF ANALYSIS..... 20
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
 IS 408-446 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 24B
 ROCK/MINERAL CODE: UA1 MUSCOVITE
 COMMENT: FINE-GRAINED MUSCOVITE
 ANALYTICAL DATA:
 RB (PPM)..... 635
 SR (PPM)..... 6.5 T
 87RB/86SR..... 309
 87SR/86SR..... 1.667
 CALCULATED AGE..... 213 +/- 6 MILLION YEARS
 TYPE OF ANALYSIS..... 23
 ANALYTICAL COMMENTS..... 2-POINT MUSCOVITE=PLAGIOCLASE ISOCHRON
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
 IS 408-446 M.Y. OLD.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 24B
 ROCK/MINERAL CODE: UA1 MUSCOVITE
 COMMENT: COARSE-GRAINED MUSCOVITE
 ANALYTICAL DATA:
 RB (PPM)..... 726
 SR (PPM)..... 5.1 T
 87RB/86SR..... 507
 87SR/86SR..... 3.095
 CALCULATED AGE..... 331 +/- 7 MILLION YEARS
 INITIAL 87SR/86SR..... 0.708
 TYPE OF ANALYSIS..... 20
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
 IS 408-446 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 24B
 ROCK/MINERAL CODE: UA1 MUSCOVITE
 COMMENT: COARSE-GRAINED MUSCOVITE
 ANALYTICAL DATA:
 RB (PPM)..... 726
 SR (PPM)..... 5.1 T

87RB/86SR..... 507
 87SR/86SR..... 3.095
 CALCULATED AGE..... 328 +/- 7 MILLION YEARS
 TYPE OF ANALYSIS..... 23
 ANALYTICAL COMMENTS..... 2-POINT MUSCOVITE-PLAGIOCLASE ISOCHRON
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
 IS 408-446 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 24B
 ROCK/MINERAL CODE: UAS

BIOTITE

COMMENT: COARSE-GRAINED BIOTITE
 ANALYTICAL DATA:

RB (PPM)..... 743
 SR (PPM)..... 4.3 T
 87RB/86SR..... 634
 87SR/86SR..... 3.463
 CALCULATED AGE..... 305 +/- 6 MILLION YEARS
 INITIAL 87SR/86SR..... 0.708
 TYPE OF ANALYSIS..... 20
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
 IS 408-446 M.Y. OLD.

LABORATORY SAMPLE NUMBER: 24B
 ROCK/MINERAL CODE: UAS
 COMMENT: COARSE-GRAINED BIOTITE

BIOTITE

ANALYTICAL DATA:

RB (PPM)..... 743
 SR (PPM)..... 4.3 T
 87RB/86SR..... 634
 87SR/86SR..... 3.463
 CALCULATED AGE..... 303 +/- 6 MILLION YEARS
 TYPE OF ANALYSIS..... 23
 ANALYTICAL COMMENTS..... 2-POINT BIOTITE-PLAGIOCLASE ISOCHRON
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM; PEGMATITE
 IS 408-446 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... MIDDLESEX

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0015120

REFERENCE NUMBER..... 84-00020

LABORATORY(IES)..... SD MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

WILMINGTON

LATITUDE..... 42-34-41 N

LONGITUDE..... 71-08-35 W

COMPILED BY

NAME: DEGOURVILLE, A.E.

DATE: 84 10

COMMENT..... ROADCUT IN MIDDLE OF I-93, 150-M SOUTH OF UNDERPASS AT
SALEM ST., WILMINGTON

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE

ROCK TYPE: APLITE

GEOLOGIC NAME CODE: ADVR

LEXICON AGE(S): 360 350 340

PETROGRAPHIC CODE: B230

DESCRIPTION: APLITE IN THE ANDOVER GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 24C

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 227

SR (PPM)..... 37.0 T

87RB/86SR..... 17.8

87SR/86SR..... 0.6085

CALCULATED AGE..... 408 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00625

COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... WILMINGTON
 LATITUDE..... 42-34-41 N
 LONGITUDE..... 71-08-35 W
 COMMENT..... ROADCUT IN MIDDLE OF I-93, 150-M SOUTH OF UNDERPASS AT
 SALEM ST., WILMINGTON
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015121
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

SAMPLE DESCRIPTION
 GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: APLITE
 GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 360 350 340
 PETROGRAPHIC CODE: B230
 DESCRIPTION: APLITE IN THE ANDOVER GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 24D
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 197
 SR (PPM)..... 32.5 T
 87RB/86SR..... 17.6
 87SR/86SR..... 0.8106
 CALCULATED AGE..... 408 +/- 22 MILLION YEARS
 INITIAL 87SR/86SR..... 0.708
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00625
 COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... MIDDLESEX

QUAD SCALE

1: 24000

QUAD NO. / NAME

WILMINGTON

LATITUDE..... 42-37-12 N

LONGITUDE..... 71-13-50 W

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0015122

REFERENCE NUMBER..... 84-00020

LABORATORY(IES)..... SD MT

COMPILED BY

NAME: DEGOURVILLE, A.E.

DATE: 84 10

COMMENT..... RAILROAD CUT ON NORTH SIDE OF B&M RR TRACKS, 60-M WEST
OF NORTH ST., TEWKSBURY

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR

LEXICON AGE(S): 360 350 340

PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 25

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 156

SR (PPM)..... 67.2 T

87RB/86SR..... 6.73

87SR/86SR..... 0.7482

CALCULATED AGE..... 408 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00625

COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

LABORATORY SAMPLE NUMBER: 25

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 156

SR (PPM)..... 67.2 T

87RB/86SR..... 6.73

87SR/86SR..... 0.7482

CALCULATED AGE..... 446 +/- 32 MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00626

COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 WILMINGTON
 LATITUDE..... 42-37-16 N
 LONGITUDE..... 71-13-42 W
 COMMENT..... OUTCROP BENEATH TRANSMISSION LINES, 100-M EAST OF NORTH ST. AT INTERSECTION WITH KENDALL ST., TEWKSBURY
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015123
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 360 350 340
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 26

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 153

SR (PPM)..... 88.7 T

87RB/86SR..... 5.00

87SR/86SR..... 0.7351

CALCULATED AGE..... 408 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00625

COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

LABORATORY SAMPLE NUMBER: 26

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 153

SR (PPM)..... 88.7 T

87RB/86SR..... 5.00

87SR/86SR..... 0.7351

CALCULATED AGE..... 446 +/- 32 MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00626

COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... MIDDLESEX

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0015124

REFERENCE NUMBER..... 84-00020

LABORATORY(IES)..... SD MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

CONCORD

LATITUDE..... 42-26-49 N

LONGITUDE..... 71-18-45 W

COMPILED BY

NAME: DEGOURVILLE, A.E.

DATE: 84 10

COMMENT..... ROADCUT ON NORTH SIDE OF MASS. ROUTE 2 AT SMITHS HILL,
800-M EAST OF INTERSECTION WITH CONCORD TURNPIKE CUT-OFF, LINCOLN

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR

LEXICON AGE(S): 360 350 360

PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 27

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 202

SR (PPM)..... 82.8 T

87RB/86SR..... 7.07

87SR/86SR..... 0.7518

CALCULATED AGE..... 408 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00625

COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

LABORATORY SAMPLE NUMBER: 27

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 202

SR (PPM)..... 82.8 T

87RB/86SR..... 7.07

87SR/86SR..... 0.7518

CALCULATED AGE..... 446 +/- 32 MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00626

COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015126
STATE CODE.....	25	REFERENCE NUMBER.....	84-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD MT
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BILLERICA	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-33-00 N	DATE: 84 10	
LONGITUDE.....	71-17-23 W		

COMMENT..... ROADCUT ON EAST SIDE OF U.S. ROUTE 3, 200-M NORTH OF
BRIDGE OVER CONCORD RIVER, BILLERICA (CASTLE SAMPLE NO. C-10, CASTLE,
1965)

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
POCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
LEXICON AGE(S): 360 350 340
PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 29
ROCK/MINERAL CODE: AA0
ANALYTICAL DATA:

RB (PPM).....	150		
SR (PPM).....	63.1	T	
87RB/86SR.....	6.91		
87SR/86SR.....	0.7477		
CALCULATED AGE.....		408 +/- 22	MILLION YEARS
INITIAL 87SR/86SR.....	0.708		
TYPE OF ANALYSIS.....	22		
ANALYTICAL COMMENTS.....	9-POINT WHOLE-ROCK ISOCHRON		
SAMPLE SUITE:	00625		
COMMENTS:	GRANITE IS FROM 408 TO 446 M.Y. OLD		

LABORATORY SAMPLE NUMBER: 29
ROCK/MINERAL CODE: AA0
ANALYTICAL DATA:

RB (PPM).....	150		
SR (PPM).....	63.1	T	
87RB/86SR.....	6.91		
87SR/86SR.....	0.7477		
CALCULATED AGE.....		446 +/- 32	MILLION YEARS
INITIAL 87SR/86SR.....	0.705		
TYPE OF ANALYSIS.....	22		
ANALYTICAL COMMENTS.....	6-POINT WHOLE-ROCK ISOCHRON		
SAMPLE SUITE:	00626		
COMMENTS:	GRANITE IS FROM 408 TO 446 M.Y. OLD		

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 READING
 LATITUDE..... 42-35-42 N
 LONGITUDE..... 71-05-12 W
 COMMENT..... OUTCROP 20-M WEST OF HAVERHILL ST., 200-M SOUTH OF
 INTERSECTION WITH MARBLEHEAD ST., NORTH READING (CASTLE SAMPLE NO. C-12,
 CASTLE 1965)

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015127
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
 GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 360 350 340
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 30
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 252
 SR (PPM)..... 60.8 T
 87RB/86SR..... 12.1
 87SR/86SR..... 0.7818
 CALCULATED AGE..... 408 +/- 22 MILLION YEARS
 INITIAL 87SR/86SR..... 0.708
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00625
 COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

LABORATORY SAMPLE NUMBER: 30
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 252
 SR (PPM)..... 60.8 T
 87RB/86SR..... 12.1
 87SR/86SR..... 0.7818
 CALCULATED AGE..... 446 +/- 32 MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00626
 COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LAWRENCE
 LATITUDE..... 42-40-48 N
 LONGITUDE..... 71-08-13 W
 COMMENT..... OUTCROP AT EAST BASE OF KNOLL IN DEN ROCK PARK, 220-M
 WEST OF INTERSECTION BETWEEN MASS. ROUTE 114 AND RAILROAD AVE., LAWRENCE
 (CASTLE SAMPLE NO. C-6, CASTLE, 1965)
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015125
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 360 350 340
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 28

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 151

SR (PPM)..... 142 T

87RB/86SR..... 3.08

87SR/86SR..... 0.7240

CALCULATED AGE..... 408 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 9-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00625

COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

LABORATORY SAMPLE NUMBER: 28

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 151

SR (PPM)..... 142 T

87RB/86SR..... 3.08

87SR/86SR..... 0.7240

CALCULATED AGE..... 446 +/- 32 MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00626

COMMENTS: GRANITE IS FROM 408 TO 446 M.Y. OLD

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LAWRENCE
 LATITUDE..... 42-41-10 N
 LONGITUDE..... 71-08-34 W
 COMMENT..... ROADCUT AT INTERSECTION OF MASS. ROUTE 114 AND I-495.
 LAWRENCE

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0007700
 REFERENCE NUMBER..... 65-00024
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 80 07

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240

DESCRIPTION: COARSE-GRAINED MUSCOVITE GRANITE COMPOSED OF PLAGIOCLASE,
 MICROCLINE, QUARTZ, MUSCOVITE, AND ACCESSORY GARNET; ANDOVER GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5609
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 12.8

87SR/86SR..... 0.7891

CALCULATED AGE..... 450 +/- 23 MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 7-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00336

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0007701
STATE CODE.....	25	REFERENCE NUMBER.....	65-00024
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	LAWRENCE	NAME: MARVIN, R.F.	
LATITUDE.....	42-41-08 N	DATE: 80 07	
LONGITUDE.....	71-08-36 W		
COMMENT.....	300 FEET SW OF INTERSECTION OF MASS. ROUTE 114 AND I-495, LAWRENCE		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
LEXICON AGE(S): 360
PETROGRAPHIC CODE: B240

DESCRIPTION: COARSE-GRAINED MUSCOVITE GRANITE COMPOSED OF PLAGIOCLASE, MICROCLINE, QUARTZ, MUSCOVITE, AND ACCESSORY GARNET; ANDOVER GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5610
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 14.7
87SR/86SR..... 0.8025

CALCULATED AGE..... 450 +/- 23 MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 7-POINT WHOLE-ROCK ISOCHRON —

SAMPLE SUITE: 00336

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... ESSEX

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0007703

REFERENCE NUMBER..... 65-00024

LABORATORY(IES)..... MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

LAWRENCE

LATITUDE..... 42-41-08 N

LONGITUDE..... 71-08-37 W

COMPILED BY

NAME: MARVIN, R.F.

DATE: 80 07

COMMENT..... 150 FEET SW OF INTERSECTION OF MASS. ROUTE 28 AND I-495,
LAWRENCE

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR

LEXICON AGE(S): 360

PETROGRAPHIC CODE: B240

DESCRIPTION: COARSE-GRAINED MUSCOVITE GRANITE COMPOSED OF PLAGIOCLASE,
MICROCLINE, QUARTZ, MUSCOVITE, AND ACCESSORY GARNET; ANDOVER GRANITE.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5612

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 4.82

87SR/86SR..... 0.7360

CALCULATED AGE..... 450 +/- 23 MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 7-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00336

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LAWRENCE
 LATITUDE..... 42-40-44 N
 LONGITUDE..... 71-09-11 W
 COMMENT..... ROADCUT AT INTERSECTION OF MASS. ROUTE 28 AND I-495,
 ANDOVER
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0007702
 REFERENCE NUMBER..... 65-00024
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 80 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240

DESCRIPTION: COARSE-GRAINED MUSCOVITE GRANITE COMPOSED OF PLAGIOCLASE,
 MICROCLINE, QUARTZ, MUSCOVITE, AND ACCESSORY GARNET; ANDOVER GRANITE.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5611
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 3.99
 87SR/86SR..... 0.7299

CALCULATED AGE..... 450 +/- 23 MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 7-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00336

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0007704
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	65-00024
COUNTY.....	ESSEX	LABORATORY(IES).....	MT
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	LAWRENCE	NAME: MARVIN, R.F.	
LATITUDE.....	42-40-10 N	DATE: 80 07	
LONGITUDE.....	71-11-12 W		
COMMENT.....	ROADCUT 1.8 MILES WEST OF INTERSECTION OF MASS. ROUTE 28 AND I-495, ANDOVER		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
LEXICON AGE(S): 360
PETROGRAPHIC CODE: B240

DESCRIPTION: COARSE-GRAINED MUSCOVITE GRANITE COMPOSED OF PLAGIOCLASE,
MICROCLINE, QUARTZ, MUSCOVITE, AND ACCESSORY GARNET; ANDOVER GRANITE.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5613
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 14.5

87SR/86SR..... 0.7982

CALCULATED AGE..... 450 +/- 23 MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 7-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00336

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0007705
STATE CODE.....	25	REFERENCE NUMBER.....	65-00024
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	LAWRENCE	NAME: MARVIN, R.F.	
LATITUDE.....	42-38-38 N	DATE: 80 07	
LONGITUDE.....	71-13-56 W		
COMMENT.....	ROADCUT 2.9 MILES WEST OF INTERSECTION OF MASS. ROUTE 28 AND I-495, TEWKSBURY		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
LEXICON AGE(S): 360
PETROGRAPHIC CODE: B240

DESCRIPTION: COARSE-GRAINED MUSCOVITE GRANITE COMPOSED OF PLAGIOCLASE,
MICROCLINE, QUARTZ, MUSCOVITE, AND ACCESSORY GARNET; ANDOVER GRANITE.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5614
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 12.7
87SR/86SR..... 0.8133

ANALYTICAL COMMENTS..... NO AGE CALCULATED

COMMENTS: GRANITE IS PROBABLY ABOUT 450 M.Y. OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LAWRENCE
 LATITUDE..... 42-38-38 N
 LONGITUDE..... 71-13-57 W
 COMMENT..... ROADCUT ABOUT 2.9 MILES WEST OF INTERSECTION OF MASS.
 ROUTE 28 AND I-495, TEWKSBURY

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0007706
 REFERENCE NUMBER..... 65-00024
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 80 07

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240

DESCRIPTION: COARSE-GRAINED MUSCOVITE GRANITE COMPOSED OF PLAGIOCLASE,
 MICROCLINE, QUARTZ, MUSCOVITE, AND ACCESSORY GARNET; ANDOVER GRANITE.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5615
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 15.4

87SR/86SR..... 0.8000

CALCULATED AGE..... 450 +/- 23 MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 7-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00336

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BILLERICA
 LATITUDE..... 42-32-14 N
 LONGITUDE..... 71-16-45 W
 COMMENT..... ROADCUT ON MASS. ROUTE 3, 6.2 MILES NORTH OF MASS. ROUTE 128, BILLERICA

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0007707
 REFERENCE NUMBER..... 65-00024
 LABORATORY(IES)..... MT

COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 80 07

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240

DESCRIPTION: COARSE-GRAINED MUSCOVITE GRANITE COMPOSED OF PLAGIOCLASE, MICROCLINE, QUARTZ, MUSCOVITE, AND ACCESSORY GARNET; ANDOVER GRANITE.

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5616
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 7.00

87SR/86SR..... 0.7503

CALCULATED AGE..... 450 +/- 23 MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 7-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00336

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... MIDDLESEX

QUAD SCALE

1: 24000

QUAD NO. / NAME

MARLBOROUGH

LATITUDE..... 42-21-00 N

LONGITUDE..... 71-34-00 W

COMMENT..... MARLBORO

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001764

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR

LEXICON AGE(S): 340 350 360

PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 12 (MASSACHUSETTS)

ROCK/MINERAL CODE: UA1

MUSCOVITE

ANALYTICAL DATA:

K20 (%)..... 9.34

40AR-RAD (MOLES/GM)..... 35.40 X E-10

% RADIOGENIC..... 92

CALCULATED AGE..... 244 +/- 8 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001767
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WILMINGTON	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-32-00 N	DATE: 77 06	
LONGITUDE.....	71-12-00 W		
COMMENT.....	BURLINGTON		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 6			

SAMPLE DESCRIPTION

GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 340 350 360
 PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 15 (MASSACHUSETTS)

ROCK/MINERAL CODE: UA1

MUSCOVITE

ANALYTICAL DATA:

K20 (%)..... 10.48

40AR-RAD (MOLES/GM)..... 46.54 X E-10

% RADIOGENIC..... 94

CALCULATED AGE..... 284 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 SOUTH GROVELAND
 LATITUDE..... 42-38-00 N
 LONGITUDE..... 71-11-00 W
 COMMENT..... ANDOVER
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001772
 REFERENCE NUMBER..... 70-00005
 LABORATORY(IES)..... GC
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION
 GEOLOGIC NAME: ANDOVER GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: ADVR
 LEXICON AGE(S): 340 350 360
 PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 20 (MASSACHUSETTS)
 ROCK/MINERAL CODE: UA1 MUSCOVITE
 ANALYTICAL DATA:
 K20 (%)..... 10.65
 40AR-RAD (MOLES/GM)..... 52.29 X E-10
 % RADIOGENIC..... 94
 CALCULATED AGE..... 312 +/- 9 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002203
STATE CODE.....	25	REFERENCE NUMBER.....	76-00008
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT GC
COUNTY.....	(NOT GIVEN)		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 250000	BOSTON	NAME: MARVIN, R.F.	
LATITUDE.....	42-30-00 N	DATE: 77 08	
LONGITUDE.....	71-12-00 W		
COMMENT.....	BURLINGTON		
PRECISION OF LOCATION: 5			
SOURCE OF SAMPLE: 6			

SAMPLE DESCRIPTION			
GEOLOGIC NAME: ANDOVER GRANITE		GEOLOGIC NAME CODE: ADVR	
ROCK TYPE: GRANITE		LEXICON AGE(S): 360	
		PETROGRAPHIC CODE: B240	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: (NOT GIVEN)			
ROCK/MINERAL CODE: AA0		WHOLE-ROCK	
ANALYTICAL DATA:			
CALCULATED AGE.....	460 +/-	MILLION YEARS	
TYPE OF ANALYSIS.....	20		
ANALYTICAL COMMENTS.....	NO ANALYTICAL DATA GIVEN		
COMMENTS: AGE OF INTRUSION			

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... MIDDLESEX

QUAD SCALE

1: 24000

QUAD NO. / NAME

HUDSON

LATITUDE..... 42-29-00 N

LONGITUDE..... 71-33-00 W

COMMENT..... HARVARD

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001765

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: NASHOBA FORMATION

ROCK TYPE: SCHIST

GEOLOGIC NAME CODE: BMFD

LEXICON AGE(S): 360 370 400

PETROGRAPHIC CODE: C320

DESCRIPTION: BRIMFIELD SCHIST (NOW NASHOBA FORMATION)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 13 (MASSACHUSETTS)

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 8.99

40AR-RAD (MOLES/GM)..... 45.79 X E-10

% RADIOGENIC..... 95

CALCULATED AGE..... 329 +/- 9 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME COMPILED BY
 1: 24000 SOUTH GROVELAND NAME: MARVIN, R.F.
 LATITUDE..... 42-38-55 N DATE: 80 12
 LONGITUDE..... 71-01-55 W
 COMMENT..... ABOUT 1 KM NORTH OF SHARPNERS POND, ANDOVER
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: FISHBROOK GNEISS
 ROCK TYPE: GNEISS
 GEOLOGIC NAME CODE: FRRK
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: C310
 DESCRIPTION: FISHBROOK GNEISS; QUARTZ-BIOTITE-PLAGIOCLASE GNEISS, MEDIUM-TO COARSE-GRAINED WITH POORLY DEVELOPED GNEISSIC TEXTURE.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: Z-1 (3M-150)
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EUHEDRAL TO SUBHEDRAL ZIRCON
 ANALYTICAL DATA:
 U (PPM)..... 464.2
 PB (PPM)..... 28.12
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.07 85.80 4.84 9.28
 CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 289 +/- 10 M.Y.;
 13-POINT CHORD
 SAMPLE SUITE: 00355
 COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
 BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: Z-1 (2M)
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EUHEDRAL TO SUBHEDRAL ZIRCON
 ANALYTICAL DATA:
 U (PPM)..... 375.6
 PB (PPM)..... 23.32
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.03 85.03 4.89 10.03
 CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50
 SAMPLE SUITE: 00355
 COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED

BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: Z-1 (1M-200+250)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EUHEDRAL TO SUBHEDRAL ZIRCON

ANALYTICAL DATA:

U (PPM)..... 275.3

PB (PPM)..... 24.81

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.52	77.15	4.72	17.61

CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 289+/-10 M.Y.;

13-POINT CHORD

SAMPLE SUITE: 00355

COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: Z-1 (1M-250)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EUHEDRAL TO SUBHEDRAL ZIRCON

ANALYTICAL DATA:

U (PPM)..... 336.1

PB (PPM)..... 24.38

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.04	84.66	5.00	10.30

CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 289+/-10 M.Y.;

13-POINT CHORD

SAMPLE SUITE: 00355

COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: Z-1 (1M+150)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EUHEDRAL TO SUBHEDRAL ZIRCON.

ANALYTICAL DATA:

U (PPM)..... 249.3

PB (PPM)..... 26.02

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.35	73.37	4.77	21.52

CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 289+/-10 M.Y.;

13-POINT CHORD.

SAMPLE SUITE: 00355

COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... ESSEX

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004602

REFERENCE NUMBER..... 80-00015

LABORATORY(IES)..... MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

SOUTH GROVELAND

LATITUDE.....

42-38-55 N

LONGITUDE.....

71-01-55 W

COMPILED BY

NAME: MARVIN, R.F.

DATE: 80 12

COMMENT..... ABOUT 1 KM NORTH OF SHARPNERS POND, ANDOVER

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: FISHBROOK GNEISS

ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: FBRK

LEXICON AGE(S): 360

PETROGRAPHIC CODE: C310

DESCRIPTION: FISHBROOK GNEISS; QUARTZ-BIOTITE-PLAGIOCLASE GNEISS, MEDIUM-TO COARSE-GRAINED WITH POORLY DEVELOPED GNEISSIC TEXTURE.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: Z-1 (1NM-150+250)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, Euhedral to subhedral zircon

ANALYTICAL DATA:

U (PPM)..... 242.3

PB (PPM)..... 35.56

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB

206PB

207PB

208PB

0.10

48.14

1.02

48.71

CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 289 +/- 10 M.Y.;

13-POINT CHORD

SAMPLE SUITE: 00355

COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME COMPILED BY
 1: 24000 SOUTH GROVELAND NAME: MARVIN, R.F.
 LATITUDE..... 42-38-55 N DATE: 80 12
 LONGITUDE..... 71-01-55 W
 COMMENT..... ABOUT 1 KM NORTH OF SHARPNERS POND, ANDOVER
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: FISHBROOK GNEISS
 ROCK TYPE: GNEISS
 GEOLOGIC NAME CODE: FBRK
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: C310
 DESCRIPTION: FISHBROOK GNEISS; QUARTZ-BIOTITE-PLAGIOCLASE GNEISS

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: R8441(4M)
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EIHEDRAL TO SUBHEDRAL ZIRCON
 ANALYTICAL DATA:
 U (PPM)..... 1153
 PB (PPM)..... 65.92
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.15 83.80 4.87 11.18
 CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 289 +/- 10 M.Y.;
 13-POINT CHORD
 SAMPLE SUITE: 00355
 COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
 BY LATER METAMORPHISM
 LABORATORY SAMPLE NUMBER: R8441(4NM)
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EIHEDRAL TO SUBHEDRAL ZIRCON
 ANALYTICAL DATA:
 U (PPM)..... 625.8
 PB (PPM)..... 41.36
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.05 84.16 4.84 10.95
 CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50
 SAMPLE SUITE: 00355
 COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
 BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BILLERICA
 LATITUDE..... 42-31-15 N
 LONGITUDE..... 71-15-45 W
 COMMENT..... OURCROP ALONG ROUTE 3, 1.5 KM SOUTH OF NUTTING LAKE,
 BILLERICA

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004603
 REFERENCE NUMBER..... 80-00015
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 80 12

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: FISHBROOK GNEISS
 ROCK TYPE: GNEISS
 GEOLOGIC NAME CODE: FBRK
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: C310
 DESCRIPTION: FISHBROOK GNEISS; QUARTZ-BIOTITE-PLAGIOCLASE GNEISS

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: Z-4(5NM4M)
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EUHEDRAL TO SUBHEDRAL ZIRCON.
 ANALYTICAL DATA:
 U (PPM)..... 1342
 PB (PPM)..... 85.67
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.25 84.87 4.86 10.03
 CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 289+/-10 M.Y.;
 13-POINT CHORD.
 SAMPLE SUITE: 00355
 COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
 BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: Z-4(4NM3M)
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EUHEDRAL TO SUBHEDRAL ZIRCON.
 ANALYTICAL DATA:
 U (PPM)..... 1373
 PB (PPM)..... 88.39
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.36 84.82 5.10 9.72
 CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50
 SAMPLE SUITE: 00355

COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: Z4(3NM2M)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EUHEDRAL TO SUBHEDRAL ZIRCON.

ANALYTICAL DATA:

CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 289+/-10 M.Y.;

13-POINT CHORD; Pb AND U VALUES NOT GIVEN.

SAMPLE SUITE: 00355

COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: Z-4(2NM1M)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: CLEAR TO PINK, DOUBLY TERMINATED, EUHEDRAL TO SUBHEDRAL ZIRCON

ANALYTICAL DATA:

U (PPM)..... 291.2

Pb (PPM)..... 17.30

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.12	82.08	4.91	12.89

CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 289+/-10 M.Y.;

13-POINT CHORD

SAMPLE SUITE: 00355

COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: Z-4(1NM)

ROCK/MINERAL CODE: MC1

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1161

Pb (PPM)..... 81.65

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.07	87.53	5.29	7.10

CONCORDIA INTERCEPT AGE.. 730 +/- 26 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 289+/-10 M.Y.;

13-POINT CHORD; (PB VALUE SHOULD PROBABLY BE 81.65, NOT 31.65 PPM, AS
LISTED--COMPILER)

SAMPLE SUITE: 00355

COMMENTS: VOLCANICS FORMED 730 M.Y. AGO; METAMORPHOSED AND AFFECTED
BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BILLERICA
 LATITUDE..... 42-31-30 N
 LONGITUDE..... 71-15-30 W

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0008451
 REFERENCE NUMBER..... 80-00015
 LABORATORY(IES)..... MT

COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 80 12

COMMENT..... MIDDLESEX TURNPIKE, 0.25 KM SOUTH OF INTERSECTION WITH
 OLD BILLERICA AND LEXINGTON ROADS, BILLERICA

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: SHAWSHEEN GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: C310

DESCRIPTION: SHAWSHEEN GNEISS; DARK MEDIUM-GRAINED
 MUSCOVITE-QUARTZ-PLAGIOCLASE-BIOTITE GNEISS

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: Z-3(4NM-150+250)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
 ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 270.3

PB (PPM)..... 42.66

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB

0.30 80.83 8.02 10.85

CONCORDIA INTERCEPT AGE.. 2042 +/- 52 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 517 +/- 16 M.Y.;
 3-POINT CHORD.

SAMPLE SUITE: 00357

COMMENTS: DETRITAL ZIRCONS IN SEDIMENTS THAT WERE METAMORPHOSED ABOUT 500
 M.Y. AGO.

LABORATORY SAMPLE NUMBER: Z-3(4NM-250)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
 ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 329.5

PB (PPM)..... 44.85

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB

0.18 81.87 7.29 10.66

CONCORDIA INTERCEPT AGE.. 2042 +/- 52 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 517+/-16 M.Y.:

3-POINT CHORD.

SAMPLE SUITE: 00357

COMMENTS: DETRITAL ZIRCONS IN SEDIMENTS THAT WERE METAMORPHOSED ABOUT 500
M.Y. AGO.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... MIDDLESEX

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0008452

REFERENCE NUMBER..... 80-00015

LABORATORY(IES)..... MT

QUAD SCALE QUAD NO. / NAME
1: 24000 CONCORD
LATITUDE..... 42-29-35 N
LONGITUDE..... 71-15-30 WCOMPILED BY
NAME: MARVIN, R.F.
DATE: 80 12COMMENT..... 70-M SOUTH OF INTERSECTION OF ROUTE 62 AND PAGE ROAD,
BEDFORDPRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: SHAWSHEEN GNEISS
ROCK TYPE: GNEISSGEOLOGIC NAME CODE:
LEXICON AGE(S): 360
PETROGRAPHIC CODE: C310DESCRIPTION: SHAWSHEEN GNEISS; MEDIUM-GRAINED, BLACK AND PINK BANDED
QUARTZ-PLAGIOCLASE-BIOTITE GNEISS

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: R8452

RGCK/MINERAL CODE: MC1

ZIRCON

COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 505.4

Pb (PPM)..... 50.95

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB

0.27 85.75 6.42 7.56

CONCORDIA INTERCEPT AGE.. 2042 +/- 52 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 517+/-16 M.Y.;

3-POINT CHORD

SAMPLE SUITE: 00357

COMMENTS: DETRITAL ZIRCONS IN SEDIMENTS THAT WERE METAMORPHOSED ABOUT 500
M.Y. AGO.

MILFORD-DEDHAM ZONE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0011803
STATE CODE.....	25	REFERENCE NUMBER.....	78-00046
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	NANTUCKET		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	SIASCONSET	NAME: MARVIN, R.F.	
LATITUDE.....	41-15-55 N	DATE: 83 02	
LONGITUDE.....	70-02-17 W		

COMMENT..... CORE FROM 513.8 M, USGS BOREHOLE 6001, NEAR MIDDLE OF NANTUCKET ISLAND

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 2

SAMPLE DESCRIPTION
ROCK TYPE: BASALT

LEXICON AGE(S): 230 220
PETROGRAPHIC CODE: A131

DESCRIPTION: HYDROTHERMALLY ALTERED BASALT

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

K20 (%)..... 0.837, 0.831
40AR-RAD (MOLES/GM)..... 2.103 X E-10
% RADIOGENIC..... 66

CALCULATED AGE..... 164 +/- 3 MILLION YEARS
TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA PUBLISHED; ANALYTICAL DATA
SUPPLIED BY R.F. MARVIN, USGS; POTASSIUM VALUES DETERMINED BY ISOTOPE
DILUTION

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NANTUCKET
 QUAD SCALE QUAD NO. / NAME
 1: 24000 SIASCONSET
 LATITUDE..... 41-15-55 N
 LONGITUDE..... 70-02-17 W
 COMMENT..... CORE FROM 485.7 M, USGS BOREHOLE 6001, NEAR MIDDLE OF
 NANTUCKET ISLAND
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 2
 SAMPLE DESCRIPTION
 ROCK TYPE: BASALT
 LEXICON AGE(S): 230 220
 PETROGRAPHIC CODE: A131
 DESCRIPTION: HYDROTHERMALLY ALTERED BASALT
 POTASSIUM-ARGON
 LABORATORY SAMPLE NUMBER: (NOT GIVEN)
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 K20 (%)..... 0.84, 0.86
 40AR-RAD (MOLES/GM)..... 2.413 X E-10
 % RADIOGENIC..... 92
 CALCULATED AGE..... 183 +/- 8 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... ANALYTICAL DATA SUPPLIED BY R.F. MARVIN, USGS
 COMMENTS: AGE NOT EVALUATED
 WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0005380
STATE CODE.....	25	REFERENCE NUMBER.....	64-00009
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BOSTON NORTH	NAME: GODOY, M.M.	
LATITUDE.....	42-26-00 N	DATE: 79 04	
LONGITUDE.....	71-06-18 W		
COMMENT.....	MEDFORD DIKE ON PINE HILL, MEDFORD		
PRECISION OF LOCATION: 2			
SOURCE OF SAMPLE: 1			

SAMPLE DESCRIPTION		
GEOLOGIC NAME: MEDFORD DIKE	GEOLOGIC NAME CODE: MDFD	
ROCK TYPE: DIABASE	LEXICON AGE(S): 231	
	PETROGRAPHIC CODE: B212	
DESCRIPTION: MEDFORD DIKE, MEDIUM- TO COARSE-GRAINED, FREQUENTLY CONTAINS BIOTITE AND HORNBLLENDE		

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)	
ROCK/MINERAL CODE: UAS	BIOTITE
ANALYTICAL DATA:	
CALCULATED AGE.....	194 +/- 6 MILLION YEARS
TYPE OF ANALYSIS..... 10	
ANALYTICAL COMMENTS.....	NO ANALYTICAL DATA GIVEN
COMMENTS: AGE OF INTRUSION	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BRISTOL
 QUAD SCALE QUAD NO. / NAME
 1: 24000 TAUNTON
 LATITUDE..... 41-54-00 N
 LONGITUDE..... 71-05-00 W
 COMMENT..... TAUNTON
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001785
 REFERENCE NUMBER..... 70-00005
 LABORATORY(IES)..... BR
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: DIGHTON CONGLOMERATE
 ROCK TYPE: CONGLOMERATE

GEOLOGIC NAME CODE: DGTN
 LEXICON AGE(S): 320
 PETROGRAPHIC CODE: D430

DESCRIPTION: DIGHTON CONGLOMERATE CONTAINING DETRITAL MUSCOVITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 33 (MASSACHUSETTS)
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

K20 (%)..... 1.60
 40AR-RAD (MOLES/GM)..... 11.06 X E-10
 % RADIOGENIC..... 86

CALCULATED AGE..... 428 +/- 16 MILLION YEARS
 TYPE OF ANALYSIS..... 10

COMMENTS: SAMPLE CONTAINS INHERITED MATERIAL

LABORATORY SAMPLE NUMBER: 33 (MASSACHUSETTS)
 ROCK/MINERAL CODE: UA1

MUSCOVITE

COMMENT: 60-80 MESH FRACTION

ANALYTICAL DATA:

K20 (%)..... 8.16
 40AR-RAD (MOLES/GM)..... 46.79 X E-10
 % RADIOGENIC..... 90

CALCULATED AGE..... 362 +/- 10 MILLION YEARS
 TYPE OF ANALYSIS..... 10

COMMENTS: SAMPLE CONTAINS INHERITED MATERIAL

LABORATORY SAMPLE NUMBER: 33 (MASSACHUSETTS)
 ROCK/MINERAL CODE: UA1

MUSCOVITE

COMMENT: 80-120 MESH FRACTION

ANALYTICAL DATA:

K20 (%)..... 8.39
 40AR-RAD (MOLES/GM)..... 39.28 X E-10
 % RADIOGENIC..... 90

CALCULATED AGE..... 301 +/- 8 MILLION YEARS
 TYPE OF ANALYSIS..... 10

COMMENTS: SAMPLE CONTAINS INHERITED MATERIAL

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... PLYMOUTH
 QUAD SCALE QUAD NO. / NAME
 1: 24000 WHITMAN
 LATITUDE..... 42-01-00 N
 LONGITUDE..... 70-58-00 W
 COMMENT..... EAST BRIDGEWATER
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001786
 REFERENCE NUMBER..... 70-00005
 LABORATORY(IES)..... BR
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: DIGHTON CONGLOMERATE
 ROCK TYPE: CONGLOMERATE
 DESCRIPTION: DIGHTON CONGLOMERATE CONTAINING DETRITAL MUSCOVITE
 GEOLOGIC NAME CODE: DGTN
 LEXICON AGE(S): 320
 PETROGRAPHIC CODE: D430

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 34 (MASSACHUSETTS)
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 K20 (%)..... 2.10
 40AR-RAD (MOLES/GM)..... 9.883 X E-10
 % RADIOGENIC..... 97
 CALCULATED AGE..... 301 +/- 10 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: SAMPLE CONTAINS INHERITED MATERIAL
 WHOLE-ROCK

LABORATORY SAMPLE NUMBER: 34 (MASSACHUSETTS)
 ROCK/MINERAL CODE: UA1
 COMMENT: 35-45 MESH
 ANALYTICAL DATA:
 K20 (%)..... 9.315
 40AR-RAD (MOLES/GM)..... 51.54 X E-10
 % RADIOGENIC..... 96
 CALCULATED AGE..... 347 +/- 9 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: SAMPLE CONTAINS INHERITED MATERIAL
 MUSCOVITE

LABORATORY SAMPLE NUMBER: 34 (MASSACHUSETTS)
 ROCK/MINERAL CODE: UA1
 COMMENT: 45-60 MESH
 ANALYTICAL DATA:
 K20 (%)..... 7.82
 40AR-RAD (MOLES/GM)..... 40.78 X E-10
 % RADIOGENIC..... 98
 CALCULATED AGE..... 332 +/- 10 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: SAMPLE CONTAINS INHERITED MATERIAL
 MUSCOVITE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0010050
STATE CODE.....	25	REFERENCE NUMBER.....	77-00047
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	GLOUCESTER	NAME: MARVIN, R.F.	
LATITUDE.....	42-37-34 N	DATE: 82 03	
LONGITUDE.....	70-42-15 W		
COMMENT.....	GLOUCESTER		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 1			
SAMPLE DESCRIPTION		LEXICON AGE(S): 300	
ROCK TYPE: BASALT		PETROGRAPHIC CODE: 8210	
DESCRIPTION: NORTH-STRIKING BASALT DIKE			
POTASSIUM-ARGON			
LABORATORY SAMPLE NUMBER: (60)		WHOLE-ROCK	
ROCK/MINERAL CODE: AA0			
ANALYTICAL DATA:			
CALCULATED AGE.....		226 +/- 10	MILLION YEARS
TYPE OF ANALYSIS..... 10			
ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN			
COMMENTS: AGE NOT EVALUATED			

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001774
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	READING	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-32-00 N	DATE: 77 06	
LONGITUDE.....	71-00-00 W		
COMMENT.....	LYNNFIELD		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 6

SAMPLE DESCRIPTION
ROCK TYPE: BASALT

LEXICON AGE(S): 320
PETROGRAPHIC CODE: A131

DESCRIPTION: BASALT DIKE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 22 (MASSACHUSETTS)

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

K20 (%)..... 1.36

40AR-RAD (MOLES/GM)..... 5.479 X E-10

% RADIOGENIC..... 88

CALCULATED AGE.....

260 +/- 9 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0010056
STATE CODE.....	25	REFERENCE NUMBER.....	77-00047
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	LYNN	NAME: MARVIN, R.F.	
LATITUDE.....	42-28-40 N	DATE: 82 03	
LONGITUDE.....	70-52-40 W		

COMMENT..... BEACH BLUFF (LISTED LATITUDE IS IN ERROR--COMPILER)

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

ROCK TYPE: BASALT

LEXICON AGE(S): 200 300

PETROGRAPHIC CODE: B210

DESCRIPTION: BASALT DIKE WITH N70W STRIKE AND NORTH 80-DEGREE DIP

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (78)

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

CALCULATED AGE..... 278 +/- 13 MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... MIDDLESEX

QUAD SCALE

1: 24000

QUAD NO. / NAME

BOSTON NORTH

LATITUDE..... 42-28-00 N

LONGITUDE..... 71-06-00 W

COMMENT..... STONEHAM

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001770

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

SAMPLE DESCRIPTION

ROCK TYPE: BASALT

LEXICON AGE(S): 320

PETROGRAPHIC CODE: A131

DESCRIPTION: BASALT DIKE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 18 (MASSACHUSETTS)

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

K2O (%)..... 1.89

40AR-RAD (MOLES/GM)..... 8.782 X E-10

% RADIOGENIC..... 74

CALCULATED AGE.....

296 +/- 15 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 NORWOOD OR NEWTON
 LATITUDE..... 42-15-00 N
 LONGITUDE..... 71-12-30 W
 COMMENT..... NORWOOD
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0010055
 REFERENCE NUMBER..... 77-00047
 LABORATORY(IES).....

COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 82 03

SAMPLE DESCRIPTION
 ROCK TYPE: BASALT
 LEXICON AGE(S): 200 300
 PETROGRAPHIC CODE: B210
 DESCRIPTION: BASALT DIKE WITH E-W STRIKE AND NORTH 85-DEGREE DIP

POTASSIUM-ARGON
 LABORATORY SAMPLE NUMBER: (77)
 ROCK/MINERAL CODE: PC5
 ANALYTICAL DATA:
 CALCULATED AGE..... 306 +/- 11 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN
 COMMENTS: AGE NOT EVALUATED

HORNBLLENDE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001771
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BOSTON NORTH	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-24-00 N	DATE: 77 06	
LONGITUDE.....	71-06-00 W		
COMMENT.....	SOMERVILLE		
PRECISION OF LOCATION:	3		
SOURCE OF SAMPLE:	6		

SAMPLE DESCRIPTION
ROCK TYPE: BASALT

LEXICON AGE(S): 320
PETROGRAPHIC CODE: A131

DESCRIPTION: BASALT DIKE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 19 (MASSACHUSETTS)

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

K20 (%)..... 0.177
40AR-RAD (MOLES/GM)..... 0.8558 X E-10
% RADIOGENIC..... 22
CALCULATED AGE.....
TYPE OF ANALYSIS..... 10

307 +/- 15 MILLION YEARS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ROCKPORT
 LATITUDE..... 42-41-05 N
 LONGITUDE..... 70-37-29 W
 COMMENT..... PIGEON CAVE, ROCKPORT
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0010047
 REFERENCE NUMBER..... 77-00047
 LABORATORY(IES).....
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 82 03

SAMPLE DESCRIPTION
 ROCK TYPE: BASALT

LEXICON AGE(S): 330
 PETROGRAPHIC CODE: 8212

DESCRIPTION: ENE-STRIKING BASALT DIKE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (57)
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 CALCULATED AGE..... 323 +/- 15 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN
 COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001784
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	GLOUCESTER	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-40-00 N	DATE: 77 06	
LONGITUDE.....	70-38-00 W		
COMMENT.....	ROCKPORT		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 6

SAMPLE DESCRIPTION
ROCK TYPE: BASALT

LEXICON AGE(S): 320
PETROGRAPHIC CODE: A131

DESCRIPTION: BASALT DIKE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 32 (MASSACHUSETTS)

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

K20 (%)..... 1.30
40AR-RAD (MOLES/GM)..... 7.056 $\times 10^{-10}$
% RADIOGENIC..... 62
CALCULATED AGE.....
TYPE OF ANALYSIS..... 10

342 +/- 15 MILLION YEARS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ROCKPORT
 LATITUDE..... 42-40-37 N
 LONGITUDE..... 70-37-38 W
 COMMENT..... PIGEON CAVE, ROCKPORT
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0010049
 REFERENCE NUMBER..... 77-00047
 LABORATORY(IES).....
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 82 03

SAMPLE DESCRIPTION
 ROCK TYPE: BASALT

LEXICON AGE(S): 340
 PETROGRAPHIC CODE: 8212

DESCRIPTION: NE-STRIKING BASALT DIKE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (59)
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 CALCULATED AGE..... 344 +/- 13 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN
 COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0010048
STATE CODE.....	25	REFERENCE NUMBER.....	77-00047
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	ROCKPORT	NAME: MARVIN, R.F.	
LATITUDE.....	42-39-37 N	DATE: 82 03	
LONGITUDE.....	70-36-42 W		
COMMENT.....	ROCKPORT		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 1			

SAMPLE DESCRIPTION
ROCK TYPE: SYENITE

LEXICON AGE(S): 340
PETROGRAPHIC CODE: B245

DESCRIPTION: NORTH-STRIKING SYENITE DIKE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (58)
ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

CALCULATED AGE..... 351 +/- 13 MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK • U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001709
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	SALEM	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-30-06 N	DATE: 77 06	
LONGITUDE.....	70-57-55 W		

COMMENT..... ABANDONED QUARRY ON NORTH SIDE OF PROSPECT HILL, 2200'
WEST OF BROWNS POND, PEABODY

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: PEABODY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: PBDY
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240

DESCRIPTION: LIGHT-GREENISH-GRAY, COARSE-GRAINED GRANITE; PEABODY GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 60A

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	140.7	
SR (PPM).....	14.7	N
87RB/86SR.....	27.79	
87SR/86SR.....	0.8465	

CALCULATED AGE..... 359 +/- 24 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00089

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... SALEM
 LATITUDE..... 42-30-06 N
 LONGITUDE..... 70-57-55 W
 COMMENT..... ABANDONED QUARRY ON NORTH SIDE OF PROSPECT HILL, 2200'
 WEST OF BROWNS POND, PEABODY
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001710
 REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: MARVIN, R. F.
 DATE: 77 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: PEABODY GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: PBDY
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240

DESCRIPTION: LIGHT-GREENISH-GRAY, COARSE-GRAINED PEABODY GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 608

ROCK/MINERAL CODE: PC5

HORNBLENDE

ANALYTICAL DATA:

K20 (%)..... 0.925
 40AR-RAD (MOLES/GM)..... 5.58 X E-10
 % RADIOGENIC..... 94

CALCULATED AGE..... 377 +/- 11 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 608

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 135.4
 SR (PPM)..... 14.7 N
 87RB/86SR..... 26.61
 87SR/86SR..... 0.8465

CALCULATED AGE..... 359 +/- 24 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00089

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001711
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	READING	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-30-53 N	DATE: 77 06	
LONGITUDE.....	71-01-34 W		

COMMENT..... ROADCUT ALONG MASSACHUSETTS ROUTE 128; 1000' EAST OF
OVERPASS AT WALLNUT STREET, SOUTH LYNNFIELD

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: PEABODY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: PBDY
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240

DESCRIPTION: GREENISH-GRAY, MEDIUM-GRAINED GRANITE; PEABODY GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 90

ROCK/MINERAL CODE: PC5

HORNBLENDE

ANALYTICAL DATA:

K20 (%)..... 0.712
40AR-RAD (MOLES/GM)..... 4.73 X E-10
% RADIOGENIC..... 95

CALCULATED AGE..... 411 +/- 12 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 90

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 107.6
SR (PPM)..... 17.9 N
87RB/86SR..... 17.43

87SR/86SR..... 0.7967

CALCULATED AGE..... 359 +/- 24 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00089

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... ESSEX

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001712

REFERENCE NUMBER..... 71-00005
LABORATORY(IES)..... SDQUAD SCALE QUAD NO. / NAME
1: 24000 READING
LATITUDE..... 42-30-22 N
LONGITUDE..... 71-00-47 WCOMPILED BY
NAME: WILLIAMS, B. R.
DATE: 77 06COMMENT..... ROADCUT ALONG U.S. ROUTE 1; 1200' NORTH OF NORTH END OF
WALDEN POND, SOUTH LYNNFIELDPRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: PEABODY GRANITE
ROCK TYPE: GRANITEGEOLOGIC NAME CODE: PBDY
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240

DESCRIPTION: PEABODY GRANITE; GREENISH-GRAY, COARSE-GRAINED GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 91

ROCK/MINERAL CODE: PC5

HORNBLÉNDE

ANALYTICAL DATA:

K20 (%)..... 0.671
40AR-RAD (MOLES/GM)..... 4.23 X E-10
% RADIOGENIC..... 95
CALCULATED AGE..... 392 +/- 12 MILLION YEARS
TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 91

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 117.1
SR (PPM)..... 27.3 N
87RB/86SR..... 12.41
87SR/86SR..... 0.7741
CALCULATED AGE..... 359 +/- 24 MILLION YEARS
INITIAL 87SR/86SR..... 0.708
TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00089

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BOSTON NORTH
 LATITUDE..... 42-29-43 N
 LONGITUDE..... 71-00-05 W
 COMMENT..... OUTCROP OVERLOOKING WALDEN POND 1600' SOUTHWEST OF MT.
 PERAN, LYNN

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001713
 REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: PEABODY GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: PBDY
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240

DESCRIPTION: PEABODY GRANITE; DARK GRAY, MEDIUM-GRAINED HORNBLende-RICH GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 92

ROCK/MINERAL CODE: PC5

HORNBLende

ANALYTICAL DATA:

K20 (%)..... 0.885
 40AR-RAD (MOLES/GM)..... 5.33 X E-10
 % RADIOGENIC..... 94

CALCULATED AGE..... 377 +/- 11 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 92

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 32.8
 SR (PPM)..... 68.9 N
 87RB/86SR..... 1.38
 87SR/86SR..... 0.7163

CALCULATED AGE..... 359 +/- 24 MILLION YEARS

INITIAL 87SR/86SR..... 0.708

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00089

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001714
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	SALEM	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-31-28 N	DATE: 77 06	
LONGITUDE.....	70-58-10 W		
COMMENT..... ABANDONED QUARRY 200' NORTH OF MASSACHUSETTS ROUTE 128; 4400' SOUTHWEST OF INTERSECTION WITH FOREST STREET, PEABODY			
PRECISION OF LOCATION: 2			
SOURCE OF SAMPLE: 3			

SAMPLE DESCRIPTION

GEOLOGIC NAME: PEABODY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: PBDY
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240

DESCRIPTION: PEABODY GRANITE; LIGHT GREENISH-GRAY, COARSE-GRAINED GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 171

POCK/MINERAL CODE: PC5

HORNBLLENDE

ANALYTICAL DATA:

K20 (%)..... 1.370
40AR-RAD (MOLES/GM)..... 7.81 X E-10
% RADIOGENIC..... 96

CALCULATED AGE..... 357 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

LABORATORY SAMPLE NUMBER: 171

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 7.98
40AR-RAD (MOLES/GM)..... 47.76 X E-10
% RADIOGENIC..... 98

CALCULATED AGE..... 374 +/- 11 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 171

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 119.9
SR (PPM)..... 74.9 N
87RB/86SR..... 4.64

87SR/86SR..... 0.7289
 CALCULATED AGE..... 359 +/- 24 MILLION YEARS
 INITIAL 87SR/86SR..... 0.708
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00089
 COMMENTS: AGE OF INTRUSION
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 171A
 ROCK/MINERAL CODE: MC1 ZIRCON
 ANALYTICAL DATA:
 U (PPM)..... 356.8
 TH (PPM)..... 165.1
 Pb (PPM)..... 24.3
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.155 76.47 6.514 16.86
 206PB/238U AGE..... 369 +/- 7 MILLION YEARS
 207PB/235U AGE..... 379 +/- 12 MILLION YEARS
 207PB/206PB AGE..... 445 +/- 22 MILLION YEARS
 208PB/232TH AGE..... 368 +/- 10 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 450 +/- 25 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.5, 15.7, 38.5
 ANALYTICAL COMMENTS..... 4-POINT (ZIRCONS) DISCORDIA LINE
 SAMPLE SUITE: 00087
 XENOLITHIC MATERIAL MAY HAVE BEEN SAMPLED
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

LABORATORY SAMPLE NUMBER: 171-B
 ROCK/MINERAL CODE: MC1 ZIRCON
 ANALYTICAL DATA:
 U (PPM)..... 389.0
 TH (PPM)..... 183.1
 PB (PPM)..... 24.1
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.081 79.58 5.584 14.76
 206PB/238U AGE..... 356 +/- 7 MILLION YEARS
 207PB/235U AGE..... 366 +/- 9 MILLION YEARS
 207PB/206PB AGE..... 435 +/- 12 MILLION YEARS
 208PB/232TH AGE..... 351 +/- 8 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 450 +/- 25 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.5, 15.7, 38.5
 ANALYTICAL COMMENTS..... 4-POINT DISCORDIA LINE (ZIRCONS)
 SAMPLE SUITE: 00087
 XENOLITHIC MATERIAL MAY HAVE BEEN SAMPLED
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 SALEM
 LATITUDE..... 42-31-28 N
 LONGITUDE..... 70-58-10 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002596
 REFERENCE NUMBER..... 77-00005
 LABORATORY(IES)..... SD
 COMMENT..... ABANDONED QUARRY 60M NORTH OF STATE ROUTE 128, 1400M SW
 OF INTERSECTION WITH FOREST STREET, PEABODY

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION
 GEOLOGIC NAME: PEABODY GRANITE
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: PBDY
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240
 DESCRIPTION: LIGHT GREENISH-GRAY, MEDIUM-GRAINED PEABODY GRANITE

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 172
 ROCK/MINERAL CODE: 4C1
 COMMENT: -100+150 MESH
 ANALYTICAL DATA:
 U (PPM)..... 327.8
 TH (PPM)..... 147.3
 PB (PPM)..... 20.97
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.039 81.65 5.007 13.31
 206PB/238U AGE..... 380 +/- 4 MILLION YEARS
 207PB/235U AGE..... 382 +/- 4 MILLION YEARS
 207PB/206PB AGE..... 392 +/- 6 MILLION YEARS
 208PB/232TH AGE..... 384 +/- 4 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 395 +/- 20 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.90, 15.65, 38.20
 COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

LABORATORY SAMPLE NUMBER: 172
 ROCK/MINERAL CODE: MC1
 COMMENT: -200+325 MESH
 ANALYTICAL DATA:
 U (PPM)..... 420.4
 TH (PPM)..... 191.0
 PB (PPM)..... 25.84
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.020 82.31 4.774 12.89
 206PB/238U AGE..... 370 +/- 4 MILLION YEARS
 207PB/235U AGE..... 374 +/- 4 MILLION YEARS

207PB/206PB AGE..... 392 +/- 5 MILLION YEARS
208PB/232TH AGE..... 374 +/- 4 MILLION YEARS
CONCORDIA INTERCEPT AGE.. 395 +/- 20 MILLION YEARS
COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... ESSEX

QUAD SCALE

1: 24000

QUAD NO. / NAME

SALEM

LATITUDE..... 42-32-00 N

LONGITUDE..... 70-58-00 W

COMMENT..... LYNNFIELD

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001775

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: PEABODY GRANITE

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: PBDY

LEXICON AGE(S): 340

PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 23 (MASSACHUSETTS)

ROCK/MINERAL CODE: JAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 4.477

40AR-RAD (MOLES/GM)..... 18.44 X E-10

% RADIOGENIC..... 88

CALCULATED AGE..... 266 +/- 8 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: 23 (MASSACHUSETTS)

ROCK/MINERAL CODE: PC5

HORNBLLENDE

ANALYTICAL DATA:

K20 (%)..... 1.217

40AR-RAD (MOLES/GM)..... 7.131 X E-10

% RADIOGENIC..... 81

CALCULATED AGE..... 366 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION
RECORD NUMBER..... 0002595

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... ESSEX

REFERENCE NUMBER..... 77-00005
LABORATORY(IES)..... SD

QUAD SCALE QUAD NO. / NAME COMPILED BY
1: 24000 SALEM NAME: MARVIN, R.F.
LATITUDE..... 42-35-56 N DATE: 77 09
LONGITUDE..... 70-54-40 W

COMMENT..... ROADCUT ALONG STATE ROUTE 97, 600 METERS NORTH OF
INTERSECTION WITH CEDAR STREET, WENHAM

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
GEOLOGIC NAME: WENHAM MONZONITE
ROCK TYPE: MONZONITE

GEOLOGIC NAME CODE: WNHM
LEXICON AGE(S): 340
PETROGRAPHIC CODE: 8255

DESCRIPTION: LIGHT PINKISH-GRAY, MEDIUM-GRAINED WENHAM MONZONITE

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 175
ROCK/MINERAL CODE: MC1
COMMENT: -100+150 MESH

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 207.5
TH (PPM)..... 135.0
PB (PPM)..... 14.58

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.109	74.71	5.667	19.51

206PB/238U AGE..... 375 +/- 4 MILLION YEARS
207PB/235U AGE..... 378 +/- 6 MILLION YEARS
207PB/206PB AGE..... 398 +/- 10 MILLION YEARS
208PB/232TH AGE..... 378 +/- 5 MILLION YEARS
CONCORDIA INTERCEPT AGE.. 395 +/- 20 MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.90, 15.65, 38.20
COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

LABORATORY SAMPLE NUMBER: 175
ROCK/MINERAL CODE: MC1
COMMENT: -200+325 MESH

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 245.2
TH (PPM)..... 157.1
PB (PPM)..... 16.39

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.022	78.11	4.562	17.31

206PB/238U AGE..... 381 +/- 4 MILLION YEARS
207PB/235U AGE..... 383 +/- 4 MILLION YEARS

207PB/206PB AGE..... 393 +/- 5 MILLION YEARS
208PB/232TH AGE..... 392 +/- 4 MILLION YEARS
CONCORDIA INTERCEPT AGE.. 395 +/- 20 MILLION YEARS
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.90, 15.65, 38.20
COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... ESSEX

QUAD SCALE

1: 24000

QUAD NO. / NAME

SALEM

LATITUDE..... 42-36-00 N

LONGITUDE..... 70-55-00 W

COMMENT..... WENHAM

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001779

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: WENHAM MONZONITE

ROCK TYPE: MONZONITE

GEOLOGIC NAME CODE: WNHM

LEXICON AGE(S): 340 350 360

PETROGRAPHIC CODE: B255

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 27 (MASSACHUSETTS)

ROCK/MINERAL CODE: PC5

HORNBLende

ANALYTICAL DATA:

K20 (%)..... 0.963

40AR-RAD (MOLES/GM)..... 5.504 X E-10

% RADIOGENIC..... 40

CALCULATED AGE..... 358 +/- 8 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MANSFIELD
 LATITUDE..... 42-05-30 N
 LONGITUDE..... 71-08-30 W
 COMMENT..... RATTLESNAKE HILL, SHARON
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004615
 REFERENCE NUMBER..... 76-00025
 LABORATORY(IES)..... GC
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF RATTLESNAKE HILL PLUTON
 ROCK TYPE: VEIN
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B235
 DESCRIPTION: RATTLESNAKE PLUTON, QUARTZ-RIEBECKITE VEIN WITH COARSE BLADES
 OF RIEBECKITE (NOW GRANITE OF RATTLESNAKE HILL PLUTON)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: A-1089
 ROCK/MINERAL CODE: PC7 RIEBECKITE
 COMMENT: FRESH RIEBECKITE CONCENTRATE, -20+100 MESH; TRACES OF QUARTZ
 ANALYTICAL DATA:
 K20 (%)..... 1.641
 40AR-RAD (MOLES/GM)..... 9.96 X E-10
 % RADIOGENIC..... 72
 CALCULATED AGE..... 378 +/- 14 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... 1.351%, 1.373% K
 COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004616
STATE CODE.....	25	REFERENCE NUMBER.....	76-00025
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	NORFOLK		

QUAD SCALE	QUAD NO. / NAME	COMPILED BY
1: 24000	MANSFIELD	NAME: GODOY, M.M.
LATITUDE.....	42-05-30 N	DATE: 78 07
LONGITUDE.....	71-08-30 W	

COMMENT..... SOUTH SIDE OF RATTLESNAKE HILL, SHARON

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF RATTLESNAKE HILL PLUTON

ROCK TYPE: PEGMATITE

LEXICON AGE(S): 340

PETROGRAPHIC CODE: B225

DESCRIPTION: RATTLESNAKE PLUTON, RIEBECKITE GRANITE PEGMATITE WITH LARGE
 BLADES OF RIEBECKITE (NOW GRANITE OF RATTLESNAKE HILL PLUTON)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: A-1090

ROCK/MINERAL CODE: PC7

RIEBECKITE

COMMENT: FRESH RIEBECKITE CONCENTRATE, -40+100 MESH; TRACES OF QUARTZ AND
 FELDSPAR

ANALYTICAL DATA:

K20 (%).....	1.696
40AR-RAD (MOLES/GM).....	10.43 X E-10
% RADIOGENIC.....	79

CALCULATED AGE..... 382 +/- 14 MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... 1.409%, 1.406% K

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MANSFIELD
 LATITUDE..... 42-05-12 N
 LONGITUDE..... 71-08-54 W
 COMMENT..... SW OF RATTLESNAKE HILL, SHARON
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004617
 REFERENCE NUMBER..... 76-00025
 LABORATORY(IES)..... GC
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF RATTLESNAKE HILL PLUTON
 ROCK TYPE: GRANITE
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240
 DESCRIPTION: FINE RIEBECKITE GRANITE FORMING THE MAIN PHASE OF THE
 RATTLESNAKE PLUTON (NOW GRANITE OF RATTLESNAKE HILL PLUTON)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: A-1091
 ROCK/MINERAL CODE: PC7 RIEBECKITE
 COMMENT: FRESH RIEBECKITE CONCENTRATE, -40+200 MESH; 1% BIOTITE, 1%
 FELDSPAR
 ANALYTICAL DATA:
 K20 (%)..... 1.419
 40AR-RAD (MOLES/GM)..... 8.13 X E-10
 % RADIOGENIC..... 71, 76
 CALCULATED AGE..... 359 +/- 11 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... 1.206%, 1.150% K; 0.0325 PPM, 0.0325 PPM RAD
 AR-40
 COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MANSFIELD
 LATITUDE..... 42-05-00 N
 LONGITUDE..... 71-09-42 W
 COMMENT..... 1 MILE SW OF RATTLESNAKE HILL, SHARON
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004618
 REFERENCE NUMBER..... 76-00025
 LABORATORY(IES)..... GC

COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF RATTLESNAKE HILL PLUTON

ROCK TYPE: GRANITE

LEXICON AGE(S): 340

PETROGRAPHIC CODE: B240

DESCRIPTION: RATTLESNAKE PLUTON, COARSE BIOTITE GRANITE (MASSAPOAG LAKE
 GRANITE)--(NOW GRANITE OF RATTLESNAKE HILL PLUTON)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: B-1092

ROCK/MINERAL CODE: UA5

BIOTITE

COMMENT: -40+100 MESH; SLIGHTLY CHLORITIZED BIOTITE, 1% QUARTZ AND 1%
 FELDSPAR

ANALYTICAL DATA:

K20 (%)..... 6.396

40AR-RAD (MOLES/GM)..... 31.78 X E-10

% RADIOGENIC..... 80

CALCULATED AGE..... 315 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004622
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	76-00025
COUNTY.....	NORFOLK	LABORATORY(IES).....	GC
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MANSFIELD	NAME: GODOY, M.M.	
LATITUDE.....	42-05-01 N	DATE: 78 07	
LONGITUDE.....	71-09-29 W		

COMMENT..... ABOUT 1 MILE SW OF RATTLESNAKE HILL, SHARON

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF RATTLESNAKE HILL PLUTON
ROCK TYPE: GRANITE
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240
DESCRIPTION: RATTLESNAKE PLUTON, COARSE-GRAINED GRANITE PORPHYRY (NOW
GRANITE OF RATTLESNAKE HILL PLUTON)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: B-3043
ROCK/MINERAL CODE: UA5
COMMENT: -80+200 MESH; 99% PARTLY CHLORITIZED BIOTITE WITH TRACES OF
QUARTZ AND FELDSPAR
BIOTITE
ANALYTICAL DATA:
K20 (%)..... 1.187
40AR-RAD (MOLES/GM)..... 4.791 X E-10
% RADIOGENIC..... 35
CALCULATED AGE..... 260 +/- 14 MILLION YEARS
TYPE OF ANALYSIS..... 10
ANALYTICAL COMMENTS..... 0.977%, 0.993% K
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004623
STATE CODE.....	25	REFERENCE NUMBER.....	76-00025
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MANSFIELD	NAME: GODOY, M.M.	
LATITUDE.....	42-06-43 N	DATE: 78 07	
LONGITUDE.....	71-09-53 W		
COMMENT..... RATTLESNAKE HILL, SHARON			

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF RATTLESNAKE HILL PLUTON
ROCK TYPE: GRANITE
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240
DESCRIPTION: RATTLESNAKE PLUTON, COARSE-GRAINED RIEBECKITE GRANITE
(NOW GRANITE OF RATTLESNAKE HILL PLUTON)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: A-3044
ROCK/MINERAL CODE: PC7
COMMENT: -80+200 MESH; 98% PARTLY ALTERED RIEBECKITE, 2% QUARTZ AND FELDSPAR
ANALYTICAL DATA:
K20 (%)..... 0.733
40AR-RAD (MOLES/GM)..... 4.084 X E-10
% RADIOGENIC..... 46, 50
CALCULATED AGE..... 350 +/- 14 MILLION YEARS
TYPE OF ANALYSIS..... 10
ANALYTICAL COMMENTS..... 0.609%, 0.607% K; 0.01644 PPM, 0.01621 PPM RAD
AR-40
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004619
STATE CODE.....	25	REFERENCE NUMBER.....	76-00025
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MANSFIELD	NAME: GODOY, M.M.	
LATITUDE.....	42-05-30 N	DATE: 78 07	
LONGITUDE.....	71-08-00 W		
COMMENT.....	1 MILE ENE OF RATTLESNAKE HILL, STOUGHTON		

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF RATTLESNAKE HILL PLUTON
ROCK TYPE: GRANITE
LEXICON AGE(S): 340
PETROGRAPHIC CODE: B240
DESCRIPTION: RATTLESNAKE PLUTON, FINE RIEBECKITE GRANITE (NOW GRANITE OF RATTLESNAKE HILL PLUTON)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: A-2009
ROCK/MINERAL CODE: PC7
COMMENT: -60+200 MESH; 96% RIEBECKITE, 4% QUARTZ AND FELDSPAR
ANALYTICAL DATA:
K20 (%)..... 1.580
40AR-RAD (MOLES/GM)..... 9.36 X E-10
% RADIOGENIC..... 76
CALCULATED AGE..... 370 +/- 15 MILLION YEARS
TYPE OF ANALYSIS..... 10
COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MANSFIELD
 LATITUDE..... 42-05-30 N
 LONGITUDE..... 71-08-00 W
 COMMENT..... 1 MILE ENE OF RATTLESNAKE HILL, STOUGHTON
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004620
 REFERENCE NUMBER..... 76-00025
 LABORATORY(IES)..... GC

COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF RATTLESNAKE HILL PLUTON
 ROCK TYPE: GRANITE
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240
 DESCRIPTION: RATTLESNAKE PLUTON, FINE RIEBECKITE GRANITE (NOW GRANITE OF RATTLESNAKE HILL PLUTON)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: A-2010
 ROCK/MINERAL CODE: PC7
 COMMENT: -100+200 MESH; 95% RIEBECKITE, 5% QUARTZ AND FELDSPAR
 ANALYTICAL DATA:
 K20 (%)..... 1.400
 40AR-RAD (MOLES/GM)..... 8.48 X E-10
 % RADIOGENIC..... 61
 CALCULATED AGE..... 377 +/- 16 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MANSFIELD
 LATITUDE..... 42-05-26 N
 LONGITUDE..... 71-08-14 W
 COMMENT..... 1 MILE NE OF RATTLESNAKE HILL, STOUGHTON
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004621
 REFERENCE NUMBER..... 76-00025
 LABORATORY(IES)..... GC
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF RATTLESNAKE HILL PLUTON
 ROCK TYPE: TRACHYTE
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: A122
 DESCRIPTION: RATTLESNAKE PLUTON, VERY FINE-GRAINED TRACHYTE WITH FELDSPAR
 PHENOCRYSTS (NOW GRANITE OF RATTLESNAKE HILL PLUTON)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: B-3042
 ROCK/MINERAL CODE: AA0
 COMMENT: -80+200 MESH
 ANALYTICAL DATA:
 K20 (%)..... 4.589
 40AR-RAD (MOLES/GM)..... 16.57 x E-10
 % RADIOGENIC..... 60
 CALCULATED AGE..... 234 +/- 11 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... 3.813%, 3.804% K
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GEORGETOWN OR IPSWICH
 LATITUDE..... 42-40-00 N
 LONGITUDE..... 70-53-00 W
 COMMENT..... NEAR ROWLEY
 PRECISION OF LOCATION: 4
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004826
 REFERENCE NUMBER..... 68-00030
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: NEWBURY VOLCANIC COMPLEX GEOLOGIC NAME CODE: NBRY
 ROCK TYPE: RHYOLITE LEXICON AGE(S): 340 351
 PETROGRAPHIC CODE: A121
 DESCRIPTION: NEWBURY VOLCANICS (ALTERED MATERIAL)--(NOW NEWBURY VOLCANIC COMPLEX)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4308
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA: WHOLE-ROCK
 RB (PPM)..... 151
 SR (PPM)..... 78.4 T
 87RB/86SR..... 5.60
 87SR/86SR..... 0.7337
 CALCULATED AGE..... 338 +/- 10 MILLION YEARS
 INITIAL 87SR/86SR..... 0.7065
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00174
 COMMENTS: MINIMUM AGE OF VOLCANISM; ISOCHRON AGE IS IN QUESTION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GEORGETOWN OR IPSWICH
 LATITUDE..... 42-40-00 N
 LONGITUDE..... 70-53-00 W
 COMMENT..... NEAR ROWLEY
 PRECISION OF LOCATION: 4
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004827
 REFERENCE NUMBER..... 68-00030
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: NEWBURY VOLCANIC COMPLEX GEOLOGIC NAME CODE: NBRY
 ROCK TYPE: RHYOLITE LEXICON AGE(S): 340 351
 PETROGRAPHIC CODE: A121
 DESCRIPTION: NEWBURY VOLCANICS (ALTERED MATERIAL)--(NOW NEWBURY VOLCANIC COMPLEX)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4310
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA: WHOLE-ROCK
 Rb (PPM)..... 215
 SR (PPM)..... 22.35 T
 87Rb/86SR..... 28.21
 87SR/86SR..... 0.8375
 CALCULATED AGE..... 338 +/- 10 MILLION YEARS
 INITIAL 87SR/86SR..... 0.7065
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 23.0 AND 21.7 PPM SR; 5-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00174
 COMMENTS: MINIMUM AGE OF VOLCANISM; ISOCHRON AGE IS IN QUESTION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004828
STATE CODE.....	25	REFERENCE NUMBER.....	68-00030
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	GEORGETOWN OR IPSWICH	NAME: MARVIN, R.F.	
LATITUDE.....	42-40-00 N	DATE: 79 01	
LONGITUDE.....	70-53-00 W		
COMMENT.....	NEAR ROWLEY		

PRECISION OF LOCATION: 4
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: NEWBURY VOLCANIC COMPLEX	GEOLOGIC NAME-CODE: NBRY
ROCK TYPE: RHYOLITE	LEXICON AGE(S): 340 351
	PETROGRAPHIC CODE: A121
DESCRIPTION: NEWBURY VOLCANICS (ALTERED MATERIAL)--(NOW NEWBURY VOLCANIC COMPLEX)	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4310B

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	217	
SR (PPM).....	21.0	T
87RB/86SR.....	30.34	
87SR/86SR.....	0.8536	
CALCULATED AGE.....	338 +/- 10	MILLION YEARS
INITIAL 87SR/86SR.....	0.7065	
TYPE OF ANALYSIS.....	22	
ANALYTICAL COMMENTS.....	5-POINT WHOLE-ROCK ISOCHRON	

SAMPLE SUITE: 00174

COMMENTS: MINIMUM AGE OF VOLCANISM; ISOCHRON AGE IS IN QUESTION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GEORGETOWN OR IPSWICH
 LATITUDE..... 42-40-00 N
 LONGITUDE..... 70-53-00 W
 COMMENT..... NEAR ROWLEY
 PRECISION OF LOCATION: 4
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004829
 REFERENCE NUMBER..... 68-00030
 LABORATORY(IES)..... MT

COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: NEWBURY VOLCANIC COMPLEX GEOLOGIC NAME CODE: NBRY
 ROCK TYPE: BASALT LEXICON AGE(S): 340 351
 PETROGRAPHIC CODE: A131
 DESCRIPTION: NEWBURY VOLCANICS (ALTERED MATERIAL)--(NOW NEWBURY VOLCANIC COMPLEX)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4311
 ROCK/MINERAL CODE: AA0 WHOLE-ROCK
 ANALYTICAL DATA:
 RB (PPM)..... 8.40
 SR (PPM)..... 560 T
 87RB/86SR..... 0.04
 87SR/86SR..... 0.7073
 CALCULATED AGE..... 338 +/- 10 MILLION YEARS
 INITIAL 87SR/86SR..... 0.7065
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 5-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00174
 COMMENTS: MINIMUM AGE OF VOLCANISM; ISOCHRON AGE IS IN QUESTION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME COMPILED BY
 1: 24000 GEORGETOWN OR IPSWICHNAME: GODOY, M.M.
 LATITUDE..... 42-40-00 N DATE: 78 07
 LONGITUDE..... 70-53-00 W
 COMMENT..... NEAR ROWLEY
 PRECISION OF LOCATION: 4
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: NEWBURY VOLCANIC COMPLEX GEOLOGIC NAME CODE: NBRY
 ROCK TYPE: ANDESITE LEXICON AGE(S): 340 351
 PETROGRAPHIC CODE: A124
 DESCRIPTION: NEWBURY VOLCANIC (ALTERED MATERIAL)--(NOW NEWBURY
 VOLCANIC COMPLEX)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4312

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 25.3

SR (PPM)..... 903 T

87RB/86SR..... 0.08

87SR/86SR..... 0.7056

CALCULATED AGE..... 338 +/- 10 MILLION YEARS

INITIAL 87SR/86SR..... 0.7065

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... REPLICATE 87SR/86SR ANALYSES; 5-POINT

WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00174

COMMENTS: MINIMUM AGE OF VOLCANISM; ISOCHRON AGE IS IN QUESTION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... ESSEX

QUAD SCALE

1: 24000

QUAD NO. / NAME

MARBLEHEAD NORTH

LATITUDE..... 42-32-00 N

LONGITUDE..... 70-52-00 W

COMMENT..... SALEM

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001776

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

SAMPLE DESCRIPTION

ROCK TYPE: ESSEXITE

DESCRIPTION: ESSEXITE DIKE

LEXICON AGE(S): 350 360 340

PETROGRAPHIC CODE: B275

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 24 (MASSACHUSETTS)

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 7.98

40AR-RAD (MOLES/GM)..... 51.92 X E-10

% RADIOGENIC..... 92

CALCULATED AGE.....

403 +/- 12 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MARBLEHEAD NORTH
 LATITUDE..... 42-31-44 N
 LONGITUDE..... 70-52-29 W
 COMMENT..... OUTCROP AT CAT COVE NEAR SALEM SEWAGE PLANT 300'
 SOUTHEAST OF FORT AVENUE, SALEM NECK
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1
 SAMPLE DESCRIPTION
 ROCK TYPE: GABBRO
 DESCRIPTION: GREENISH-GRAY PEGMATITIC PHASE OF ESSEXITE (ALKALIC GABBRO) DIKE
 POTASSIUM-ARGON
 LABORATORY SAMPLE NUMBER: 161-A
 ROCK/MINERAL CODE: UAS
 ANALYTICAL DATA:
 K20 (%)..... 8.67
 40AR-RAD (MOLES/GM)..... 58.62 X E-10
 % RADIOGENIC..... 96
 CALCULATED AGE..... 418 +/- 12 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: AGE OF INTRUSION
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001717
 REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD

COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

BIOTITE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001777
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MARBLEHEAD NORTH	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-32-00 N	DATE: 77 06	
LONGITUDE.....	70-52-00 W		
COMMENT.....	SALEM		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 6			

SAMPLE DESCRIPTION
ROCK TYPE: SYENITE

LEXICON AGE(S): 340 350 360
PETROGRAPHIC CODE: B245

DESCRIPTION: TRACHYTIC SYENITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 25 (MASSACHUSETTS)
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

K20 (%)..... 1.65
40AR-RAD (MOLES/GM)..... 11.13 X E-10
% RADIOGENIC..... 82

415 +/- 12 MILLION YEARS

CALCULATED AGE.....

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001698

STATE CODE..... 25

STATE..... MASSACHUSETTS

REFERENCE NUMBER..... 71-00005

COUNTY..... ESSEX

LABORATORY(IES)..... SD

QUAD SCALE

QUAD NO. / NAME

COMPILED BY

1: 24000

GLOUCESTER

NAME: WILLIAMS, B. R.

LATITUDE..... 42-41-15 N

DATE: 77 06

LONGITUDE..... 70-38-14 W

COMMENT..... SMALL ABANDONED QUARRY ON NORTH SIDE OF MASSACHUSETTS
ROUTE 127 AT FOLLY COVE, ROCKPORT

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX

GEOLOGIC NAME CODE: CPAN

ROCK TYPE: GRANITE

LEXICON AGE(S): 361 357 340

PETROGRAPHIC CODE: B240

DESCRIPTION: CAPE ANN GRANITE; LIGHT-GRAY, MEDIUM-GRAINED GRANITE,
(NOW CAPE ANN COMPLEX)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 163

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 110.2

SR (PPM)..... 37.1 N

87RB/86SR..... 8.60

87SR/86SR..... 0.7556

CALCULATED AGE..... 426 +/- 6 MILLION YEARS

INITIAL 87SR/86SR..... 0.703

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 11-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00088

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GLOUCESTER
 LATITUDE..... 42-41-12 N
 LONGITUDE..... 70-38-08 W
 COMMENT..... ROADCUT ALONG MASSACHUSETTS ROUTE 127; ROCKPORT
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001699
 REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 361 357 340
 PETROGRAPHIC CODE: B240

DESCRIPTION: CAPE ANN GRANITE; LIGHT-GRAY, MEDIUM-GRAINED GRANITE
 (NOW CAPE ANN COMPLEX)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 164

ROCK/MINERAL CODE: PCS

HORNBLENDE

ANALYTICAL DATA:

K20 (%)..... 1.778

40AR-RAD (MOLES/GM)..... 11.06 X E-10

% RADIOGENIC..... 97

CALCULATED AGE..... 388 +/- 11 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 164

ROCK/MINERAL CODE: AAO

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 118.4

SR (PPM)..... 31.3 N

87RB/86SR..... 10.96

87SR/86SR..... 0.7664

CALCULATED AGE..... 426 +/- 6 MILLION YEARS

INITIAL 87SR/86SR..... 0.703

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 11-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00088

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GLOUCESTER
 LATITUDE..... 42-40-03 N
 LONGITUDE..... 70-37-35 W
 COMMENT..... ABANDONED (FLAT LEDGE) QUARRY 100 FEET WEST OF GRANITE STREET (MASSACHUSETTS ROUTE 127) AND 2000 FEET SOUTH OF PIGEON HILL, ROCKPORT

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001700
 REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 361 357 340
 PETROGRAPHIC CODE: B240

DESCRIPTION: CAPE ANN GRANITE; LIGHT-GRAY, FINE-GRAINED GRANITE (NOW CAPE ANN COMPLEX)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 165A
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 264.8
 SR (PPM)..... 8.39 N
 87RB/86SR..... 91.32
 87SR/86SR..... 1.253

CALCULATED AGE..... 426 +/- 6 MILLION YEARS

INITIAL 87SR/86SR..... 0.703

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 11-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00088

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GLOUCESTER
 LATITUDE..... 42-40-03 N
 LONGITUDE..... 70-37-35 W
 COMMENT..... ABANDONED (FLAT LEDGE) QUARRY 100' WEST OF GRANITE
 STREET (MASSACHUSETTS ROUTE 127) AND 2000' SOUTH OF PIGEON HILL, ROCKPORT
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001701
 REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: MARVIN, R. F.
 DATE: 77 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE
 DESCRIPTION: LIGHT-GRAY, MEDIUM-GRAINED CAPE ANN GRANITE (NOW CAPE ANN
 COMPLEX)
 GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 361 357 340
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 165C
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 229.1
 SR (PPM)..... 5.86 N
 87RB/86SR..... 113.1
 87SR/86SR..... 1.386
 CALCULATED AGE..... 426 +/- 6 MILLION YEARS
 INITIAL 87SR/86SR..... 0.703
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 11-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00088
 COMMENTS: AGE OF INTRUSION
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GLOUCESTER
 LATITUDE..... 42-40-03 N
 LONGITUDE..... 70-37-35 W
 COMMENT..... ABANDONED (FLAT LEDGE) QUARRY 100' WEST OF GRANITE STREET (MASSACHUSETTS ROUTE 127) AND 2000' SOUTH OF PIGEON HILL, ROCKPORT
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001702
 REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD

COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 77 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE
 DESCRIPTION: LIGHT BLUISH-GRAY, MEDIUM-GRAINED CAPE ANN GRANITE, (NOW CAPE ANN COMPLEX)
 GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 361 357 340
 PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 165D
 ROCK/MINERAL CODE: UAS
 ANALYTICAL DATA:
 K20 (%)..... 6.78
 40AR-RAD (MOLES/GM)..... 38.78 X E-10
 % RADIOGENIC..... 92
 CALCULATED AGE..... 359 +/- 11 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM;
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 165D
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 227.3
 SR (PPM)..... 5.56 N
 87RB/86SR..... 118.4
 87SR/86SR..... 1.408
 CALCULATED AGE..... 426 +/- 6 MILLION YEARS
 INITIAL 87SR/86SR..... 0.703
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 11-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00088
 COMMENTS: AGE OF INTRUSION
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001703
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	71-00005
COUNTY.....	ESSEX	LABORATORY(IES).....	SD

QUAD SCALE	QUAD NO. / NAME	COMPILED BY
1: 24000	GLOUCESTER	NAME: WILLIAMS, B. R.
LATITUDE.....	42-37-24 N	DATE: 77 06
LONGITUDE.....	70-38-42 W	

COMMENT..... ROADCUT ALONG MASSACHUSETTS ROUTE 128; 1000 WEST OF
INTERSECTION WITH EASTERN AVENUE, GLOUCESTER

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
ROCK TYPE: APLITE

GEOLOGIC NAME CODE: CPAN
LEXICON AGE(S): 361 357 340
PETROGRAPHIC CODE: B230

DESCRIPTION: CAPE ANN GRANITE; GRAYISH-WHITE, FINE-GRAINED APLITE (NOW
CAPE ANN COMPLEX)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 166

ROCK/MINERAL CODE: PC7

RIEBECKITE

ANALYTICAL DATA:

K20 (%)..... 1.108

40AR-RAD (MOLES/GM)..... 7.15 X E-10

% RADIOGENIC..... 97

CALCULATED AGE..... 401 +/- 12 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM;
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 166

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RE (PPM)..... 160.0

SR (PPM)..... 5.84 N

87RB/86SR..... 79.30

87SR/86SR..... 1.192

CALCULATED AGE..... 426 +/- 6 MILLION YEARS

INITIAL 87SR/86SR..... 0.703

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 11-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00088

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001704
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	GLOUCESTER	NAME: WILLIAM, B.R.	
LATITUDE.....	42-37-30 N	DATE: 78 07	
LONGITUDE.....	70-39-44 W		
COMMENT.....	ROADCUT ALONG MASS. ROUTE 128--800-FT EAST OF BOSTON AND MAINE RAILROAD BRIDGE, GLOUCESTER		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
LEXICON AGE(S): 361 357 340
PETROGRAPHIC CODE: B240

DESCRIPTION: LIGHT PINK, MEDIUM-GRAINED GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 167

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 253.9

SR (PPM)..... 11.5 N

87RB/86SR..... 63.63

87SR/86SR..... 1.092

CALCULATED AGE..... 435 +/- 6 MILLION YEARS

INITIAL 87SR/86SR..... 0.703

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 11-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00088

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-0005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001705
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	GLOUCESTER	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-36-52 N	DATE: 77 06	
LONGITUDE.....	70-43-53 W		

COMMENT..... ROADCUT ALONG MASSACHUSETTS ROUTE 128; 1000 FEET NORTH OF MT. ANN, GLOUCESTER

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
LEXICON AGE(S): 361 357 340
PETROGRAPHIC CODE: B240

DESCRIPTION: CAPE ANN GRANITE; LIGHT-GREEN, MEDIUM-GRAINED GRANITE (NOW CAPE ANN COMPLEX)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 168
ROCK/MINERAL CODE: PC5

HORNBLLENDE

ANALYTICAL DATA:

K20 (%)..... 1.282
40AR-RAD (MOLES/GM)..... 8.38 X E-10
% RADIOGENIC..... 98

CALCULATED AGE..... 405 +/- 12 MILLION YEARS
TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM;
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 168
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 110.0
SR (PPM)..... 44.8 N
87RB/86SR..... 7.10
87SR/86SR..... 0.7455

CALCULATED AGE..... 426 +/- 6 MILLION YEARS
INITIAL 87SR/86SR..... 0.703

TYPE OF ANALYSIS..... 22
ANALYTICAL COMMENTS..... 11-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00088

COMMENTS: AGE OF INTRUSION
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MARBLEHEAD NORTH
 LATITUDE..... 42-35-19 N
 LONGITUDE..... 70-48-45 W
 COMMENT..... ROADCUT ALONG MASSACHUSETTS ROUTE 128; 1000' EAST OF
 WENHAM TOWN LINE, MANCHESTER
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001706
 REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 361 357 340
 PETROGRAPHIC CODE: B240

DESCRIPTION: CAPE ANN GRANITE; GREENISH-GRAY, MEDIUM- TO FINE-GRAINED
 GRANITE (NOW CAPE ANN COMPLEX)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 169
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 102.5
 SR (PPM)..... 9.59 N
 87RB/86SR..... 30.93
 87SR/86SR..... 0.891

CALCULATED AGE..... 426 +/- 6 MILLION YEARS
 INITIAL 87SR/86SR..... 0.703

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 11-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00088

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001707
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	71-00005
COUNTY.....	ESSEX	LABORATORY(IES).....	SD
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MARBLEHEAD NORTH	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-34-38 N	DATE: 77 06	
LONGITUDE.....	70-50-03 W		

COMMENT..... ROADCUT ALONG MASSACHUSETTS ROUTE 128: 4000' EAST OF UNDERPASS AT STANLEY STREET, BEVERLY

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX	GEOLOGIC NAME CODE: CPAN
ROCK TYPE: GRANITE	LEXICON AGE(S): 340
	PETROGRAPHIC CODE: B240
DESCRIPTION: CAPE ANN GRANITE; GREENISH-GRAY, MEDIUM-GRAINED GRANITE (NOW CAPE ANN COMPLEX)	

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 170	
ROCK/MINERAL CODE: PCS	HORNBLENDE
ANALYTICAL DATA:	
K20 (%).....	1.125
40AR-RAD (MOLES/GM).....	6.88 X E-10
% RADIOGENIC.....	97
CALCULATED AGE.....	381 +/- 11 MILLION YEARS
TYPE OF ANALYSIS.....	10
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM;	
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 170	
ROCK/MINERAL CODE: AAO	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	78.3
SR (PPM).....	57.3 N
87RB/86SR.....	3.96
87SR/86SR.....	0.7269
CALCULATED AGE.....	426 +/- 6 MILLION YEARS
INITIAL 87SR/86SR.....	0.703
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS.....	11-POINT WHOLE-ROCK ISOCHRON
SAMPLE SUITE: 00088	
COMMENTS: AGE OF INTRUSION	
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GLOUCESTER
 LATITUDE..... 42-39-52 N
 LONGITUDE..... 70-38-25 W
 COMMENT..... ROCKPORT (FORMERLY LEONARD JOHNSON) QUARRY 4200'
 SOUTHWEST OF PIGEON HILL, ROCKPORT
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3
 SAMPLE DESCRIPTION
 GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE
 DESCRIPTION: LIGHT BLUISH-GRAY, MEDIUM-GRAINED GRANITE; CAPE ANN GRANITE
 (NOW CAPE ANN COMPLEX)
 POTASSIUM-ARGON
 LABORATORY SAMPLE NUMBER: 260
 ROCK/MINERAL CODE: PC5
 ANALYTICAL DATA:
 K20 (%)..... 1.240
 40AR-RAD (MOLES/GM)..... 7.93 X E-10
 % RADIOGENIC..... 97
 CALCULATED AGE..... 398 +/- 12 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM;
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005
 RUBIDIUM-STRONTIUM
 LABORATORY SAMPLE NUMBER: 260
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 154.4
 SR (PPM)..... 16.3 N
 87RB/86SR..... 27.36
 87SR/86SR..... 0.871
 CALCULATED AGE..... 426 +/- 6 MILLION YEARS
 INITIAL 87SR/86SR..... 0.703
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 11-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00088
 COMMENTS: AGE OF INTRUSION
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 240

ROCK/MINERAL CODE: MC1

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1330

TH (PPM)..... 599.7

PB (PPM)..... 92.9

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB

0.042 81.83 5.168 12.96

206PB/238U AGE..... 417 +/- 8 MILLION YEARS

207PB/235U AGE..... 421 +/- 9 MILLION YEARS

207PB/206PB AGE..... 452 +/- 10 MILLION YEARS

208PB/232TH AGE..... 402 +/- 8 MILLION YEARS

CONCORDIA INTERCEPT AGE.. 450 +/- 25 MILLION YEARS

ANALYTICAL COMMENTS..... 4-POINT (ZIRCONS) DISCORDIA LINE

SAMPLE SUITE: 00087

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GLOUCESTER
 LATITUDE..... 42-41-15 N
 LONGITUDE..... 70-38-14 W
 COMMENT..... SMALL ABANDONED QUARRY ON NORTH SIDE OF STATE ROUTE 127
 AT FOLLY COVE, ROCKPORT

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002593
 REFERENCE NUMBER..... 77-00005
 LABORATORY(IES)..... SD

COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 77 09

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: 8240

DESCRIPTION: LIGHT GRAY, MEDIUM-GRAINED CAPE ANN GRANITE (NOW CAPE ANN COMPLEX)

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 163
 ROCK/MINERAL CODE: MC1
 COMMENT: -200+250 MESH

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 886.4
 TH (PPM)..... 400.5
 PB (PPM)..... 62.85

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.033	81.93	5.045	12.99

206PB/238U AGE	207PB/235U AGE	207PB/206PB AGE	208PB/232TH AGE	CONCORDIA INTERCEPT AGE	
422 +/- 4	427 +/- 4	451 +/- 6	420 +/- 4	450 +/-	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.90, 15.65, 38.20

COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MARBLEHEAD NORTH
 LATITUDE..... 42-34-27 N
 LONGITUDE..... 70-50-24 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002594
 REFERENCE NUMBER..... 77-00005
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 77 09
 COMMENT..... ROADCUT ALONG STATE ROUTE 128, 800 METERS EAST OF
 UNDERPASS AT STANDLEY STREET, REVERLY

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240
 DESCRIPTION: GREENISH-GRAY, MEDIUM-GRAINED CAPE ANN GRANITE (NOW CAPE ANN
 GRANITE)

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 170A
 ROCK/MINERAL CODE: MC1
 COMMENT: -100+150 MESH
 ANALYTICAL DATA:
 U (PPM)..... 158.6
 TH (PPM)..... 67.9
 PB (PPM)..... 10.98
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.038 82.24 5.130 12.59
 206PB/238U AGE..... 413 +/- 4 MILLION YEARS
 207PB/235U AGE..... 418 +/- 4 MILLION YEARS
 207PB/206PB AGE..... 446 +/- 6 MILLION YEARS
 208PB/232TH AGE..... 411 +/- 4 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 450 +/- MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.90, 15.65, 38.20
 COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

ZIRCON

LABORATORY SAMPLE NUMBER: 170A
 ROCK/MINERAL CODE: MC1
 COMMENT: -200+270 MESH

ZIRCON

ANALYTICAL DATA:
 U (PPM)..... 203.6
 TH (PPM)..... 86.6
 PB (PPM)..... 14.41
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.010 83.28 4.766 11.94

206PB/238U AGE.....	430 +/- 4	MILLION YEARS
207PB/235U AGE.....	432 +/- 4	MILLION YEARS
207PB/206PB AGE.....	442 +/- 5	MILLION YEARS
208PB/232TH AGE.....	439 +/- 4	MILLION YEARS
CONCORDIA INTERCEPT AGE..	450 +/-	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.90, 15.65, 38.20

COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... ESSEX

QUAD SCALE

1: 24000

LATITUDE..... 42-36-49 N

LONGITUDE..... 70-43-46 W

QUAD NO. / NAME

GLOUCESTER

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0002413

REFERENCE NUMBER..... 68-00015

LABORATORY(IES)..... NC GS

COMPILED BY

NAME: WILLIAMS, B.R.

DATE: 77 08

COMMENT..... ON THE EASTERN SLOPES OF MT. ANN OR EAST OF THE ANNISQUAM BRIDGE, 0.4 MILE BEYOND THE SECOND ROTARY ON MASS ROUTE 128 EXTENSION ("EITHER-OR" SITUATION--COMPILER), ANNISQUAM

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN

LEXICON AGE(S): 360 350

PETROGRAPHIC CODE: B240

DESCRIPTION: CAPE ANN GRANITE (WEATHERED)--(NOW CAPE ANN COMPLEX)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-203

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 103

SR (PPM)..... 4.41 T

87RB/86SR..... 70.08

87SR/86SR..... 1.0763

CALCULATED AGE..... 371 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.707

TYPE OF ANALYSIS..... 20

COMMENTS: INITIAL AGE DISTURBED BY WEATHERING; 415 M.Y. AGE GIVEN BY FRESH SAMPLES.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002414
STATE CODE.....	25	REFERENCE NUMBER.....	68-00015
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	NC GS
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	GLOUCESTER	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-36-49 N	DATE: 77 08	
LONGITUDE.....	70-43-46 W		

COMMENT..... ON THE EASTERN SLOPES OF MT. ANN OR EAST OF THE ANNISQUAM BRIDGE, 0.4 MILE BEYOND THE SECOND ROTARY ON MASS ROUTE 128 EXTENSION ("EITHER-OR" SITUATION--COMPILER), ANNISQUAM

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
LEXICON AGE(S): 360 350
PETROGRAPHIC CODE: B240

DESCRIPTION: CAPE ANN GRANITE (WEATHERED)--(NOW CAPE ANN COMPLEX)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-204
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	114	
SR (PPM).....	4.42	T
87RB/86SR.....	77.65	
87SR/86SR.....	1.1139	
CALCULATED AGE.....		
INITIAL 87SR/86SR.....	0.707	
TYPE OF ANALYSIS.....	20	

369 +/- MILLION YEARS

COMMENTS: INITIAL AGE DISTURBED BY WEATHERING; 415 M.Y. AGE GIVEN BY FRESH SAMPLES.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002415
STATE CODE.....	25	REFERENCE NUMBER.....	68-00015
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	NC GS
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	GLOUCESTER	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-37-20 N	DATE: 77 08	
LONGITUDE.....	70-39-11 W		

COMMENT..... EAST OF THE ANNISQUAM BRIDGE, 0.4 MILES BEYOND THE SECOND ROTARY ON MASSACHUSETTS ROUTE 128 EXTENSION OR ON THE EASTERN SLOPES OF MT. ANN ("EITHER-OR" SITUATION--COMPILER), ANNISQUAM

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX	GEOLOGIC NAME CODE: CPAN
ROCK TYPE: GRANITE	LEXICON AGE(S): 360 350
	PETROGRAPHIC CODE: 8240
DESCRIPTION: CAPE ANN GRANITE (WEATHERED)--(NOW CAPE ANN COMPLEX)	

RUBIDIUM-STROMTIUM

LABORATORY SAMPLE NUMBER: ODC-205
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

Rb (PPM).....	126
SR (PPM).....	4.14 T
87Rb/86SR.....	92.07
87SR/86SR.....	1.1658
CALCULATED AGE.....	350 +/-
INITIAL 87SR/86SR.....	0.707
TYPE OF ANALYSIS.....	20

MILLION YEARS

COMMENTS: INITIAL AGE DISTURBED BY WEATHERING; 415 M.Y. AGE GIVEN BY FRESH SAMPLES.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GLOUCESTER
 LATITUDE..... 42-37-20 N
 LONGITUDE..... 70-39-11 W
 COMMENT..... EAST OF THE ANNISQUAM BRIDGE, 0.4 MILES BEYOND THE
 SECOND ROTARY ON MASSACHUSETTS ROUTE 128 EXTENSION OR ON THE EASTERN
 SLOPES OF MT ANN ("EITHER-OR" SITUATION--COMPILER), ANNISQUAM
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1
 SAMPLE DESCRIPTION
 GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE
 DESCRIPTION: WEATHERED CAPE ANN GRANITE (NOW CAPE ANN COMPLEX)
 RUBIDIUM-STRONTIUM
 LABORATORY SAMPLE NUMBER: ODC-206
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 98.3
 SR (PPM)..... 7.09 T
 87RB/86SR..... 40.96
 87SR/86SR..... 0.9190
 CALCULATED AGE..... 364 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.707
 TYPE OF ANALYSIS..... 20
 COMMENTS: INITIAL AGE DISTURBED BY WEATHERING; 415 M.Y. AGE GIVEN BY
 FRESH SAMPLES

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002416
 REFERENCE NUMBER..... 68-00015
 LABORATORY(IES)..... NC GS

COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 360 350
 PETROGRAPHIC CODE: B240

WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... ESSEXQUAD SCALE QUAD NO. / NAME
1: 24000 SALEM
LATITUDE..... 42-34-00 N
LONGITUDE..... 70-53-00 W

COMMENT..... BEVERLY

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001780

REFERENCE NUMBER..... 70-00005
LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.
DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
ROCK TYPE: GRANITEGEOLOGIC NAME CODE: CPAN
LEXICON AGE(S): 360 340
PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 28 (MASSACHUSETTS)

ROCK/MINERAL CODE: PCS

HORNBLLENDE

ANALYTICAL DATA:

K20 (%)..... 1.118

40AR-RAD (MOLES/GM)..... 6.48 X-E-10

% RADIOGENIC..... 59

CALCULATED AGE..... 363 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MARBLEHEAD NORTH
 LATITUDE..... 42-35-00 N
 LONGITUDE..... 70-50-00 W
 COMMENT..... BEVERLY
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001781
 REFERENCE NUMBER..... 70-00005
 LABORATORY(IES)..... GC
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 360 340
 PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 29 (MASSACHUSETTS)

ROCK/MINERAL CODE: PC5

HORNBLENDE

ANALYTICAL DATA:

K20 (%)..... 1.59
 40AR-RAD (MOLES/GM)..... 9.157 X E-10
 % RADIOGENIC..... 46

CALCULATED AGE..... 360 +/- 10 MILLION YEARS
 TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... ESSEX

QUAD SCALE

1: 24000

QUAD NO. / NAME

GLOUCESTER

LATITUDE..... 42-37-00 N

LONGITUDE..... 70-39-00 W

COMMENT..... GLOUCESTER

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001782

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN

LEXICON AGE(S): 360

PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 30 (MASSACHUSETTS)

ROCK/MINERAL CODE: PCS

HORNBLLENDE

ANALYTICAL DATA:

K20 (%)..... 1.22

40AR-RAD (MOLES/GM)..... 8.257 X E-10

% RADIOGENIC..... 84

CALCULATED AGE..... 418 +/- 16 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GLOUCESTER
 LATITUDE..... 42-40-00 N
 LONGITUDE..... 70-38-00 W
 COMMENT..... ROCKPORT
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001783
 REFERENCE NUMBER..... 70-00005
 LABORATORY(IES)..... GC
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 360 340
 PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 31 (MASSACHUSETTS)

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 7.555

40AR-RAD (MOLES/GM)..... 44.04 X E-10

% RADIOGENIC..... 90

CALCULATED AGE..... 364 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0005281
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	61-00007
COUNTY.....	ESSEX	LABORATORY(IES).....	GP
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	ROCKPORT	NAME: GODOY, M.M.	
LATITUDE.....	42-39-00 N	DATE: 79 02	
LONGITUDE.....	70-37-00 W		
COMMENT.....	ROCKPORT		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 1			

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
ROCK TYPE: GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: H3006
ROCK/MINERAL CODE: PC5 HORNBLLENDE
COMMENT: HORNBLLENDE CONCENTRATE INCLUDED 5% BIOTITE
ANALYTICAL DATA:
K20 (%)..... 2.02
40AR-RAD (MOLES/GM)..... 10.08 X E-10
% RADIOGENIC..... 56
CALCULATED AGE..... 317 +/- 10 MILLION YEARS
TYPE OF ANALYSIS..... 10
ANALYTICAL COMMENTS..... K=1.68% AND 1.68% BY ISOTOPE DILUTION
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001688
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-13-38 N	DATE: 77 06	
LONGITUDE.....	71-01-06 W		

COMMENT..... ROADCUT AT INTERSECTION OF SOUTHEAST EXPRESSWAY AND
MASSACHUSETTS ROUTE 128, BRAINTREE

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
LEXICON AGE(S): 361 357
PETROGRAPHIC CODE: B240

DESCRIPTION: ALKALIC GRANITE; DARK-GRAYISH-BROWN, MEDIUM-GRAINED QUINCY
GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 74
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	138.9
SR (PPM).....	23.0 N
87RB/86SR.....	17.51
87SR/86SR.....	0.8008

CALCULATED AGE..... 306 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.731

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... A 10-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00084

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001690
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-14-49 N	DATE: 77 06	
LONGITUDE.....	71-00-27 W		
COMMENT..... OUTCROP 500' SOUTHWEST OF INTERSECTION OF GRANITE AND WHITWELL STREETS, QUINCY			

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
LEXICON AGE(S): 361 357
PETROGRAPHIC CODE: B240

DESCRIPTION: ALKALIC GRANITE; LIGHT VIOLET, MEDIUM-GRAINED QUINCY GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 96

ROCK/MINERAL CODE: PC7

RIEBECKITE

ANALYTICAL DATA:

K2O (%)..... 0.768
40AR-RAD (MOLES/GM)..... 5.88 X E-10
% RADIOGENIC..... 95
CALCULATED AGE..... 461 +/- 14 MILLION YEARS
TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 96

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 155.9
SR (PPM)..... 7.84 N
87RB/86SR..... 57.56
87SR/86SR..... 0.977
CALCULATED AGE..... 306 +/- 22 MILLION YEARS
INITIAL 87SR/86SR..... 0.731
TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 10-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00086

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES

STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK

QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS

LATITUDE..... 42-14-51 N
 LONGITUDE..... 71-01-00 W

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001693

REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD

COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

COMMENT..... ABANDON (SAHLSTEN) QUARRY 400' NORTH OF INTERSECTION OF
 QUARRY AND SMITH STREETS, NORTH COMMONS, QUINCY

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
 LEXICON AGE(S): 361 357
 PETROGRAPHIC CODE: B240

DESCRIPTION: ALKALIC GRANITE; BLUISH-GRAY, MEDIUM-GRAINED QUINCY GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 210

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 167.1

SR (PPM)..... 5.05 N

87RB/86SR..... 95.85

87SR/86SR..... 1.146

CALCULATED AGE..... 306 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.731

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 10-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00086

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001689
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	71-00005
COUNTY.....	NORFOLK	LABORATORY(IES).....	SD
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-14-38 N	DATE: 77 06	
LONGITUDE.....	71-02-10 W		

COMMENT..... ABANDONED (SWINGLE) QUARRY 1000 FEET WEST OF SOUTHEAST EXPRESSWAY OVERPASS AT WILLARD STREET, WEST QUINCY

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
LEXICON AGE(S): 361 357
PETROGRAPHIC CODE: B240

DESCRIPTION: ALKALIC GRANITE; BLuish-GRAY, MEDIUM-GRAINED QUINCY GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 95
ROCK/MINERAL CODE: PC7

RIEBECKITE

ANALYTICAL DATA:

K20 (%).....	0.931		
40AR-RAD (MOLES/GM).....	6.65	X E-10	
% RADIOGENIC.....	96		
CALCULATED AGE.....		438 +/- 13	MILLION YEARS
TYPE OF ANALYSIS.....	10		

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 95
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	155.5		
SR (PPM).....	10.7	N	
87RB/86SR.....	41.90		
87SR/86SR.....	0.927		
CALCULATED AGE.....		306 +/- 22	MILLION YEARS
INITIAL 87SR/86SR.....	0.731		
TYPE OF ANALYSIS.....	22		

ANALYTICAL COMMENTS..... 10-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00086

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-14-22 N
 LONGITUDE..... 71-01-52 W
 COMMENT..... OUTCROP 700' SOUTHWEST OF INTERSECTION OF WILLARD STREET
 AND WAMPATUCK ROAD, WEST QUINCY

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001691
 REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD

COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
 LEXICON AGE(S): 361 357
 PETROGRAPHIC CODE: B240

DESCRIPTION: ALKALIC GRANITE; BLuish-GRAY, MEDIUM-GRAINED QUINCY GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 97
 ROCK/MINERAL CODE: PC7

RIEBECKITE

ANALYTICAL DATA:

K20 (%)..... 0.953
 40AR-RAD (MOLES/GM)..... 7.04 X E-10
 % RADIOGENIC..... 93

CALCULATED AGE..... 452 +/- 13 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 97
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 149.3
 SR (PPM)..... 11.1 N
 87RB/86SR..... 38.84
 87SR/86SR..... 0.892

CALCULATED AGE..... 306 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.731

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 10-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00086

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001692
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-14-33 N	DATE: 77 06	
LONGITUDE.....	71-02-46 W		

COMMENT..... ABANDONED QUARRY 1100' SOUTHWEST OF WATER TOWER, WEST QUINCY

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
LEXICON AGE(S): 361 357
PETROGRAPHIC CODE: B240

DESCRIPTION: ALKALIC GRANITE; PURPLISH-GRAY, MEDIUM-GRAINED QUINCY GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 98

ROCK/MINERAL CODE: PC7

RIEBECKITE

ANALYTICAL DATA:

K20 (%)..... 0.612
40AR-RAD (MOLES/GM)..... 4.45 X E-10
% RADIOGENIC..... 92

CALCULATED AGE..... 445 +/- 13 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 98

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 161.1
SR (PPM)..... 14.1 N
87RB/86SR..... 33.09
87SR/86SR..... 0.881

CALCULATED AGE..... 306 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.731

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 10-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00086

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001694
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-14-43 N	DATE: 77 06	
LONGITUDE.....	71-03-03 W		

COMMENT..... ABANDONED (GOLD LEAF) QUARRY 500' NORTHWEST OF FULLER BENCH MARK, WEST QUINCY

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
LEXICON AGE(S): 361 357
PETROGRAPHIC CODE: B240

DESCRIPTION: QUINCY GRANITE; BLUISH-GRAY, MEDIUM-GRAINED GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 211

ROCK/MINERAL CODE: PC7

RIEBECKITE

ANALYTICAL DATA:

K20 (%)..... 0.962
40AR-RAD (MOLES/GM)..... 6.99 X E-10
% RADIOGENIC..... 91

CALCULATED AGE..... 445 +/- 13 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

LABORATORY SAMPLE NUMBER: 211

ROCK/MINERAL CODE: PA0

PYROXENE

ANALYTICAL DATA:

K20 (%)..... 0.198
40AR-RAD (MOLES/GM)..... 3.50 X E-10
% RADIOGENIC..... 75

CALCULATED AGE..... 944 +/- 28 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: SAMPLE CONTAINS EXCESS RADIOGENIC ARGON.

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 211

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 150.0
SR (PPM)..... 11.8 N
87RB/86SR..... 36.93

87SR/86SR..... 0.890
 CALCULATED AGE..... 306 +/- 22 MILLION YEARS
 INITIAL 87SR/86SR..... 0.731
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 10-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00086
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 211

ROCK/MINERAL CODE: MC1

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 504.0

TH (PPM)..... 208.4

PB (PPM)..... 40.9

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.237	73.73	7.558	18.47

206PB/238U AGE..... 413 +/- 8 MILLION YEARS

207PB/235U AGE..... 416 +/- 15 MILLION YEARS

207PB/206PB AGE..... 437 +/- 32 MILLION YEARS

208PB/232TH AGE..... 422 +/- 16 MILLION YEARS

CONCORDIA INTERCEPT AGE.. 450 +/- 25 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 18.5, 15.7, 38.5

ANALYTICAL COMMENTS..... 4-POINT (ZIRCONS) DISCORDIA LINE

SAMPLE SUITE: 00087

COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001695
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-14-26 N	DATE: 77 06	
LONGITUDE.....	71-03-09 W		
COMMENT.....	ABANDONED QUARRY 1000 FEET NORTH OF GREAT DOME, WEST QUINCY		

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
LEXICON AGE(S): 361 357
PETROGRAPHIC CODE: B240

DESCRIPTION: QUINCY GRANITE; LIGHT BLuish-GRAY, MEDIUM-GRAINED GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 212

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 153.7

SR (PPM)..... 17.5 N

87RB/86SR..... 25.37

87SR/86SR..... 0.8348

CALCULATED AGE..... 306 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.731

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 10-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00086

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002071
STATE CODE.....	25	REFERENCE NUMBER.....	70-00006
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT GS
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-14-37 N	DATE: 77 07	
LONGITUDE.....	71-02-00 W		
COMMENT.....	QUARRY NEXT TO SOUTHEAST EXPRESSWAY, QUINCY		

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
 LEXICON AGE(S): 360 350
 PETROGRAPHIC CODE: B240

DESCRIPTION: QUINCY GRANITE--MEDIUM- TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4770

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 164

SR (PPM)..... 5.08 T

87RB/86SR..... 97.6

87SR/86SR..... 1.1663

CALCULATED AGE..... 333 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 20

ANALYTICAL COMMENTS..... SR VALUE IS AVERAGE OF 3 DETERMINATIONS

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-14-37 N
 LONGITUDE..... 71-02-00 W
 COMMENT..... QUARRY NEXT TO SOUTHEAST EXPRESSWAY, QUINCY
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002070
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: QUINCY GRANITE
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: QNCY
 LEXICON AGE(S): 360 350
 PETROGRAPHIC CODE: B240
 DESCRIPTION: QUINCY GRANITE--MEDIUM-TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-4700
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 157
 SR (PPM)..... 11.0 T
 87RB/86SR..... 42.3
 87SR/86SR..... 0.9193
 CALCULATED AGE..... 356 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 3
 DETERMINATIONS
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: R-4700
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 157
 SR (PPM)..... 11.0 T
 87RB/86SR..... 42.3
 87SR/86SR..... 0.9193
 CALCULATED AGE..... 357 +/- 7 MILLION YEARS
 INITIAL 87SR/86SR..... 0.703
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 3
 DETERMINATIONS; 5-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00102
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002072
STATE CODE.....	25	REFERENCE NUMBER.....	70-00006
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT GS
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-14-49 N	DATE: 77 07	
LONGITUDE.....	71-00-50 W		
COMMENT.....	HARDWICK'S QUARRY, QUINCY		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE	GEOLOGIC NAME CODE: QNCY
ROCK TYPE: GRANITE	LEXICON AGE(S): 360 370
	PETROGRAPHIC CODE: B240
DESCRIPTION: QUINCY GRANITE--MEDIUM- TO COARSE-GRAINED; QUARTZ, MICROPERTHITE, RIEBECKITE, AND AEGIRINE	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5064

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	190		
SR (PPM).....	9.80	T	
87RB/86SR.....	57.6		
87SR/86SR.....	0.9919		
CALCULATED AGE.....		350 +/-	MILLION YEARS
INITIAL 87SR/86SR.....	0.705		
TYPE OF ANALYSIS.....	20		
ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 3 DETERMINATIONS			

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: R-5064

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	190		
SR (PPM).....	980	T	
87RB/86SR.....	57.6		
87SR/86SR.....	0.9919		
CALCULATED AGE.....		357 +/- 7	MILLION YEARS
INITIAL 87SR/86SR.....	0.703		
TYPE OF ANALYSIS.....	22		
ANALYTICAL COMMENTS..... TRIPLICATE RB AND SR ANALYSES; 5-POINT WHOLE-ROCK ISOCHRON			

SAMPLE SUITE: 00102

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-13-56 N
 LONGITUDE..... 71-02-19 W
 COMMENT..... RATTLESNAKE HILL, BLUE HILL RESERVATION, QUINCY
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002074
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: QUINCY GRANITE
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: QNCY
 LEXICON AGE(S): 360 350
 PETROGRAPHIC CODE: B240
 DESCRIPTION: QUINCY GRANITE--MEDIUM- TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5067
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 138
 SR (PPM)..... 15.8 T
 87Rb/86SR..... 25.6
 87SR/86SR..... 0.8363
 CALCULATED AGE..... 361 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 2
 DETERMINATIONS
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: R5067
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 138
 SR (PPM)..... 15.8 T
 87Rb/86SR..... 25.6
 87SR/86SR..... 0.8363
 CALCULATED AGE..... 357 +/- 7 MILLION YEARS
 INITIAL 87SR/86SR..... 0.703
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 2
 DETERMINATIONS: 5-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00102
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002075
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	70-00006
COUNTY.....	NORFOLK	LABORATORY(IES).....	MT GS
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-14-08 N	DATE: 77 07	
LONGITUDE.....	71-01-28 W		
COMMENT.....	ALONG WEST SIDE OF SOUTHEAST EXPRESSWAY, NORTH OF PINE HILL, QUINCY		

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
LEXICON AGE(S): 360 350
PETROGRAPHIC CODE: B240

DESCRIPTION: QUINCY GRANITE, FINE-GRAINED; QUARTZ, MICROPERTHITE, RIEBECKITE, AND AEGIRINE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-37

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 91.8
SR (PPM)..... 15.5 T
87RB/86SR..... 17.3
87SR/86SR..... 0.7889
CALCULATED AGE.....
INITIAL 87SR/86SR..... 0.705
TYPE OF ANALYSIS..... 20

342 +/- MILLION YEARS

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: ODC-37

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 91.8
SR (PPM)..... 15.5 T
87RB/86SR..... 17.3
87SR/86SR..... 0.7889
CALCULATED AGE.....
INITIAL 87SR/86SR..... 0.703
TYPE OF ANALYSIS..... 22

357 +/- 7 MILLION YEARS

ANALYTICAL COMMENTS..... 5-POINT W-R ISOCHRON

SAMPLE SUITE: 00102

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-14-45 N
 LONGITUDE..... 71-02-40 W
 COMMENT..... GOLD LEAF QUARRY, WEST QUINCY
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002073
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
 ROCK TYPE: GRANITE
 DESCRIPTION: QUINCY GRANITE--MEDIUM- TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE

GEOLOGIC NAME CODE: QNCY
 LEXICON AGE(S): 360 350
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-5065

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 158

SR (PPM)..... 8.21 T

87RB/86SR..... 57.3

87SR/86SR..... 0.9977

CALCULATED AGE..... 359 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 20

ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 2

DETERMINATIONS

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: R5065

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 158

SR (PPM)..... 8.21 T

87RB/86SR..... 57.3

87SR/86SR..... 0.9977

CALCULATED AGE..... 357 +/- 7 MILLION YEARS

INITIAL 87SR/86SR..... 0.703

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 2

DETERMINATIONS: 5-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00102

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004611
STATE CODE.....	25	REFERENCE NUMBER.....	77-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: GODOY, M.M.	
LATITUDE.....	42-14-51 N	DATE: 78 07	
LONGITUDE.....	71-01-00 W		

COMMENT..... SAHLSTEN QUARRY (ABANDONED), 120 METERS NORTH OF
INTERSECTION OF QUARRY AND SMITH STREETS, NORTH COMMONS, QUINCY

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
LEXICON AGE(S): 361 357
PETROGRAPHIC CODE: B240

DESCRIPTION: BLUISH-GREY, MEDIUM-GRAINED GRANITE; QUINCY GRANITE

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 210
ROCK/MINERAL CODE: MC1
COMMENT: MESH SIZE (-200+270)

ZIRCON

ANALYTICAL DATA:

U (PPM).....	767.9
TH (PPM).....	321.3
Pb (PPM).....	53.52

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.319	70.59	8.570	20.52

206PB/238U AGE.....	333 +/- 5	MILLION YEARS
207PB/235U AGE.....	345 +/- 12	MILLION YEARS
207PB/206PB AGE.....	433 +/- 26	MILLION YEARS
208PB/232TH AGE.....	320 +/- 8	MILLION YEARS
CONCORDIA INTERCEPT AGE..	450 +/- 25	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.90, 15.65, 38.20

COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-14-33 N
 LONGITUDE..... 71-02-46 W
 COMMENT..... ABANDONED QUARRY, 350 METERS SW OF WATER TOWER, WEST QUINCY

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004610
 REFERENCE NUMBER..... 77-00005
 LABORATORY(IES)..... SD

COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: QNCY
 LEXICON AGE(S): 361 357
 PETROGRAPHIC CODE: 8240

DESCRIPTION: PURPLISH-GREY, MEDIUM-GRAINED GRANITE; QUINCY GRANITE

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 98
 ROCK/MINERAL CODE: MC1
 COMMENT: MESH SIZE (=100+150)

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 839.4
 TH (PPM)..... 370.1
 PB (PPM)..... 56.43

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.191	75.93	6.997	16.88

206PB/238U AGE.....	358 +/- 4	MILLION YEARS
207PB/235U AGE.....	370 +/- 8	MILLION YEARS
207PB/206PB AGE.....	436 +/- 16	MILLION YEARS
208PB/232TH AGE.....	335 +/- 6	MILLION YEARS
CONCORDIA INTERCEPT AGE..	450 +/- 25	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.90, 15.65, 38.20

COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BOSTON SOUTH
 LATITUDE..... 42-15-18 N
 LONGITUDE..... 71-01-48 W
 COMMENT..... SWINGLE QUARRY, QUINCY
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002140
 REFERENCE NUMBER..... 60-00006
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION
 GEOLOGIC NAME: QUINCY GRANITE
 ROCK TYPE: GRANITE
 DESCRIPTION: QUINCY GRANITE (CONTAINS NO MICA)
 GEOLOGIC NAME CODE: QNCY
 LEXICON AGE(S): 361
 PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: R-3821
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 K20 (%)..... 4.16
 40AR-RAD (MOLES/GM)..... 18.69 X E-10
 % RADIOGENIC..... 95
 CALCULATED AGE..... 286 +/- 15 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM
 WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-14-48 N
 LONGITUDE..... 71-02-10 W
 COMMENT..... SWINGLE QUARRY, QUINCY
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0005381
 REFERENCE NUMBER..... 61-00006
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 79 03

SAMPLE DESCRIPTION
 GEOLOGIC NAME: QUINCY GRANITE
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: QNCY
 LEXICON AGE(S): 361
 PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: R-3821
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 K20 (%)..... 4.16
 40AR-RAD (MOLES/GM)..... 18.8 X E-10
 % RADIOGENIC..... 95
 CALCULATED AGE..... 286 +/- 15 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... LAMBDA BETA=4.74XE-10/YR,
 LAMBDA-EPSILON=0.558XE-10/YR
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM
 FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 60-00006

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004627
STATE CODE.....	25	REFERENCE NUMBER.....	76-00025
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	GC
COUNTY.....	NORFOLK		

QUAD SCALE	QUAD NO. / NAME	COMPILED BY
1: 24000	BLUE HILLS OR BOSTON	NAME: GODOY, M.M.
LATITUDE.....	42-15-00 N	DATE: 78 07
LONGITUDE.....	71-01-00 W	

COMMENT..... FALLON AND BALLOU QUARRY, QUINCY

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: QUINCY GRANITE	GEOLOGIC NAME CODE: QNCY
ROCK TYPE: GRANITE	LEXICON AGE(S): 350 360
	PETROGRAPHIC CODE: B240

DESCRIPTION: QUINCY GRANITE; POROUS AGGREGATE OF COARSE QUARTZ, FELDSPAR,
AND AEGIRINE CRYSTALS WITH MINOR PARISITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: P-0066

ROCK/MINERAL CODE: PA6

AEGIRINE

COMMENT: AEGIRINE CONCENTRATE WITH TRACES OF FELDSPAR AND QUARTZ; -60+200
MESH

ANALYTICAL DATA:

K20 (%).....	0.070	
40AR-RAD (MOLES/GM).....	1.39	X E-10
% RADIOGENIC.....	30	
CALCULATED AGE.....	1015 +/- 50	MILLION YEARS
TYPE OF ANALYSIS.....	10	
ANALYTICAL COMMENTS.....	0.058%, 0.059% K	

COMMENTS: SAMPLE CONTAINS EXCESS RADIOGENIC ARGON; AGE IS TOO OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001696
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-12-35 N	DATE: 77 06	
LONGITUDE.....	71-02-58 W		

COMMENT..... ROADCUT ALONG MASSACHUSETTS ROUTE 128 AT BASE OF
SOUTHEAST RIDGE BELOW HOLE-IN-ROCK, BLUE HILL RANGE, QUINCY

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILL GRANITE
PORPHYRY

GEOLOGIC NAME CODE: BLHG

ROCK TYPE: GRANITE

LEXICON AGE(S): 361 357

PETROGRAPHIC CODE: B240

DESCRIPTION: BLUE HILL GRANITE PORPHYRY; DARK BLUISH-GARY, FINE-GRAINED
PORPHYRITIC GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 78

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 217.4

SR (PPM)..... 17.1 N

87RB/86SR..... 36.79

87SR/86SR..... 0.890

CALCULATED AGE..... 306 +/- 22 MILLION YEARS

INITIAL 87SR/86SR..... 0.731

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 10-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00087

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001697
STATE CODE.....	25	REFERENCE NUMBER.....	71-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B. R.	
LATITUDE.....	42-14-00 N	DATE: 77 06	
LONGITUDE.....	71-02-11 W		
COMMENT.....	OUTCROP AT PARKING LOT FOR RATTLESNAKE HILL TRAIL OFF WAMPATUCK ROAD, BLUE HILL RANGE, QUINCY		

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION	
GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY	GEOLOGIC NAME CODE: BLHG
ROCK TYPE: GRANITE	LEXICON AGE(S): 361 357
	PETROGRAPHIC CODE: B240
DESCRIPTION: BLUE HILL GRANITE PORPHYRY; BLuish-GRAY, FINE-GRAINED PORPHYRITIC GRANITE	

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 213	
ROCK/MINERAL CODE: PC7	RIEBECKITE
ANALYTICAL DATA:	
K20 (%).....	1.876
40AR-RAD (MOLES/GM).....	9.06 X E-10
% RADIOGENIC.....	92
CALCULATED AGE.....	307 +/- 9 MILLION YEARS
TYPE OF ANALYSIS.....	10
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM	
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 213	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	149.3
SR (PPM).....	14.8 N
87RB/86SR.....	29.14
87SR/86SR.....	0.867
CALCULATED AGE.....	306 +/- 22 MILLION YEARS
INITIAL 87SR/86SR.....	0.731
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS..... 10-POINT WHOLE-ROCK ISOCHRON	
SAMPLE SUITE: 00086	
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM	
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-12-19 N
 LONGITUDE..... 71-03-55 W
 COMMENT..... INTERSECTION OF ROUTE 28 AND 128, BLUE HILLS RESERVATION,
 RANDOLPH

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002076
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS

COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY
 ROCK TYPE: GRANITE PORPHYRY
 DESCRIPTION: BLUE HILL GRANITE PORPHYRY; QUARTZ, MICROPERTHITE, RIEBECKITE,
 AND AEGIRINE, MEDIUM- TO COARSE-GRAINED

GEOLOGIC NAME CODE: BLHG

LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4701

WHOLE-ROCK

ROCK/MINERAL CODE: AA0

ANALYTICAL DATA:

RB (PPM)..... 201

SR (PPM)..... 80.3 T

87RB/86SR..... 7.25

87SR/86SR..... 0.7431

CALCULATED AGE..... 370 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 20

ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 2

DETERMINATIONS

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: R4701

WHOLE-ROCK

ROCK/MINERAL CODE: AA0

ANALYTICAL DATA:

RB (PPM)..... 201

SR (PPM)..... 80.3 T

87RB/86SR..... 7.25

87SR/86SR..... 0.7431

CALCULATED AGE..... 276 +/- 8 MILLION YEARS

INITIAL 87SR/86SR..... 0.717

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 2

DETERMINATIONS: 12-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00103

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... NORFOLK

QUAD SCALE

1: 24000

QUAD NO. / NAME

BLUE HILLS

LATITUDE..... 42-12-19 N

LONGITUDE..... 71-03-55 W

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0002077

REFERENCE NUMBER..... 70-00006

LABORATORY(IES)..... MT GS

COMPILED BY

NAME: WILLIAMS, B.R.

DATE: 77 07

COMMENT..... INTERSECTION OF ROUTE 28 AND 128, BLUE HILLS RESERVATION,
RANDOLPH

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILL GRANITE
PORPHYRY

GEOLOGIC NAME CODE: BLHG

ROCK TYPE: GRANITE PORPHYRY

LEXICON AGE(S): 360

PETROGRAPHIC CODE: B240

DESCRIPTION: BLUE HILL GRANITE PORPHYRY; MEDIUM- TO COARSE-GRAINED; QUARTZ,
MICROPERTHITE, RIEBECKITE, AND AEGIRINE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4702

ROCK/MINERAL CODE: AAO

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 141

SR (PPM)..... 117 T

87RB/86SR..... 3.50

87SR/86SR..... 0.7309

CALCULATED AGE..... 276 +/- 8 MILLION YEARS

INITIAL 87SR/86SR..... 0.717

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF TWO
DETERMINATIONS; 12-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00103

COMMENTS: INITIAL AGE IS DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-12-25 N
 LONGITUDE..... 71-03-52 W
 COMMENT..... 0.1 MILE NORTHWEST OF INTERSECTION OF ROUTE 28 AND 128,
 10 FT FROM CONTACT WITH PONDVILLE CONGLOMERATE, RANDOLPH
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002081
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY
 ROCK TYPE: GRANITE PORPHYRY
 DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE
 GEOLOGIC NAME CODE: BLHG
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM
 LABORATORY SAMPLE NUMBER: ODC-30
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 213
 SR (PPM)..... 34.7 T
 87RB/86SR..... 17.9
 87SR/86SR..... 0.7854
 CALCULATED AGE..... 316 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: ODC-30
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 213
 SR (PPM)..... 34.7 T
 87RB/86SR..... 17.9
 87SR/86SR..... 0.7854
 CALCULATED AGE..... 276 +/- 8 MILLION YEARS
 INITIAL 87SR/86SR..... 0.717
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 12-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00103
 COMMENTS: INITIAL AGE IS DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-12-25 N
 LONGITUDE..... 71-03-52 W

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002082
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

COMMENT..... 0.1 MILE NORTHWEST OF INTERSECTION OF ROUTES 28 AND 128,
 50 FT FROM CONTACT WITH PONDVILLE CONGLOMERATE, RANDOLPH

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
 GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY
 ROCK TYPE: GRANITE PORPHYRY
 GEOLOGIC NAME CODE: BLHG
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240
 DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE

PUBIDIUM-STRONTIUM
 LABORATORY SAMPLE NUMBER: ODC-31
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 145
 SR (PPM)..... 119 T
 87RB/86SR..... 3.53
 87SR/86SR..... 0.7274
 CALCULATED AGE..... 276 +/- 8 MILLION YEARS
 INITIAL 87SR/86SR..... 0.717
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 12-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00103
 COMMENTS: INITIAL AGE IS DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-12-24 N
 LONGITUDE..... 71-03-51 W
 COMMENT..... 0.1 MILE NORTHWEST OF INTERSECTION OF ROUTES 28 AND 128,
 100 FT FROM CONTACT WITH PONDVILLE CONGLOMERATE, RANDOLPH

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002083
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS

COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
 GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY
 ROCK TYPE: GRANITE PORPHYRY
 DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE
 GEOLOGIC NAME CODE: BLHG
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-32
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 186
 SR (PPM)..... 41.9 T
 87RB/86SR..... 12.9
 87SR/86SR..... 0.7652
 CALCULATED AGE..... 329 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED
 WHOLE-ROCK

LABORATORY SAMPLE NUMBER: ODC-32
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 186
 SR (PPM)..... 41.9 T
 87RB/86SR..... 12.9
 87SR/86SR..... 0.7652
 CALCULATED AGE..... 278 +/- 8 MILLION YEARS
 INITIAL 87SR/86SR..... 0.717
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 12-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00103
 COMMENTS: INITIAL AGE IS DISTURBED BY LATER METAMORPHISM
 WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-12-24 N
 LONGITUDE..... 71-03-50 W
 COMMENT..... 0.1 MILE NORTHWEST OF INTERSECTION OF ROUTES 28 AND 128,
 200 FT FROM CONTACT WITH PONDVILLE CONGLOMERATE, RANDOLPH
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002084
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY
 ROCK TYPE: GRANITE PORPHYRY
 DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE
 GEOLOGIC NAME CODE: BLHG
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-33
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 173
 SR (PPM)..... 59.5 T
 87RB/86SR..... 8.46
 87SR/86SR..... 0.7535
 CALCULATED AGE..... 404 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED
 WHOLE-ROCK

LABORATORY SAMPLE NUMBER: ODC-33
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 173
 SR (PPM)..... 59.5 T
 87RB/86SR..... 8.46
 87SR/86SR..... 0.7535
 CALCULATED AGE..... 276 +/- 8 MILLION YEARS
 INITIAL 87SR/86SR..... 0.717
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 12-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00103
 COMMENTS: INITIAL AGE IS DISTURBED BY LATER METAMORPHISM
 WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-12-40 N
 LONGITUDE..... 71-02-46 W
 COMMENT..... ALONG NORTH SIDE OF NEW LOCATION OF ROUTE 128, 1.1 MILE
 EAST OF INTERSECTION OF ROUTES 28 AND 128, RANDOLPH
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002086
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY
 ROCK TYPE: GRANITE PORPHYRY
 DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE
 GEOLOGIC NAME CODE: BLHG
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: 8240

RUBIDIUM-STRONTIUM
 LABORATORY SAMPLE NUMBER: ODC-38
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 173
 SR (PPM)..... 13.5 T
 87RB/86SR..... 37.8
 87SR/86SR..... 0.9004
 CALCULATED AGE..... 364 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 2
 DETERMINATIONS
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: ODC-38
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 173
 SR (PPM)..... 13.5 T
 87RB/86SR..... 37.8
 87SR/86SR..... 0.9004
 CALCULATED AGE..... 276 +/- 8 MILLION YEARS
 INITIAL 87SR/86SR..... 0.717
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 2
 DETERMINATIONS: 12-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00103
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002087
STATE CODE.....	25	REFERENCE NUMBER.....	70-00006
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT GS
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-12-40 N	DATE: 77 07	
LONGITUDE.....	71-02-46 W		
COMMENT.....	ALONG NORTH SIDE OF ROUTE 128, 1.1 MILE EAST OF INTERSECTION OF ROUTES 28 AND 128, RANDOLPH		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY	GEOLOGIC NAME CODE: BLHG
ROCK TYPE: GRANITE PORPHYRY	LEXICON AGE(S): 360
	PETROGRAPHIC CODE: B240
DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ, MICROPERTHITE, RIEBECKITE, AND AEGIRINE	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-41	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	207
SR (PPM).....	5.01 T
87RB/86SR.....	125.0
87SR/86SR.....	1.1679
CALCULATED AGE.....	260 +/- MILLION YEARS
INITIAL 87SR/86SR.....	0.705
TYPE OF ANALYSIS.....	20
COMMENTS: AGE NOT EVALUATED	

LABORATORY SAMPLE NUMBER: ODC-41	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	207
SR (PPM).....	5.01 T
87RB/86SR.....	125.0
87SR/86SR.....	1.1679
CALCULATED AGE.....	276 +/- 8 MILLION YEARS
INITIAL 87SR/86SR.....	0.717
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS..... 12-POINT WHOLE-ROCK ISOCHRON	
SAMPLE SUITE: 00103	
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-12-40 N
 LONGITUDE..... 71-02-47 W
 COMMENT..... ALONG NORTH SIDE OF ROUTE 128, 1.1 MILES EAST OF
 INTERSECTION OF ROUTES 28 AND 128, RANDOLPH
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1
 SAMPLE DESCRIPTION
 GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY
 ROCK TYPE: GRANITE PORPHYRY
 DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE
 RUBIDIUM-STRONTIUM
 LABORATORY SAMPLE NUMBER: ODC-42
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 221
 SR (PPM)..... 13.1 T
 87RB/86SR..... 49.9
 87SR/86SR..... 0.9169
 CALCULATED AGE..... 300 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED
 LABORATORY SAMPLE NUMBER: ODC-42
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 221
 SR (PPM)..... 13.1 T
 87RB/86SR..... 49.9
 87SR/86SR..... 0.9169
 CALCULATED AGE..... 276 +/- 8 MILLION YEARS
 INITIAL 87SR/86SR..... 0.717
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 12-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00103
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002088
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS

COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

GEOLOGIC NAME CODE: BLHG

LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240

WHOLE-ROCK

300 +/- MILLION YEARS

WHOLE-ROCK

276 +/- 8 MILLION YEARS

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-12-33 N
 LONGITUDE..... 71-05-55 W
 COMMENT..... HOOSICWHISICK POND AND HILLSIDE STREET, MILTON
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002078
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY
 ROCK TYPE: GRANITE PORPHYRY
 DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ, MICROPERTHITE, RIEBECKITE, AND AEGIRINE
 GEOLOGIC NAME CODE: BLHG
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4772
 ROCK/MINERAL CODE: AAO
 ANALYTICAL DATA:
 RB (PPM)..... 164
 SR (PPM)..... 4.72 T
 87RB/86SR..... 105.0
 87SR/86SR..... 1.1095
 CALCULATED AGE..... 271 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 ANALYTICAL COMMENTS..... DUPLICATE RB- AND TRIPLICATE SR-ANALYSES
 COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-12-33 N
 LONGITUDE..... 71-05-55 W
 COMMENT..... HOOSICWHISICK POND AT HILLSIDE STREET, MILTON
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002079
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY
 ROCK TYPE: GRANITE PORPHYRY
 DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ, MICROPERTHITE, RIEBECKITE, AND AEGIRINE
 GEOLOGIC NAME CODE: BLHG
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: 8240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-27
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 212
 SR (PPM)..... 8.08 T
 87RB/86SR..... 78.3
 87SR/86SR..... 1.0268
 CALCULATED AGE..... 290 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: ODC-27
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 212
 SR (PPM)..... 8.08 T
 87RB/86SR..... 78.3
 87SR/86SR..... 1.0268
 CALCULATED AGE..... 276 +/- 8 MILLION YEARS
 INITIAL 87SR/86SR..... 0.717
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 12-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00103
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002080
STATE CODE.....	25	REFERENCE NUMBER.....	70-00006
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT GS
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-12-33 N	DATE: 77 07	
LONGITUDE.....	71-07-06 W		
COMMENT.....	0.1 MILE NORTHEAST OF INTERSECTION OF ROUTES 128 AND 138, NEAR BASE OF GREAT BLUE HILL, CANTON		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILL GRANITE PORPHYRY	GEOLOGIC NAME CODE: 3LHG
ROCK TYPE: GRANITE PORPHYRY	LEXICON AGE(S): 360
	PETROGRAPHIC CODE: B240
DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ, MICROPERTHITE, RIEBECKITE, AND AEGIRINE	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-29	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	209
SR (PPM).....	5.75 T
87RB/86SR.....	109.8
87SR/86SR.....	1.1515
CALCULATED AGE.....	287 +/- MILLION YEARS
INITIAL 87SR/86SR.....	0.705
TYPE OF ANALYSIS.....	20
COMMENTS: AGE NOT EVALUATED	

LABORATORY SAMPLE NUMBER: ODC-29	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	209
SR (PPM).....	5.75 T
87RB/86SR.....	109.8
87SR/86SR.....	1.1515
CALCULATED AGE.....	276 +/- 7 MILLION YEARS
INITIAL 87SR/86SR.....	0.717
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS..... 12-POINT WHOLE-ROCK ISOCHRON	
SAMPLE SUITE: 00103	
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-13-25 N
 LONGITUDE..... 71-03-42 W
 COMMENT..... 0.1 MILE NORTH OF TOP OF CHICKATAWBUT HILL, QUINCY
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002085
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILL GRANITE
 PORPHYRY
 ROCK TYPE: GRANITE PORPHYRY
 GEOLOGIC NAME CODE: BLHG
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: B240
 DESCRIPTION: BLUE HILL GRANITE PORPHYRY--MEDIUM- TO COARSE-GRAINED; QUARTZ,
 MICROPERTHITE, RIEBECKITE, AND AEGIRINE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-34
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 141
 SR (PPM)..... 4.84 T
 87RB/86SR..... 87.2
 87SR/86SR..... 1.0563
 CALCULATED AGE..... 284 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: ODC-34
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 141
 SR (PPM)..... 4.84 T
 87RB/86SR..... 87.2
 87SR/86SR..... 1.0563
 CALCULATED AGE..... 276 +/- 8 MILLION YEARS
 INITIAL 87SR/86SR..... 0.717
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 12-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00103
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... ESSEX

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001716

REFERENCE NUMBER..... 71-00005

LABORATORY(IES)..... SD

QUAD SCALE

1: 24000

QUAD NO. / NAME

LYNN

LATITUDE..... 42-29-57 N

LONGITUDE..... 70-55-33 W

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

COMMENT..... ROADCUT ALONG SWAMPSCOTT ROAD 700' SOUTHEAST OF
INTERSECTION WITH HIGHLAND AVENUE, SALEM

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: NAHANT GABBRO

ROCK TYPE: GABBRO

GEOLOGIC NAME CODE:

LEXICON AGE(S): 360

PETROGRAPHIC CODE: B275

DESCRIPTION: DARK GRAYISH-GREEN, FINE-GRAINED DIORITIC GABBRO

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 160

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 8.26

40AR-RAD (MOLES/GM)..... 56.49 X E-10

% RADIOGENIC..... 98

CALCULATED AGE..... 422 +/- 12 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 160

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

RB (PPM)..... 339.8

SR (PPM)..... 11.1 N

87SR-RAD (PPM)..... 0.618

% RADIOGENIC 87SR..... 42.8

CALCULATED AGE..... 450 +/- 12 MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 20

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... ESSEX

QUAD SCALE

1: 24000

QUAD NO. / NAME

SALEM

LATITUDE..... 42-30-00 N

LONGITUDE..... 70-53-00 W

COMMENT..... SALEM

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001778

REFERENCE NUMBER..... 70-00005

LABORATORY(IES)..... GC

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME:

ROCK TYPE: GABBRO-DIORITE

GEOLOGIC NAME CODE: SLEM

LEXICON AGE(S): 340 350 360

PETROGRAPHIC CODE: B270

DESCRIPTION: GABBRO DIORITE (HORNFELS); METAMORPHOSED BY PEABODY GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 26 (MASSACHUSETTS)

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

K2O (%)..... 7.64

40AR-RAD (MOLES/GM)..... 44.29 X E-10

% RADIOGENIC..... 84

CALCULATED AGE..... 363 +/- 3 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LYNN
 LATITUDE..... 42-25-38 N
 LONGITUDE..... 70-54-44 W
 COMMENT..... OUTCROP OVERLOOKING NAHANT BAY AT BLACK MINE, NAHANT
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0001715
 REFERENCE NUMBER..... 71-00005
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: WILLIAMS, B. R.
 DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: NAHANT GABBRO
 ROCK TYPE: GABBRO

GEOLOGIC NAME CODE:
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: 8275

DESCRIPTION: DARK GRAYISH-GREEN, FINE-GRAINED GABBRO

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 88-2

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 7.35
 40AR-RAD (MOLES/GM)..... 60.75 X E-10
 % RADIOGENIC..... 95
 CALCULATED AGE.....
 TYPE OF ANALYSIS..... 10

498 +/- 15 MILLION YEARS

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 88-1

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

RB (PPM)..... 256.3
 SR (PPM)..... 72.1 N
 87SR-RAD (PPM)..... 0.467
 % RADIOGENIC 87SR..... 8.6
 CALCULATED AGE.....
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20

451 +/- 23 MILLION YEARS

COMMENTS: AGE OF INTRUSION

FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

LABORATORY SAMPLE NUMBER: 88-2

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

RB (PPM)..... 255.3
 SR (PPM)..... 61.9 N

87SR-RAD (PPM)..... 0.497
% RADIOGENIC 87SR..... 10.4
CALCULATED AGE..... 483 +/- 21 MILLION YEARS
INITIAL 87SR/86SR..... 0.705
TYPE OF ANALYSIS..... 20
COMMENTS: AGE OF INTRUSION
FOR ADDITIONAL INFORMATION, SEE REFERENCE(S): 77-00005

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... ESSEXQUAD SCALE QUAD NO. / NAME
1: 24000 LYNN
LATITUDE..... 42-25-38 N
LONGITUDE..... 70-54-44 W

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0002588

REFERENCE NUMBER..... 77-00005
LABORATORY(IES)..... SDCOMPILED BY
NAME: MARVIN, R.F.
DATE: 77 09

COMMENT..... NAHANT BAY AT BLACK MINE, NAHANT

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: NAHANT GABBRO
ROCK TYPE: GABBROGEOLOGIC NAME CODE: NHNT
LEXICON AGE(S): 360
PETROGRAPHIC CODE: B275

DESCRIPTION: DARK GRAYISH-GREEN, FINE-GRAINED NAHANT GABBRO; SALEM STOCK

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 88

ROCK/MINERAL CODE: PA0

PYROXENE

ANALYTICAL DATA:

K20 (%)..... 0.138
40AR-RAD (MOLES/GM)..... 6.03 X E-10
% RADIOGENIC..... 90

CALCULATED AGE..... 1782 +/- 55 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: SAMPLE CONTAINS EXCESS RADIOGENIC ARGON; AGE IS TOO OLD.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 NATICK
 LATITUDE..... 42-18-50 N
 LONGITUDE..... 71-20-05 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015094
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 84 10
 COMMENT..... EXCAVATION IN INDUSTRIAL PARK 120-M NW OF RATHBUN ROAD,
 350-M NORTH OF INTERSECTION WITH OAK STREET, NATICK

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION
 GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B240

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 1
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: 200-250 MESH FRACTION; ZIRCONS HAVE INTERVAL TURBIDITY
 ANALYTICAL DATA:
 U (PPM)..... 186.4
 TH (PPM)..... 72.6
 PB (PPM)..... 19.40
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.1049 79.63 6.339 13.92
 206PB/238U AGE..... 580 +/- 6 MILLION YEARS
 207PB/235U AGE..... 588 +/- 8 MILLION YEARS
 207PB/206PB AGE..... 622 +/- 7 MILLION YEARS
 208PB/232TH AGE..... 596 +/- 7 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 630 +/- 15 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80
 ANALYTICAL COMMENTS..... 7-POINT CHORD ON A U-PB CONCORDIA DIAGRAM
 SAMPLE SUITE: 00632
 COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

LABORATORY SAMPLE NUMBER: 1
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: 325-400 MESH FRACTION; ZIRCONS HAVE INTERNAL TURBIDITY
 ANALYTICAL DATA:
 U (PPM)..... 301.9
 TH (PPM)..... 121.8
 PB (PPM)..... 30.60
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.0638 81.16 5.846 12.93
 206PB/238U AGE..... 581 +/- 6 MILLION YEARS

207PB/235U AGE..... 590 +/- 7 MILLION YEARS
 207PB/206PB AGE..... 627 +/- 5 MILLION YEARS
 208PB/232TH AGE..... 592 +/- 7 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 630 +/- 15 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80
 ANALYTICAL COMMENTS..... 7-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00632

COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTUSION

LABORATORY SAMPLE NUMBER: 1

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: -400 MESH FRACTION; ZIRCONS HAVE INTERNAL TURBIDITY

ANALYTICAL DATA:

U (PPM)..... 350.0

TH (PPM)..... 136.7

PB (PPM)..... 34.07

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
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0.0182	83.27	5.289	11.43
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206PB/238U AGE..... 578 +/- 6 MILLION YEARS

207PB/235U AGE..... 586 +/- 6 MILLION YEARS

207PB/206PB AGE..... 616 +/- 3 MILLION YEARS

208PB/232TH AGE..... 600 +/- 6 MILLION YEARS

CONCORDIA INTERCEPT AGE.. 630 +/- 15 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80

ANALYTICAL COMMENTS..... 7-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00632

COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015095
STATE CODE.....	25	REFERENCE NUMBER.....	84-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD MT
COUNTY.....	SUFFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NEWTON	NAME: MARVIN, R.F.	
LATITUDE.....	42-16-06 N	DATE: 84 10	
LONGITUDE.....	71-09-29 W		

COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.) 300-M EAST OF
INTERSECTION BETWEEN CENTRE AND GROVE STREETS, BOSTON

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE	GEOLOGIC NAME CODE: DDHM
ROCK TYPE: GRANITE	LEXICON AGE(S): 410
	PETROGRAPHIC CODE: B240
DESCRIPTION: DEDHAM GRANITE (FINE-GRAINED BODY)	

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 2
ROCK/MINERAL CODE: MC1
COMMENT: 100-150 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM).....	1644
TH (PPM).....	1020
PB (PPM).....	151.1

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0982	78.53	6.095	15.28

206PB/238U AGE.....	508 +/- 5	MILLION YEARS
207PB/235U AGE.....	522 +/- 7	MILLION YEARS
207PB/206PB AGE.....	585 +/- 6	MILLION YEARS
208PB/232TH AGE.....	386 +/- 4	MILLION YEARS
CONCORDIA INTERCEPT AGE..	630 +/- 15	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80

ANALYTICAL COMMENTS..... 7-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00632

COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

LABORATORY SAMPLE NUMBER: 2
ROCK/MINERAL CODE: MC1
COMMENT: 200-270 MESH FRACTION

ZIRCON

ANALYTICAL DATA:

U (PPM).....	2446
TH (PPM).....	1537
PB (PPM).....	228.6

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.0713	79.12	5.752	15.05

206PB/238U AGE.....	523 +/- 5	MILLION YEARS
207PB/235U AGE.....	536 +/- 6	MILLION YEARS
207PB/206PB AGE.....	590 +/- 5	MILLION YEARS
208PB/232TH AGE.....	414 +/- 4	MILLION YEARS
CONCORDIA INTERCEPT AGE..	630 +/- 15	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80
ANALYTICAL COMMENTS..... 7-POINT CHORD ON A U-PB CONCORDIA DIAGRAM
SAMPLE SUITE: 00632
COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 HANSFIELD
 LATITUDE..... 42-04-18 N
 LONGITUDE..... 71-13-36 W
 COMMENT..... ROADCUT ON WEST SIDE OF I-95, 950-M NORTH OF OVERPASS AT
 COCASSET ST., FOXBOROUGH

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015096
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 84 10

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
 GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B240

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 3
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: 100-150 MESH FRACTION; ZIRCON ARE ESPECIALLY TURBID
 ANALYTICAL DATA:
 U (PPM)..... 1976
 TH (PPM)..... 1458
 PB (PPM)..... 157.6
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.2541 72.37 7.965 19.41
 206PB/238U AGE..... 393 +/- 4 MILLION YEARS
 207PB/235U AGE..... 420 +/- 9 MILLION YEARS
 207PB/206PB AGE..... 571 +/- 12 MILLION YEARS
 208PB/232TH AGE..... 240 +/- 4 MILLION YEARS
 CONCORDIA INTERCEPT AGE.. 630 +/- 15 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80
 ANALYTICAL COMMENTS..... 7-POINT CHORD ON A U-PB CONCORDIA DIAGRAM
 SAMPLE SUITE: 00632
 COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

LABORATORY SAMPLE NUMBER: 3
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: 200-270 MESH FRACTION; ZIRCON ARE ESPECIALLY TURBID
 ANALYTICAL DATA:
 U (PPM)..... 1739
 TH (PPM)..... 1035
 PB (PPM)..... 138.7
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.1742 76.23 7.056 16.54
 206PB/238U AGE..... 423 +/- 4 MILLION YEARS

207PB/235U AGE..... 449 +/- 8 MILLION YEARS
207PB/206PB AGE..... 582 +/- 9 MILLION YEARS
208PB/232TH AGE..... 301 +/- 4 MILLION YEARS
CONCORDIA INTERCEPT AGE.. 630 +/- 15 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80

ANALYTICAL COMMENTS..... 7-POINT CHORD ON A U-PB CONCORDIA DIAGRAM

SAMPLE SUITE: 00632

COMMENTS: CONCORDIA INTERCEPT AGE IS ASSUMED AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015098
STATE CODE.....	25	REFERENCE NUMBER.....	84-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD MT
COUNTY.....	ESSEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MARBLEHEAD SOUTH	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-29-26 N	DATE: 84 09	
LONGITUDE.....	70-50-43 W		

COMMENT..... OUTCROP ALONG BEACH BELOW OCEAN AVE. ON SOUTHWESTERN
MARBLEHEAD NECK, 200-M EAST OF INTERSECTION WITH HARBOR ST., MARBLEHEAD

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANODIORITE

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B260

DESCRIPTION: DEDHAM GRANITE AND RELATED ROCKS

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 5
ROCK/MINERAL CODE: PCS

HORNBLENDE

ANALYTICAL DATA:

K20 (%).....	0.885		
40AR-RAD (MOLES/GM).....	9.695	X E-10	
% RADIOGENIC.....	90		
CALCULATED AGE.....		640 +/- 14	MILLION YEARS
TYPE OF ANALYSIS.....	10		

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BOSTON NORTH
 LATITUDE..... 42-28-08 N
 LONGITUDE..... 71-01-27 W
 COMMENT..... SMALL ABANDONED QUARRY ON EAST SIDE OF U.S. ROUTE 1,
 450-M NORTH OF INTERSECTION WITH MAIN ST., SAUGUS
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015099
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 09

SAMPLE DESCRIPTION
 GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANODIORITE
 DESCRIPTION: DEDHAM GRANITE AND RELATED ROCKS
 GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B260

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 6
 ROCK/MINERAL CODE: PC5
 ANALYTICAL DATA:
 K20 (%)..... 0.971
 40AR-RAD (MOLES/GM)..... 10.21 X E-10
 % RADIOGENIC..... 94
 CALCULATED AGE..... 622 +/- 12 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: AGE OF INTRUSION

HORNBLLENDE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LEXINGTON
 LATITUDE..... 42-25-27 N
 LONGITUDE..... 71-14-58 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015102
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 09
 COMMENT..... EXCAVATION FOR BUILDING 140-M EAST OF SPRING ST., 200-M
 NE OF INTERSECTION WITH MASSACHUSETTS ROUTE 2, LEXINGTON

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANODIORITE
 GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B260
 DESCRIPTION: DEDHAM GRANITE AND RELATED ROCKS

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 9
 ROCK/MINERAL CODE: PCS HORNBLLENDE
 ANALYTICAL DATA:
 K20 (%)..... 1.354
 40AR-RAD (MOLES/GM)..... 8.184 x E-10
 % RADIOGENIC..... 95
 CALCULATED AGE..... 384 +/- 6 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002116
STATE CODE.....	25	REFERENCE NUMBER.....	67-00005
STATE.....	MASSACHUSFTTS	LABORATORY(IES).....	MT
COUNTY.....	PLYMOUTH		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WEYMOUTH	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-07-32 N	DATE: 77 08	
LONGITUDE.....	71-56-55 W		
COMMENT..... FROM HILL BEHIND 1333 WASHINGTON ST., NORTH ABINGTON (NOT SURE OF LOCATION--COMPILER)			

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANODIORITE

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410 377
PETROGRAPHIC CODE: B260

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5202
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR.....	0.534	
87SR/86SR.....	0.7103	
CALCULATED AGE.....		579 +/- 28 MILLION YEARS
INITIAL 87SR/86SR.....	0.7054	
TYPE OF ANALYSIS.....	22	
ANALYTICAL COMMENTS.....	37RB/86SR BY XRF; 4-POINT WHOLE-ROCK ISOCHRON	
SAMPLE SUITE: 00105		
COMMENTS: AGE OF INTRUSION		

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BOSTON NORTH
 LATITUDE..... 42-28-45 N
 LONGITUDE..... 71-01-20 W
SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004665
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06
 COMMENT..... ON ROUTE 1, NORTH LANE, AT SAUGAS RIVER, 70 METERS NORTH
 OF CONFLUENCE WITH BENNETTS POND BROOK, SAUGUS
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID
 GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220
 DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
 TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8607
 ROCK/MINERAL CODE: AAO
 ANALYTICAL DATA:
 RB (PPM)..... 81.46
 SR (PPM)..... 237.1 T
 87RB/86SR..... 0.978
 87SR/86SR..... 0.7142
 CALCULATED AGE..... 660 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.7050
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED
 WHOLE-ROCK

LABORATORY SAMPLE NUMBER: 8607
 ROCK/MINERAL CODE: AAO
 ANALYTICAL DATA:
 RB (PPM)..... 81.46
 SR (PPM)..... 237.1 T
 87RB/86SR..... 0.978
 87SR/86SR..... 0.7142
 CALCULATED AGE..... 608 +/- 17 MILLION YEARS
 INITIAL 87SR/86SR..... 0.7065
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 8-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT
 DESIGNATE THE 8 POINTS --COMPILER)
 SAMPLE SUITE: 00156
 COMMENTS: AGE OF INTRUSION
 WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... SUFFOLK

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004637

REFERENCE NUMBER..... 77-00020

LABORATORY(IES)..... MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

NEWTON

LATITUDE..... 42-16-05 N

LONGITUDE..... 71-09-30 W

COMPILED BY

NAME: GODOY, M.M.

DATE: 78 06

COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE

ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM

LEXICON AGE(S): 410

PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8545

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 175.8

SR (PPM)..... 61.26 T

87RB/86SR..... 8.219

87SR/86SR..... 0.7744

CALCULATED AGE..... 592 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8545

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 175.8

SR (PPM)..... 61.26 T

87RB/86SR..... 8.219

87SR/86SR..... 0.7744

CALCULATED AGE..... 595 +/- 17 MILLION YEARS

INITIAL 87SR/86SR..... 0.7065

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 8-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT
DESIGNATE THE 8 POINTS --COMPILER)

SAMPLE SUITE: 00156

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004644
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	SUFFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NEWTON	NAME: GODOY, M.M.	
LATITUDE.....	42-16-05 N	DATE: 78 06	
LONGITUDE.....	71-09-30 W		

COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE	GEOLOGIC NAME CODE: DDHM
ROCK TYPE: GRANITOID	LEXICON AGE(S): 410
	PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8554	
ROCK/MINERAL CODE: AAO	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	145.8
SR (PPM).....	167.2 T
87RB/86SR.....	2.486
87SR/86SR.....	0.7278
CALCULATED AGE.....	643 +/- MILLION YEARS
INITIAL 87SR/86SR.....	0.7050
TYPE OF ANALYSIS.....	20

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8554	
ROCK/MINERAL CODE: AAO	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	145.8
SR (PPM).....	167.2 T
87RB/86SR.....	2.486
87SR/86SR.....	0.7278
CALCULATED AGE.....	595 +/- MILLION YEARS
INITIAL 87SR/86SR.....	0.7065
TYPE OF ANALYSIS.....	22

ANALYTICAL COMMENTS..... 8-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT
DESIGNATE THE 8 POINTS --COMPILER)

SAMPLE SUITE: 00156

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004651
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MANSFIELD	NAME: GODOY, M.M.	
LATITUDE.....	42-05-25 N	DATE: 78 06	
LONGITUDE.....	71-13-30 W		

COMMENT..... ON ROUTE I-95, SOUTH LANE, INTERCHANGE 8 WITH SOUTH MAIN STREET, SHARON (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE	GEOLOGIC NAME CODE: DDHM
ROCK TYPE: GRANITOID	LEXICON AGE(S): 410
	PETROGRAPHIC CODE: B220
DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8562	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	159.9
SR (PPM).....	102.6 T
87RB/86SR.....	4.450
87SR/86SR.....	0.7439
CALCULATED AGE.....	613 +/- MILLION YEARS
INITIAL 87SR/86SR.....	0.7050
TYPE OF ANALYSIS.....	20
COMMENTS: AGE NOT EVALUATED	

LABORATORY SAMPLE NUMBER: 8562	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	159.9
SR (PPM).....	102.6 T
87RB/86SR.....	4.450
87SR/86SR.....	0.7439
CALCULATED AGE.....	595 +/- 17 MILLION YEARS
INITIAL 87SR/86SR.....	0.7065
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS..... 8-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT DESIGNATE THE 8 POINTS --COMPILER)	
SAMPLE SUITE: 00156	
COMMENTS: AGE OF INTRUSION	

LABORATORY SAMPLE NUMBER: 8562

ROCK/MINERAL CODE: AAO
ANALYTICAL DATA:
RB (PPM)..... 159.9
SR (PPM)..... 102.6 T
87RB/86SR..... 4.450
87SR/86SR..... 0.7439
CALCULATED AGE..... 591 +/- 38 MILLION YEARS
INITIAL 87SR/86SR..... 0.7069
TYPE OF ANALYSIS..... 22
ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON
SAMPLE SUITE: 00158
COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MANSFIELD
 LATITUDE..... 42-05-25 N
 LONGITUDE..... 71-13-30 W
 COMMENT..... ON ROUTE I-95, SOUTH LANE, INTERCHANGE 8 WITH SOUTH MAIN STREET, SHARON (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004652
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8563
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 131.6
 SR (PPM)..... 169.9 T
 87RB/86SR..... 2.204
 87SR/86SR..... 0.7236

CALCULATED AGE.....

591 +/-

MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8563
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 131.6
 SR (PPM)..... 169.9 T
 87RB/86SR..... 2.204
 87SR/86SR..... 0.7236

CALCULATED AGE.....

591 +/- 38

MILLION YEARS

INITIAL 87SR/86SR..... 0.7069

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00158

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004654
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MANSFIELD	NAME: GODOY, M.M.	
LATITUDE.....	42-05-25 N	DATE: 78 06	
LONGITUDE.....	71-13-30 W		
COMMENT..... ON ROUTE I-95, SOUTH LANE, INTERCHANGE 8 WITH SOUTH MAIN STREET, SHARON (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)			

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8565

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 118.5

SR (PPM)..... 273.9 T

87RB/86SR..... 1.232

87SR/86SR..... 0.7172

CALCULATED AGE..... 693 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8565

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 118.5

SR (PPM)..... 273.9 T

87RB/86SR..... 1.232

87SR/86SR..... 0.7172

CALCULATED AGE..... 595 +/- 17 MILLION YEARS

INITIAL 87SR/86SR..... 0.7065

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 8-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT DESIGNATE THE 8 POINTS --COMPILER)

SAMPLE SUITE: 00156

COMMENTS: AGE OF INTRUSION

LABORATORY SAMPLE NUMBER: 8565

ROCK/MINERAL CODE: AA0
ANALYTICAL DATA: WHOLE-ROCK

RB (PPM).....	118.5	
SR (PPM).....	273.9	T
87RB/86SR.....	1.232	
87SR/86SR.....	0.7172	
CALCULATED AGE.....		591 +/- 38 MILLION YEARS
INITIAL 87SR/86SR.....	0.7069	
TYPE OF ANALYSIS.....	22	
ANALYTICAL COMMENTS.....	6-POINT WHOLE-ROCK ISOCHRON	

SAMPLE SUITE: 00158
COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... NORFOLK

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004657

REFERENCE NUMBER..... 77-00020

LABORATORY(IES)..... MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

MANSFIELD

LATITUDE.....

42-04-15 N

LONGITUDE.....

71-13-30 W

COMPILED BY

NAME: GODOY, M.M.

DATE: 78 06

COMMENT..... ON ROUTE I-95, SOUTH LANE, 3 KM NORTH OF INTERCHANGE
WITH ROUTE 140, FOXBORO

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE

ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM

LEXICON AGE(S): 410

PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8569

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 173.1

SR (PPM)..... 66.96 T

87RB/86SR..... 7.398

87SR/86SR..... 0.7683

CALCULATED AGE..... 600 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8569

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 173.1

SR (PPM)..... 66.96 T

87RB/86SR..... 7.398

87SR/86SR..... 0.7683

CALCULATED AGE..... 595 +/- 17 MILLION YEARS

INITIAL 87SR/86SR..... 0.7065

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 8-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT
DESIGNATE THE 8 POINTS --COMPILER)

SAMPLE SUITE: 00156

COMMENTS: AGE OF INTRUSION

LABORATORY SAMPLE NUMBER: 8569

ROCK/MINERAL CODE: AA0		WHOLE-ROCK
ANALYTICAL DATA:		
RB (PPM).....	173.1	
SR (PPM).....	66.96	T
87RB/86SR.....	7.398	
87SR/86SR.....	0.7683	
CALCULATED AGE.....		591 +/- 38 MILLION YEARS
INITIAL 87SR/86SR.....	0.7069	
TYPE OF ANALYSIS.....	22	
ANALYTICAL COMMENTS.....	6-POINT WHOLE-ROCK ISOCHRON	
SAMPLE SUITE: 00158		
COMMENTS: AGE OF INTRUSION		

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MANSFIELD
 LATITUDE..... 42-04-15 N
 LONGITUDE..... 71-13-30 W
 COMMENT..... ON ROUTE I-95, SOUTH LANE, 3 KM NORTH OF INTERCHANGE
 WITH ROUTE 140, FOXBORO

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004658
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT

COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
 TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8570

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

Rb (PPM)..... 165.0

SR (PPM)..... 57.35 T

87RB/86SR..... 8.241

87SR/86SR..... 0.7772

CALCULATED AGE..... 614 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8570

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

Rb (PPM)..... 165.0

SR (PPM)..... 57.35 T

87RB/86SR..... 8.241

87SR/86SR..... 0.7772

CALCULATED AGE..... 595 +/- 17 MILLION YEARS

INITIAL 87SR/86SR..... 0.7065

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 8-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT
 DESIGNATE THE 8 POINTS --COMPILER)

SAMPLE SUITE: 00156

COMMENTS: AGE OF INTRUSION

LABORATORY SAMPLE NUMBER: 8570

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	165.0		
SK (PPM).....	57.35	T	
87RB/86SR.....	8.241		
87SR/86SR.....	0.7772		
CALCULATED AGE.....		591 +/- 38	MILLION YEARS
INITIAL 87SR/86SR.....	0.7069		
TYPE OF ANALYSIS.....	22		
ANALYTICAL COMMENTS.....	6-POINT WHOLE-ROCK ISOCHRON		
SAMPLE SUITE: 00158			
COMMENTS: AGE OF INTRUSION			

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MANSFIELD
 LATITUDE..... 42-04-15 N
 LONGITUDE..... 71-13-30 W
 COMMENT..... ON ROUTE I-95, SOUTH LANE, 3 KM NORTH OF INTERCHANGE
 WITH ROUTE 140, FOXBORO
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004659
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06

SAMPLE DESCRIPTION
 GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID
 DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
 TO GRANITE)
 GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8572
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 138.0
 SR (PPM)..... 100.6 T
 87RB/86SR..... 3.917
 87SR/86SR..... 0.7408
 CALCULATED AGE..... 640 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.7050
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED
 WHOLE-ROCK

LABORATORY SAMPLE NUMBER: 8572
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 138.0
 SR (PPM)..... 100.6 T
 87RB/86SR..... 3.917
 87SR/86SR..... 0.7408
 CALCULATED AGE..... 595 +/- 17 MILLION YEARS
 INITIAL 87SR/86SR..... 0.7065
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 8-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT
 DESIGNATE THE 8 POINTS --COMPILER)
 SAMPLE SUITE: 00156
 COMMENTS: AGE OF INTRUSION
 WHOLE-ROCK

LABORATORY SAMPLE NUMBER: 8572
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	138.0		
SR (PPM).....	100.6	T	
87RB/86SR.....	3.917		
87SR/86SR.....	0.7408		
CALCULATED AGE.....		591 +/- 38	MILLION YEARS
INITIAL 87SR/86SR.....	0.7069		
TYPE OF ANALYSIS.....	22		
ANALYTICAL COMMENTS.....	6-POINT WHOLE-ROCK ISOCHRON		
SAMPLE SUITE: 00158			
COMMENTS: AGE OF INTRUSION			

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BOSTON NORTH
 LATITUDE..... 42-28-10 N
 LONGITUDE..... 71-01-30 W
 COMMENT..... ON ROUTE 1, SOUTH LANE, 500 METERS NORTH OF INTERSECTION
 WITH MAIN STREET, SAUGUS

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004666
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT

COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
 TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8608
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 63.62
 SR (PPM)..... 295.8 T
 87RB/86SR..... 0.612
 87SR/86SR..... 0.7118
 CALCULATED AGE.....
 INITIAL 87SR/86SR..... 0.7050
 TYPE OF ANALYSIS..... 20

778 +/- MILLION YEARS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004636
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	SUFFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NEWTON	NAME: GODOY, M.M.	
LATITUDE.....	42-16-05 N	DATE: 78 06	
LONGITUDE.....	71-09-30 W		
COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET, WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)			

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8544
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	170.9
SR (PPM).....	46.63 T
87RB/86SR.....	10.499
87SR/86SR.....	0.7814
CALCULATED AGE.....	
INITIAL 87SR/86SR.....	0.7050
TYPE OF ANALYSIS.....	20

511 +/- MILLION YEARS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004638
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	SUFFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NEWTON	NAME: GODOY, M.M.	
LATITUDE.....	42-16-05 N	DATE: 78 06	
LONGITUDE.....	71-09-30 W		

COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8546

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	188.7	
SR (PPM).....	48.85	T
87Rb/86Sr.....	11.079	
87Sr/86Sr.....	0.7919	

CALCULATED AGE.....

550 +/-

MILLION YEARS

INITIAL 87Sr/86Sr..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... SUFFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 NEWTON
 LATITUDE..... 42-16-05 N
 LONGITUDE..... 71-09-30 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004639
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06
 COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
 WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
 TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8548
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 108.3
 SR (PPM)..... 90.49 T
 87RB/86SR..... 3.410
 87SR/86SR..... 0.7271

CALCULATED AGE.....

455 +/-

MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8548
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 108.3
 SR (PPM)..... 90.49 T
 87RB/86SR..... 3.410
 87SR/86SR..... 0.7271

CALCULATED AGE.....

440 +/- 16

MILLION YEARS

INITIAL 87SR/86SR..... 0.7048

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT
 DESIGNATE THE 6 POINTS --COMPILER)

SAMPLE SUITE: 00157

COMMENTS: APPROXIMATE AGE OF REGIONAL ALKALIC MAGMATISM WHICH AFFECTED THE
 DEDHAM GRANITE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004640
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	SUFFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NEWTON	NAME: GODOY, M.M.	
LATITUDE.....	42-16-05 N	DATE: 78 06	
LONGITUDE.....	71-09-30 W		

COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE	GEOLOGIC NAME CODE: DDHM
ROCK TYPE: GRANITOID	LEXICON AGE(S): 410
	PETROGRAPHIC CODE: B220
DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8549
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	174.2
SR (PPM).....	66.86 T
87RB/86SR.....	7.452
87SR/86SR.....	0.7613
CALCULATED AGE.....	530 +/-
INITIAL 87SR/86SR.....	0.7050
TYPE OF ANALYSIS.....	20

MILLION YEARS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... SUFFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 NEWTON
 LATITUDE..... 42-16-05 N
 LONGITUDE..... 71-09-30 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004641
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06
 COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
 WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
 TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8551
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 189.4
 SR (PPM)..... 44.36 T
 87RB/86SR..... 12.262
 87SR/86SR..... 0.8044
 CALCULATED AGE.....
 INITIAL 87SR/86SR..... 0.7050
 TYPE OF ANALYSIS..... 20

569 +/- MILLION YEARS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004642
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	SUFFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NEWTON	NAME: GODOY, M.M.	
LATITUDE.....	42-16-05 N	DATE: 78 06	
LONGITUDE.....	71-09-30 W		

COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE	GEOLOGIC NAME CODE: DDHM
ROCK TYPE: GRANITOID	LEXICON AGE(S): 410
	PETROGRAPHIC CODE: B220
DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8552

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 140.0

SR (PPM)..... 145.5 T

87RB/86SR..... 2.742

87SR/86SR..... 0.7259

CALCULATED AGE.....

534 +/-

MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004643
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	SUFFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NEWTON	NAME: GODOY, M.M.	
LATITUDE.....	42-16-05 N	DATE: 78 06	
LONGITUDE.....	71-09-30 W		

COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8553

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 141.8
SR (PPM)..... 96.12 T
87RB/86SR..... 4.208
87SR/86SR..... 0.7329

CALCULATED AGE.....

465 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8553

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 141.8
SR (PPM)..... 96.12 T
87RB/86SR..... 4.208
87SR/86SR..... 0.7329

CALCULATED AGE.....

440 +/- 16 MILLION YEARS

INITIAL 87SR/86SR..... 0.7048

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT
DESIGNATE THE 6 POINTS --COMPILER)

SAMPLE SUITE: 00157

COMMENTS: APPROXIMATE AGE OF REGIONAL ALKALIC MAGMATISM WHICH AFFECTED THE
DEDHAM GRANITE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... SUFFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 NEWTON
 LATITUDE..... 42-16-05 N
 LONGITUDE..... 71-09-30 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004645
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT
 COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
 WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
 TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8555
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 216.0
 SR (PPM)..... 38.30 T
 87RB/86SR..... 16.255
 87SR/86SR..... 0.6393

CALCULATED AGE.....

579 +/-

MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004646
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	SUFFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NEWTON	NAME: GODOY, M.M.	
LATITUDE.....	42-16-05 N	DATE: 78 06	
LONGITUDE.....	71-09-30 W		

COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8556
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	205.4	
SR (PPM).....	47.11	T
87R3/86SR.....	12.527	
87SR/86SR.....	0.8057	
CALCULATED AGE.....		
INITIAL 87SR/86SR.....	0.7050	
TYPE OF ANALYSIS.....	20	

564 +/- MILLION YEARS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... SUFFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 NEWTON
 LATITUDE..... 42-16-05 N
 LONGITUDE..... 71-09-30 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004647
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06
 COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
 WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID
 GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220
 DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
 TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8557
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 153.2
 SR (PPM)..... 85.54 T
 87RB/86SR..... 5.110
 87SR/86SR..... 0.7374
 CALCULATED AGE..... 445 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.7050
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED
 WHOLE-ROCK

LABORATORY SAMPLE NUMBER: 8557
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 153.2
 SR (PPM)..... 85.54 T
 87RB/86SR..... 5.110
 87SR/86SR..... 0.7374
 CALCULATED AGE..... 440 +/- 16 MILLION YEARS
 INITIAL 87SR/86SR..... 0.7048
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT
 DESIGNATE THE 6 POINTS --COMPILER)
 SAMPLE SUITE: 00157
 COMMENTS: APPROXIMATE AGE OF REGIONAL ALKALIC MAGMATISM WHICH AFFECTED THE
 DEDHAM GRANITE
 WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... SUFFOLK

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004648

REFERENCE NUMBER..... 77-00020

LABORATORY(IES)..... MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

NEWTON

COMPILED BY

NAME: GODOY, M.M.

LATITUDE..... 42-16-05 N

DATE: 78 06

LONGITUDE..... 71-09-30 W

COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET,
WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE

ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM

LEXICON AGE(S): 410

PETROGRAPHIC CODE: 8220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8558

ROCK/MINERAL CODE: AAO

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 199.5

SR (PPM)..... 46.55 T

87RB/86SR..... 12.300

87SR/86SR..... 0.7967

CALCULATED AGE..... 523 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004649
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	SUFFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NEWTON	NAME: GODOY, M.M.	
LATITUDE.....	42-16-05 N	DATE: 78 06	
LONGITUDE.....	71-09-30 W		
COMMENT..... QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET, WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)			

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8560
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

Rb (PPM).....	154.9
SR (PPM).....	153.4 T
87Rb/86Sr.....	2.877
87Sr/86Sr.....	0.7273

CALCULATED AGE.....

543 +/-

MILLION YEARS

INITIAL 87Sr/86Sr..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004650
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	SUFFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NEWTON	NAME: GODOY, M.M.	
LATITUDE.....	42-16-05 N	DATE: 78 06	
LONGITUDE.....	71-09-30 W		
COMMENT.....	QUARRY (WEST ROXBURY CRUSHED STONE CO.), GROVE STREET, WEST ROXBURY (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8561
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

PB (PPM)..... 174.8
SR (PPM)..... 47.38 T
87RB/86SR..... 10.572
87SR/86SR..... 0.7813

CALCULATED AGE..... 506 +/-

MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MANSFIELD
 LATITUDE..... 42-05-25 N
 LONGITUDE..... 71-13-30 W
 COMMENT..... ON ROUTE I-95, SOUTH LANE, INTERCHANGE 8 WITH SOUTH MAIN STREET, SHARON (LOCATION LISTED IN APPENDIX IS IN ERROR --COMPILER)
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004653
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06

SAMPLE DESCRIPTION
 GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID
 DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)
 GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8564
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 99.8
 SR (PPM)..... 362.8 T
 87RB/86SR..... 0.783
 87SR/86SR..... 0.7098
 CALCULATED AGE..... 431 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.7050
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8564
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 99.8
 SR (PPM)..... 362.8 T
 87RB/86SR..... 0.783
 87SR/86SR..... 0.7098
 CALCULATED AGE..... 440 +/- 16 MILLION YEARS
 INITIAL 87SR/86SR..... 0.7048
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT DESIGNATE THE 6 POINTS --COMPILER)
 SAMPLE SUITE: 00157
 COMMENTS: APPROXIMATE AGE OF REGIONAL ALKALIC MAGMATISM WHICH AFFECTED THE DEDHAM GRANITE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MANSFIELD
 LATITUDE..... 42-04-15 N
 LONGITUDE..... 71-13-30 W
 COMMENT..... ON ROUTE I-95, SOUTH LANE, 3 KM NORTH OF INTERCHANGE
 WITH ROUTE 140, FOXBORO
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004655
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8566
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 153.0
 SR (PPM)..... 57.64 T
 87RB/86SR..... 7.598
 87SR/86SR..... 0.7687

CALCULATED AGE.....

588 +/-

MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0004656
STATE CODE.....	25	REFERENCE NUMBER.....	77-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MANSFIELD	NAME: GODOY, M.M.	
LATITUDE.....	42-04-15 N	DATE: 78 06	
LONGITUDE.....	71-13-30 W		

COMMENT..... ON ROUTE I-95, SOUTH LANE, 3 KM NORTH OF INTERCHANGE
WITH ROUTE 140, FOXBORO

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8567
ROCK/MINERAL CODE: AAO

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 167.8
SR (PPM)..... 57.89 T
87RB/86SR..... 8.294
87SR/86SR..... 0.7686

CALCULATED AGE.....

538 +/-

MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... NORFOLK

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004660

REFERENCE NUMBER..... 77-00020
LABORATORY(IES)..... MTQUAD SCALE QUAD NO. / NAME
1: 24000 NATICK
LATITUDE..... 42-17-30 N
LONGITUDE..... 71-17-30 WCOMPILED BY
NAME: GODOY, M.M.
DATE: 78 06COMMENT..... WEST SIDE OF LINDEN STREET AT LINDEN SHOPPING CENTER,
WELLESLEYPRECISION OF LOCATION: 4
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITOIDGEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B220DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8599

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 91.43
SR (PPM)..... 202.4 T
87RB/86SR..... 1.286
87SR/86SR..... 0.7123
CALCULATED AGE.....
INITIAL 87SR/86SR..... 0.7050
TYPE OF ANALYSIS..... 20

398 +/- MILLION YEARS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... NORFOLK

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004661

REFERENCE NUMBER..... 77-00020
LABORATORY(IES)..... MTQUAD SCALE QUAD NO. / NAME
1: 24000 NATICK
LATITUDE..... 42-17-30 N
LONGITUDE..... 71-17-30 WCOMPILED BY
NAME: GODOY, M.M.
DATE: 78 06COMMENT..... WEST SIDE OF LINDEN STREET AT LINDEN SHOPPING CENTER,
WELLESLEYPRECISION OF LOCATION: 4
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITOIDGEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B220DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8600
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 78.07
SR (PPM)..... 344.3 T
87RB/86SR..... 0.645
87SR/86SR..... 0.7092
CALCULATED AGE.....
INITIAL 87SR/86SR..... 0.7050
TYPE OF ANALYSIS..... 20

457 +/- MILLION YEARS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 WEYMOUTH
 LATITUDE..... 42-12-05 N
 LONGITUDE..... 70-58-30 W
 COMMENT..... ON ROUTE 3, SOUTH LANE, 500 METERS WEST OF SUMMER STREET, BRAINTREE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004662
 REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8601
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 57.79
 SR (PPM)..... 593.4 T
 87RB/86SR..... 0.277
 87SR/86SR..... 0.7063
 CALCULATED AGE.....
 INITIAL 87SR/86SR..... 0.7050
 TYPE OF ANALYSIS..... 20

330 +/- MILLION YEARS

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8601
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 57.79
 SR (PPM)..... 593.4 T
 87RB/86SR..... 0.277
 87SR/86SR..... 0.7063
 CALCULATED AGE.....
 INITIAL 87SR/86SR..... 0.7048
 TYPE OF ANALYSIS..... 22

440 +/- 16 MILLION YEARS

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT DESIGNATE THE 6 POINTS --COMPILER)

SAMPLE SUITE: 00157

COMMENTS: APPROXIMATE AGE OF REGIONAL ALKALIC MAGMATISM WHICH AFFECTED THE DEDHAM GRANITE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES

STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK

QUAD SCALE QUAD NO. / NAME
 1: 24000 WEYMOUTH

LATITUDE..... 42-11-45 N
 LONGITUDE..... 70-57-45 W

COMMENT..... ON ROUTE 3, SOUTH LANE, 1 KM WEST OF INTERCHANGE 29 WITH
 MAIN STREET, WEYMOUTH

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004663

REFERENCE NUMBER..... 77-00020
 LABORATORY(IES)..... MT

COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06

SAMPLE DESCRIPTION
 GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITOID

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE
 TO GRANITE)

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B220

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8605
 ROCK/MINERAL CODE: AA0

ANALYTICAL DATA:

RB (PPM).....	98.63	
SR (PPM).....	289.6	T
87RB/86SR.....	0.969	
87SR/86SR.....	0.7123	
CALCULATED AGE.....	529 +/-	MILLION YEARS
INITIAL 87SR/86SR.....	0.7050	
TYPE OF ANALYSIS.....	20	

COMMENTS: AGE NOT EVALUATED

WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... NORFOLK

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004664

REFERENCE NUMBER..... 77-00020

LABORATORY(IES)..... MT

QUAD SCALE

1: 24000

QUAD NO. / NAME

COHASSET

COMPILED BY

NAME: GODOY, M.M.

LATITUDE.....

42-14-30 N

DATE: 78 06

LONGITUDE.....

70-50-00 W

COMMENT..... ON ROUTE 3A, COHASSET

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE

ROCK TYPE: GRANITOID

GEOLOGIC NAME CODE: DDHM

LEXICON AGE(S): 410

PETROGRAPHIC CODE: B220

DESCRIPTION: DEDHAM GRANITE (VARIES IN COMPOSITION FROM GABBRODIORITE TO GRANITE)

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 8606

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 141.5

SR (PPM)..... 58.60 T

87RB/86SR..... 6.896

87SR/86SR..... 0.7475

CALCULATED AGE..... 433 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.7050

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 8606

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 141.5

SR (PPM)..... 58.60 T

87RB/86SR..... 6.896

87SR/86SR..... 0.7475

CALCULATED AGE..... 440 +/- 16 MILLION YEARS

INITIAL 87SR/86SR..... 0.7048

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON (ARTICLE DID NOT DESIGNATE THE 6 POINTS --COMPILER)

SAMPLE SUITE: 00157

COMMENTS: APPROXIMATE AGE OF REGIONAL ALKALIC MAGMATISM WHICH AFFECTED THE DEDHAM GRANITE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GEORGETOWN
 LATITUDE..... 42-43-20 N
 LONGITUDE..... 70-53-31 W
 COMMENT..... OUTCROP ON KNOLL 150-M EAST OF WEATHERSFIELD ST.; 1.0 KM
 SE OF DODGE CORNER, ROWLEY
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015097
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 09

SAMPLE DESCRIPTION
 ROCK TYPE: DIORITE

LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B270

DESCRIPTION: HORNBLENDE DIORITE ASSOCIATED WITH DEDHAM GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 4
 ROCK/MINERAL CODE: PC5

HORNBLENDE

ANALYTICAL DATA:

K20 (%)..... 0.296
 40AR-RAD (MOLES/GM)..... 3.363 x E-10
 % RADIOGENIC..... 93
 CALCULATED AGE..... 646 +/- 16 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002590
STATE CODE.....	25	REFERENCE NUMBER.....	77-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	READING	NAME: MARVIN, R.F.	
LATITUDE.....	42-30-10 N	DATE: 77 09	
LONGITUDE.....	71-06-13 W		

COMMENT..... ROADCUT INSIDE SOUTHEASTERN LOOP OF CLOVERLEAF AT
INTERSECTION OF STATE ROUTES 128 AND 28, READING

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
ROCK TYPE: DIORITE

LEXICON AGE(S): 340 360 370
PETROGRAPHIC CODE: B270

DESCRIPTION: DARK BLUISH-GRAY, FINE-GRAINED DIORITE, LEXINGTON STOCK;
DIORITE ASSOCIATED WITH DEDHAM GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 140

ROCK/MINERAL CODE: PC5

HORNBLENDE

ANALYTICAL DATA:

K20 (%)..... 0.675

40AR-RAD (MOLES/GM)..... 6.22 X E-10

% RADIOGENIC..... 93

CALCULATED AGE..... 539 +/- 16 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BOSTON NORTH
 LATITUDE..... 42-29-24 N
 LONGITUDE..... 71-01-06 W
 COMMENT..... ROADCUT INSIDE NW LOOP OF CLOVERLEAF AT INTERSECTION OF
 U.S. ROUTE 1 AND MASSACHUSETTS ROUTE 129, SAUGUS
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1
SAMPLE DESCRIPTION
 ROCK TYPE: QUARTZ DIORITE
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B265
 DESCRIPTION: QUARTZ DIORITE ASSOCIATED WITH DEDHAM GRANITE AND RELATED ROCKS
POTASSIUM-ARGON
 LABORATORY SAMPLE NUMBER: 7
 ROCK/MINERAL CODE: PC5 HORNBLende
ANALYTICAL DATA:
 K20 (%)..... 1.163
 40AR-RAD (MOLES/GM)..... 7.378 X E-10
 % RADIOGENIC..... 94
 CALCULATED AGE..... 394 +/- 8 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LEXINGTON
 LATITUDE..... 42-28-21 N
 LONGITUDE..... 71-13-05 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002589
 REFERENCE NUMBER..... 77-00005
 LABORATORY(IES)..... SD
 COMMENT..... ROADCUT FOR FUTURE EXTENSION OF U.S. ROUTE 3, 500 METERS
 SE OF INTERSECTION WITH STATE ROUTE 128, BURLINGTON

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

ROCK TYPE: GRANODIORITE

LEXICON AGE(S): 340

PETROGRAPHIC CODE: B260

DESCRIPTION: GREENISH-GRAY, MEDIUM-GRAINED GRANODIORITE, LEXINGTON STOCK;
 GRANODIORITE ASSOCIATED WITH DEDHAM GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 154

ROCK/MINERAL CODE: PC5

HORNBLLENDE

ANALYTICAL DATA:

K20 (%)..... 1.44

40AR-RAD (MOLES/GM)..... 8.08 x E-10

% RADIOGENIC..... 98

CALCULATED AGE..... 353 +/- 10 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LEXINGTON
 LATITUDE..... 42-25-56 N
 LONGITUDE..... 71-10-23 W
 COMMENT..... OUTCROP 60 METERS SE OF WATER TOWER ATOP TURKEY HILL,
 ARLINGTON

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002591
 REFERENCE NUMBER..... 77-00005
 LABORATORY(IES)..... SD
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 77 09

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
 ROCK TYPE: DIORITE

LEXICON AGE(S): 340 360 370
 PETROGRAPHIC CODE: B270

DESCRIPTION: DARK BLUISH-GRAY, MEDIUM-GRAINED DIORITE, LEXINGTON STOCK;
 DIORITE ASSOCIATED WITH DEDHAM GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 141
 ROCK/MINERAL CODE: PC5

HORNBLLENDE

ANALYTICAL DATA:

K20 (%)..... 0.770
 40AR-RAD (MOLES/GM)..... 5.30 X E-10
 % RADIOGENIC..... 86

CALCULATED AGE..... 425 +/- 13 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015101
STATE CODE.....	25	REFERENCE NUMBER.....	84-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD MT
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	LEXINGTON	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-25-19 N	DATE: 84 09	
LONGITUDE.....	71-13-47 W		

COMMENT..... ROADCUT ON NORTH SIDE OF MASSACHUSETTS ROUTE 2, 160-M
EAST OF INTERSECTION WITH WALTHAM ST., LEXINGTON

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

ROCK TYPE: PEGMATITE

LEXICON AGE(S): 410
PETROGRAPHIC CODE: B225

DESCRIPTION: GABBROIC PEGMATITE ASSOCIATED WITH DEDHAM GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 8

ROCK/MINERAL CODE: PCS

HORNBLENDE

ANALYTICAL DATA:

K20 (%)..... 0.342

40AR-RAD (MOLES/GM)..... 5.725 X E-10

% RADIOGENIC..... 93

CALCULATED AGE..... 886 +/- 22 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002592
STATE CODE.....	25	REFERENCE NUMBER.....	77-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	LEXINGTON	NAME: MARVIN, R.F.	
LATITUDE.....	42-24-44 N	DATE: 77 09	
LONGITUDE.....	71-11-28 W		

COMMENT..... OUTCROP ON LOW KNOLL 300 METERS NW OF FORESTED HILL AT
ARLMONT COUNTRY CLUB, BELMONT

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
ROCK TYPE: DIORITE

LEXICON AGE(S): 340 360 370
PETROGRAPHIC CODE: B270

DESCRIPTION: DARK BLUISH-GRAY, MEDIUM-GRAINED DIORITE ASSOCIATED WITH
DEDHAM GRANITE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 145

ROCK/MINERAL CODE: PC5

HORNBLLENDE

ANALYTICAL DATA:

K2O (%).....	1.18	
40AR-RAD (MOLES/GM).....	11.58	X E-10
% RADIOGENIC.....	96	
CALCULATED AGE.....		
TYPE OF ANALYSIS.....	10	

579 +/- 17 MILLION YEARS

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002204
STATE CODE.....	25	REFERENCE NUMBER.....	76-00008
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT GC
COUNTY.....	(NOT GIVEN)		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 250000	BOSTON	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-10-00 N	DATE: 77 08	
LONGITUDE.....	71-20-00 W		

COMMENT..... LOCATION APPROXIMATED--COMPILER

PRECISION OF LOCATION: 5
SOURCE OF SAMPLE: 6

SAMPLE DESCRIPTION

ROCK TYPE: GABBRODIORITE

LEXICON AGE(S): 410 370

PETROGRAPHIC CODE: 8270

DESCRIPTION: GABBRODIORITE ASSOCIATED WITH THE DEDHAM GRANITE

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

CALCULATED AGE..... 605 +/- MILLION YEARS

TYPE OF ANALYSIS..... 20

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002117
STATE CODE.....	25	REFERENCE NUMBER.....	67-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NORWOOD	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-14-08 N	DATE: 77 08	
LONGITUDE.....	71-12-37 W		
COMMENT.....	3000 FT WEST OF INTERSECTION OF RTE 109 AND RTE 128, DEDHAM		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
GEOLOGIC NAME: WESTWOOD GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: WSTD
LEXICON AGE(S): 410 377
PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5196

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 1.92

87SR/86SR..... 0.7208

CALCULATED AGE..... 579 +/- 28 MILLION YEARS

INITIAL 87SR/86SR..... 0.7054

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 87RB/86SR BY XRF; 4-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00105

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002118
STATE CODE.....	25	REFERENCE NUMBER.....	67-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NORWOOD	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-14-08 N	DATE: 77 08	
LONGITUDE.....	71-12-19 W		
COMMENT.....	WEST SIDE OF INTERSECTION OF RTE 109 AND RTE 128, DEDHAM		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 1			

SAMPLE DESCRIPTION

GEOLOGIC NAME: WESTWOOD GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: WSTD
 LEXICON AGE(S): 410 377
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5195
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	131.0		
SR (PPM).....	125.5	T	
87RB/86SR.....	3.02		
87SR/86SR.....	0.7297		
CALCULATED AGE.....		579 +/- 28	MILLION YEARS
INITIAL 87SR/86SR.....	0.7054		
TYPE OF ANALYSIS.....	22		
ANALYTICAL COMMENTS.....	4-POINT WHOLE-ROCK ISOCHRON		
SAMPLE SUITE: 00105			
COMMENTS: AGE OF INTRUSION			

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002119
STATE CODE.....	25	REFERENCE NUMBER.....	67-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-09-00 N	DATE: 77 08	
LONGITUDE.....	71-04-30 W		
COMMENT.....	WEST SIDE OF RTE 24, HALF A MILE SOUTH OF INTERSECTION WITH ROUTE 139, STOUGHTON		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: WESTWOOD GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: WSTD
LEXICON AGE(S): 410 377
PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5198.

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 145.5

SR (PPM)..... 110.8 T

87RB/86SR..... 3.80

87SR/86SR..... 0.7383

CALCULATED AGE..... 579 +/- 28 MILLION YEARS

INITIAL 87SR/86SR..... 0.7054

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 4-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00105

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002120
STATE CODE.....	25	REFERENCE NUMBER.....	67-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	BRISTOL		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	ATTLEBORO	NAME: WILLIAMS, B.R.	
LATITUDE.....	41-57-35 N	DATE: 77 08	
LONGITUDE.....	71-21-00 W		

COMMENT..... SOUTHEAST SIDE OF HOPPIN HILL, NORTH ATTLEBORO

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF HOPPIN HILL	GEOLOGIC NAME CODE: HPHL
ROCK TYPE: GRANITE	LEXICON AGE(S): 410 370
	PETROGRAPHIC CODE: B240

DESCRIPTION: GRANITE OF HOPPIN HILL; RATHER ALTERED; QUARTZ (40%),
MICROPERTHITE (40%), PLAGIOCLASE (10%), CHLORITIZED BIOTITE, AND
ACCESSORY EPIDOTE, KAOLINITE, SPHENE, AND WHITE MICA

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5176

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 20.75

SR (PPM)..... 36.15 T

87RB/86SR..... 16.8

87SR/86SR..... 0.8201

CALCULATED AGE..... 503 +/- 17 MILLION YEARS

INITIAL 87SR/86SR..... 0.7128

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00106

COMMENTS: MINIMUM AGE OF INTRUSION; AGE IS PROBABLY ABOUT 600 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BRISTOL
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ATTLEBORO
 LATITUDE..... 41-57-35 N
 LONGITUDE..... 71-21-00 W
 COMMENT..... SOUTHEAST SIDE OF HOPPIN HILL, NORTH ATTLEBORO
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002121
 REFERENCE NUMBER..... 67-00005
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF HOPPIN HILL
 ROCK TYPE: GRANITE
 DESCRIPTION: GRANITE OF HOPPIN HILL; RATHER ALTERED; QUARTZ (40%),
 MICROPERTHITE (40%), PLAGIOCLASE (10%), CHLORITIZED BIOTITE, AND
 ACCESSORY EPIDOTE, KAOLINITE, SPHENE, AND WHITE MICA

GEOLOGIC NAME CODE: HPHL
 LEXICON AGE(S): 410 370
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5094

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

87RB/86SR..... 24.1

87SR/86SR..... 0.8852

CALCULATED AGE..... 503 +/- 17 MILLION YEARS

INITIAL 87SR/86SR..... 0.7128

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 87RB/86SR BY XRF; 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00106

COMMENTS: MINIMUM AGE OF INTUSION; AGE IS PROBABLY ABOUT 600 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BRISTOL
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ATTLEBORO
 LATITUDE..... 41-57-35 N
 LONGITUDE..... 71-21-00 W
 COMMENT..... SOUTHEAST SIDE OF HOPPIN HILL, NORTH ATTLEBORO
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002122
 REFERENCE NUMBER..... 67-00005
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF HOPPIN HILL
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: HPHL
 LEXICON AGE(S): 410 370
 PETROGRAPHIC CODE: B240
 DESCRIPTION: GRANITE OF HOPPIN HILL; RATHER ALTERED; QUARTZ (40%),
 MICROPERTHITE (40%), PLAGIOCLASE (10%), CHLORITIZED BIOTITE, AND
 ACCESSORY EPIDOTE, KAOLINITE, SPHENE, AND WHITE MICA

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5093
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 232.3
 SR (PPM)..... 23.68 T
 87RB/86SR..... 29.0
 87SR/86SR..... 0.9223
 CALCULATED AGE..... 503 +/- 17 MILLION YEARS
 INITIAL 87SR/86SR..... 0.7158
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 6-POINT, WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00106

COMMENTS: MINIMUM AGE OF INTRUSION; AGE IS PROBABLY ABOUT 600 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BRISTOL

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002123
 REFERENCE NUMBER..... 67-00005
 LABORATORY(IES)..... MT

QUAD SCALE
 1: 24000
 QUAD NO. / NAME
 ATTLEBORO
 LATITUDE..... 41-57-35 N
 LONGITUDE..... 71-21-00 W

COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

COMMENT..... SOUTHEAST SIDE OF HOPPIN HILL, NORTH ATTLEBORO

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF HOPPIN HILL
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: HPHL
 LEXICON AGE(S): 410 370
 PETROGRAPHIC CODE: B240

DESCRIPTION: GRANITE OF HOPPIN HILL; RATHER ALTERED; QUARTZ (40%),
 MICROPERTHITE (40%), PLAGIOCLASE (10%), CHLORITIZED BIOTITE, AND
 ACCESSORY EPIDOTE, KAOLINITE, SPHENE, AND WHITE MICA

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5092
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:

87RB/86SR..... 31.9
 87SR/86SR..... 0.9572
 CALCULATED AGE..... 503 +/- 17 MILLION YEARS
 INITIAL 87SR/86SR..... 0.7128
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 87RB/86SR BY XRF; 6-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00106
 COMMENTS: MINIMUM AGE OF INTRUSION; AGE IS PROBABLY ABOUT 600 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002124
STATE CODE.....	25	REFERENCE NUMBER.....	67-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	BRISTOL		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	ATTLEBORO	NAME: WILLIAMS, B.R.	
LATITUDE.....	41-57-35 N	DATE: 77 08	
LONGITUDE.....	71-21-00 W		

COMMENT..... SOUTHEAST SIDE OF HOPPIN HILL, NORTH ATTLEBORO

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF HOPPIN HILL	GEOLOGIC NAME CODE: HPHL
ROCK TYPE: GRANITE	LEXICON AGE(S): 410 370
	PETROGRAPHIC CODE: B240
DESCRIPTION: GRANITE OF HOPPIN HILL; RATHER ALTERED; QUARTZ (40%), MICROPERTHITE (40%), PLAGIOCLASE (10%), CHLORITIZED BIOTITE, AND ACCESSORY EPIDOTE, KAOLINITE, SPHENE, AND WHITE MICA	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5075 OR R5175

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	251.7	
SR (PPM).....	21.76	T
87RB/86SR.....	34.3	
87SR/86SR.....	0.9678	
CALCULATED AGE.....		503 +/- 17 MILLION YEARS
INITIAL 87SR/86SR.....	0.7128	
TYPE OF ANALYSIS.....	22	
ANALYTICAL COMMENTS.....	6-POINT WHOLE-ROCK ISOCHRON	

SAMPLE SUITE: 00106

COMMENTS: MINIMUM AGE OF INTRUSION: AGE IS PROBABLY ABOUT 600 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002125
STATE CODE.....	25	REFERENCE NUMBER.....	67-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	BRISTOL		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	ATTLEBORO	NAME: WILLIAMS, B.R.	
LATITUDE.....	41-57-35 N	DATE: 77 08	
LONGITUDE.....	71-21-00 W		

COMMENT..... SOUTHEAST SIDE OF HOPPIN HILL, NORTH ATTLEBORO

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF HOPPIN HILL	GEOLOGIC NAME CODE: HPHL
ROCK TYPE: GRANITE	LEXICON AGE(S): 410 370
	PETROGRAPHIC CODE: 8240

DESCRIPTION: GRANITE OF HOPPIN HILL; RATHER ALTERED; QUARTZ (40%), MICROPERTHITE (40%), PLAGIOCLASE (10%), CHLORITIZED BIOTITE, AND ACCESSORY EPIDOTE, KAOLINITE, SPHENE, AND WHITE MICA

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5095

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	363.1
SR (PPM).....	13.61 T
87RB/86SR.....	81.6
87SR/86SR.....	1.2861

CALCULATED AGE..... 503 +/- 17 MILLION YEARS

INITIAL 87SR/86SR..... 0.7128

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00106

COMMENTS: MINIMUM AGE OF INTRUSION; AGE IS PROBABLY ABOUT 600 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015103
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	84-00020
COUNTY.....	MIDDLESEX	LABORATORY(IES).....	SD MT
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MILFORD	NAME: MARVIN, R.F.	
LATITUDE.....	42-11-31 N	DATE: 84 10	
LONGITUDE.....	71-31-05 W		
COMMENT..... SMALL ABANDONED QUARRY AT WEST SIDE OF HAVEN ST., 300-M NORTH OF WORCESTER-MIDDLESEX COUNTY LINE, HOPKINTON			

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION	
GEOLOGIC NAME: MILFORD GRANITE	GEOLOGIC NAME CODE: MLFD
ROCK TYPE: GRANITE	LEXICON AGE(S): 410
	PETROGRAPHIC CODE: B240

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 10			
ROCK/MINERAL CODE: MC1	ZIRCON		
ANALYTICAL DATA:			
U (PPM).....	789.8		
PB (PPM).....	69.48		
ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)			
204PB	206PB	207PB	208PB
0.0443	83.89	5.710	10.36
206PB/238U AGE.....	526 +/- 5	MILLION YEARS	
207PB/235U AGE.....	544 +/- 6	MILLION YEARS	
207PB/206PB AGE.....	619 +/- 5	MILLION YEARS	
INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80			
ANALYTICAL COMMENTS..... PB-U RATIOS PLOT ON A CHORD WITH A 630 M.Y.			
INTERCEPT ON CONCORDIA CURVE			
COMMENTS: AGE OF THE MILFORD GRANITE IS 630 M.Y.			

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... MILFORD
 LATITUDE..... 42-11-38 N
 LONGITUDE..... 71-30-17 W
 COMMENT..... ROADCUT ON WEST SIDE OF HAYDEN ROW ST. OPPOSITE COLLEGE
 ROCK, 350-M SOUTH OF INTERSECTION WITH COLLEGE ST., HOPKINTON
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015110
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

SAMPLE DESCRIPTION
 GEOLOGIC NAME: MILFORD GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: MLFD
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 17
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	163	
SR (PPM).....	51.6	T
87RB/86SR.....	9.24	
87SR/86SR.....	0.7830	
CALCULATED AGE.....		591 +/- 50 MILLION YEARS
INITIAL 87SR/86SR.....	0.704	
TYPE OF ANALYSIS.....	22	
ANALYTICAL COMMENTS.....	6-POINT WHOLE-ROCK ISOCHRON	
SAMPLE SUITE: 00624		
COMMENTS: AGE OF INTRUSION		

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... WORCESTER

QUAD SCALE

1: 24000

LATITUDE..... 42-09-46 N

LONGITUDE..... 71-30-31 W

QUAD NO. / NAME

MILFORD

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0015104

REFERENCE NUMBER..... 84-00020

LABORATORY(IES)..... SD MT

COMPILED BY

NAME: MARVIN, R.F.

DATE: 84 10

COMMENT..... ROADCUT ON EAST SIDE OF CEDAR ST., 250-M SOUTH OF
UNDERPASS AT I-495, MILFORD

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: MILFORD GRANITE

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: MLFD

LEXICON AGE(S): 410

PETROGRAPHIC CODE: B240

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 11

ROCK/MINERAL CODE: MC1

ZIRCON

ANALYTICAL DATA:

U (PPM)..... 813.6

PB (PPM)..... 75.11

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB

0.0428 84.72 5.751 9.486

206PB/238U AGE..... 556 +/- 6 MILLION YEARS

207PB/235U AGE..... 570 +/- 6 MILLION YEARS

207PB/206PB AGE..... 624 +/- 5 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80

ANALYTICAL COMMENTS..... PB-U RATIOS PLOT ON A CHORD WITH A 630 M.Y.

INTERCEPT ON CONCORDIA CURVE

COMMENTS: AGE OF THE MILFORD GRANITE IS 630 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... MILFORD
 LATITUDE..... 42-10-52 N
 LONGITUDE..... 71-30-57 W
 COMMENT..... MASSACHUSETTS PINK QUARRY (ABANDONED) 800-M WEST OF
 CEDAR STREET, 1KM SOUTH OF ECHO LAKE, MILFORD
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015105
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

SAMPLE DESCRIPTION
 GEOLOGIC NAME: MILFORD GRANITE
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: MLFD
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM
 LABORATORY SAMPLE NUMBER: 12
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 108
 SR (PPM)..... 70.3 T
 87RB/86SR..... 4.47
 87SR/86SR..... 0.7392
 CALCULATED AGE..... 591 +/- 50 MILLION YEARS
 INITIAL 87SR/86SR..... 0.704
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00624
 COMMENTS: AGE OF INTRUSION

WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MILFORD
 LATITUDE..... 42-09-49 N
 LONGITUDE..... 71-30-30 W
 COMMENT..... WEST QUARRY (ABANDONED) ON EAST SIDE OF CEDAR ST., 200-M
 NORTH OF INTERSECTION WITH DILLA ST., MILFORD

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015106
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: MILFORD GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: MLFD
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 13

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 133

SR (PPM)..... 45.0 T

87RB/86SR..... 8.63

87SR/86SR..... 0.7783

CALCULATED AGE..... 591 +/- 50 MILLION YEARS

INITIAL 87SR/86SR..... 0.704

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00624

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015107
STATE CODE.....	25	REFERENCE NUMBER.....	84-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD MT
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MILFORD	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-10-38 N	DATE: 84 10	
LONGITUDE.....	71-32-11 W		

COMMENT..... ROADCUT OF NORTH SIDE OF CAMP ST., 80-M WEST OF
INTERSECTION WITH PURCHASE ST., MILFORD

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: MILFORD GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: MLFD
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 14
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	128
SR (PPM).....	142 T
87RB/86SR.....	2.61
87SR/86SR.....	0.7233

CALCULATED AGE..... 591 +/- 50 MILLION YEARS

INITIAL 87SR/86SR..... 0.704

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00624

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0015108
STATE CODE.....	25	REFERENCE NUMBER.....	84-00020
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SD MT
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MILFORD	NAME: DEGOURVILLE, A.E.	
LATITUDE.....	42-10-41 N	DATE: 84 10	
LONGITUDE.....	71-31-48 W		
COMMENT..... ROADCUT ON EAST SIDE OF HAVEN STREET, 60-M SOUTH OF UNDERPASS AT I-495, MILFORD			

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: MILFORD GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: MLFD
LEXICON AGE(S): 410
PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 15
ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 69.6

SR (PPM)..... 257 T

87RB/86SR..... 0.785

87SR/86SR..... 0.7131

CALCULATED AGE..... 591 +/- 50 MILLION YEARS

INITIAL 87SR/86SR..... 0.704

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00624

COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... MILFORD
 LATITUDE..... 42-11-16 N
 LONGITUDE..... 71-31-23 W
 COMMENT..... SMALL ABANDONED QUARRY 100-M EAST OF HAVEN ST., 140-M SOUTH OF WORCESTER-MIDDLESEX COUNTY LINE, MILFORD

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015109
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: MILFORD GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: MLDS
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: 16
 ROCK/MINERAL CODE: AAO

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 109
 SR (PPM)..... 134 T
 87RB/86SR..... 3.35
 87SR/86SR..... 0.7259
 CALCULATED AGE..... 591 +/- 50 MILLION YEARS
 INITIAL 87SR/86SR..... 0.704
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00624
 COMMENTS: AGE OF INTRUSION

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002132
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	67-00005
COUNTY.....	WORCESTER	LABORATORY(IES).....	MT
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MILFORD	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-09-56 N	DATE: 77 08	
LONGITUDE.....	71-30-35 W		
COMMENT.....	ON RTE 85, 1.2 MILES NORTH OF INTERSECTION WITH RTE 16: MILFORD		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION	
GEOLOGIC NAME: MILFORD GRANITE	GEOLOGIC NAME CODE: MLFD
ROCK TYPE: GRANITE	LEXICON AGE(S): 370 410
	PETROGRAPHIC CODE: B240

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4144	
ROCK/MINERAL CODE: AAO	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	151.2
SR (PPM).....	42.3 I
87RB/86SR.....	10.4
87SR/86SR.....	0.7890
CALCULATED AGE.....	557 +/- 4
INITIAL 87SR/86SR.....	0.7058
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS.....	6-POINT WHOLE-ROCK ISOCHRON
SAMPLE SUITE: 00107	
COMMENTS: AGE OF INTRUSION	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 HOLLISTON
 LATITUDE..... 42-09-30 N
 LONGITUDE..... 71-29-06 W
 COMMENT..... NORCROSS QUARRY, MILFORD
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002141
 REFERENCE NUMBER..... 60-00006
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION
 GEOLOGIC NAME: MILFORD GRANITE
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: MLFD
 LEXICON AGE(S): 370 410
 PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: B-3012
 ROCK/MINERAL CODE: UA5 BIOTITE
 ANALYTICAL DATA:
 K20 (%)..... 7.08
 40AR-RAD (MOLES/GM)..... 27.20 X E-10
 % RADIOGENIC..... 100
 CALCULATED AGE..... 249 +/- 13 MILLION YEARS
 TYPE OF ANALYSIS..... 10
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GRAFTON
 LATITUDE..... 42-08-57 N
 LONGITUDE..... 71-43-23 W
 COMMENT..... JUNCTION OF ROUTE 146 WITH THE SUTTON-NORTHBRIDGE ROAD,
 NORTHBRIDGE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002126
 REFERENCE NUMBER..... 67-00005
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: PONAGANSET GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:
 LEXICON AGE(S): 370 410
 PETROGRAPHIC CODE: C310

DESCRIPTION: PONAGANSET GNEISS. FABRIC MAY BE PRIMARY OR SECONDARY

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4849

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 237
 SR (PPM)..... 35.7 T
 87RB/86SR..... 19.5
 87SR/86SR..... 0.8606
 CALCULATED AGE.....
 INITIAL 87SR/86SR..... 0.7058
 TYPE OF ANALYSIS..... 22

557 +/- 4 MILLION YEARS

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00107

COMMENTS: MINIMUM AGE OF INTRUSION; AGE IS PROBABLY ABOUT 600 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 GRAFTON
 LATITUDE..... 42-08-15 N
 LONGITUDE..... 71-42-20 W
 COMMENT..... ON RTE 146, ONE MILE NORTH OF JUNCTION WITH PURGATORY
 CHASM ROAD, NORTHBRIDGE

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002127
 REFERENCE NUMBER..... 67-00005
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION
 GEOLOGIC NAME: PONAGANSET GNEISS
 ROCK TYPE: GNEISS
 DESCRIPTION: PONAGANSET GNEISS. FABRIC MAY BE PRIMARY OR SECONDARY
 GEOLOGIC NAME CODE:
 LEXICON AGE(S): 370 410
 PETROGRAPHIC CODE: C310

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4850
 ROCK/MINERAL CODE: AA0 WHOLE-ROCK
 ANALYTICAL DATA:
 RB (PPM)..... 211
 SR (PPM)..... 49.1 T
 87RB/86SR..... 12.6
 87SR/86SR..... 0.8078
 CALCULATED AGE..... 557 +/- 4 MILLION YEARS
 INITIAL 87SR/86SR..... 0.7058
 TYPE OF ANALYSIS..... 22
 ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON
 SAMPLE SUITE: 00107
 COMMENTS: MINIMUM AGE OF INTRUSION; AGE IS PROBABLY ABOUT 600 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002128
STATE CODE.....	25	REFERENCE NUMBER.....	67-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	UXBRIDGE	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-04-00 N	DATE: 77 08	
LONGITUDE.....	71-40-00 W		
COMMENT..... AT JUNCTION OF ROUTES 146 AND 16, UXBRIDGE			
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 1			

SAMPLE DESCRIPTION

GEOLOGIC NAME: PONAGANSET GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:
 LEXICON AGE(S): 370 410
 PETROGRAPHIC CODE: C310

DESCRIPTION: PONAGANSET GNEISS. FABRIC MAY BE PRIMARY OR SECONDARY

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4852

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

Rb (PPM)..... 200
 SR (PPM)..... 14.3 T
 87Rb/86Sr..... 41.8
 87Sr/86Sr..... 1.0313

CALCULATED AGE..... 557 +/- 4 MILLION YEARS

INITIAL 87Sr/86Sr..... 0.7058

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00107

COMMENTS: MINIMUM AGE OF INTRUSION; AGE IS PROBABLY ABOUT 600 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002129
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	67-00005
COUNTY.....	WORCESTER	LABORATORY(IES).....	MT
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	UXBRIDGE	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-03-36 N	DATE: 77 08	
LONGITUDE.....	71-41-01 W		

COMMENT..... ON RTE 146 AT JUNCTION WITH WEST ST. IN UXBRIDGE, 1.3
MILES NORTH OF JUNCTION WITH RTE 16

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION		
GEOLOGIC NAME: PONAGANSET GNEISS		GEOLOGIC NAME CODE:
ROCK TYPE: GNEISS		LEXICON AGE(S): 370 410
		PETROGRAPHIC CODE: C310
DESCRIPTION: PONAGANSET GNEISS. FABRIC MAY BE PRIMARY OR SECONDARY		

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R4851	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	115
SR (PPM).....	214 T
87RB/86SR.....	1.56
87SR/86SR.....	0.7179
CALCULATED AGE.....	557 +/- 4 MILLION YEARS
INITIAL 87SR/86SR.....	0.7058
TYPE OF ANALYSIS.....	22
ANALYTICAL COMMENTS.....	6-POINT WHOLE-ROCK ISOCHRON
SAMPLE SUITE: 00107	
COMMENTS: MINIMUM AGE OF INTRUSION; AGE IS PROBABLY ABOUT 600 M.Y.	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002130
STATE CODE.....	25	REFERENCE NUMBER.....	67-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLACKSTONE	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-02-30 N	DATE: 77 08	
LONGITUDE.....	71-37-25 W		
COMMENT.....	ON RTE 122, SOUTH OF UXBRIDGE CENTER, 1.6 MILES FROM MILLVILLE TOWNSHIP BOUNDARY, UXBRIDGE		

PRECISION OF LOCATION: 4
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: PONAGANSET GNEISS
ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:
LEXICON AGE(S): 370 410
PETROGRAPHIC CODE: C310

DESCRIPTION: PONAGANSET GNEISS. FABRIC MAY BE PRIMARY OR SECONDARY

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R-4853

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	95	
SR (PPM).....	91.8	T
87Rb/86SR.....	3.00	
87SR/86SR.....	0.7298	

CALCULATED AGE..... 557 +/- 4 MILLION YEARS

INITIAL 87SR/86SR..... 0.7058

TYPE OF ANALYSIS..... 22

ANALYTICAL COMMENTS..... 6-POINT WHOLE-ROCK ISOCHRON

SAMPLE SUITE: 00107

COMMENTS: MINIMUM AGE OF INTRUSION; AGE IS PROBABLY ABOUT 600 M.Y.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... UXBRIDGE
 LATITUDE..... 42-04-36 N
 LONGITUDE..... 71-38-54 W
 COMMENT..... BLANCHARD QUARRY, 1.5 MILES WNW OF UXBRIDGE, NEAR
 WHITINSVILLE, UXBRIDGE

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002142
 REFERENCE NUMBER..... 60-00006
 LABORATORY(IES)..... MT
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: PONAGANSET GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE:
 LEXICON AGE(S): 370 410
 PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: B-3013

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 8.71
 40AR-RAD (MOLES/GM)..... 34.10 X E-10
 % RADIOGENIC..... 96
 CALCULATED AGE.....
 TYPE OF ANALYSIS..... 10

252 +/- 13 MILLION YEARS

COMMENTS: AGE OF LATER METAMORPHISM

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: B-3013

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

RB (PPM)..... 1129
 SR (PPM)..... 3.4 T
 87SR-RAD (PPM)..... 1.03
 CALCULATED AGE.....
 TYPE OF ANALYSIS..... 20

230 +/- 7 MILLION YEARS

ANALYTICAL COMMENTS..... RADIOGENIC SR-87/RB-87 = 0.00325

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 OXFORD
 LATITUDE..... 42-01-52 N
 LONGITUDE..... 71-48-17 W
 SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015111
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10
 COMMENT..... OLD RAILROAD CUT 380-M NW OF MOUNT DANIELS, 300-M EAST
 OF WEBSTER-DOUGLAS TOWN LINE, DOUGLAS
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: HOPE VALLEY ALASKITE GNEISS
 ROCK TYPE: GNEISS
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: C310

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 18
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: 100-150 MESH FRACTION; ZIRCONS ARE INTERNALLY TURBID AND HAVE A
 RELATIVELY HIGH URANIUM CONTENT
 ANALYTICAL DATA:
 U (PPM)..... 1312
 TH (PPM)..... 348.9
 PB (PPM)..... 87.41
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.2152 77.70 7.406 14.68
 206PB/238U AGE..... 359 +/- 4 MILLION YEARS
 207PB/235U AGE..... 366 +/- 7 MILLION YEARS
 207PB/206PB AGE..... 409 +/- 8 MILLION YEARS
 208PB/232TH AGE..... 370 +/- 5 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80
 COMMENTS: ISOTOPIC SYSTEM DISTURBED; NO AGE OF FORMATION DETERMINED FOR
 THE GNEISS

LABORATORY SAMPLE NUMBER: 18
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: 200-270 MESH FRACTION; ZIRCONS ARE INTERNALLY TURBID AND HAVE A
 RELATIVELY HIGH URANIUM CONTENT
 ANALYTICAL DATA:
 U (PPM)..... 1476
 TH (PPM)..... 402.9
 PB (PPM)..... 90.44
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.1839 78.95 7.040 13.83
 206PB/238U AGE..... 339 +/- 4 MILLION YEARS

207PB/235U AGE.....	349 +/- 6	MILLION YEARS
207PB/206PB AGE.....	421 +/- 7	MILLION YEARS
208PB/232TH AGE.....	348 +/- 4	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80

COMMENTS: ISOTOPIC SYSTEM DISTURBED; NO AGE OF FORMATION DETERMINED FOR
THE GNEISS

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 OXFORD
 LATITUDE..... 42-02-16 N
 LONGITUDE..... 71-45-40 W
 COMMENT..... OLD RAILROAD CUT SOUTH OF WADKIN HILL, 350-M EAST OF
 WALLUM LAKE ROAD, DOUGLAS
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0015112
 REFERENCE NUMBER..... 84-00020
 LABORATORY(IES)..... SD MT
 COMPILED BY
 NAME: DEGOURVILLE, A.E.
 DATE: 84 10

SAMPLE DESCRIPTION

GEOLOGIC NAME: SCITUATE GRANITE GNEISS
 ROCK TYPE: GNEISS
 GEOLOGIC NAME CODE:
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: C310

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 19
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: 100-150 MESH FRACTION; ZIRCONS ARE INTERNALLY TURBID AND HAVE A
 RELATIVELY HIGH URANIUM CONTENT
 ANALYTICAL DATA:
 U (PPM)..... 1709
 TH (PPM)..... 601.3
 PB (PPM)..... 112.5
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.0523 83.73 5.518 10.70
 206PB/238U AGE..... 396 +/- 4 MILLION YEARS
 207PB/235U AGE..... 409 +/- 5 MILLION YEARS
 207PB/206PB AGE..... 484 +/- 4 MILLION YEARS
 208PB/232TH AGE..... 368 +/- 4 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80
 COMMENTS: THE 484 M.Y. AGE IS SPURIOUS; THE ISOTOPIC SYSTEMS ARE
 DISTURBED; NO AGE OF FORMATION WAS DETERMINED FOR THE GRANITE
 GNEISS

LABORATORY SAMPLE NUMBER: 19
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: 200-270 MESH FRACTION; ZIRCONS ARE INTERNALLY TURBID AND HAVE A
 RELATIVELY HIGH URANIUM CONTENT
 ANALYTICAL DATA:
 U (PPM)..... 1667
 TH (PPM)..... 589.2
 PB (PPM)..... 108.9
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)
 204PB 206PB 207PB 208PB
 0.0552 83.49 5.536 10.92

206PB/238U AGE.....	392 +/- 4	MILLION YEARS
207PB/235U AGE.....	405 +/- 5	MILLION YEARS
207PB/206PB AGE.....	479 +/- 4	MILLION YEARS
208PB/232TH AGE.....	368 +/- 4	MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80

COMMENTS: THE 479 M.Y. AGE IS SPURIOUS; THE ISOTOPIC SYSTEMS ARE
DISTURBED; NO AGE OF FORMATION FOR THE GRANITE GNEISS WAS
DETERMINED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... BRISTOL

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0015113

REFERENCE NUMBER..... 84-00020
LABORATORY(IES)..... SD MTQUAD SCALE QUAD NO. / NAME
1: 24000 ASSONET
LATITUDE..... 41-45-45 N
LONGITUDE..... 71-05-23 WCOMPILED BY
NAME: DEGOURVILLE, A.E.
DATE: 84 10COMMENT..... ABANDONED QUARRY ON WEST SIDE OF RATTLESNAKE BROOK IN
FALL RIVER STATE FOREST, FREETOWNPRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: GRANITE OF FALL RIVER PLUTON

ROCK TYPE: GRANITE

LEXICON AGE(S): 410
PETROGRAPHIC CODE: B240

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: 20

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 100-150 MESH FRACTION

ANALYTICAL DATA:

U (PPM)..... 858.7
TH (PPM)..... 502.3
PB (PPM)..... 80.82

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.1783	74.01	7.080	18.74

206PB/238U AGE..... 481 +/- 5 MILLION YEARS

207PB/235U AGE..... 508 +/- 8 MILLION YEARS

207PB/206PB AGE..... 631 +/- 10 MILLION YEARS

208PB/232TH AGE..... 434 +/- 5 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80

COMMENTS: THE 631 M.Y. AGE IS PROBABLY A MINIMUM AGE; ISOTOPIC SYSTEMS
HAVE BEEN DISTURBED

LABORATORY SAMPLE NUMBER: 20

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: 200-270 MESH FRACTION; ZIRCONS ARE INTERNALLY TURBID AND HAVE A
RELATIVELY HIGH URANIUM CONTENT

ANALYTICAL DATA:

U (PPM)..... 877.8
TH (PPM)..... 532.0
PB (PPM)..... 76.40

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.1081	76.73	6.131	17.04

206PB/238U AGE..... 470 +/- 5 MILLION YEARS

207PB/235U AGE..... 490 +/- 6 MILLION YEARS

207PB/206PB AGE..... 584 +/- 7 MILLION YEARS

208PB/232TH AGE..... 419 +/- 5 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 17.60, 15.55, 37.80

COMMENTS: THE 631 M.Y. AGE IS PROBABLY A MINIMUM AGE; ISOTOPIC SYSTEMS
HAVE BEEN DISTURBED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0001787
STATE CODE.....	25	REFERENCE NUMBER.....	70-00005
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SW
COUNTY.....	BARNSTABLE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	HARVICH	NAME: WILLIAMS, B. R.	
LATITUDE.....	41-44-50 N	DATE: 77 06	
LONGITUDE.....	70-05-11 W		
COMMENT.....	TUBMAN DRILL HOLE (LOCATION INFORMATION FROM ELAINE WEED, USGS), HARVICH		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 2

SAMPLE DESCRIPTION
ROCK TYPE: QUARTZ DIORITE

LEXICON AGE(S): 300
PETROGRAPHIC CODE: B265

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: 35 (MASSACHUSETTS)	
ROCK/MINERAL CODE: UAS	BIOTITE
ANALYTICAL DATA:	
K20 (%).....	8.495
40AR-RAD (MOLES/GM).....	51.79 X E-10
% RADIOGENIC.....	96
CALCULATED AGE.....	380 +/- 19 MILLION YEARS
TYPE OF ANALYSIS.....	10
COMMENTS: AGE NOT EVALUATED	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0010044
STATE CODE.....	25	REFERENCE NUMBER.....	77-00047
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	
COUNTY.....	BARNSTABLE		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	HARWICH	NAME: MARVIN, R.F.	
LATITUDE.....	41-44-54 N	DATE: 82 03	
LONGITUDE.....	70-05-06 W		
COMMENT.....	HARWICH		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 2

SAMPLE DESCRIPTION
ROCK TYPE: GRANITE

LEXICON AGE(S): 300
PETROGRAPHIC CODE: B240

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: HAR/MA-1-76 (54)
ROCK/MINERAL CODE: UA5 BIOTITE
ANALYTICAL DATA:
CALCULATED AGE..... 348 +/- 12 MILLION YEARS
TYPE OF ANALYSIS..... 10
ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN
COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: HAR/MA-1-76 (54)
ROCK/MINERAL CODE: PC5 HORNBLende
ANALYTICAL DATA:
CALCULATED AGE..... 518 +/- 30 MILLION YEARS
TYPE OF ANALYSIS..... 10
ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN
COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... BARNSTABLE
 QUAD SCALE QUAD NO. / NAME
 1: 24000 HARWICH
 LATITUDE..... 41-44-54 N
 LONGITUDE..... 70-05-06 W
 COMMENT..... HARWICH
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 2

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0010045
 REFERENCE NUMBER..... 77-00047
 LABORATORY(IES).....
 COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 82 03

SAMPLE DESCRIPTION

ROCK TYPE: GRANITOID

LEXICON AGE(S): 300
 PETROGRAPHIC CODE: B220

DESCRIPTION: MAFIC XENOLITH

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: HAR/MA-2-76 (55)

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

CALCULATED AGE..... 400 +/- 14 MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: HAR/MA-2-76 (55)

ROCK/MINERAL CODE: PC5

HORNBLLENDE

ANALYTICAL DATA:

CALCULATED AGE..... 566 +/- 22 MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... BLUE HILLS
 LATITUDE..... 42-13-35 N
 LONGITUDE..... 71-01-53 W
 COMMENT..... PINE HILL OPPOSITE CHICKATAWBUT ROAD, BRAINTREE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002089
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: BLUE HILLS APORHYOLITE
 ROCK TYPE: APORHYOLITE
 GEOLOGIC NAME CODE: BLHL
 LEXICON AGE(S): 360 370
 PETROGRAPHIC CODE: A121
 DESCRIPTION: BLUE HILLS APORHYOLITE; FEW FELDSPAR AND QUARTZ PHENOCRYSTS IN AN APHANITIC GROUNDMASS THAT SHOWS SPHERULITES AND FLOW BANDING, CONSIDERABLE DEVITRIFICATION AND ALTERATION

RUBIDIUM-STRONTIUM
 LABORATORY SAMPLE NUMBER: R5090B
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 269
 SR (PPM)..... 11.02 T
 87RB/86SR..... 72.3
 87SR/86SR..... 0.9404
 CALCULATED AGE..... 229 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 ANALYTICAL COMMENTS..... SR VALUE IS AVERAGE OF 2 DETERMINATIONS
 COMMENTS: AGE NOT EVALUATED

WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-13-35 N
 LONGITUDE..... 71-01-52 W
 COMMENT..... PINE HILL, OPPOSITE CHICKATAWBUT ROAD, BRAINTREE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002090
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: BLUE HILLS APORHYOLITE
 ROCK TYPE: APORHYOLITE
 GEOLOGIC NAME CODE: BLHL
 LEXICON AGE(S): 360 370
 PETROGRAPHIC CODE: A121
 DESCRIPTION: BLUE HILLS APORHYOLITE; FEW FELDSPAR AND QUARTZ PHENOCRYSTS IN AN APHANITIC GROUNDMASS THAT SHOWS SPHERULITES AND FLOW BANDING, CONSIDERABLE DEVITRIFICATION AND ALTERATION

RUBIDIUM-STRONTIUM
 LABORATORY SAMPLE NUMBER: R5090C
 ROCK/MINERAL CODE: AA0
 ANALYTICAL DATA:
 RB (PPM)..... 101
 SR (PPM)..... 12.6 T
 87RB/86SR..... 23.4
 87SR/86SR..... 0.7890
 CALCULATED AGE..... 253 +/- MILLION YEARS
 INITIAL 87SR/86SR..... 0.705
 TYPE OF ANALYSIS..... 20
 COMMENTS: AGE NOT EVALUATED

WHOLE-ROCK

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002091
STATE CODE.....	25	REFERENCE NUMBER.....	70-00006
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT GS
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-13-49 N	DATE: 77 07	
LONGITUDE.....	71-02-40 W		
COMMENT.....	WAMPATUCK HILL, 0.1 MILE NORTH OF CHICKATAWBUT ROAD, QUINCY		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILLS APORPHYOLITE	GEOLOGIC NAME CODE: BLHL
ROCK TYPE: APORPHYOLITE	LEXICON AGE(S): 360 370
	PETROGRAPHIC CODE: A121
DESCRIPTION: BLUE HILLS APORPHYOLITE; FEW FELDSPAR AND QUARTZ PHENOCRYSTS IN AN APHANITIC GROUNDMASS THAT SHOWS SPHERULITES AND FLOW BANDING, CONSIDERABLE DEVITRIFICATION AND ALTERATION	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5091A	
ROCK/MINERAL CODE: AA0	WHOLE-ROCK
ANALYTICAL DATA:	
RB (PPM).....	178
SR (PPM).....	9.82 T
87RB/86SR.....	53.4
87SR/86SR.....	0.8785
CALCULATED AGE.....	229 +/- MILLION YEARS
INITIAL 87SR/86SR.....	0.705
TYPE OF ANALYSIS.....	20
ANALYTICAL COMMENTS..... SR VALUE IS AVERAGE OF 2 DETERMINATIONS	
COMMENTS: AGE NOT EVALUATED	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... BLUE HILLS
 LATITUDE..... 42-13-49 N
 LONGITUDE..... 71-02-40 W
 COMMENT..... WAMPATUCK HILL, 0.1 MILE NORTH OF CHICKATAWBUT ROAD,
 QUINCY

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002092
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS

COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILLS APORHYOLITE
 ROCK TYPE: APORHYOLITE
 GEOLOGIC NAME CODE: BLHL
 LEXICON AGE(S): 360 370
 PETROGRAPHIC CODE: A121
 DESCRIPTION: BLUE HILLS APORHYOLITE; FEW FELDSPAR AND QUARTZ PHENOCRYSTS IN
 AN APHANITIC GROUNDMASS THAT SHOWS SPHERULITES AND FLOW BANDING,
 CONSIDERABLE DEVITRIFICATION AND ALTERATION

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: R5091B

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 192

SR (PPM)..... 444 T

87RB/86SR..... 131.1

87SR/86SR..... 1.2000

CALCULATED AGE..... 266 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 20

ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 2

DETERMINATIONS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002093
STATE CODE.....	25	REFERENCE NUMBER.....	70-00006
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT GS
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-13-48 N	DATE: 77 07	
LONGITUDE.....	71-02-37 W		
COMMENT.....	ABOUT 200 PACES NORTHWEST OF THE TOP OF WAMPATUCK HILL, QUINCY		

PRECISION OF LOCATION: 2
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILLS APORHYOLITE	GEOLOGIC NAME CODE: BLHL
ROCK TYPE: APORHYOLITE	LEXICON AGE(S): 360 370
	PETROGRAPHIC CODE: A121
DESCRIPTION: BLUE HILLS APORHYOLITE; FEW FELDSPAR AND QUARTZ PHENOCRYSTS IN AN APHANITIC GROUNDMASS THAT SHOWS SPHERULITES AND FLOW BANDING, CONSIDERABLE DEVITRIFICATION AND ALTERATION	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-472

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM).....	146	
SR (PPM).....	8.27	T
87RB/86SR.....	52.4	
87SR/86SR.....	0.9620	
CALCULATED AGE.....		
INITIAL 87SR/86SR.....	0.705	
TYPE OF ANALYSIS.....	20	

346 +/- MILLION YEARS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BLUE HILLS
 LATITUDE..... 42-13-39 N
 LONGITUDE..... 71-01-41 W
 COMMENT..... TOP OF PINE HILL, BRAINTREE
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002094
 REFERENCE NUMBER..... 70-00006
 LABORATORY(IES)..... MT GS
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILLS APORHYOLITE
 ROCK TYPE: APORHYOLITE

GEOLOGIC NAME CODE: BLHL
 LEXICON AGE(S): 360 370
 PETROGRAPHIC CODE: A121

DESCRIPTION: BLUE HILLS APORHYOLITE; FEW FELDSPAR AND QUARTZ PHENOCRYSTS IN
 AN APHANITIC GROUNDMASS THAT SHOWS SPHERULITES AND FLOW BANDING,
 CONSIDERABLE DEVITRIFICATION AND ALTERATION

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: ODC-474
 ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 147
 SR (PPM)..... 11.1 T
 87RB/86SR..... 39.2
 87SR/86SR..... 0.9285

CALCULATED AGE..... 411 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 20

ANALYTICAL COMMENTS..... RB AND SR VALUES ARE AVERAGES OF 2
 DETERMINATIONS

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002096
STATE CODE.....	25	REFERENCE NUMBER.....	70-00006
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	MT GS
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	BLUE HILLS	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-13-36 N	DATE: 77 07	
LONGITUDE.....	71-02-55 W		
COMMENT.....	ABOUT 0.3 MILE SOUTHEAST OF THE TOP OF WAMPATUCK HILL, 0.1 MILE SOUTH OF CHICKATAWBUT ROAD, QUINCY		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: BLUE HILLS APORHYOLITE	GEOLOGIC NAME CODE: BLHL
ROCK TYPE: APORHYOLITE	LEXICON AGE(S): 360 370
	PETROGRAPHIC CODE: A121
DESCRIPTION: BLUE HILLS APORHYOLITE; FEW FELDSPAR AND QUARTZ PHENOCRYSTS IN AN APHANITIC GROUNDMASS THAT SHOWS SPHERULITES AND FLOW BANDING, CONSIDERABLE DEVITRIFICATION AND ALTERATION	

RUBIDIUM-STRONTIUM

LABORATORY SAMPLE NUMBER: UDC-476

ROCK/MINERAL CODE: AA0

WHOLE-ROCK

ANALYTICAL DATA:

RB (PPM)..... 158

SR (PPM)..... 13.2 T

87RB/86SR..... 35.3

87SR/86SR..... 0.8845

CALCULATED AGE..... 358 +/- MILLION YEARS

INITIAL 87SR/86SR..... 0.705

TYPE OF ANALYSIS..... 20

COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 CORCORD
 LATITUDE..... 42-25-31 N
 LONGITUDE..... 71-18-14 W
 COMMENT..... TRAPELO ROAD, LINCOLN
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002198
 REFERENCE NUMBER..... 76-00008
 LABORATORY(IES)..... MT GC
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

ROCK TYPE: MAFIC META-VOLCANICS

LEXICON AGE(S): 410-

PETROGRAPHIC CODE: C330

DESCRIPTION: A LATE PRECAMBRIAN MAFIC VOLCANIC-HYPABYSSAL SUITE MOSTLY
 ALTERED TO GREENSCHIST GRADE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: UAS

BIOTITE

ANALYTICAL DATA:

CALCULATED AGE..... 330 +/- MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: PC5

HORNBLLENDE

ANALYTICAL DATA:

CALCULATED AGE..... 394 +/- MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LEXINGTON
 LATITUDE..... 42-24-30 N
 LONGITUDE..... 71-11-00 W
 COMMENT..... ROUTE 2, BELMONT
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002199
 REFERENCE NUMBER..... 76-00008
 LABORATORY(IES)..... MT GC
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

ROCK TYPE: MAFIC META-VOLCANICS

LEXICON AGE(S): 410
 PETROGRAPHIC CODE: C380

DESCRIPTION: A LATE PRECAMBRIAN MAFIC VOLCANIC-HYPABYSSAL SUITE MOSTLY
 ALTERED TO GREENSCHIST GRADE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

CALCULATED AGE..... 366 +/- MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: PC5

HORNBLLENDE

ANALYTICAL DATA:

CALCULATED AGE..... 388 +/- MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LEXINGTON
 LATITUDE..... 42-28-00 N.
 LONGITUDE..... 71-12-00 W
 COMMENT..... ROUTE 3, LEXINGTON
 PRECISION OF LOCATION: 4
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002200
 REFERENCE NUMBER..... 76-00008
 LABORATORY(IES)..... MT GC
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

ROCK TYPE: MAFIC META-VOLCANICS

LEXICON AGE(S): 410
 PETROGRAPHIC CODE: C380

DESCRIPTION: A LATE PRECAMBRIAN MAFIC VOLCANIC-HYPABYSSAL SUITE MOSTLY
 ALTERED TO GREENSCHIST GRADE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

CALCULATED AGE..... 353 +/- MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: (NOT GIVEN)

ROCK/MINERAL CODE: PCS

HORNBLENDE

ANALYTICAL DATA:

CALCULATED AGE..... 349 +/- MILLION YEARS

TYPE OF ANALYSIS..... 10

ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 LEXINGTON
 LATITUDE..... 42-27-00 N
 LONGITUDE..... 71-13-15 W
 COMMENT..... CHILD STREET, LEXINGTON
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002201
 REFERENCE NUMBER..... 76-00008
 LABORATORY(IES)..... MT GC
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION
 ROCK TYPE: MAFIC META-VOLCANICS
 DESCRIPTION: A LATE PRECAMBRIAN MAFIC VOLCANIC-HYPABYSSAL SUITE MOSTLY
 ALTERED TO GREENSCHIST GRADE
 LEXICON AGE(S): 410
 PETROGRAPHIC CODE: C380

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)
 ROCK/MINERAL CODE: UAS BIOTITE
 ANALYTICAL DATA:
 CALCULATED AGE..... 321 +/- MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: (NOT GIVEN)
 ROCK/MINERAL CODE: PCS HORNBLLENDE
 ANALYTICAL DATA:
 CALCULATED AGE..... 343 +/- MILLION YEARS
 TYPE OF ANALYSIS..... 10
 ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN
 COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: 34 (MASSACHUSETTS)

ROCK/MINERAL CODE: UA1

MUSCOVITE

COMMENT: LESS THAN 60 MESH

ANALYTICAL DATA:

K20 (%)..... 6.98

40AR-RAD (MOLES/GM)..... 43.53 X E-10

% RADIOGENIC..... 94

CALCULATED AGE.....

388 +/- 8

MILLION YEARS

TYPE OF ANALYSIS..... 10

SAMPLE SUITE:

COMMENTS: SAMPLE CONTAINS INHERITED MATERIAL

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002202
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	76-00008
COUNTY.....	MIDDLESEX	LABORATORY(IES).....	MT GC
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	LEXINGTON	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-26-53 N	DATE: 77 08	
LONGITUDE.....	71-13-54 W		
COMMENT.....	BELFREY HILL, LEXINGTON		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 1			

SAMPLE DESCRIPTION
ROCK TYPE: MAFIC META-VOLCANICS LEXICON AGE(S): 410
PETROGRAPHIC CODE: C380
DESCRIPTION: A LATE PRECAMBRIAN MAFIC VOLCANIC-HYPABYSSAL SUITE MOSTLY
ALTERED TO GREENSCHIST GRADE

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: (NOT GIVEN)
ROCK/MINERAL CODE: UA5 BIOTITE
ANALYTICAL DATA:
CALCULATED AGE..... 349 +/- MILLION YEARS
TYPE OF ANALYSIS..... 10
ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LABORATORY SAMPLE NUMBER: (NOT GIVEN)
ROCK/MINERAL CODE: PC5 HORNBLLENDE
ANALYTICAL DATA:
CALCULATED AGE..... 407 +/- MILLION YEARS
TYPE OF ANALYSIS..... 10
ANALYTICAL COMMENTS..... NO ANALYTICAL DATA GIVEN
COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... MIDDLESEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 BOSTON NORTH
 LATITUDE..... 42-27-20 N
 LONGITUDE..... 71-06-05 W
 COMMENT..... ROADCUT ALONG ROUTE 28 IN MIDDLESEX FELLS RESERVATION,
 STONEHAM

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0008450
 REFERENCE NUMBER..... 80-00015
 LABORATORY(IES)..... MT

COMPILED BY
 NAME: MARVIN, R.F.
 DATE: 80 12

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: WESTBORO FORMATION
 ROCK TYPE: QUARTZITE

GEOLOGIC NAME CODE: WSBF
 LEXICON AGE(S): 360
 PETROGRAPHIC CODE: C340

DESCRIPTION: WESTBORO FORMATION; COARSE-GRAINED, HIGHLY RECRYSTALLIZED
 QUARTZITE CONTAINING BIOTITE, MAGNETITE, AND FELDSPAR.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: W-2(5M)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
 ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1263

Pb (PPM)..... 82.08

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.38	84.02	6.34	9.27

CONCORDIA INTERCEPT AGE.. 1511 +/- 22 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 278+/-15 M.Y.;
 8-POINT CHORD

SAMPLE SUITE: 00356

COMMENTS: DETRITAL ZIRCONS IN A SANDSTONE WHICH WAS METAMORPHOSED ABOUT
 450 M.Y. AGO.

LABORATORY SAMPLE NUMBER: W-2(3M)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
 ZIRCON

ANALYTICAL DATA:

U (PPM)..... 1146

Pb (PPM)..... 84.10

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.19	86.83	6.84	6.15

CONCORDIA INTERCEPT AGE.. 1511 +/- 22 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 278+/-15 M.Y.;
 8-POINT CHORD
 SAMPLE SUITE: 00356
 COMMENTS: DETRITAL ZIRCONS IN A SANDSTONE WHICH WAS METAMORPHOSED ABOUT
 450 M.Y. AGO.

LABORATORY SAMPLE NUMBER: W-2(1.5M)
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
 ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 758.7
 PB (PPM)..... 54.44
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.17	87.58	6.21	6.04

CONCORDIA INTERCEPT AGE.. 1511 +/- 22 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 278+/-15 M.Y.;
 8-POINT CHORD.
 SAMPLE SUITE: 00356
 COMMENTS: DETRITAL ZIRCONS IN A SANDSTONE WHICH WAS METAMORPHOSED ABOUT
 450 M.Y. AGO.

LABORATORY SAMPLE NUMBER: W-2(1.5NM)
 ROCK/MINERAL CODE: MC1 ZIRCON
 COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
 ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 483.6
 PB (PPM)..... 47.92
 ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
0.13	84.72	6.43	8.72

CONCORDIA INTERCEPT AGE.. 1511 +/- 22 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50
 ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 278+/-15 M.Y.;
 8-POINT CHORD.
 SAMPLE SUITE: 00356
 COMMENTS: DETRITAL ZIRCONS IN A SANDSTONE WHICH WAS METAMORPHOSED ABOUT
 450 M.Y. AGO.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004605

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... MIDDLESEX

REFERENCE NUMBER..... 80-00015

LABORATORY(IES)..... MT

QUAD SCALE

QUAD NO. / NAME

COMPILED BY

1: 24000

BOSTON NORTH

NAME: MARVIN, R.F.

LATITUDE..... 42-27-20 N

DATE: 80 12

LONGITUDE..... 71-06-05 W

COMMENT..... OUTCROP ALONG ROUTE 28 IN THE MIDDLESEX FIELDS
RESERVATION, 0.25 KM SOUTH OF INTERCHANGE 22, STONEHAM

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: WESTBORO FORMATION

GEOLOGIC NAME CODE: WSBR

ROCK TYPE: QUARTZITE

LEXICON AGE(S): 360

PETROGRAPHIC CODE: C340

DESCRIPTION: WESTBORO FORMATION; SMALL LENTICULAR BODY OF SUGARY MEDIUM-TO
FINE-GRAINED QUARTZITE CONTAINING SIGNIFICANT (10%) AMOUNTS OF BIOTITE,
MAGNETITE, AND FELDSPAR.

URANIUM-THORIUM-LEAD

LABORATORY SAMPLE NUMBER: W-1(4M)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
ZIRCONS

ANALYTICAL DATA:

U (PPM)..... 301.8

PB (PPM)..... 56.08

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB

0.34 84.84 7.22 7.60

CONCORDIA INTERCEPT AGE.. 1511 +/- 22 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 278 +/- 15 M.Y.;
8-POINT CHORD

SAMPLE SUITE: 00356

COMMENTS: DETRITAL ZIRCONS IN A SANDSTONE WHICH WAS METAMORPHOSED ABOUT
450 M.Y. AGO.

LABORATORY SAMPLE NUMBER: W-1(2M)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
ZIRCON

ANALYTICAL DATA:

U (PPM)..... 329.2

PB (PPM)..... 66.48

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB 206PB 207PB 208PB

0.06 82.36 7.66 9.93

CONCORDIA INTERCEPT AGE.. 1511 +/- 22 MILLION YEARS
 INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50
 SAMPLE SUITE: 00356
 COMMENTS: DETRITAL ZIRCONS IN A SANDSTONE WHICH WAS METAMORPHOSED ABOUT
 450 M.Y. AGO.

LABORATORY SAMPLE NUMBER: W-1(1M)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
 ZIRCON

ANALYTICAL DATA:

U (PPM)..... 270.5

PB (PPM)..... 60.91

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
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0.08	80.79	8.06	11.07
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CONCORDIA INTERCEPT AGE.. 1511 +/- 22 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 278+/-15 M.Y.;
 8-POINT CHORD.

SAMPLE SUITE: 00356

COMMENTS: DETRITAL ZIRCONS IN A SANDSTONE WHICH WAS METAMORPHOSED ABOUT
 450 M.Y. AGO.

LABORATORY SAMPLE NUMBER: W-1(1NM)

ROCK/MINERAL CODE: MC1

ZIRCON

COMMENT: YELLOW TO DARK BROWN, ROUNDED TO SUBROUNDED, FROSTED-PITTED
 ZIRCON

ANALYTICAL DATA:

U (PPM)..... 221.2

PB (PPM)..... 61.78

ISOTOPIC COMPOSITION OF LEAD (ATOM PERCENT)

204PB	206PB	207PB	208PB
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0.44	73.15	7.02	19.39
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CONCORDIA INTERCEPT AGE.. 1511 +/- 22 MILLION YEARS

INITIAL LEAD ISOTOPIC COMPOSITION (X,Y,Z): 20.17, 15.82, 39.50

ANALYTICAL COMMENTS..... LOWER CONCORDIA INTERCEPT IS 278+/-15 M.Y.;
 8-POINT CHORD

SAMPLE SUITE: 00356

COMMENTS: DETRITAL ZIRCONS IN A SANDSTONE WHICH WAS METAMORPHOSED ABOUT
 450 M.Y. AGO.

SECTION II

PUBLISHED PB-ALPHA AND FISSION-TRACK AGES OF ROCKS FROM MASSACHUSETTS

BRONSON HILL ZONE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ORANGE
 LATITUDE..... 42-37-18 N
 LONGITUDE..... 72-22-06 W
 COMMENT..... IRVING
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004535
 REFERENCE NUMBER..... 75-00021
 LABORATORY(IES)..... PA
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: PAUCHAUG GNEISS
 ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: PCHG
 LEXICON AGE(S): 300
 PETROGRAPHIC CODE: C310

FISSION-TRACK

LABORATORY SAMPLE NUMBER: 10
 ROCK/MINERAL CODE: HA3

APATITE

ANALYTICAL DATA:

PS (TRACKS/SQ CM)..... 0.759 X E+06
 PI (TRACKS/SQ CM)..... 0.115 X E+06
 PS/PI..... 6.60

CALCULATED AGE..... 97 +/- 5 MILLION YEARS
 NEUTRON FLUX DENSITY (N/SQ CM)..... 0.296 X E+15
 CALCULATION CONSTANT LAMBDA-F(/YR).... 8.46 X E-17

COMMENTS: AGE OF UPLIFT AND COOLING

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... FRANKLIN

QUAD SCALE

1: 24000

QUAD NO. / NAME

ORANGE

LATITUDE..... 42-33-30 N

LONGITUDE..... 72-18-12 W

COMMENT..... ORANGE

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004536

REFERENCE NUMBER..... 75-00021

LABORATORY(IES)..... PA

COMPILED BY

NAME: GODOY, M.M.

DATE: 78 07

SAMPLE DESCRIPTION

GEOLOGIC NAME: MONSON GNEISS

ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: MNSN

LEXICON AGE(S): 367 370 400

PETROGRAPHIC CODE: C310

FISSION-TRACK

LABORATORY SAMPLE NUMBER: 11

ROCK/MINERAL CODE: HA3

APATITE

ANALYTICAL DATA:

PS (TRACKS/SQ CM)..... 0.730 X E+06

PI (TRACKS/SQ CM)..... 0.131 X E+06

PS/PI..... 5.57

CALCULATED AGE..... 82 +/- 3 MILLION YEARS

NEUTRON FLUX DENSITY (N/SQ CM)..... 0.296 X E+15

CALCULATION CONSTANT LAMBDA-F(/YR)..... 8.46 X E-17

COMMENTS: AGE OF UPLIFT AND COOLING: ARMSTRONG AND STUMP (1971)

PUBLISHED A K-AR AGE OF 262 M.Y. FOR THIS GNEISS.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... FRANKLIN
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ORANGE
 LATITUDE..... 42-36-00 N
 LONGITUDE..... 72-22-00 W
 COMMENT..... IRVING
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004537
 REFERENCE NUMBER..... 75-00021
 LABORATORY(IES)..... PA
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 07

SAMPLE DESCRIPTION
 GEOLOGIC NAME: FOURMILE GNEISS
 ROCK TYPE: GNEISS
 DESCRIPTION: PELHAM GNEISS (NOW FOURMILE GNEISS)
 GEOLOGIC NAME CODE:
 LEXICON AGE(S): 360 370 400
 PETROGRAPHIC CODE: C310

FISSION-TRACK

LABORATORY SAMPLE NUMBER: 12
 ROCK/MINERAL CODE: HA3 APATITE
 ANALYTICAL DATA:
 PS (TRACKS/SQ CM)..... 0.628 X E+06
 PI (TRACKS/SQ CM)..... 0.098 X E+06
 PS/PI..... 6.41
 CALCULATED AGE..... 94 +/- 5 MILLION YEARS
 NEUTRON FLUX DENSITY (N/SQ CM)..... 0.296 X E+15
 CALCULATION CONSTANT LAMBDA-F(/YR).... 8.46 X E-17
 COMMENTS: AGE OF UPLIFT AND COOLING

MERRIMACK SYNCLINORIUM

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002180
STATE CODE.....	25		
STATE.....	MASSACHUSETTS	REFERENCE NUMBER.....	56-00002
COUNTY.....	WORCESTER	LABORATORY(IES).....	SW MT
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	FITCHBURG	NAME: HAMBLY, P.A.	
LATITUDE.....	42-31-45 N	DATE: 77 08	
LONGITUDE.....	71-48-00 W		
COMMENT.....	LEAVITT QUARRY, LEOMINSTER		

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: FITCHBURG COMPLEX
 ROCK TYPE: DIORITE

GEOLOGIC NAME CODE:
 LEXICON AGE(S):
 PETROGRAPHIC CODE: B270

DESCRIPTION: MICA DIORITE, FITCHBURG COMPLEX

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3011A
 ROCK/MINERAL CODE: MC1
 COMMENT: -60+200 MESH

ZIRCON

ANALYTICAL DATA:

ALPHA/MG-HR..... 510
 PB (PPM)..... 47
 CALCULATED AGE.....
 ANALYTICAL COMMENTS..... REPLICATE DATA
 COMMENTS: AGE NOT EVALUATED

230 +/- 25 MILLION YEARS

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002187
STATE CODE.....	25	REFERENCE NUMBER.....	56-00002
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SW MT
COUNTY.....	MIDDLESEX		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	NASHUA SOUTH	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-37-57 N	DATE: 77 08	
LONGITUDE.....	71-25-05 W		
COMMENT.....	FLETCHER QUARRY, WEST CHELMSFORD		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION		
GEOLOGIC NAME: CHELMSFORD GRANITE	GEOLOGIC NAME CODE:	
ROCK TYPE: GRANITE GNEISS	LEXICON AGE(S): 340	
	PETROGRAPHIC CODE: C310	
DESCRIPTION: MUSCOVITE-BIOTITE GRANITE GNEISS, CHELMSFORD GRANITE		

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3108A	
ROCK/MINERAL CODE: MC1	ZIRCON
COMMENT: -60+200 MESH	
ANALYTICAL DATA:	
ALPHA/MG-HR.....	830
PB (PPM).....	286
CALCULATED AGE.....	480 +/- 51 MILLION YEARS
COMMENTS: AGE NOT EVALUATED	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001636

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... BOLTON

REFERENCE NUMBER..... 65-00003

LABORATORY(IES)..... SW

QUAD SCALE

1: 24000

QUAD NO. / NAME

CLINTON

COMPILED BY

NAME: WILLIAMS, B. R.

LATITUDE..... 42-25-00 N

DATE: 77 06

LONGITUDE..... 71-39-00 W

COMMENT..... NORTH OF WATAQUADOCK ROAD, 0.17 MILE ESE OF BOLTON STATION

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: AYER GRANITE

ROCK TYPE: GNEISS

GEOLOGIC NAME CODE: AYER

LEXICON AGE(S): 340 350

PETROGRAPHIC CODE: C310

DESCRIPTION: GRAY PORPHYRITIC QUARTZ-OLIGOCLASE-MICROCLINE-BIOTITE GNEISS (AYER GRANITE)

POTASSIUM-ARGON

LABORATORY SAMPLE NUMBER: N-A1

ROCK/MINERAL CODE: UA5

BIOTITE

ANALYTICAL DATA:

K20 (%)..... 8.02

40AR-RAD (MOLES/GM)..... 31.78 X E-10

% RADIOGENIC..... 97

CALCULATED AGE..... 256 +/- 13 MILLION YEARS

TYPE OF ANALYSIS..... 10

COMMENTS: INITIAL AGE DISTURBED BY LATER METAMORPHISM

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: N-A1

ROCK/MINERAL CODE: MC1

ZIRCON

ANALYTICAL DATA:

ALPHA/MG-HR..... 573

PB (PPM)..... 98

CALCULATED AGE..... 410 +/- 50 MILLION YEARS

COMMENT: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... CLINTON

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001635

REFERENCE NUMBER..... 65-00003
LABORATORY(IES)..... SWQUAD SCALE QUAD NO. / NAME
1: 24000 CLINTON
LATITUDE..... 42-23-50 N
LONGITUDE..... 71-41-15 WCOMPILED BY
NAME: WILLIAMS, B. R.
DATE: 77 06COMMENT..... 1086 FEET E OF WEST END OF WACHUSETT-MARLBORO TUNNEL,
400 FEET BENEATH CARVILLE BASIN, CLINTONPRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 4

SAMPLE DESCRIPTION

GEOLOGIC NAME: AYER GRANITE
ROCK TYPE: GRANITE GNEISSGEOLOGIC NAME CODE: AYER
LEXICON AGE(S): 337 341
PETROGRAPHIC CODE: C310DESCRIPTION: GRAY PORPHYRITIC QUARTZ-OLIGOCLASE-MICROCLINE-BIOTITE GNEISS;
AYER GRANITE

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 1+86

ROCK/MINERAL CODE: MC1

ZIRCON

ANALYTICAL DATA:

ALPHA/MG-HR..... 619

PB (PPM)..... 107

CALCULATED AGE..... 420 +/- 50 MILLION YEARS

COMMENTS: AGE NOT EVALUATED

NASHOBA ZONE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... CLINTON

QUAD SCALE

1: 24000

LATITUDE..... 42-23-25 N

LONGITUDE..... 71-40-40 W

COMMENT..... 4008-FT EAST OF WEST END OF WACHUSETT-MARLBORO TUNNEL,
400-FT BENEATH NW EDGE OF RATTLESNAKE HILL, CLINTON

PRECISION OF LOCATION: 3

SOURCE OF SAMPLE: 4

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0001634

REFERENCE NUMBER..... 65-00003

LABORATORY(IES)..... SW

COMPILED BY

NAME: WILLIAMS, B. R.

DATE: 77 06

SAMPLE DESCRIPTION

GEOLOGIC NAME: AYER GRANITE

ROCK TYPE GRANITE GNEISS

GEOLOGIC NAME CODE: AYER

LEXICON AGE(S): 337 341

PETROGRAPHIC CODE: C310

DESCRIPTION: GRAY PORPHYRITIC QUARTZ-OLIGOCLASE-MICROCLINE-BIOTITE GNEISS;
AYER GRANITE

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 4+08

ROCK/MINERAL CODE: MC1

ZIRCON

ANALYTICAL DATA:

ALPHA/MG-HR..... 510

PB (PPM)..... 112

CALCULATED AGE.....

520 +/- 60 MILLION YEARS

COMMENTS: AGE NOT EVALUATED

MILFORD-DEDHAM ZONE

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 SALEM
 LATITUDE..... 42-31-00 N
 LONGITUDE..... 70-58-00 W
 COMMENT..... PEABODY
 PRECISION OF LOCATION: 4
 SOURCE OF SAMPLE: 6

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0004521
 REFERENCE NUMBER..... 57-00004
 LABORATORY(IES)..... SW
 COMPILED BY
 NAME: GODOY, M.M.
 DATE: 78 06

SAMPLE DESCRIPTION
 GEOLOGIC NAME: PEABODY GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: PBDY
 LEXICON AGE(S): 361
 PETROGRAPHIC CODE: B240

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: QG-1
 ROCK/MINERAL CODE: MC1 ZIRCON
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 124
 PB (PPM)..... 14
 CALCULATED AGE..... 275 +/- 28 MILLION YEARS
 ANALYTICAL COMMENTS..... 14, 14, 15 PPM LEAD
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: QC-1
 ROCK/MINERAL CODE: MC1 ZIRCON
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 165
 PB (PPM)..... 18.5
 CALCULATED AGE..... 273 +/- 27 MILLION YEARS
 ANALYTICAL COMMENTS..... 18, 18, 18, 20 PPM LEAD
 COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... SALEM
 LATITUDE..... 42-30-05 N
 LONGITUDE..... 70-57-55 W
 COMMENT..... LINEHAM QUARRY, PEABODY
 PRECISION OF LOCATION: 4
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002177
 REFERENCE NUMBER..... 56-00002
 LABORATORY(IES)..... SW MT
 COMPILED BY
 NAME: HAMBLBY, P.A.
 DATE: 77 08

SAMPLE DESCRIPTION
 GEOLOGIC NAME: PEABODY GRANITE
 ROCK TYPE: GRANITE
 GEOLOGIC NAME CODE: PBDY
 LEXICON AGE(S): 350 360
 PETROGRAPHIC CODE: B240
 DESCRIPTION: HORNBLende-AUGITE GRANITE, PEABODY GRANITE

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3004A
 ROCK/MINERAL CODE: MC1
 COMMENT: -60+200 MESH
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 455
 PB (PPM)..... 47
 CALCULATED AGE..... 260 +/- 21 MILLION YEARS
 ANALYTICAL COMMENTS..... REPLICATE DATA
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 3004B
 ROCK/MINERAL CODE: MC1
 COMMENT: -60+200 MESH
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 190
 PB (PPM)..... 21
 CALCULATED AGE..... 290 +/- 23 MILLION YEARS
 ANALYTICAL COMMENTS..... REPLICATE DATA
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 3004C
 ROCK/MINERAL CODE: MC1
 COMMENT: -60+200 MESH
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 185
 PB (PPM)..... 19
 CALCULATED AGE..... 260 +/- 21 MILLION YEARS
 COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX
 QUAD SCALE QUAD NO. / NAME
 1: 24000 ROCKPORT
 LATITUDE..... 42-40-50 N
 LONGITUDE..... 70-38-04 W
 COMMENT..... FLAT LEDGE QUARRY, ROCKPORT
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002178
 REFERENCE NUMBER..... 56-00002
 LABORATORY(IES)..... SW MT
 COMPILED BY
 NAME: HAMBLY, P.A.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240

DESCRIPTION: HORNBLENDE GRANITE, CAPE ANN GRANITE (NOW CAPE ANN COMPLEX)

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3005A

ROCK/MINERAL CODE: MC1

COMMENT: -60+200 MESH

ANALYTICAL DATA:

ALPHA/MG-HR..... 1225

PB (PPM)..... 140

CALCULATED AGE.....

ANALYTICAL COMMENTS..... REPLICATE DATA

COMMENTS: AGE NOT EVALUATED

ZIRCON

290 +/- 33 MILLION YEARS

LABORATORY SAMPLE NUMBER: 3005B

ROCK/MINERAL CODE: MC1

COMMENT: -60+200 MESH

ANALYTICAL DATA:

ALPHA/MG-HR..... 960

PB (PPM)..... 85

CALCULATED AGE.....

ANALYTICAL COMMENTS..... REPLICATE DATA

COMMENTS: AGE NOT EVALUATED

ZIRCON

230 +/- 18 MILLION YEARS

LABORATORY SAMPLE NUMBER: 3005C

ROCK/MINERAL CODE: MC1

COMMENT: -60+200 MESH

ANALYTICAL DATA:

ALPHA/MG-HR..... 560

PB (PPM)..... 58

CALCULATED AGE.....

ANALYTICAL COMMENTS..... REPLICATE DATA

COMMENTS: AGE NOT EVALUATED

ZIRCON

265 +/- 25 MILLION YEARS

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES

STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... ESSEX

QUAD SCALE QUAD NO. / NAME
 1: 24000 GLOUCESTER

LATITUDE..... 42-40-41 N
 LONGITUDE..... 70-39-00 W

COMMENT..... BLOOD LEDGE QUARRY, ROCKPORT

PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002179

REFERENCE NUMBER..... 56-00002
 LABORATORY(IES)..... SW MT

COMPILED BY
 NAME: HAMBLY, P.A.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: CPAN
 LEXICON AGE(S): 340
 PETROGRAPHIC CODE: B240

DESCRIPTION: HORNBLENDE GRANITE, CAPE ANN GRANITE (NOW CAPE ANN COMPLEX)

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3006A

ROCK/MINERAL CODE: MC1

COMMENT: -60+200 MESH

ANALYTICAL DATA:

ALPHA/MG-HR..... 405

PB (PPM)..... 37

CALCULATED AGE.....

ANALYTICAL COMMENTS..... REPLICATE DATA

COMMENTS: AGE NOT EVALUATED

ZIRCON

235 +/- 15 MILLION YEARS

LABORATORY SAMPLE NUMBER: 3006B

ROCK/MINERAL CODE: MC1

COMMENT: -60+200 MESH

ANALYTICAL DATA:

ALPHA/MG-HR..... 270

PB (PPM)..... 28

CALCULATED AGE.....

ANALYTICAL COMMENTS..... REPLICATE DATA

COMMENTS: AGE NOT EVALUATED

ZIRCON

265 +/- 22 MILLION YEARS

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0004538

STATE CODE..... 25

STATE..... MASSACHUSETTS

COUNTY..... ESSEX

REFERENCE NUMBER..... 75-00021

LABORATORY(IES)..... PA

QUAD SCALE

1: 24000

QUAD NO. / NAME

MARBLEHEAD NORTH

COMPILED BY

NAME: GODOY, M.M.

LATITUDE..... 42-33-18 N

DATE: 78 07

LONGITUDE..... 70-52-12 W

COMMENT..... BEVERLY

PRECISION OF LOCATION: 2

SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: CAPE ANN COMPLEX

ROCK TYPE: GRANITE

GEOLOGIC NAME CODE:

LEXICON AGE(S): 361

PETROGRAPHIC CODE: B240

FISSION-TRACK

LABORATORY SAMPLE NUMBER: 13

ROCK/MINERAL CODE: HA3

APATITE

ANALYTICAL DATA:

PS (TRACKS/SQ CM)..... 0.164 X E+06

PI (TRACKS/SQ CM)..... 0.155 X E+06

PS/PI..... 1.06

CALCULATED AGE..... 68 +/- 4 MILLION YEARS

NEUTRON FLUX DENSITY (N/SQ CM)..... 1.28 X E+15

CALCULATION CONSTANT LAMBDA-F(/YR)..... 8.46 X E-17

COMMENTS: AGE OF UPLIFT AND COOLING: ZARTMAN AND MARVIN (1971) OBTAINED
EARLY PALEOZOIC AGES FOR THIS GRANITE.

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION

COUNTRY..... UNITED STATES

STATE CODE..... 25
STATE..... MASSACHUSETTS
COUNTY..... NORFOLK

SAMPLE IDENTIFICATION

RECORD NUMBER..... 0002189

REFERENCE NUMBER..... 56-00002
LABORATORY(IES)..... SW MTQUAD SCALE QUAD NO. / NAME
1: 24000 WRENTHAM
LATITUDE..... 42-07-00 N
LONGITUDE..... 71-20-00 WCOMPILED BY
NAME: WILLIAMS, B.R.
DATE: 77 08

COMMENT..... OUTCROP 8.2 MILES NORTH OF NORTH ATTLEBORO, NORFOLK

PRECISION OF LOCATION: 4
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANODIORITEGEOLOGIC NAME CODE: DDHM
LEXICON AGE(S):
PETROGRAPHIC CODE: B260

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3052
ROCK/MINERAL CODE: MC1
COMMENT: -60+200 MESH

ZIRCON

ANALYTICAL DATA:

ALPHA/MG-HR..... 750
PB (PPM)..... 66

225 +/- 25 MILLION YEARS

CALCULATED AGE.....
ANALYTICAL COMMENTS..... REPLICATE DATA
COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 WRENTHAM
 LATITUDE..... 42-03-18 N
 LONGITUDE..... 71-17-32 W
 COMMENT..... 1.7 MILES EAST OF WRENTHAM, FOXBOROUGH
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002184
 REFERENCE NUMBER..... 56-00002
 LABORATORY(IES)..... SW MT

COMPILED BY
 NAME: HAMBLY, P.A.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S): 370 410
 PETROGRAPHIC CODE: B240

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3105A
 ROCK/MINERAL CODE: MC1 ZIRCON
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 715
 PB (PPM)..... 110
 CALCULATED AGE..... 390 +/- 43 MILLION YEARS
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 3105B
 ROCK/MINERAL CODE: MC1 ZIRCON
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 680
 PB (PPM)..... 90
 CALCULATED AGE..... 335 +/- 31 MILLION YEARS
 ANALYTICAL COMMENTS..... REPLICATE LEAD DATA
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 3105C
 ROCK/MINERAL CODE: MC1 ZIRCON
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 515
 PB (PPM)..... 77
 CALCULATED AGE..... 380 +/- 33 MILLION YEARS
 ANALYTICAL COMMENTS..... REPLICATE LEAD DATA
 COMMENTS: AGE NOT EVALUATED

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002183
STATE CODE.....	25	REFERENCE NUMBER.....	56-00002
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SW MT
COUNTY.....	NORFOLK		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	WRENTHAM	NAME: HAMBLY, P.A.	
LATITUDE.....	42-02-30 N	DATE: 77 08	
LONGITUDE.....	71-17-30 W		

COMMENT..... CURRY QUARRY, 2.5 MILES ESE OF WRENTHAM, FOXBOROUGH

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 3

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
ROCK TYPE: GRANITE

GEOLOGIC NAME CODE: DDHM
LEXICON AGE(S): 370 410
PETROGRAPHIC CODE: B240

DESCRIPTION: HORNBLENDE GRANITE, DEDHAM GRANITE

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3014B
ROCK/MINERAL CODE: MC1
COMMENT: -60+200 MESH

ZIRCON

ANALYTICAL DATA:

ALPHA/MG-HR.....	490	
PB (PPM).....	70	
CALCULATED AGE.....		365 +/- 35 MILLION YEARS
ANALYTICAL COMMENTS.....	REPLICATE DATA	
COMMENTS: AGE NOT EVALUATED		

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATI
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... NORFOLK
 QUAD SCALE QUAD NO. / NAME
 1: 24000 WRENTHAM
 LATITUDE..... 42-02-30 N
 LONGITUDE..... 71-20-00 W
 COMMENT..... OUTCROP 3 MILES NORTH OF NORTH ATTLEBORO, WRENTHAM
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 1

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002188
 REFERENCE NUMBER..... 56-00002
 LABORATORY(IES)..... SW MT
 COMPILED BY
 NAME: WILLIAMS, B.R.
 DATE: 77 08

SAMPLE DESCRIPTION

GEOLOGIC NAME: DEDHAM GRANITE
 ROCK TYPE: GRANODIORITE

GEOLOGIC NAME CODE: DDHM
 LEXICON AGE(S):
 PETROGRAPHIC CODE: B260

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3051
 ROCK/MINERAL CODE: MC1
 COMMENT: +60-200 MESH

ZIRCON

ANALYTICAL DATA:

ALPHA/MG-HR..... 615
 PB (PPM)..... 55
 CALCULATED AGE.....
 ANALYTICAL COMMENTS..... REPLICATE DATA
 COMMENTS: AGE NOT EVALUATED

220 +/- 22 MILLION YEARS

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE QUAD NO. / NAME
 1: 24000 MILFORD
 LATITUDE..... 42-09-45 N
 LONGITUDE..... 71-30-00 W
 COMMENT..... NORCROSS QUARRY, MILFORD
 PRECISION OF LOCATION: 3
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002181
 REFERENCE NUMBER..... 56-00002
 LABORATORY(IES)..... SW MT
 COMPILED BY
 NAME: HAMBLY, P.A.
 DATE: 77 08

SAMPLE DESCRIPTION
 GEOLOGIC NAME: MILFORD GRANITE
 ROCK TYPE: GRANITE
 DESCRIPTION: BIOTITE GRANITE, MILFORD GRANITE
 GEOLOGIC NAME CODE: MLFD
 LEXICON AGE(S): 370 410
 PETROGRAPHIC CODE: B240

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3012A
 ROCK/MINERAL CODE: MC1
 COMMENT: -60+200 MESH
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 500
 PB (PPM)..... 76
 CALCULATED AGE..... 385 +/- 38 MILLION YEARS
 ANALYTICAL COMMENTS..... REPLICATE DATA
 COMMENTS: AGE NOT EVALUATED

ZIRCON

LABORATORY SAMPLE NUMBER: 3012B
 ROCK/MINERAL CODE: MC1
 COMMENT: -60+200 MESH
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 390
 PB (PPM)..... 57
 CALCULATED AGE..... 365 +/- 33 MILLION YEARS
 ANALYTICAL COMMENTS..... REPLICATE DATA
 COMMENTS: AGE NOT EVALUATED

ZIRCON

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002185
STATE CODE.....	25	REFERENCE NUMBER.....	56-00002
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SW MT
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	MILFORD	NAME: HAMBLY, P.A.	
LATITUDE.....	42-09-45 N	DATE: 77 08	
LONGITUDE.....	71-30-15 W		
COMMENT.....	WEST QUARRY, MILFORD		
PRECISION OF LOCATION: 3			
SOURCE OF SAMPLE: 3			
SAMPLE DESCRIPTION			
GEOLOGIC NAME: MILFORD GRANITE		GEOLOGIC NAME CODE: MLFD	
ROCK TYPE: GRANITE		LEXICON AGE(S): 370 410	
		PETROGRAPHIC CODE: B240	

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3106A	
ROCK/MINERAL CODE: MC1	ZIRCON
COMMENT: -60+200 MESH	
ANALYTICAL DATA:	
ALPHA/MG-HR..... 955	
PB (PPM)..... 117	
CALCULATED AGE.....	310 +/- 28 MILLION YEARS
ANALYTICAL COMMENTS..... REPLICATE DATA	
COMMENTS: AGE NOT EVALUATED	
LABORATORY SAMPLE NUMBER: 3106B	
ROCK/MINERAL CODE: MC1	ZIRCON
COMMENT: -60+200 MESH	
ANALYTICAL DATA:	
ALPHA/MG-HR..... 820	
PB (PPM)..... 116	
CALCULATED AGE.....	360 +/- 33 MILLION YEARS
ANALYTICAL COMMENTS..... REPLICATE DATA	
COMMENTS: AGE NOT EVALUATED	
LABORATORY SAMPLE NUMBER: 3106C	
ROCK/MINERAL CODE: MC1	ZIRCON
COMMENT: -60+200 MESH	
ANALYTICAL DATA:	
ALPHA/MG-HR..... 590	
PB (PPM)..... 82	
CALCULATED AGE.....	355 +/- 32 MILLION YEARS
ANALYTICAL COMMENTS..... REPLICATE DATA	
COMMENTS: AGE NOT EVALUATED	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION		SAMPLE IDENTIFICATION	
COUNTRY.....	UNITED STATES	RECORD NUMBER.....	0002186
STATE CODE.....	25	REFERENCE NUMBER.....	56-00002
STATE.....	MASSACHUSETTS	LABORATORY(IES).....	SW MT
COUNTY.....	WORCESTER		
QUAD SCALE	QUAD NO. / NAME	COMPILED BY	
1: 24000	UXBRIDGE	NAME: WILLIAMS, B.R.	
LATITUDE.....	42-07-00 N	DATE: 77 08	
LONGITUDE.....	71-40-00 W		
COMMENT.....	WHITINSVILLE, NORTH END		

PRECISION OF LOCATION: 3
SOURCE OF SAMPLE: 1

SAMPLE DESCRIPTION

GEOLOGIC NAME: PONAGANSET GNEISS	GEOLOGIC NAME CODE:
ROCK TYPE: GNEISS	LEXICON AGE(S): 370 410
	PETROGRAPHIC CODE: C310
DESCRIPTION: NORTHBRIDGE GRANITE GNEISS (NOW PONAGANSET GNEISS)	

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3107A	
ROCK/MINERAL CODE: MC1	ZIRCON
COMMENT: -60+200 MESH	
ANALYTICAL DATA:	
ALPHA/MG-HR.....	710
PB (PPM).....	75
CALCULATED AGE.....	270 +/- 30 MILLION YEARS
ANALYTICAL COMMENTS.....	REPLICATE DATA
COMMENTS: AGE NOT EVALUATED	

LABORATORY SAMPLE NUMBER: 3107B	
ROCK/MINERAL CODE: MC1	ZIRCON
ANALYTICAL DATA:	
ALPHA/MG-HR.....	615
PB (PPM).....	66
CALCULATED AGE.....	270 +/- 29 MILLION YEARS
ANALYTICAL COMMENTS.....	REPLICATE LEAD ANALYSES
COMMENTS: AGE NOT EVALUATED	

LABORATORY SAMPLE NUMBER: 3107C	
ROCK/MINERAL CODE: MC1	ZIRCON
ANALYTICAL DATA:	
ALPHA/MG-HR.....	375
PB (PPM).....	39
CALCULATED AGE.....	265 +/- 31 MILLION YEARS
COMMENTS: AGE NOT EVALUATED	

RADIOMETRIC AGE DATA BANK - U.S.G.S. BRANCH OF ISOTOPE GEOLOGY

LOCATION
 COUNTRY..... UNITED STATES
 STATE CODE..... 25
 STATE..... MASSACHUSETTS
 COUNTY..... WORCESTER
 QUAD SCALE..... QUAD NO. / NAME
 1: 24000..... UXBRIDGE
 LATITUDE..... 42-04-36 N
 LONGITUDE..... 71-38-54 W
 COMMENT..... BLANCHARD QUARRY, UXBRIDGE
 PRECISION OF LOCATION: 2
 SOURCE OF SAMPLE: 3

SAMPLE IDENTIFICATION
 RECORD NUMBER..... 0002182
 REFERENCE NUMBER..... 56-00002
 LABORATORY(IES)..... SW MT
 COMPILED BY
 NAME: HAMBLY, P.A.
 DATE: 77 08

SAMPLE DESCRIPTION
 GEOLOGIC NAME: PONAGANSET GNEISS
 ROCK TYPE: GNEISS
 DESCRIPTION: BIOTITE GRANITE GNEISS, NORTHBRIDGE GRANITE GNEISS (NOW PONAGANSET GNEISS)
 GEOLOGIC NAME CODE:
 LEXICON AGE(S): 370 410
 PETROGRAPHIC CODE: C310

LEAD-ALPHA

LABORATORY SAMPLE NUMBER: 3013A
 ROCK/MINERAL CODE: MC1
 COMMENT: -60+200 MESH
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 840
 PB (PPM)..... 71
 CALCULATED AGE..... 215 +/- 17 MILLION YEARS
 ANALYTICAL COMMENTS..... REPLICATE DATA
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 3013B
 ROCK/MINERAL CODE: MC1
 COMMENT: -60+200 MESH
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 710
 PB (PPM)..... 68
 CALCULATED AGE..... 245 +/- 26 MILLION YEARS
 ANALYTICAL COMMENTS..... REPLICATE DATA
 COMMENTS: AGE NOT EVALUATED

LABORATORY SAMPLE NUMBER: 3013C
 ROCK/MINERAL CODE: MC1
 ANALYTICAL DATA:
 ALPHA/MG-HR..... 300
 PB (PPM)..... 73
 CALCULATED AGE..... 620 +/- 53 MILLION YEARS
 ANALYTICAL COMMENTS..... REPLICATE DATA
 COMMENTS: AGE NOT EVALUATED

APPENDIX: CODE LISTINGS

- A. ANALYTICAL LABORATORIES
- D. PRECISION OF LOCATION
- E. SOURCE OF SAMPLE
- G. LEXICON AGES
- H. PETROGRAPHIC CODES
- J. ROCK/MINERAL CODES
- K. TYPE OF ANALYSIS

CODE LIST A - ANALYTICAL LABORATORIES

CODE*

AB Univ. Alberta
 AG Argonne National Laboratory
 AZ Univ. of Arizona

 BC Univ. British Columbia
 BO Brookhaven
 BR Brown Univ.

 CB Univ. Calif., Berkeley
 CD Univ. Calif., San Diego
 CH Univ. Chicago
 CI Calif. Inst. Tech.
 CL Univ. Calif., Los Angeles
 CO F.M. Consultants, Ltd., England
 CS Univ. Calif., Santa Barbara
 CW Case Western Reserve

 DA Dalhousie Univ., Halifax, Nova Scotia
 DT Dept. Terr. Magnetism, C.I.W.

 FS Florida State Univ.

 GA Univ. of Georgia
 GC Geochron
 GP Geophys. Lab., C.I.W.
 GS Goddard Space Flight Center
 GU Gulf Research

 IN Univ. Northern Illinois
 IS Isotopes, Inc.; Teledyn

 KA Univ. Kansas
 KS Kansas State Univ.

 LA Lamont (Columbia)

 MA Univ. Manitoba
 MI Univ. Minnesota
 MO Mobile Research Lab.
 MT Mass. Inst. Tech.

 NB S. U. N. Y., Buffalo
 NC Univ. North Carolina
 NM Univ. New Mexico
 NS S. U. N. Y., Stony Brook

CODE

OB Oberlin College
 OH Ohio State Univ.
 OR Univ. Oregon
 OS Oregon State Univ.
 OX Oxford University

 PA Univ. Penna.
 PB Univ. Pittsburgh
 PU Penna. State Univ.

 RI Rice Univ.

 SC Geol. Survey of Canada
 SD U.S.G.S., Denver
 SH Shell Research Center, Houston
 SM U.S.G.S., Menlo Park
 SO Socony-Mobil
 SW U.S.G.S., Reston

 TA Univ. Texas, Austin
 TD Univ. Texas, Dallas
 TO Geophysical Lab., Univ. Toronto

 US Univ. Utah, Salt Lake City

 VP Virginia Poly. Inst.

 YA Yale University

*Note: For analytical laboratories not listed here, contact RADB for a new code assignment.

CODE LIST D - PRECISION OF LOCATION

CODE

- 1 Latitude/longitude accurate to within 1 second (~100 feet)
- 2 Latitude/longitude accurate to within 0.1 minute (~500 feet)
- 3 Latitude/longitude accurate to within 1 minute (~1 mile)
- 4 Latitude/longitude accurate to within 5 minutes (~5 miles)
- 5 Latitude/longitude accurate to within 30 minutes (~30 miles)
- 6 Location not given (or only in terms less accurate than category 5)

CODE LIST E - SOURCE OF SAMPLE

CODE

- 1 Outcrop or artificial surface exposure like roadcut, railroad cut, etc.
- 2 Core or cuttings from drill hole
- 3 Quarry, large excavation or pit
- 4 Underground mine or tunnel
- 5 Float
- 6 Unknown
- 7 Off-shore

CODE LIST G - LEXICON AGES

<u>Era, Period, Epoch</u>	<u>Code</u>	<u>Radiometric Age of Boundary (m.y.)*</u>
Cenozoic	100	
Quaternary	110	
Recent	111	
Pleistocene	112	
	-----	1.8
Tertiary	120	
Pliocene	121	
Miocene	122	----- 5
Oligocene	123	----- 22.5
Eocene	124	----- 37.5
Paleocene	125	----- 53.5
	-----	65.0
Mesozoic	200	
Cretaceous	210	
Late	211	
Gulf	212	
Early	217	
Comanche	218	
Coahuila	219	
	-----	136
Jurassic	220	
Late	221	
Middle	224	
Early	227	
	-----	195
Triassic	230	
Late	231	
Middle	234	
Early	237	
	-----	225
Paleozoic	300	
Permian	310	
Late	311	
Ochoa	312	
Guadalupe	313	
Early	317	
Leonard	318	
Wolfcamp	319	
	-----	280
Pennsylvanian	320	
Late	321	
Virgil	322	
Missouri	323	
Middle	324	
Des Moines	325	
Atoka	326	
Early	327	
Morrow	328	
	-----	320

CODE LIST G - LEXICON AGES (cont'd)

<u>Era, Period, Epoch</u>	<u>Code</u>	<u>Radiometric Age of Boundary (m.y.)*</u>
		- - - - - 320
Mississippian	330	
Late	331	
Chester	332	
Meramee	333	
Early	337	
Osage	338	
Kinderhook	339	
		- - - - - 345
Devonian	340	
Late	341	
Chautauquan	342	
Senecan	343	
Middle	344	
Erian	345	
Early	347	
Ulsterian	348	
		- - - - - 395
Silurian	350	
Late	351	
Cayugan	352	
Middle	354	
Niagaran	355	
Early	357	
Alexandrian	358	
		- - - - - 430-440
Ordovician	360	
Late	361	
Cincinnatian	362	
Middle	364	
Champlainian	365	
Early	367	
Canadian	368	
		- - - - - ca. 500
Cambrian	370	
Late	371	
Middle	374	
Early	377	
		- - - - - 570
Precambrian	400	
Precambrian Z	410	
		- - - - - 800
Precambrian Y	420	
		- - - - - 1600
Precambrian X	430	
		- - - - - 2500
Precambrian W	440	

*modified from Geological Society of London, 1964

CODE LIST H - PETROGRAPHIC CODES

CODE

A100	Igneous-Extrusive
A110	tuffs, ashes, pyroclastic deposits, glasses, ignimbrite
A111	obsidian, pitchstone, pumice, vitrophyre, perlite
A112	bentonite
A120	felsite
A121	rhyolite, rhyodacite
A122	trachyte
A123	quartz latite, latite
A124	dacite, andesite
A130	trap rock (mafic)
A131	basalt, limburgite
A132	phonolite
B200	Igneous-Intrusive
B210	hypabyssal intrusive
B211	porphyries (rhyolite porphyry, dacite porphyry, rhomb porphyry, quartz porphyry, etc.)
B212	diabase, dolerite, basalt
B213	keratophyre
B214	tinquaite, teschenite
B215	lamprophyre (minette, vogesite, malchite, kersantite, spessartite, odinite, camptonite, monchquite, alnoite, fourchite, ouachitite)
B220	granitoid (phaneritic)
B225	pegmatite
B230	aplite
B235	vein
B240	granite, alaskite, microgranite, granite porphyry, grorudite
B245	syenite, shonkinite
B250	quartz monzonite, adamellite
B255	monzonite
B260	granodiorite
B265	quartz diorite, tonalite, trondhjemite
B270	diorite

CODE LIST H - PETROGRAPHIC CODES (cont'd)

CODE

- B275 gabbro, norite, quartz gabbro, essexite (alkalic gabbro)
- B280 anorthosite
- B285 ultramafic rocks (pyroxenite, peridotite, hornblendite, serpentinite, dunite, kimberlite, picrite, lherzolite, etc.)
- B290 nepheline syenite, nepheline diorite, nephelinite
- B295 carbonatite
- C300 Metamorphic rock
- C310 gneiss (granitic gneiss, augen gneiss, orthogneiss, etc.)
- C320 schist (biotite schist, garnetiferous schist, etc.)
- C330 argillite, slate, phyllite
- C335 mylonite, cataclastite, phyllonite, fault gouges
- C340 quartzite
- C345 marble, tactite, skarn
- C350 hornfels, granofels
- C360 amphibolite, metamorphic hornblendite
- C370 granulite, eclogite, charnokite
- C375 migmatite
- C380 meta-igneous, greenstone (metarhyolite, metagabbro, etc.), greenschist
- C385 serpentine, soapstone
- C390 metasedimentary (metagraywacke, etc.)
- D400 Sedimentary rock
- D410 clay, mud, shale, siltstone, claystone, saprolite
- D420 sandstone, graywacke, arkose
- D430 conglomerate, breccia, talus
- D440 carbonate, limestone, dolomite, travertine

CODE LIST H - PETROGRAPHIC CODES (cont'd)

D450 evaporite, salt, gypsum, anhydrite

D460 coal, iron ore, phosphorite, sulfur

E500 Impactite

CODE LIST J - ROCK/MINERAL CODES*

A00 Non-mineral substances

AA0 Whole-rock

AB0 Glass

CB1 Galena

CB2 Pyrite-Marcasite

DB1 Fluorite

ED3 Magnetite

F00 Carbonates

FA0 Calcite group

FA1 Calcite

FA2 Dolomite

FA3 Magnesite

FA4 Ankerite

FA5 Siderite

FA6 Rhodochrosite

FA7 Smithsonite

FA8 Parisite (Rare-Earth carbonite)

FB0 Aragonite group

FB1 Aragonite

FB2 Witherite

FB3 Cerussite

FB4 Strontianite

G00 Niobates and Tantalates

GA0 Pyrochlore-Microlite

GB0 Columbite-Tantalite

GC0 Yttrotantalite

GD0 Samarskite

H00 Phosphates and Uranites

HA0 Anhydrous phosphates

HA1 Xenotime

HA2 Monazite

HA3 Apatite

HF0 Uranite

HF1 Torbernite

HF2 Autunite

HF3 Carnotite

J00 Borates and Uranates

JB0 Uranates

JB1 Uraninite-pitchblende

JB2 Thorianite

K00 Sulfates

KC1 Barite

KC6 Jarosite

KC7 Alunite

KC8 Natroalunite

N00 Cyclosilicates

NB0 Tourmaline

P00 Chain structures

PA0 Pyroxene group

PA1 Enstatite

PA2 Hypersthene

PA3 Pigeonite

PA4 Diopside-Hedenbergite

PA5 Augite-Ferroaugite

PA6 Aegerine (Acmite)

PA7 Jadeite

PA8 Spodumene

PC0 Amphibole group

PC1 Anthophyllite-Gedrite

PC2 Cumingtonite-Grunerite

PC3 Tremolite

PC4 Actinolite

PC5 Hornblende

PC6 Lamprobolite

PC7 Riebeckite

PC8 Glaucophane-Crossite

PD0 Epidote group

PD3 Epidote

PD5 Allanite

Q00 Silica minerals

QA0 Quartz

R00 Feldspars

RA0 Alkali feldspars-K-feldspar

RA1 Microcline

RA2 Orthoclase

RA3 Sanidine

RA4 Adularia

RB0 Anorthoclase

RC0 Plagioclase feldspars

RC1 Albite

RC2 Oligoclase

RC3 Andesine

RC4 Labradorite

RC5 Bytownite

RC6 Anorthite

MOØ Neso- and Sorosilicates

MCØ Zircon group

MC1 Zircon

MC2 Thorite

MC3 Chevkinite

MC4 Uranothorite

MDØ Spheue

MEØ Garnet group

MFØ Beryl

UOØ Mica group

UAØ Common micas

UA1 Muscovite

UA2 Sericite

UA3 Paragonite

UA4 Glauconite

UA5 Biotite

UA6 Phlogopite

UA7 Lepidolite

UA8 Margarite

UA9 Roscoelite

VOØ Misc. layer Silicates

VAØ Stilpnomelane

VDØ Chlorite group

WOØ Clay minerals

WBØ Illite group

WB1 Illite

WB2 Phengite

WCØ Montmorillonite group

WC1 Montmorillonite

WDØ Vermiculite

SOØ Feldspathoids

SAØ Leucite group

SA1 Leucite

SA2 Pseudoleucite

SBØ Nepheline group

SEØ Scapolite

SDØ Sodalite

ZOØ Zeolite Group

ZA1 Analcine

ZA2 Chabazite

ZA3 Clinoptilolite

ZA4

ZA5

ZA6 Harmotome

ZA7 Heulandite

ZA8

ZA9

ZB1 Laumontite

ZB2 Natrolite

ZB3 Phillipsite

ZB4 Stilbite

ZB5 Thomsonite

ZB6

ZB7

ZB8

ZB9

* This code list has been condensed from a more extensive mineral coding scheme; if the rock/mineral listed in the reference does not appear in the code list above, contact RADB for the assignment of an appropriate code.

CODE LIST K - TYPE OF ANALYSIS

CODE

- | | |
|----|---|
| 10 | Conventional K-Ar |
| 11 | 39Ar-40Ar incremental (plateau) |
| 12 | 39Ar-40Ar total fusion |
| 13 | 40Ar/36Ar-40K/36Ar isochron |
| 14 | 40Ar - 40K isochron |
| 15 | 37Ar-41Ar total fusion |
| | |
| 20 | Conventional Rb-Sr (assumed initial 87Sr/86Sr) |
| 21 | Conventional Rb-Sr (measured initial 87Sr/86Sr) |
| 22 | 87Sr/86Sr - 87Rb/86Sr isochron (whole rock) |
| 23 | 87Sr/86Sr - 87Rb/86Sr isochron (mineral - whole rock) |

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