



Consumers
Power
Company

James W Cook

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April 12, 1982



Harold R Denton, Director
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

MIDLAND PROJECT

MIDLAND DOCKET NO 50-329, 50-330

ADDITIONAL INFORMATION CONCERNING STAFF'S INDEPENDENT
CONFIRMATORY PIPING ANALYSIS

FILE: 0485.11, B1.7 SERIAL: 16629

REFERENCES: (1) J W COOK LETTER TO R L TEDESCO,
SERIAL 10764, DATED JANUARY 12, 1981
(2) R L TEDESCO LETTER TO J W COOK DATED NOVEMBER 20, 1980
(3) J W COOK LETTER TO H R DENTON,
SERIAL 14538, DATED OCTOBER 16, 1981
(4) J W COOK LETTER TO H R DENTON,
SERIAL 14893, DATED NOVEMBER 30, 1981
(5) J W COOK LETTER TO H R DENTON,
SERIAL 16222, DATED MARCH 4, 1982

Enclosed herewith are three copies of the latest information requested by the Energy Technology Engineering Center (ETEC). The information is supplementary to Revision 7 submitted previously by our March 4, 1982 transmittal.

The information includes detail drawings for the snubber to be installed at Node Point 185 of Drawing 7220-H-611, Sheet 1(Q) and data for postulated loss-of-coolant accidents (LOCA). The data was obtained from B&W's 1979 preliminary work on LOCA nozzle displacements and there may be significant differences in the final analysis due to the new reactor vessel support design. The data consists of three displacement and three rotation response curves for the center line intersection point in the reactor (Joint 185). The Coordinates X, Y and Z are the same as those used in Bechtel's analyses. The LOCA displacement data is given for 19 break points in the primary loop and each break point is identified according to FSAR Table 3.6-22.

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A revised index to the report is also included in this supplement to reflect the current status of all the ETEC information. The next quarterly scheduled revision will be issued in July 1982 to update ETEC on any design changes.

Foyl Aella
for

JWC/WJC/dsb

CC PChen, ETEC, w/a
RJCook, Midland Resident Inspector, w/o
RHernan, NRC, w/a
JRajan, NRC, w/a

BCC RCBauman, P-14-312B, w/o
JEBrunner, M-1079, w/a
DMBudzik, P-24-517A, w/o
EMHughes, Bechtel, w/a
RWHuston, Washington, w/a
DFLewis, Bechtel, w/o
DBMiller, Midland, w/a
WSkelly, Bechtel, w/o
RLTeuteberg, P-24-505, w/o
Licensing Clerk
NRC Correspondence File

ATTACHMENT

INDEX

1. Piping Layout and Isometric Drawings
Bechtel Hanger Drawing 7220-H-611, Sh 1(Q), Rev 8
2. Support Drawings with Support Hanger Spring Rates
(See ITT Grinnell Catalog PH79, Page ph-90 for support hanger spring rates):

ITT Grinnell Hanger Drawings

<u>Sketch</u>	<u>Rev</u>
2-611-1-1	0
2-611-1-2	1
2-611-1-3	4/F3
2-611-1-4	1
2-611-1-5	0
2-611-1-6	4
2-611-1-7	4/F3
2-611-1-8	2/F5
2-611-1-9	1
2-611-1-10	4/F3
2-611-1-11	3/F1
2-611-1-12	4/F1
2-611-1-13	3/F2
2-611-1-14	3
2-611-1-16	0
2-611-1-17	1
2-611-1-18	5
2-611-1-19	4/F1
2-611-1-20	0
2-611-1-21	5/F2
2-611-1-22	3/F2
2-611-1-23	5/F1
2-611-1-24	4/F1
2-611-1-25	0
2-611-1-26	3/F1
2-611-1-27	0
2-611-1-28	3/F2
2-611-1-29	3/F2
2-611-1-30	2/B1
2-611-1-31	2
2-611-1-32	0
2-611-1-34	0
2-611-1-35	0
2-611-1-36	5
2-611-1-37	4/F3 (Sub 6 also provided for clarity)

<u>Sketch</u>	<u>Rev</u>
2-611-1-40	Superseded by 2-611-1-50
2-611-1-41	0
2-611-1-42	1/B0
2-611-1-43	0
2-611-1-44	0
2-611-1-45	0
2-611-1-46	3
2-611-1-47	1/F1
2-611-1-48	2
2-611-1-50	0
2-611-1-100	Superseded by 2-611-1-2

3. Piping Design Specifications

- a. 7220-M-321(Q), Rev 0, Design Specification for Nuclear Service Piping
- b. 7220-M-345(Q), Rev 2, Design Specification for Component Supports for Nuclear Service Piping
- c. 7220-M-481(Q) Rev 20, Piping Class Sheets
- d. 7220-M-480(Q), Rev 11, Piping Class Summary Sheets
- e. Summary of Operating Conditions
- f. 7220-M-484(Q), Rev 5, Pipe Insulation Schedule
- g. Reactor Coolant System Transient (B&W Specification 18-1092000012.04)

4. Valve Weights and Center of Gravity

Westinghouse Electric Corporation Drawings:

- a. E-1165E45, Rev 7, Motor Operated Gate Valve
(Bechtel Vendor Print 7220-M123A-38-5)
- b. D-5058D90, Rev 5, Swing Check Valve
(Bechtel Vendor Print 7220-M123A-43-4)
- c. D-5058D91, Rev 6, Swing Check Valve
(Bechtel Vendor Print 7220-M123A-42-5)

5. Appropriate Response Spectra

7220-G-6(Q), Rev 5, Bechtel Specification for Earthquake Resistance Design of Equipment Located in the Reactor Building

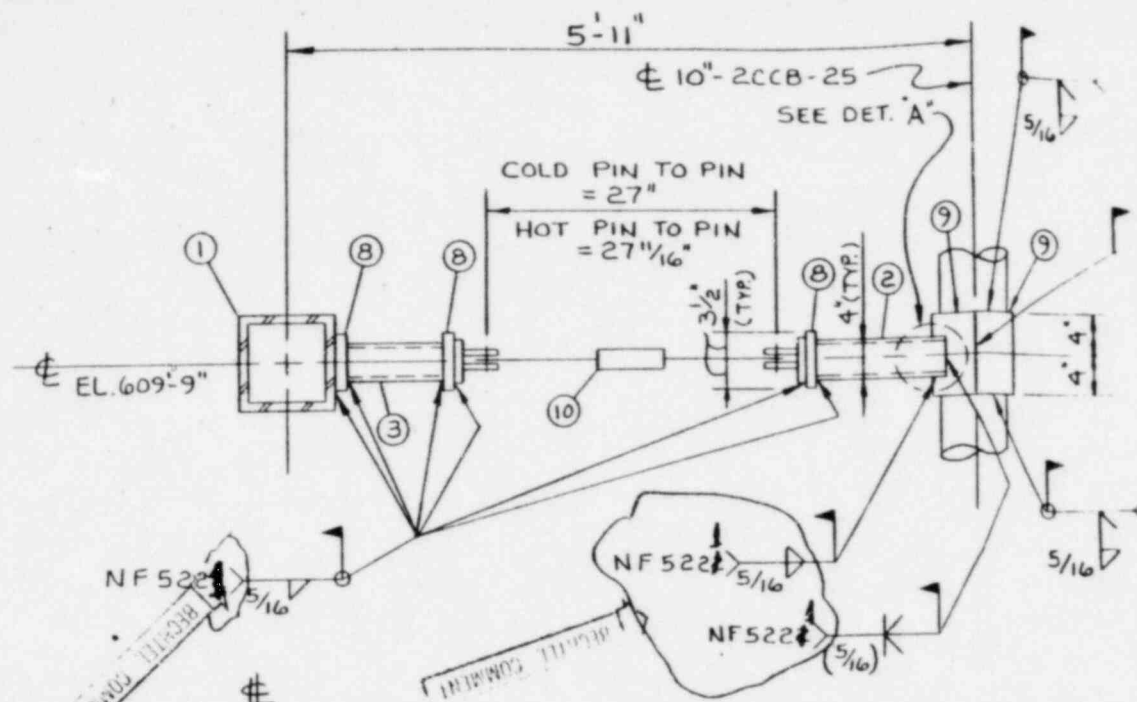
6. Appropriate Anchor Point Movements

- a. B&W Functional Specification 86-1123597-00 (Interim revision to B&W Specification 18-1391000012-00). Reactor Coolant System Displacements and Seismic Spectra, pages 2, 3, 9, 10, 11, 12, and 18-104.
- b. B&W 20004(6-76), B&W Specification 18-1235000012-08, Reactor Coolant System Foundation and Nozzle Loadings

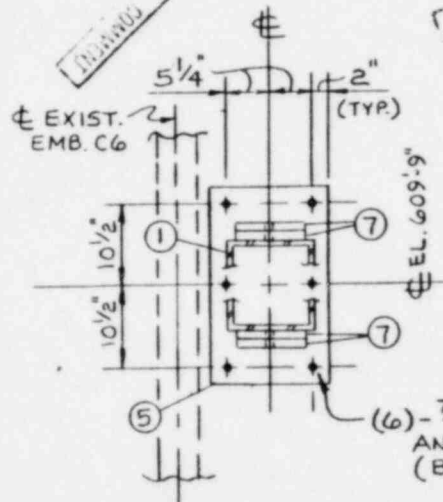
7. ETEC Request for additional information.

8. ETEC Request for additional information 3/29/82.

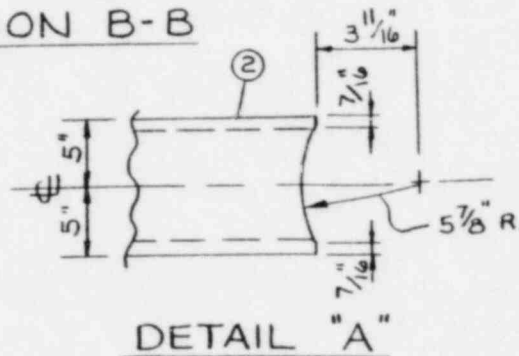
Supplement - Load Histograms



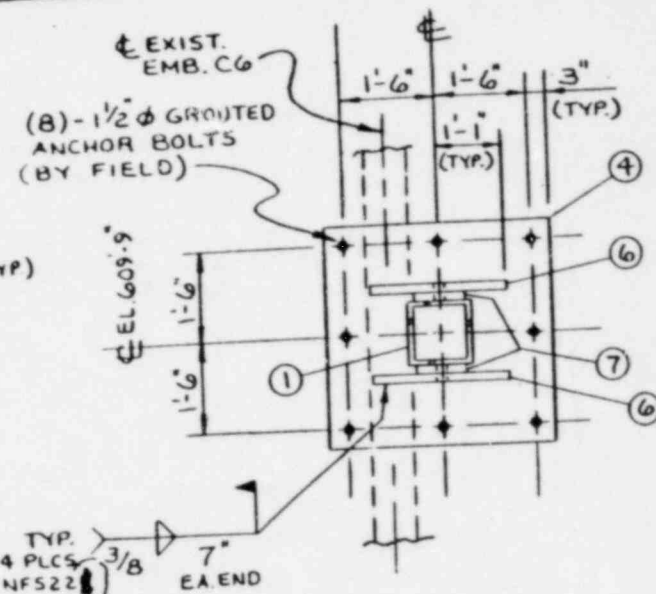
SECTION B-B



SECTION D-D



DETAIL "A"



SECTION C-C

CRITICAL

THIRD PARTY INSPECTION
CODE CLASS: ASME III, CL. 2

REF. DRAWING NUMBERS
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STEEL: C-623(a), REV. 8 H.V.A.C.: N/A

JOB NO.

84-0426-
000

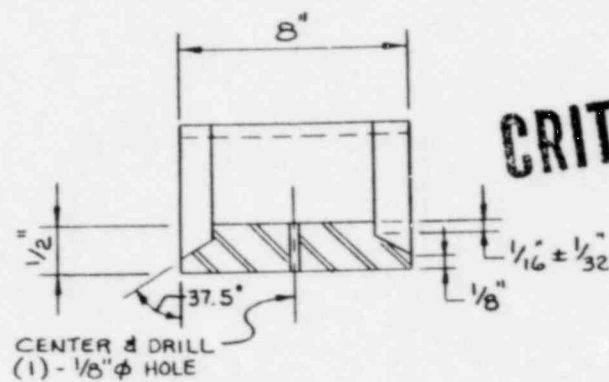
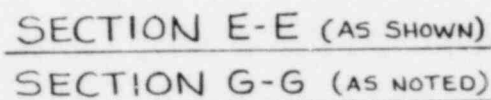
Sub. 1

JACKSON

CLIENT: BECHTEL POWER CORPORATION
OWNER: CONSUMERS POWER COMPANY
MIDLAND PLANT UNITS 1 & 2 7220
MARK NO. 10"-2CCB-25-H502
DETAIL NO. 2-611-1-502 (a)
SHEET 2 OF 3 REV. 0


ISSUED FOR CONSTRUCTION
REV. DATE REVISIONS

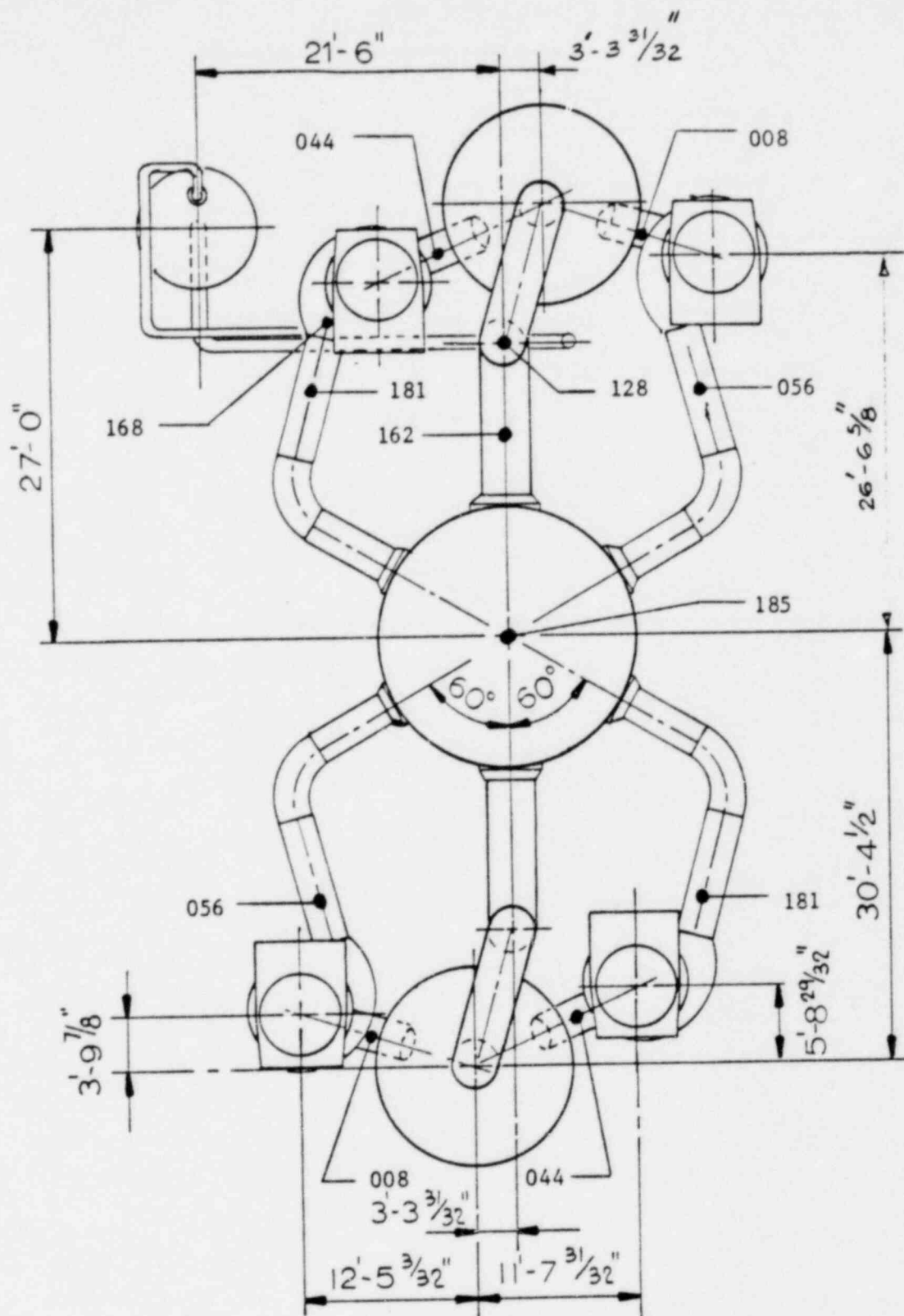
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CRITICAL

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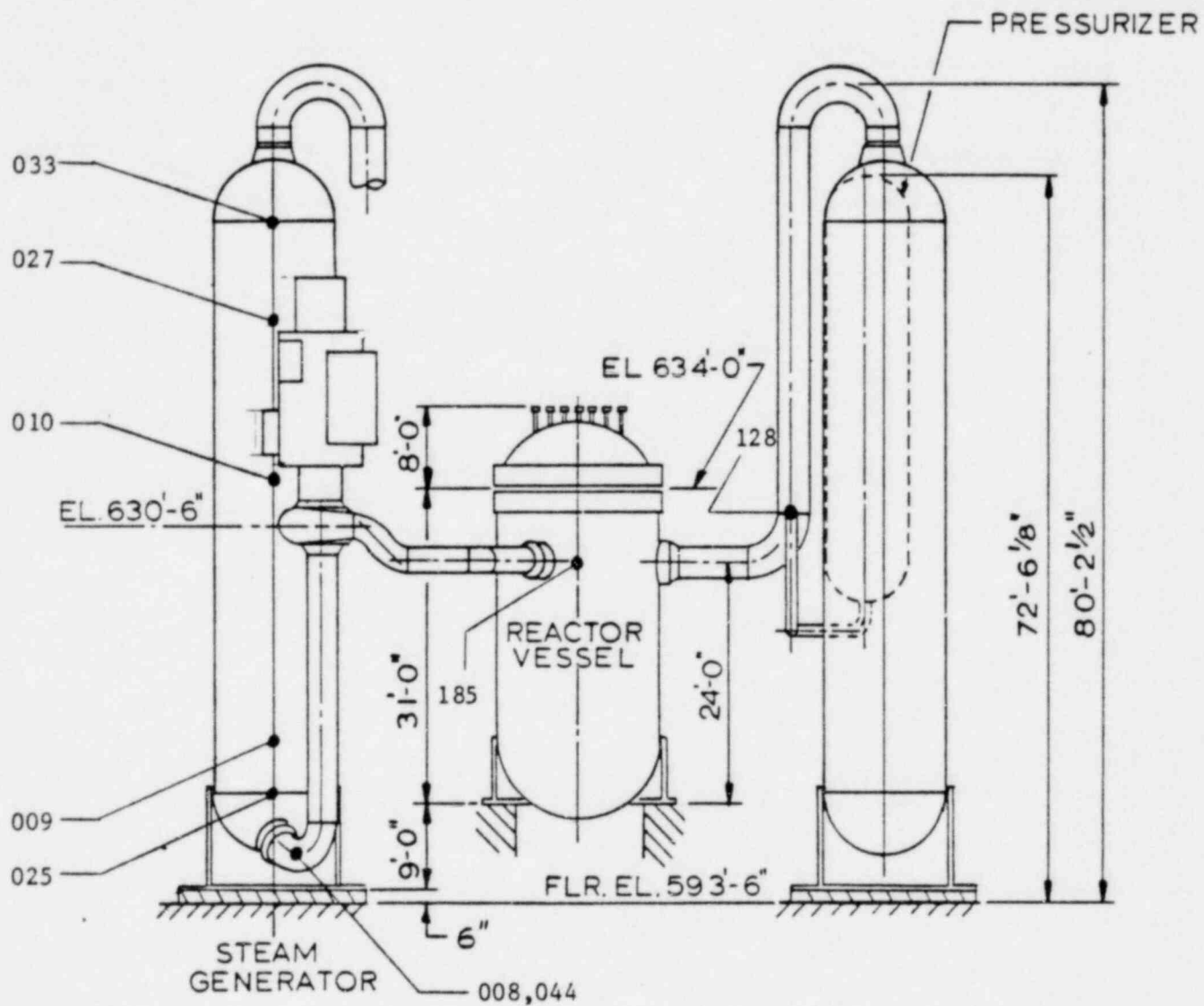
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**CONSUMERS POWER COMPANY
MIDLAND PLANT UNITS 1 & 2
FINAL SAFETY ANALYSIS REPORT**

Reactor Coolant System
Arrangement - Plan

FSAR Figure 5.1-4



**CONSUMERS POWER COMPANY
MIDLAND PLANT UNITS 1 & 2
FINAL SAFETY ANALYSIS REPORT**

Reactor Coolant System
Arrangement - Elevations

FSAR Figure 5.1-5

TABLE 3.6-22

RCS LIMITED DISPLACEMENT RUPTURE BREAK AREA DATA

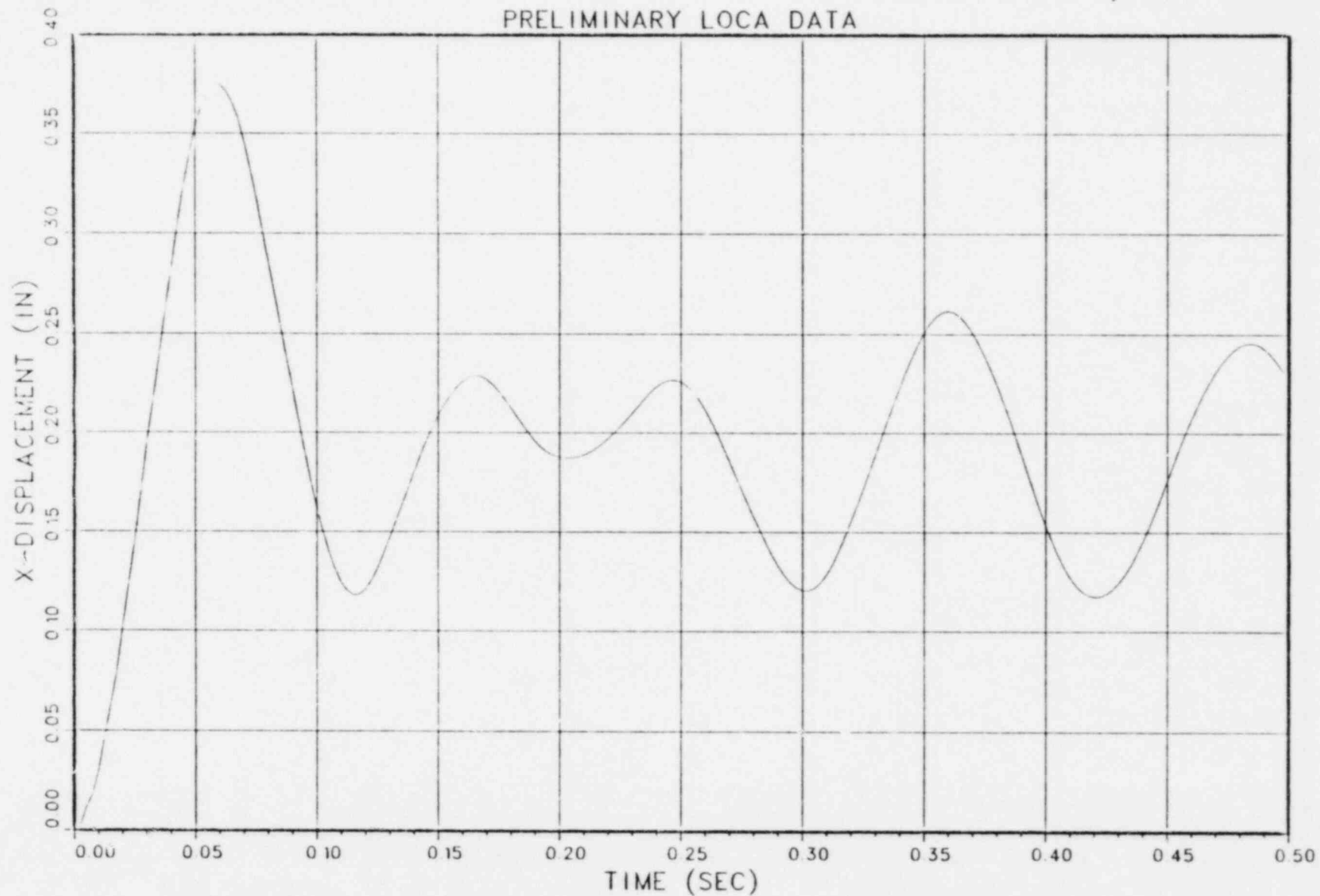
Break Identi- fication Number	Limited Displace- ment Break Area ⁽²⁾	Math Model Joint	Location and Type
HTL-1	0.39A	200	Hot leg, RV terminal end, guillotine
HTL-2	0.39A	179	Hot leg, intermediate break, guillotine
HTL-3	⁽¹⁾		Hot leg, decay heat nozzle, guillotine
HTL-4	⁽¹⁾	123	Hot leg, surge line nozzle, guillotine
HTL-5	1.09A	30	Hot leg, intermediate break, guillotine
HTL-6	0.5A	15	Hot leg, OTSG terminal end, guillotine
UCL-1A	0.24A	196	Upper cold leg, RV terminal end, guillotine
UCL-1B	0.24A	149	Upper cold leg, RV terminal end, guillotine
UCL-2A	0.24A	191	Upper cold leg, intermediate break, guillotine
UCL-2B	0.24A	111	Upper cold leg, intermediate break, guillotine
UCL-3A	⁽¹⁾		Upper cold leg, HPI nozzle, guillotine
UCL-3B	⁽¹⁾		Upper cold leg, HPI nozzle, guillotine
UCL-4A	1.0A	168	Upper cold leg, elbow, split
UCL-4B	1.0A	37	Upper cold leg, elbow, split
UCL-5	⁽¹⁾		Upper cold leg, spray line nozzle, guillotine
UCL-6A	0.20A	172	Upper cold leg, pump terminal end, guillotine
UCL-6B	0.20A	47	Upper cold leg, pump terminal end, guillotine
LCL-1A	0.43A	136	Lower cold leg, pump terminal end, guillotine
LCL-1B	0.43A	46	Lower cold leg, pump terminal end, guillotine
LCL-2A	1.0A	118	Lower cold leg, break, split
LCL-2B	1.0A	45	Lower cold leg, break, split
LCL-3A	⁽¹⁾		Lower cold leg, drain, guillotine
LCL-3B	⁽¹⁾		Lower cold leg, drain, guillotine
LCL-4A	0.13A	20	Lower cold leg, intermediate break, guillotine
LCL-4B	0.13A	19	Lower cold leg, intermediate break, guillotine
LCL-5A	0.13A	3	Lower cold leg, OTSG terminal end, guillotine
LCL-5B	0.13A	21	Lower cold leg, OTSG terminal end, guillotine

⁽¹⁾ Limited displacement break opening areas for the nozzle connection breaks are equal to twice the cross-sectional flow area of the branch piping connection.

⁽²⁾ A = 4.25 ft² for RCS cold leg breaks and A = 7.07 ft² for RCS hot leg breaks.

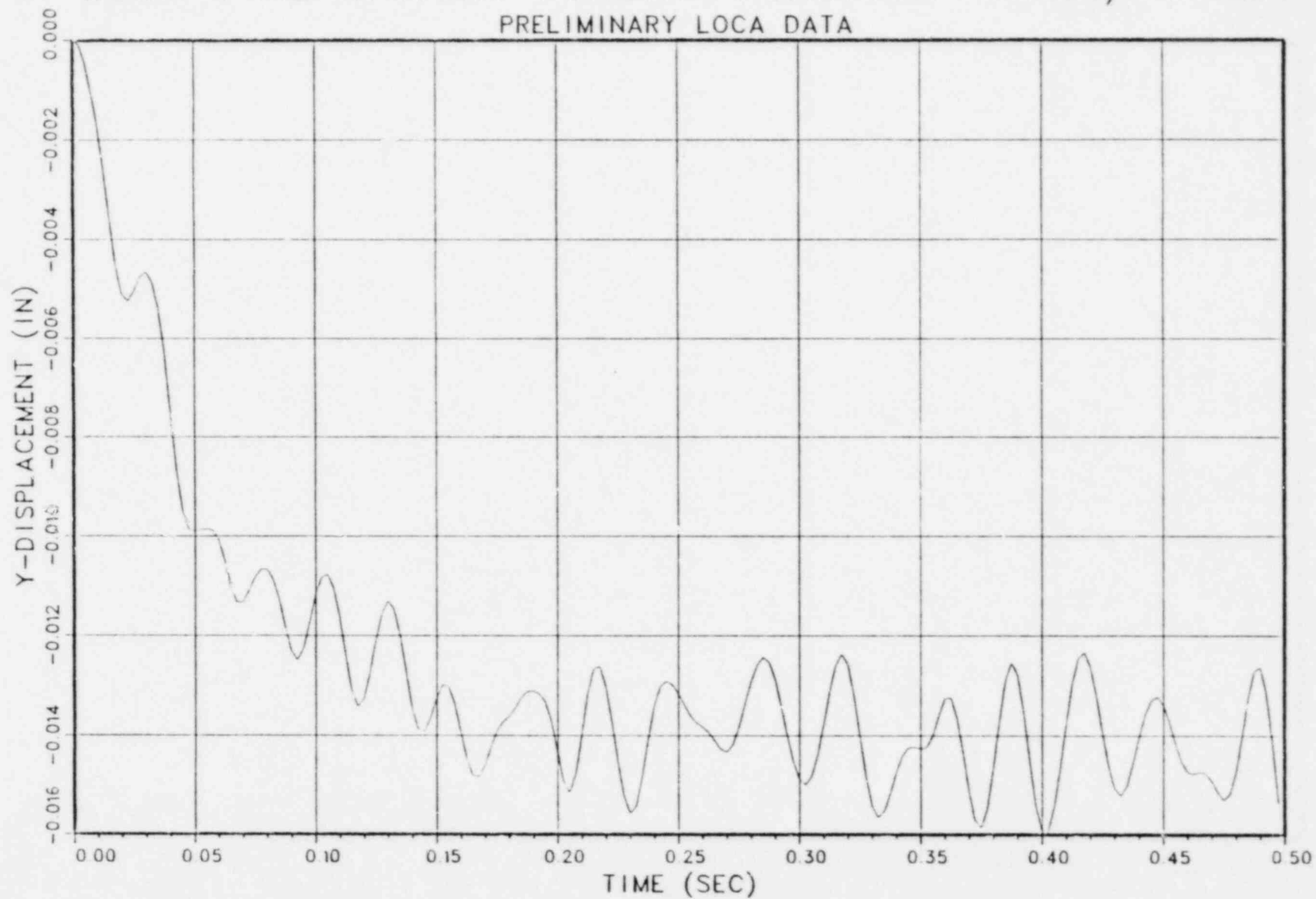
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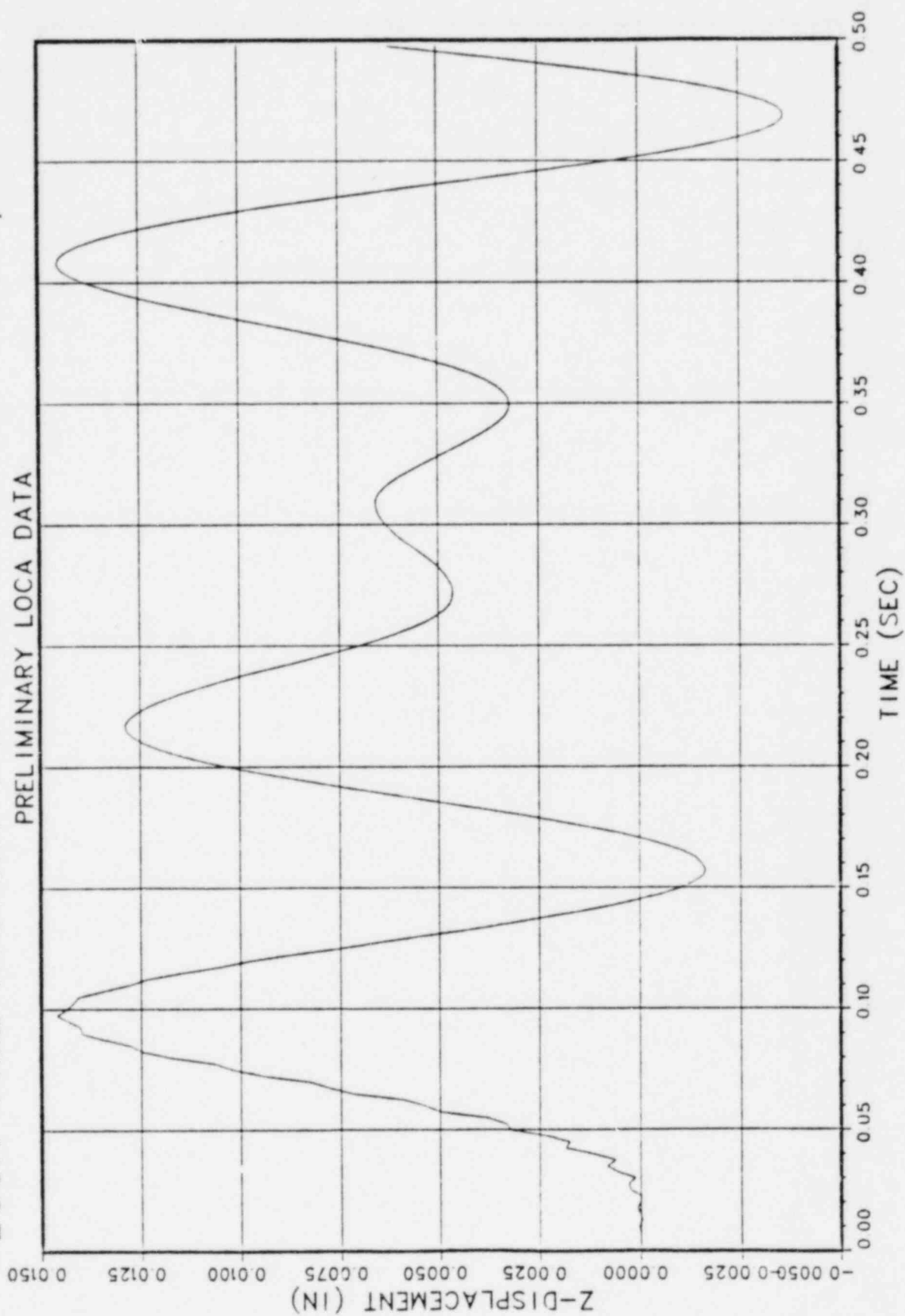
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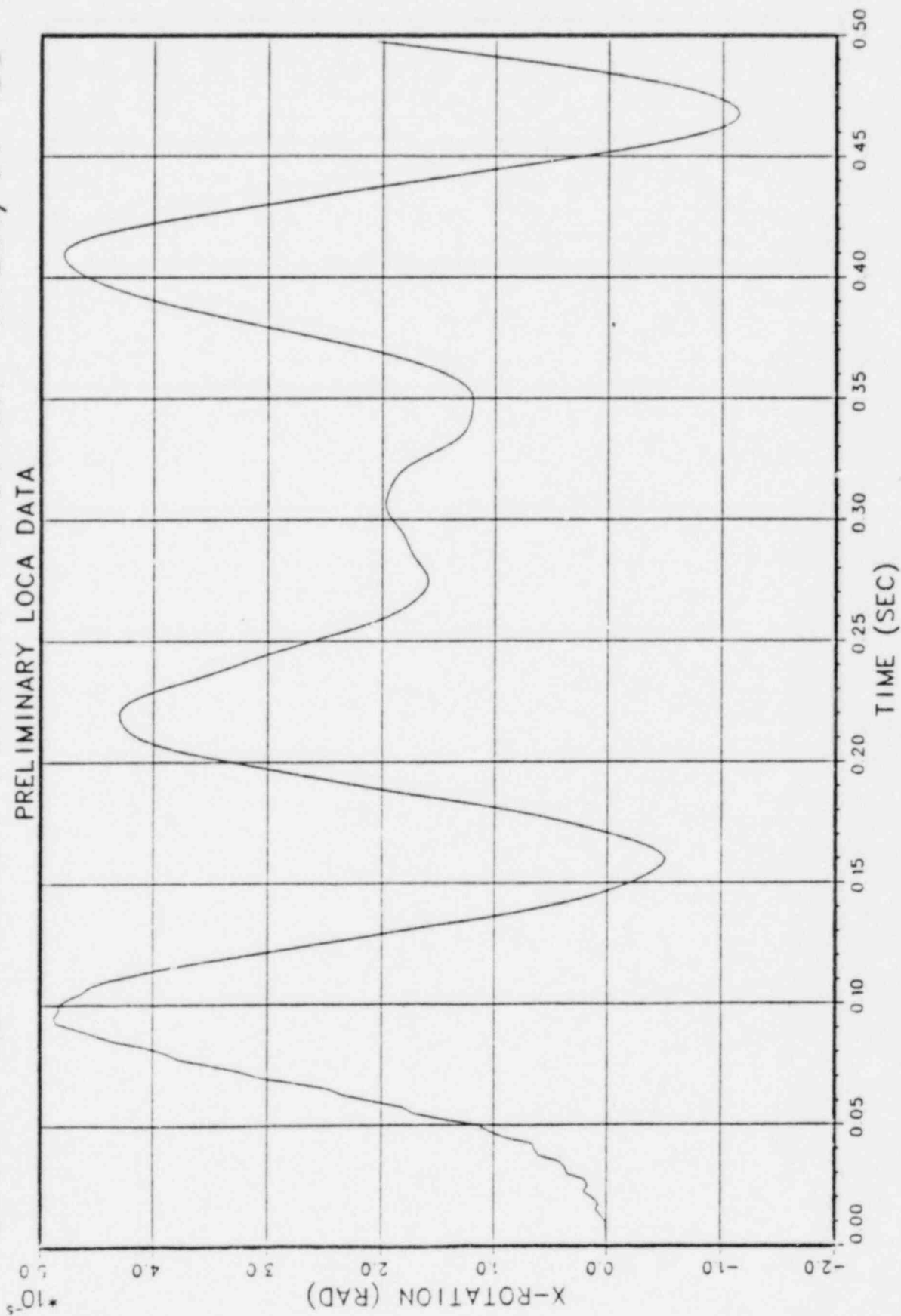
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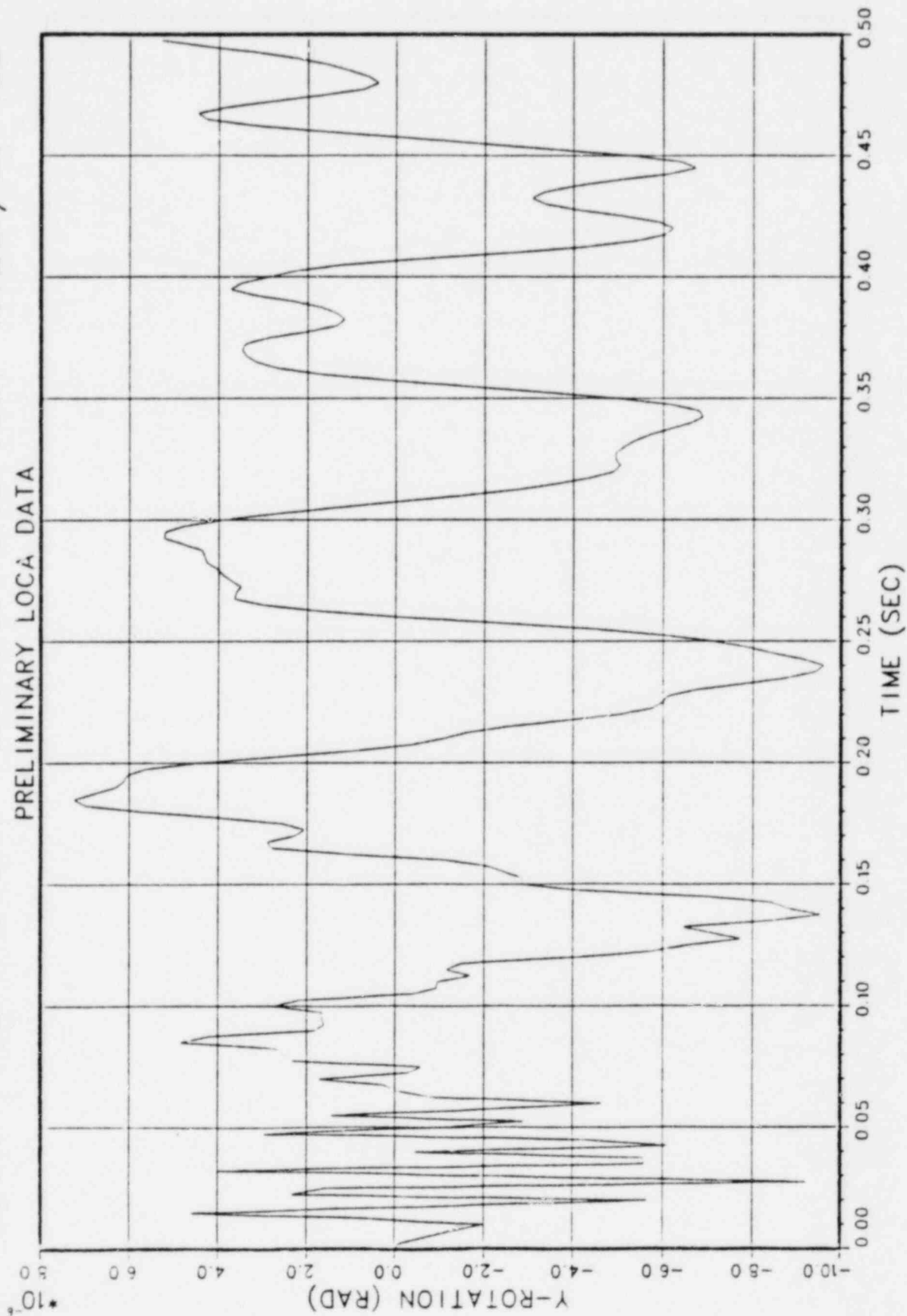
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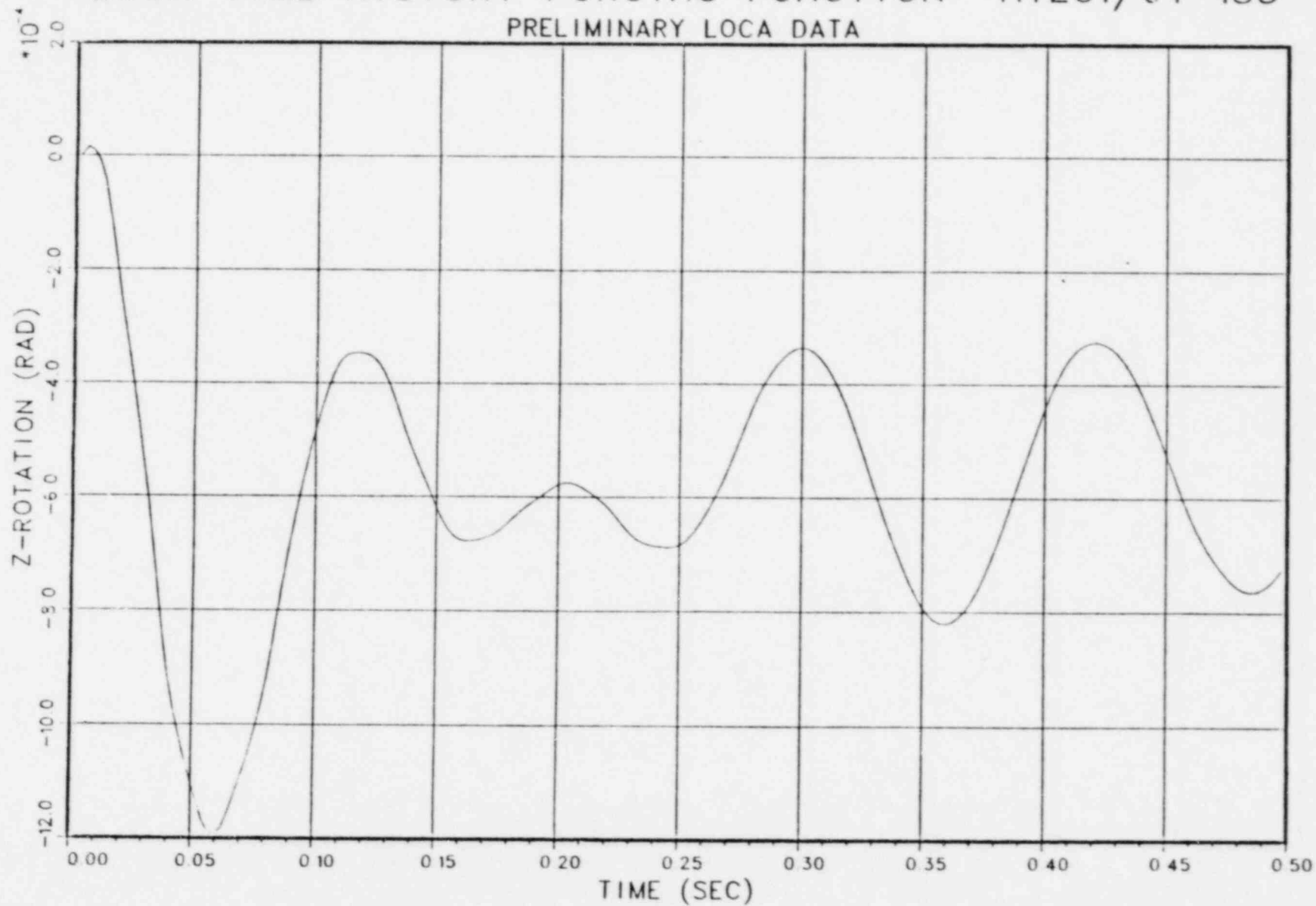
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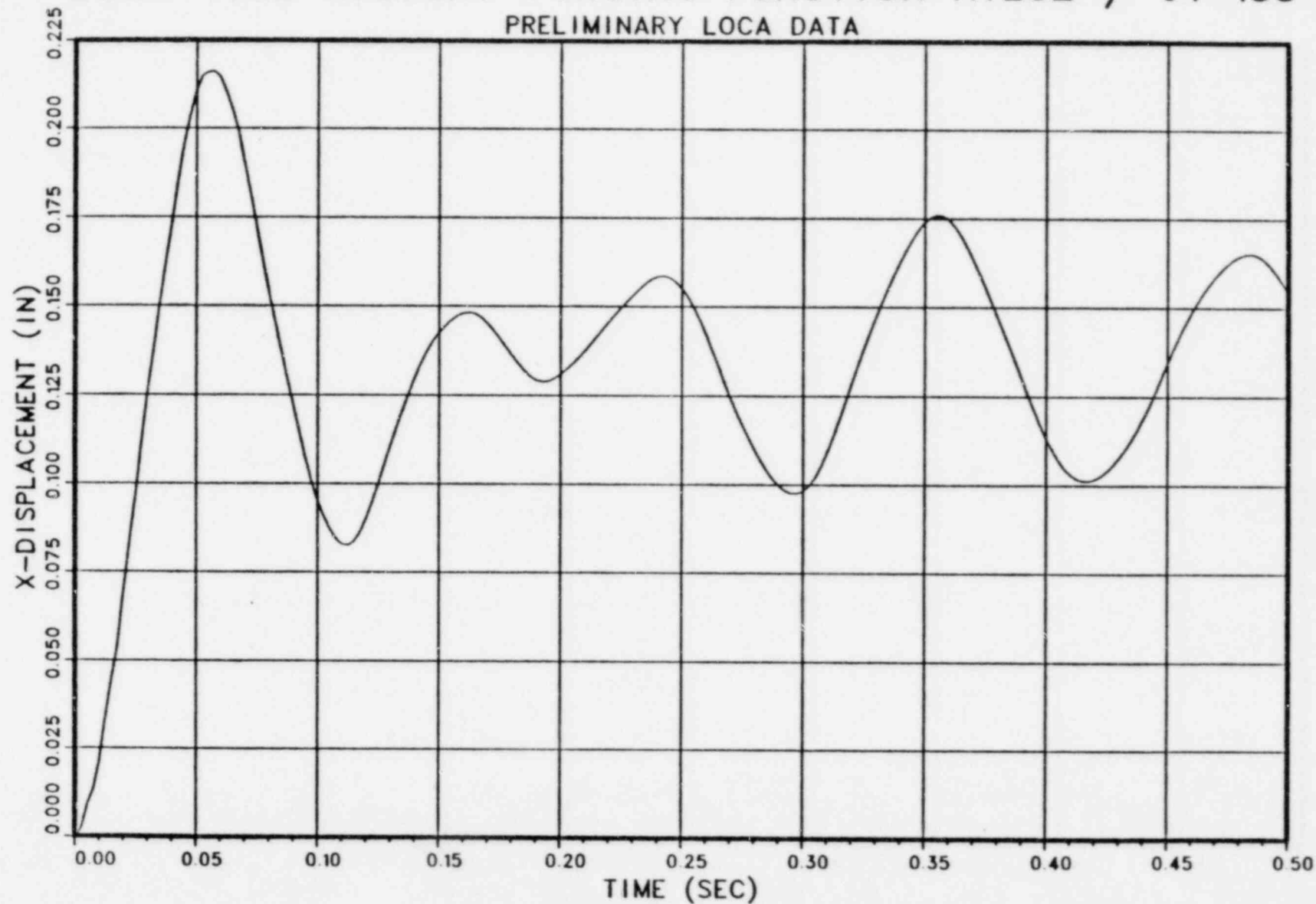
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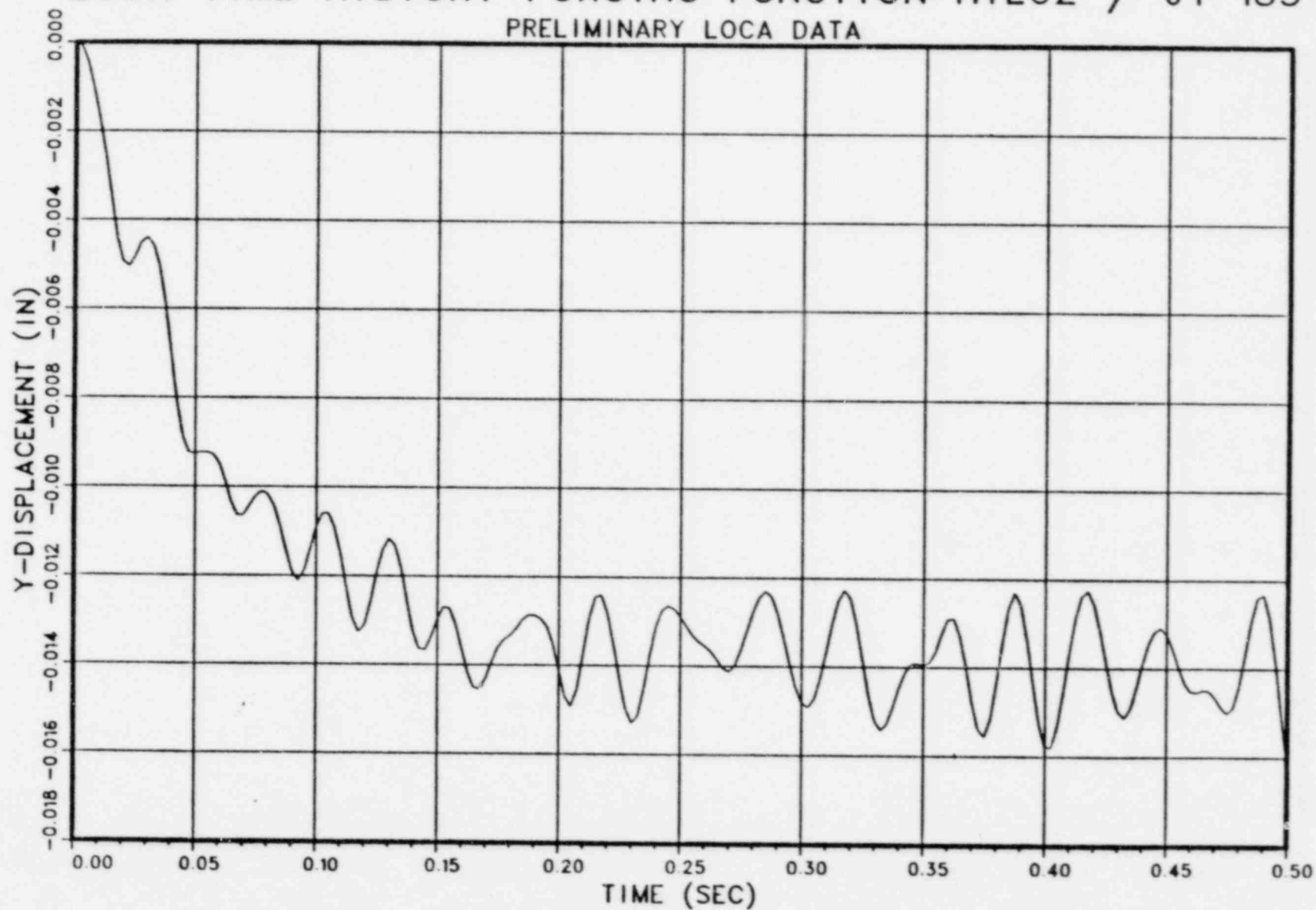
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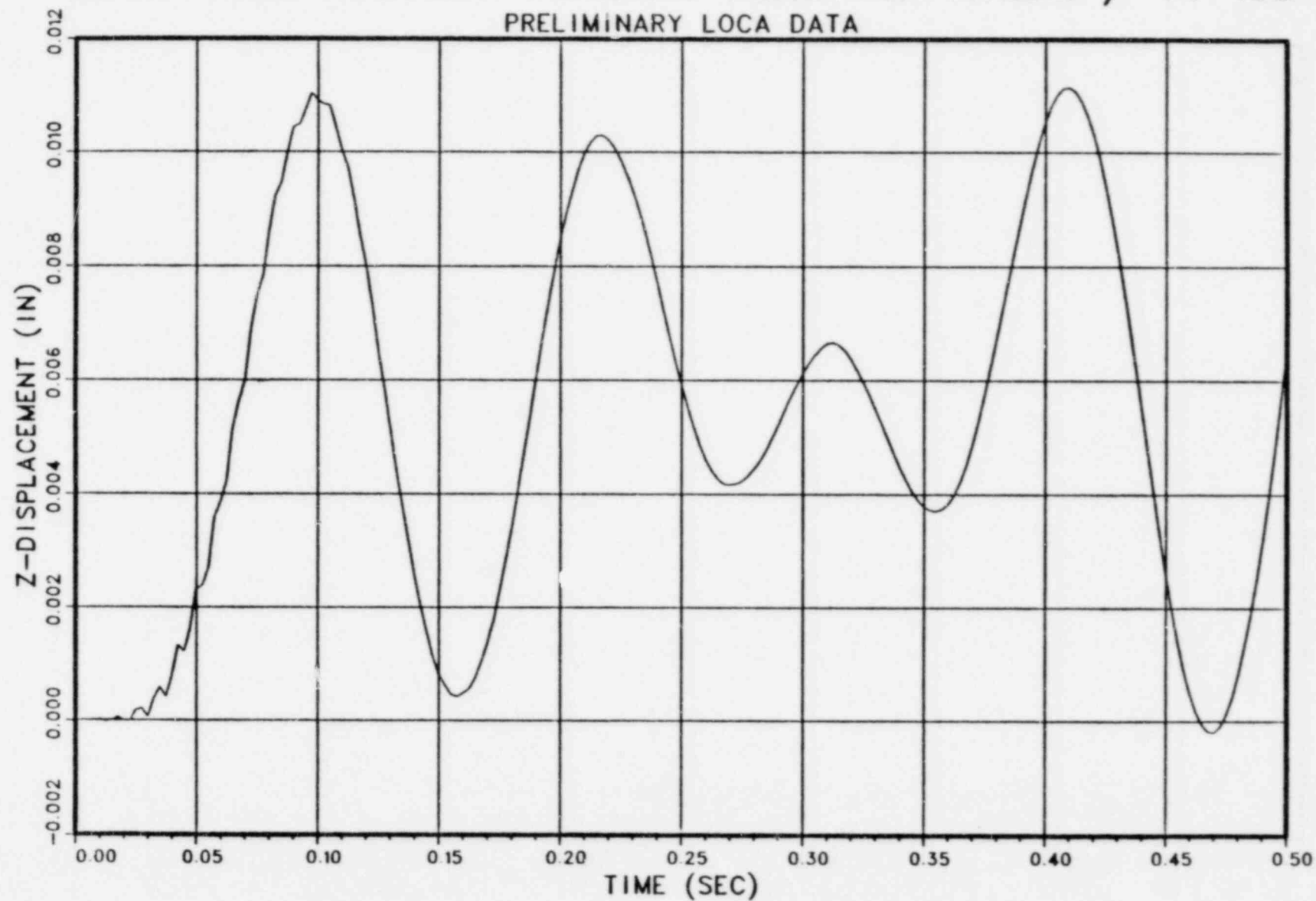
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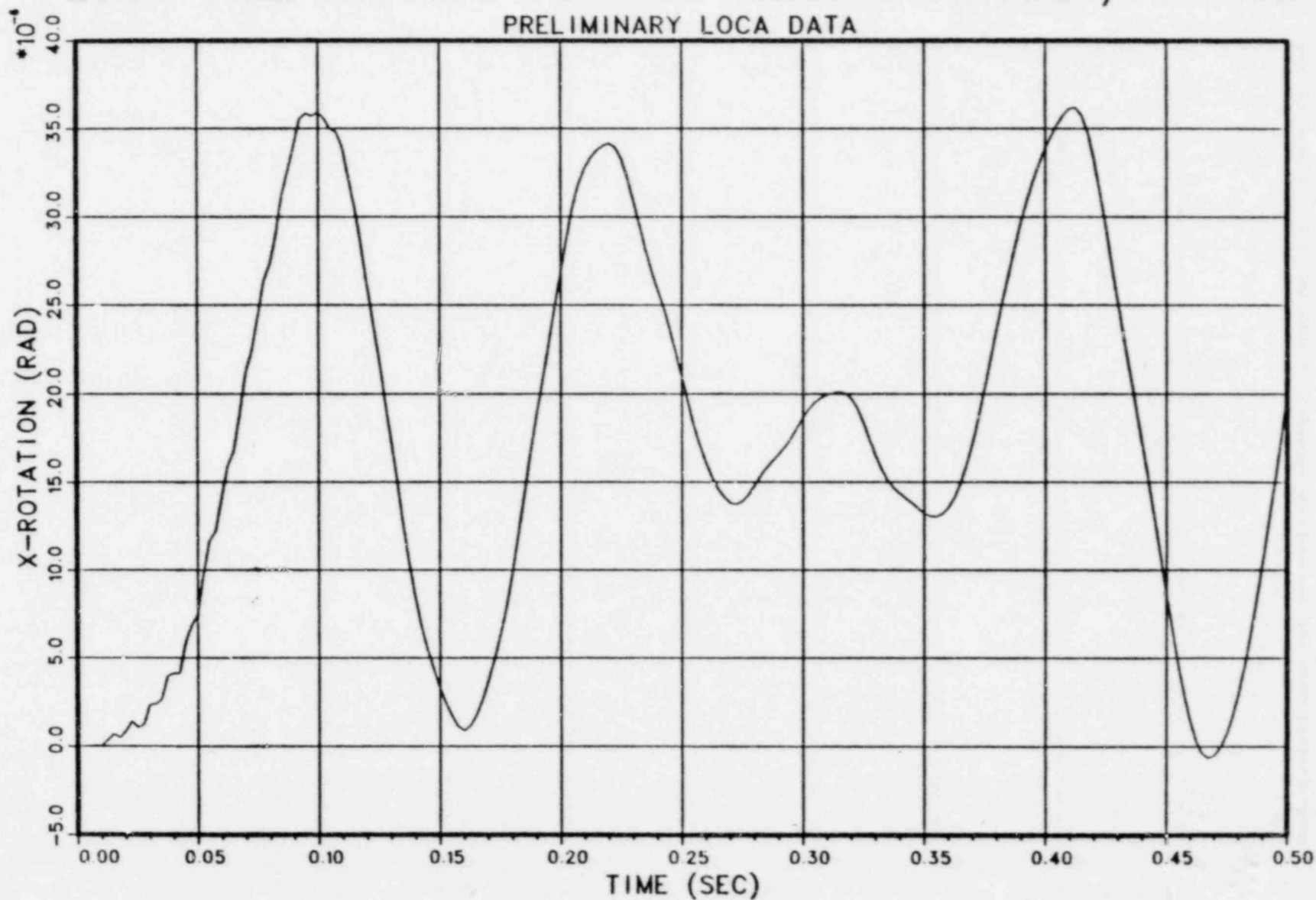
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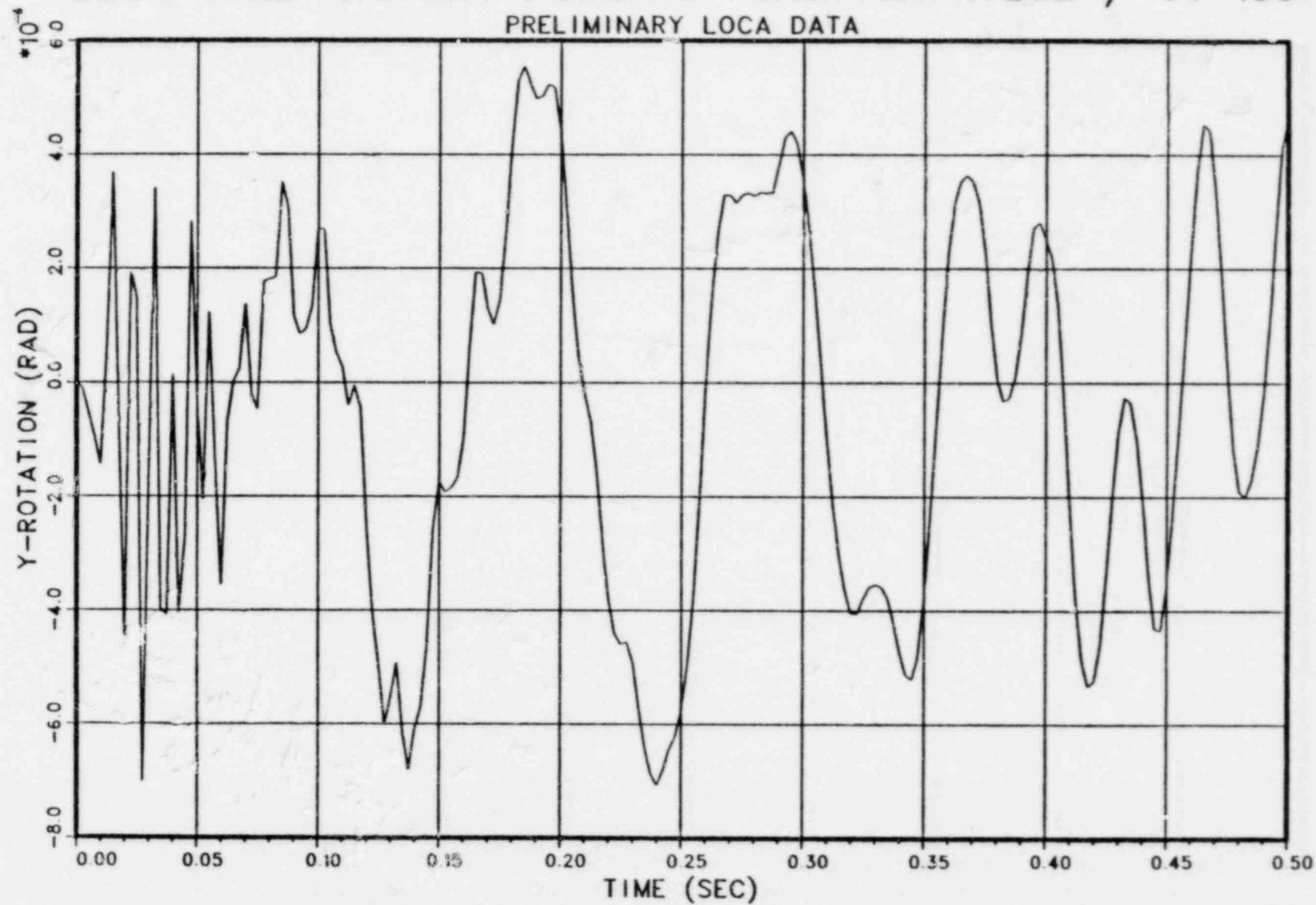


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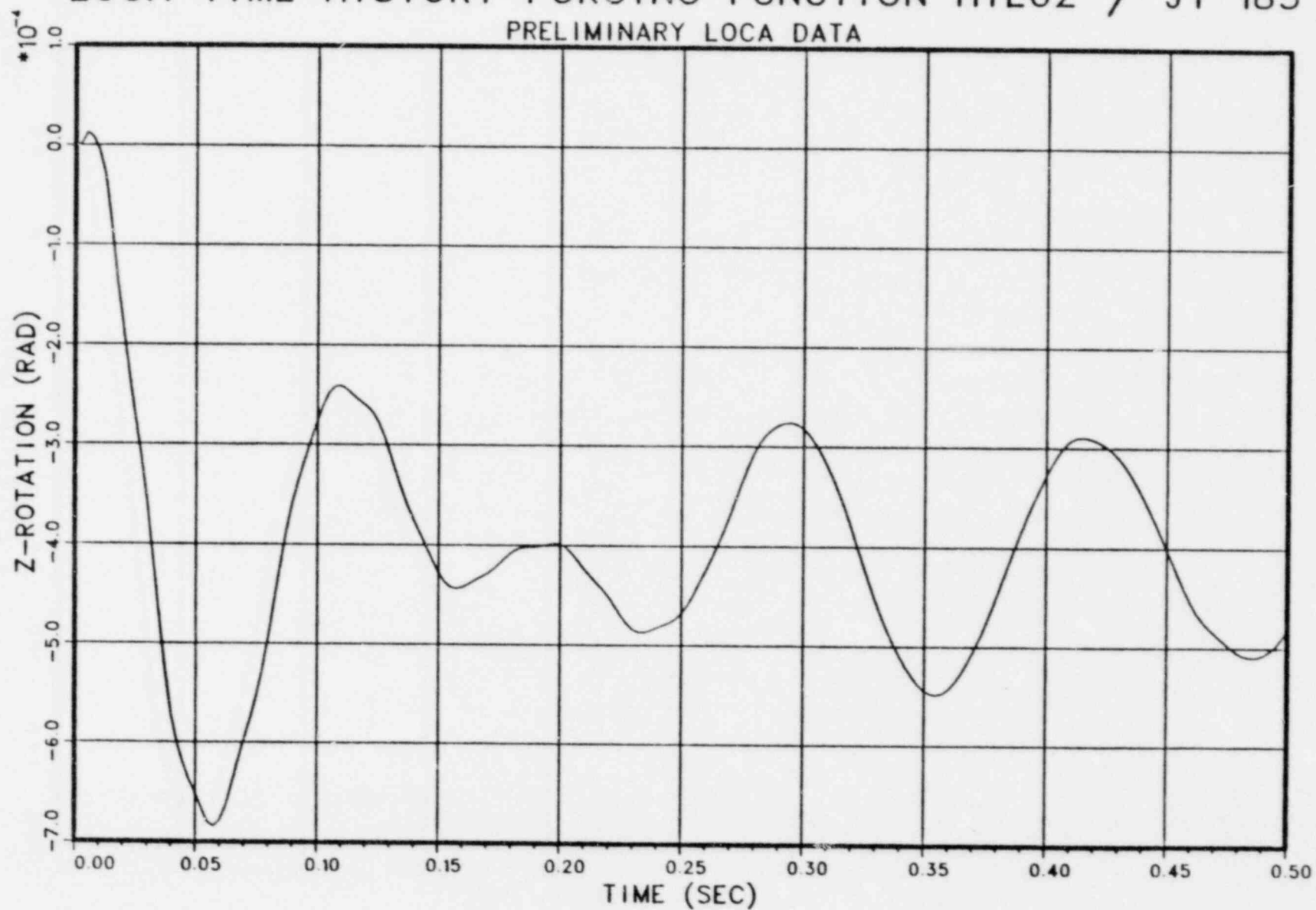


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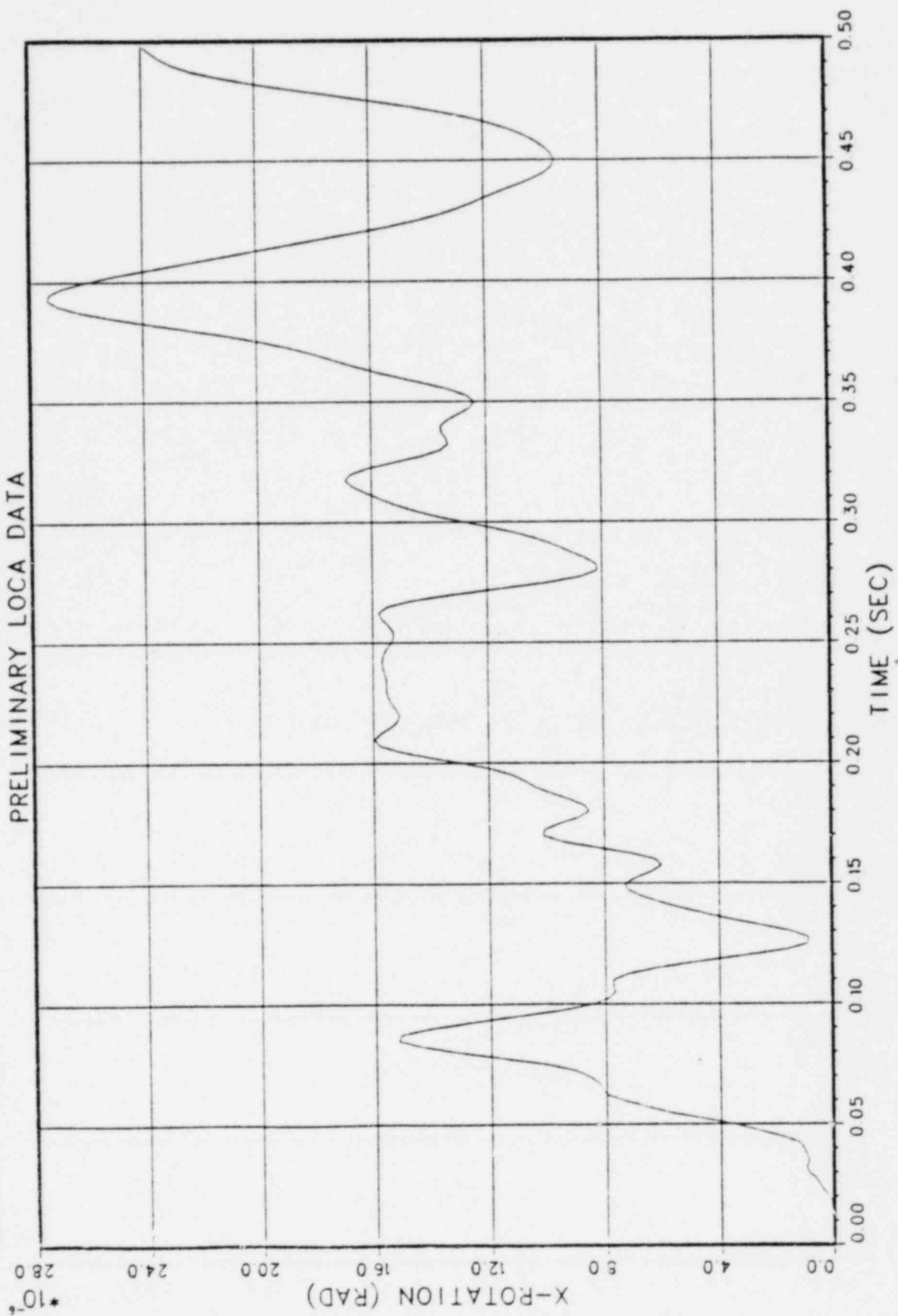
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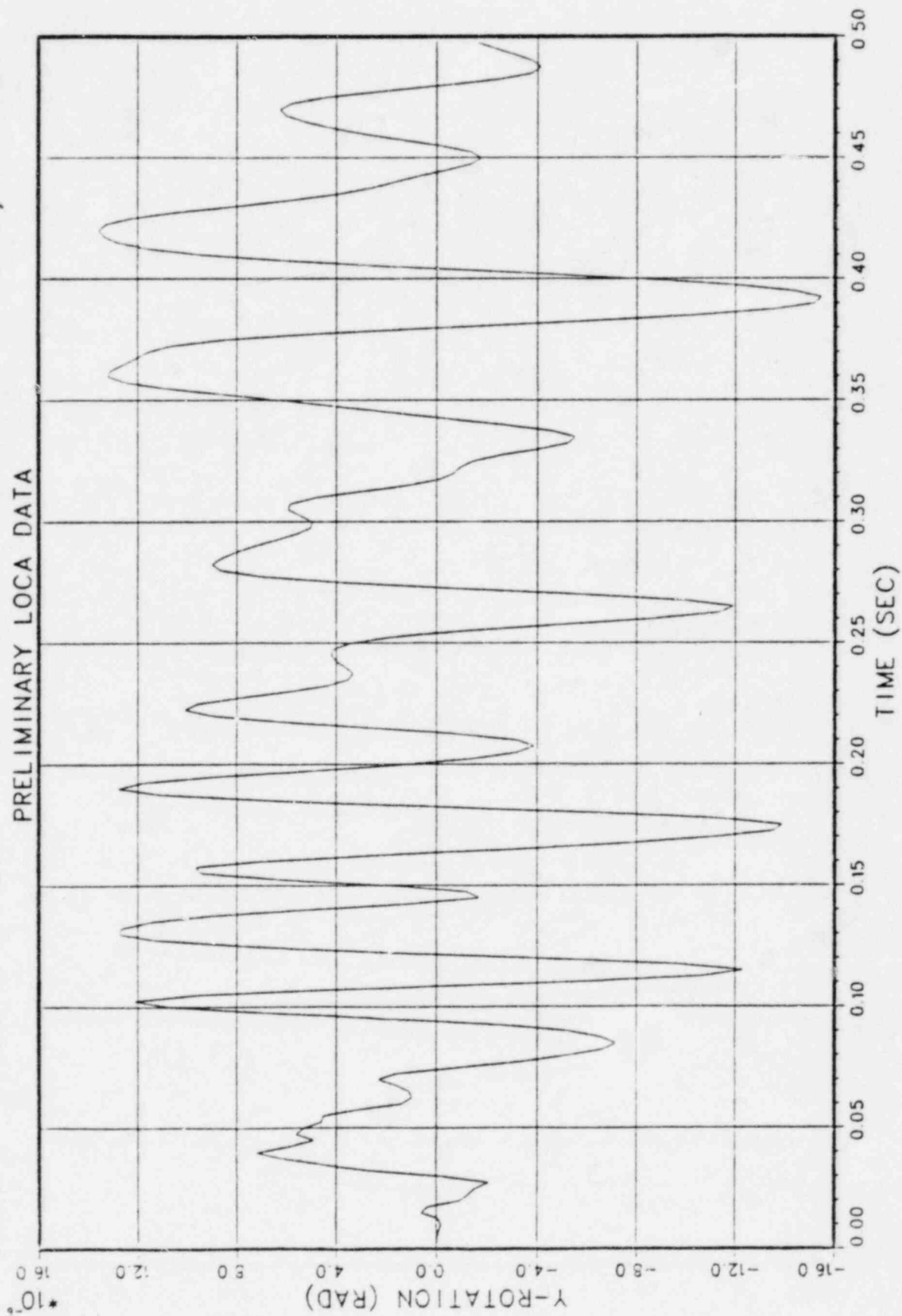
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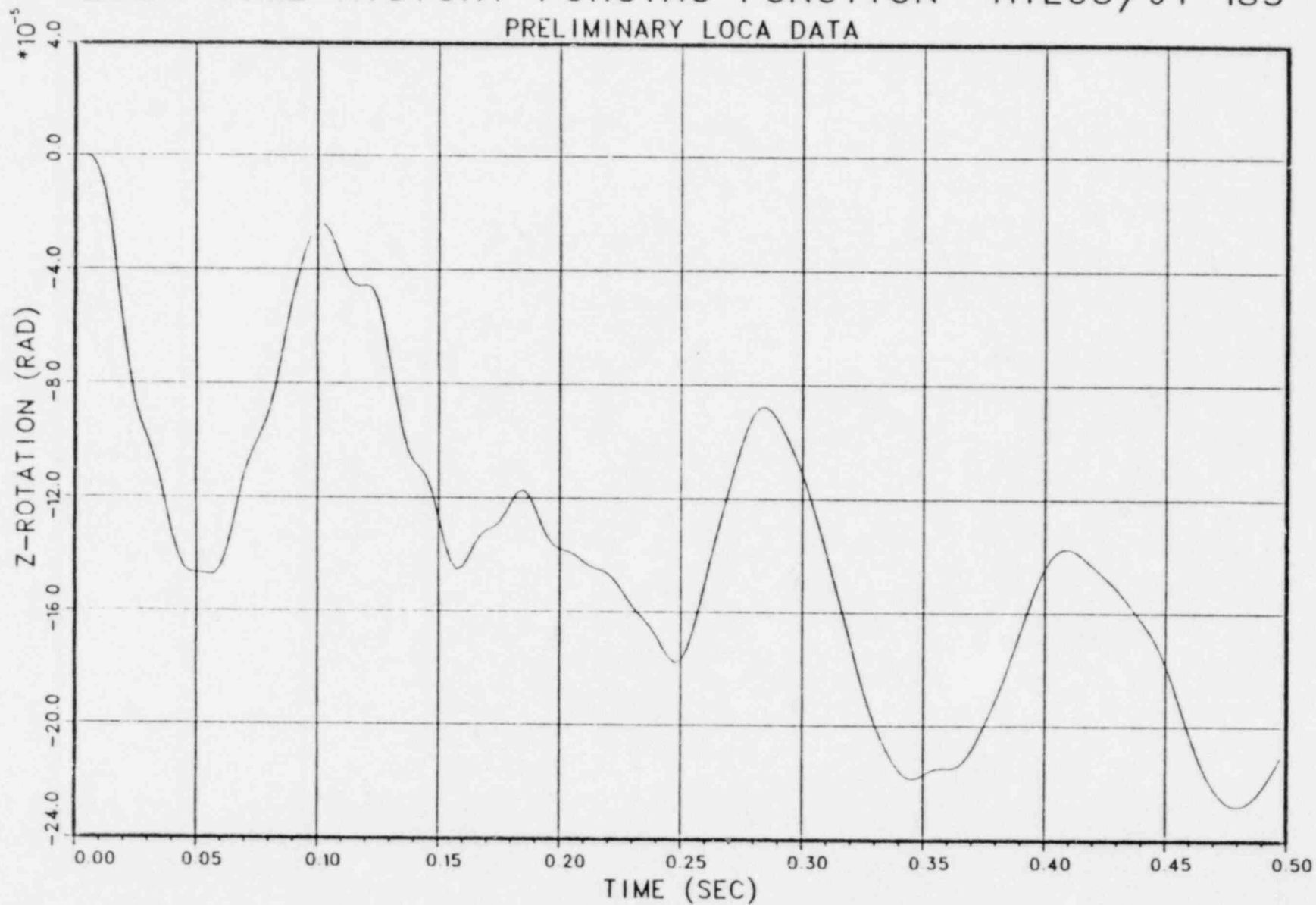
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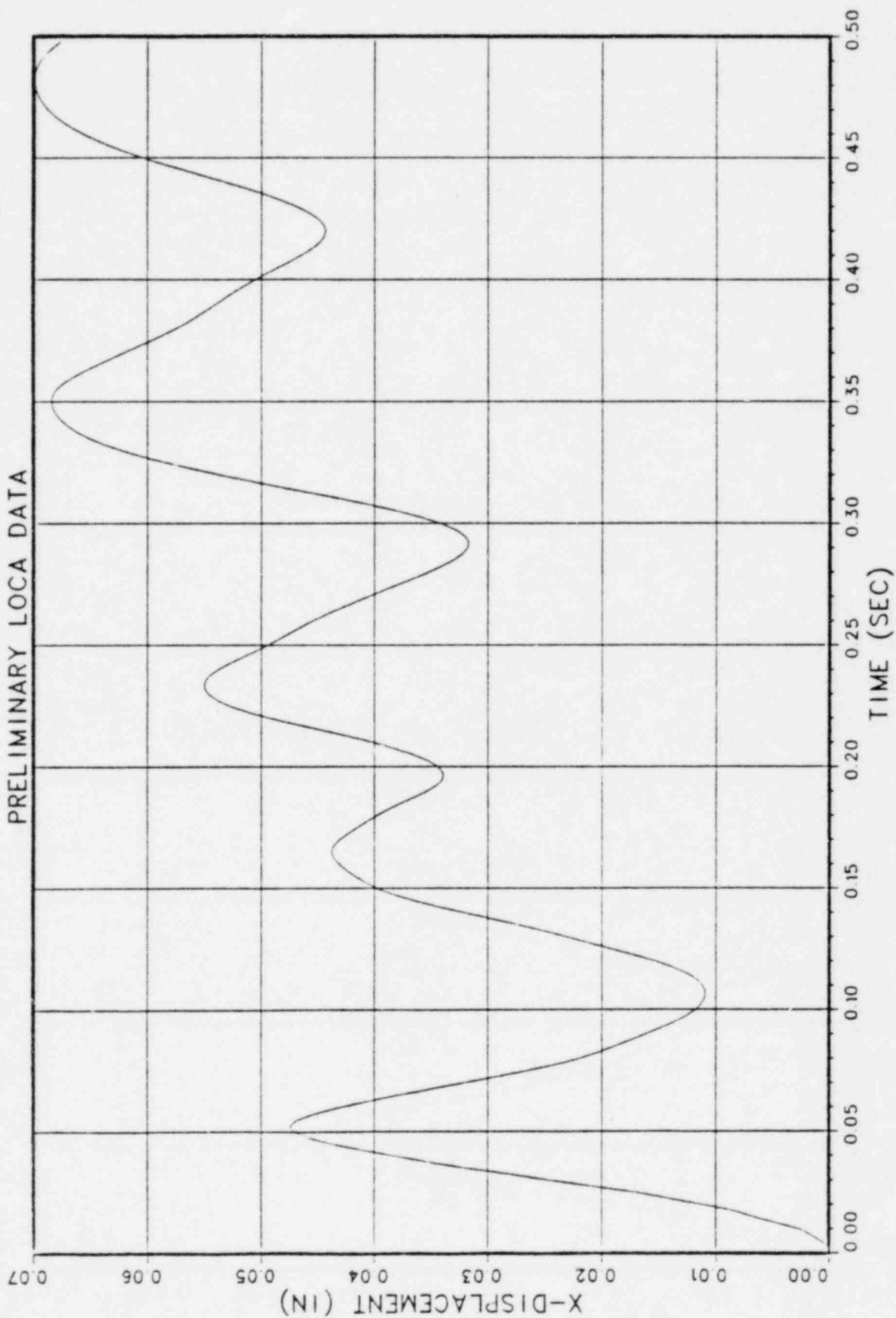
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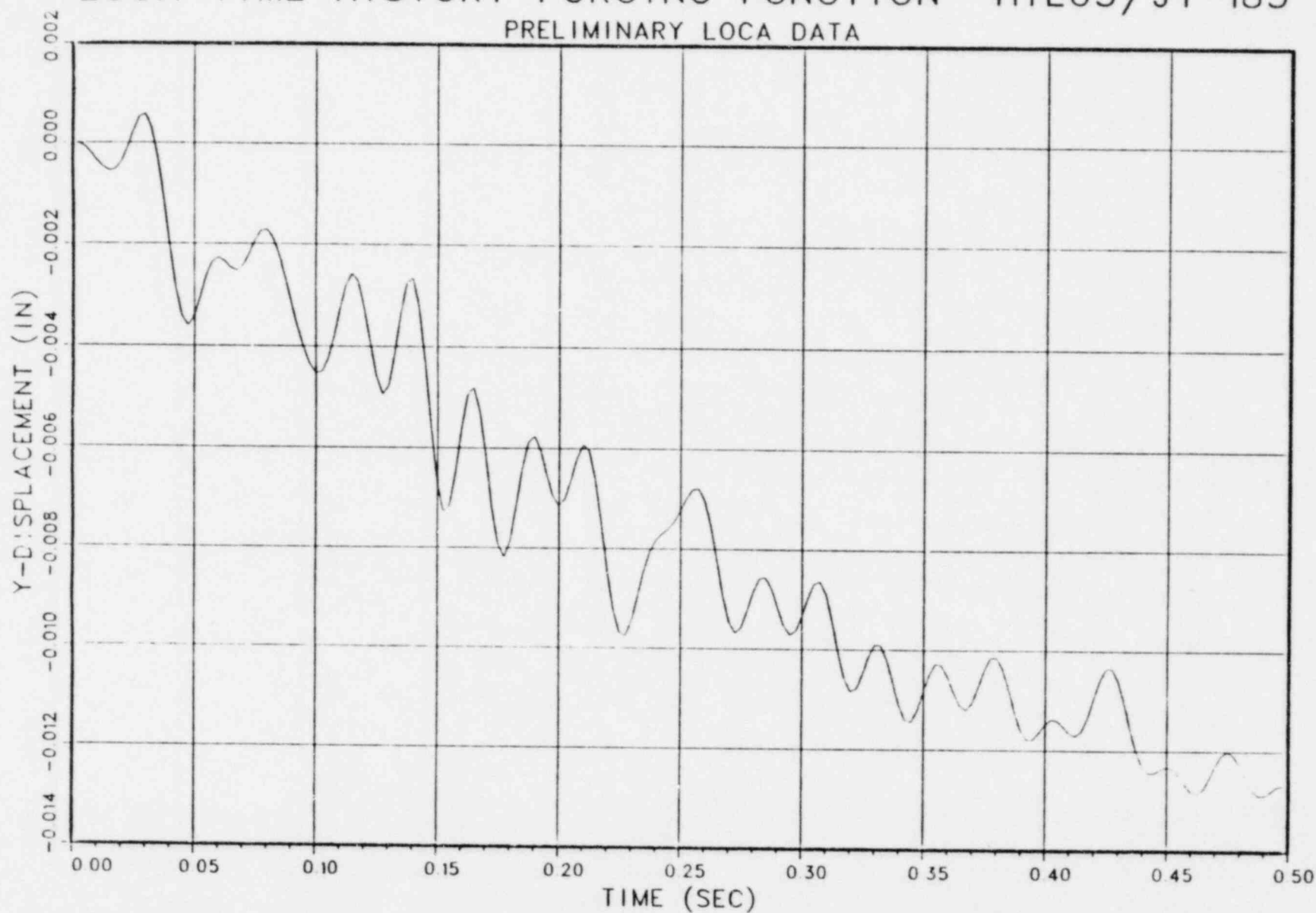
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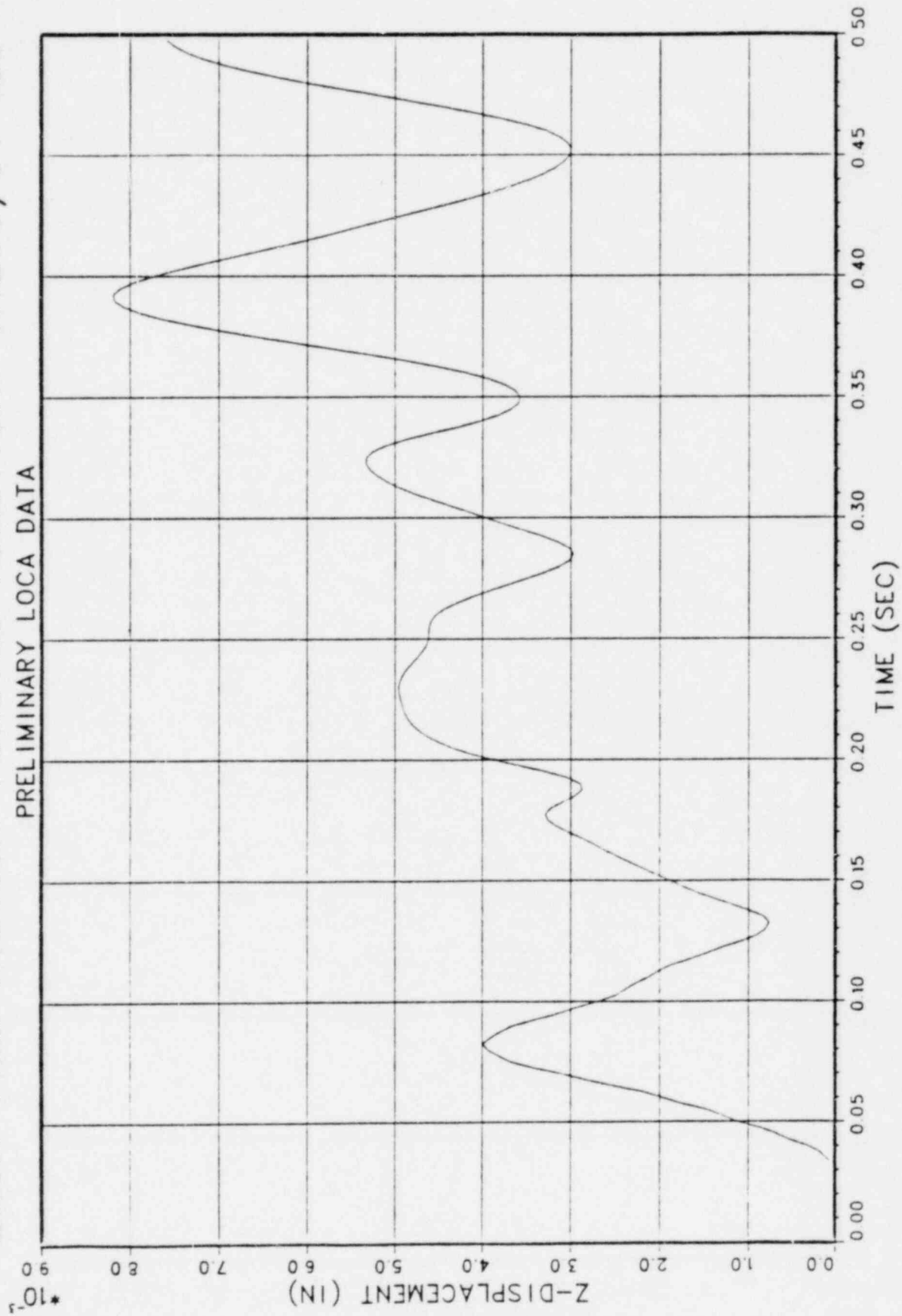
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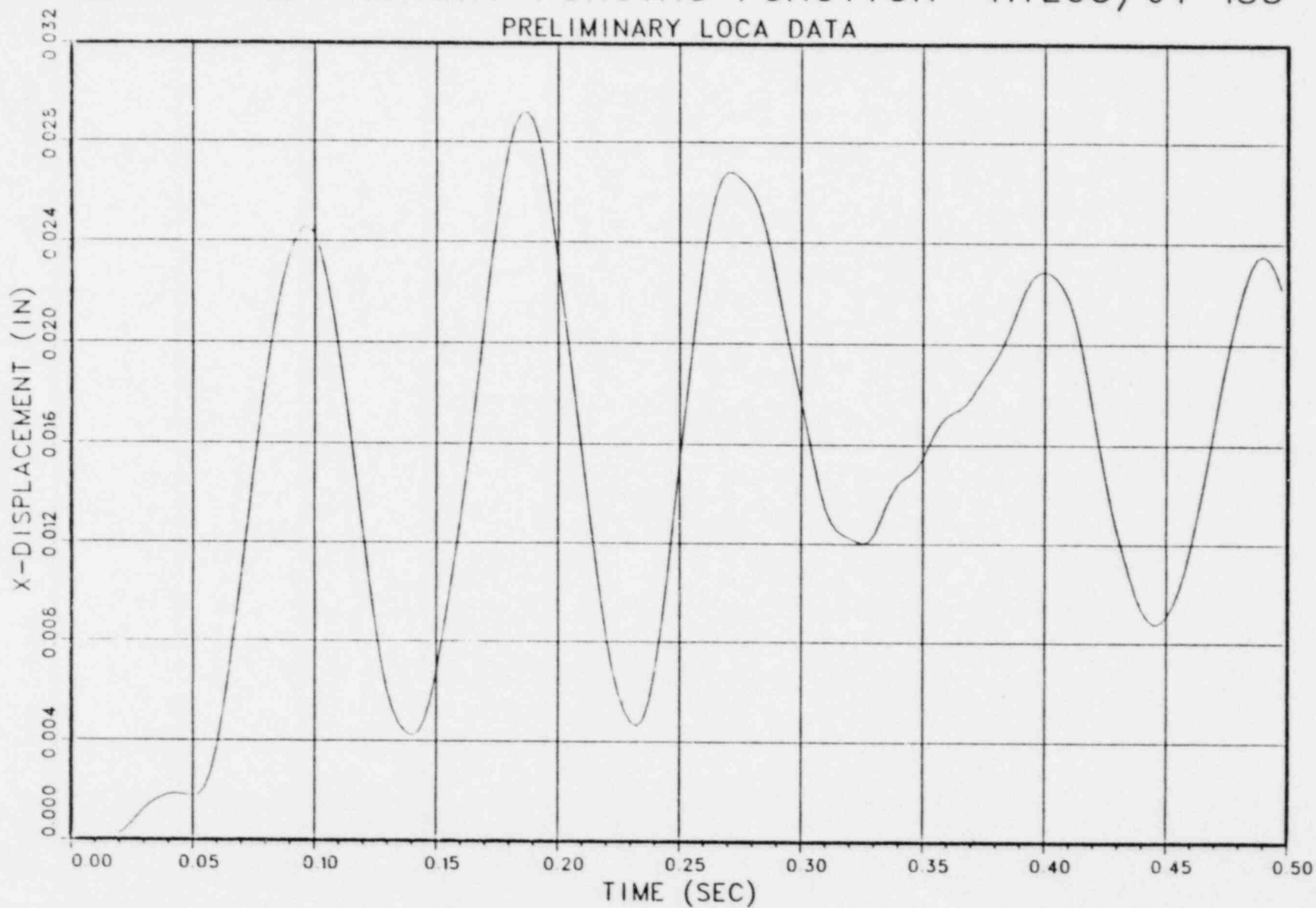
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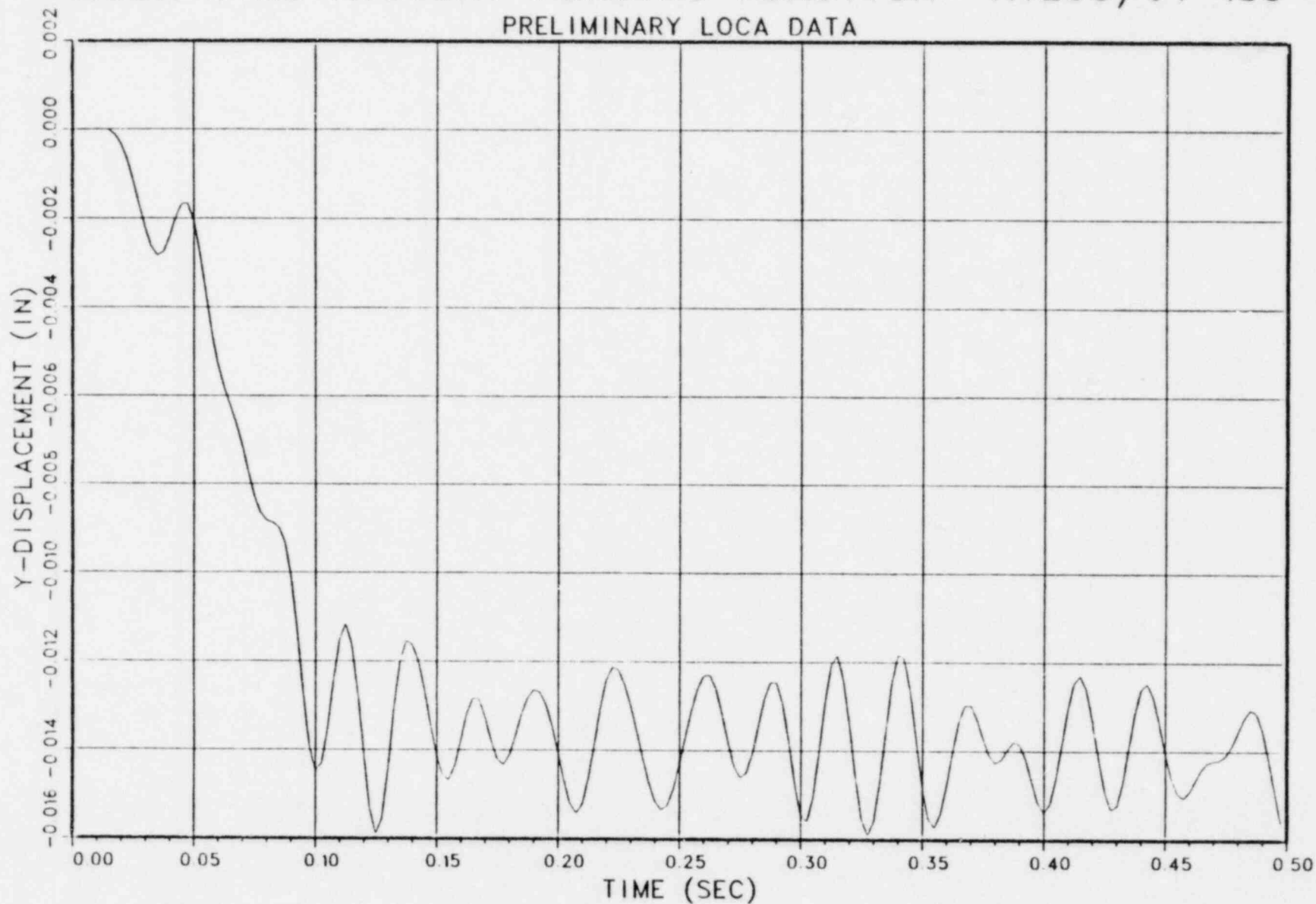
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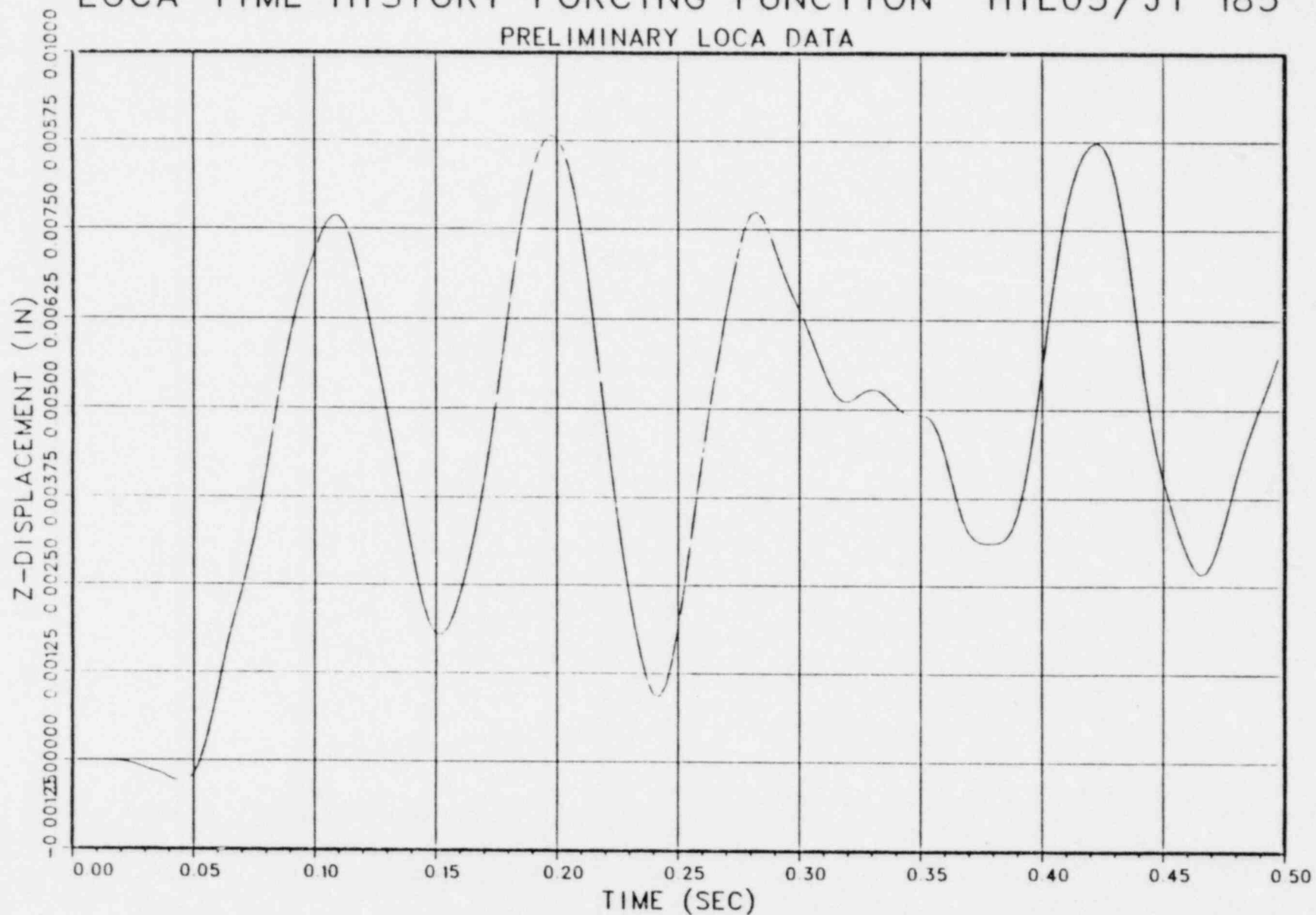
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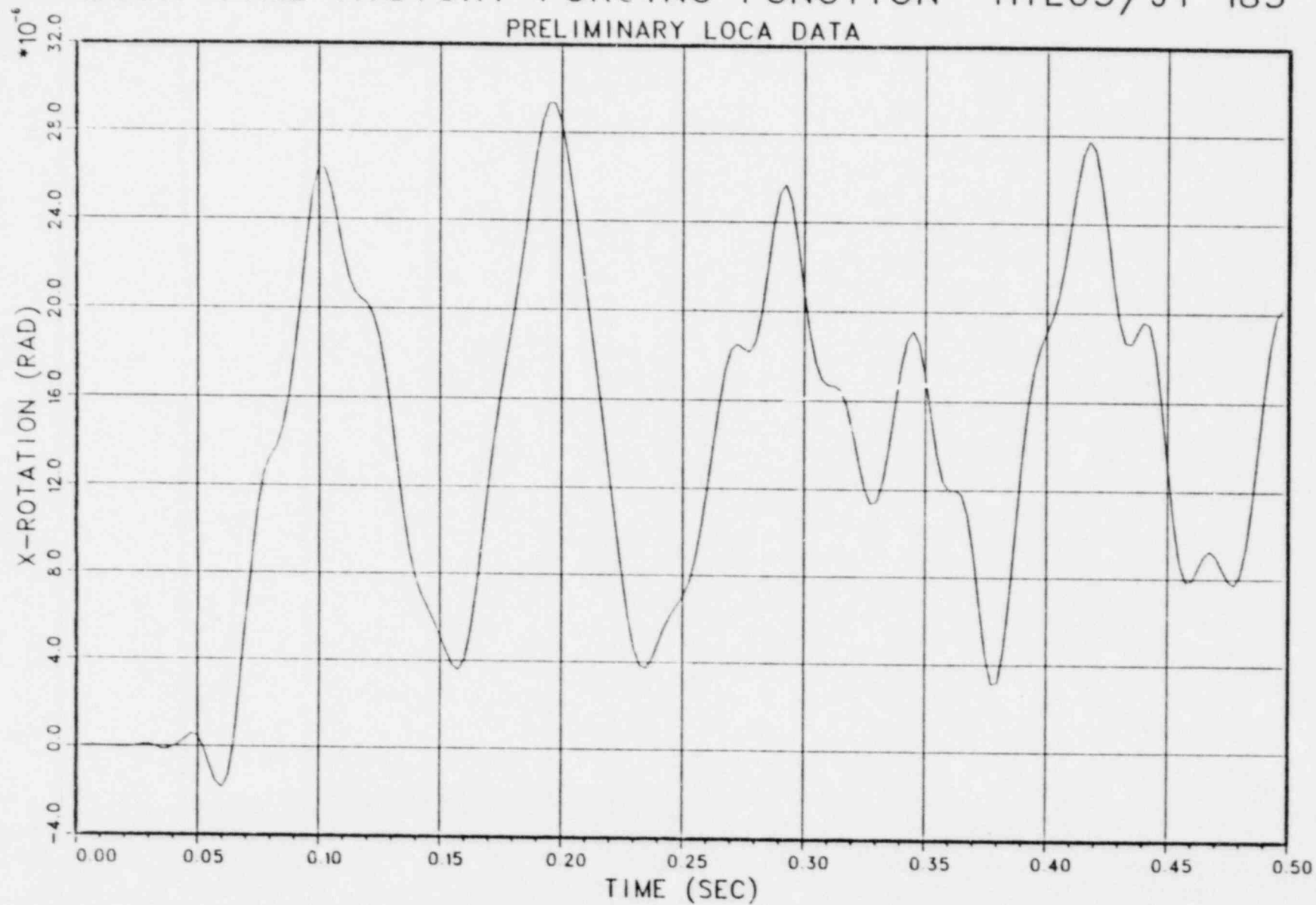
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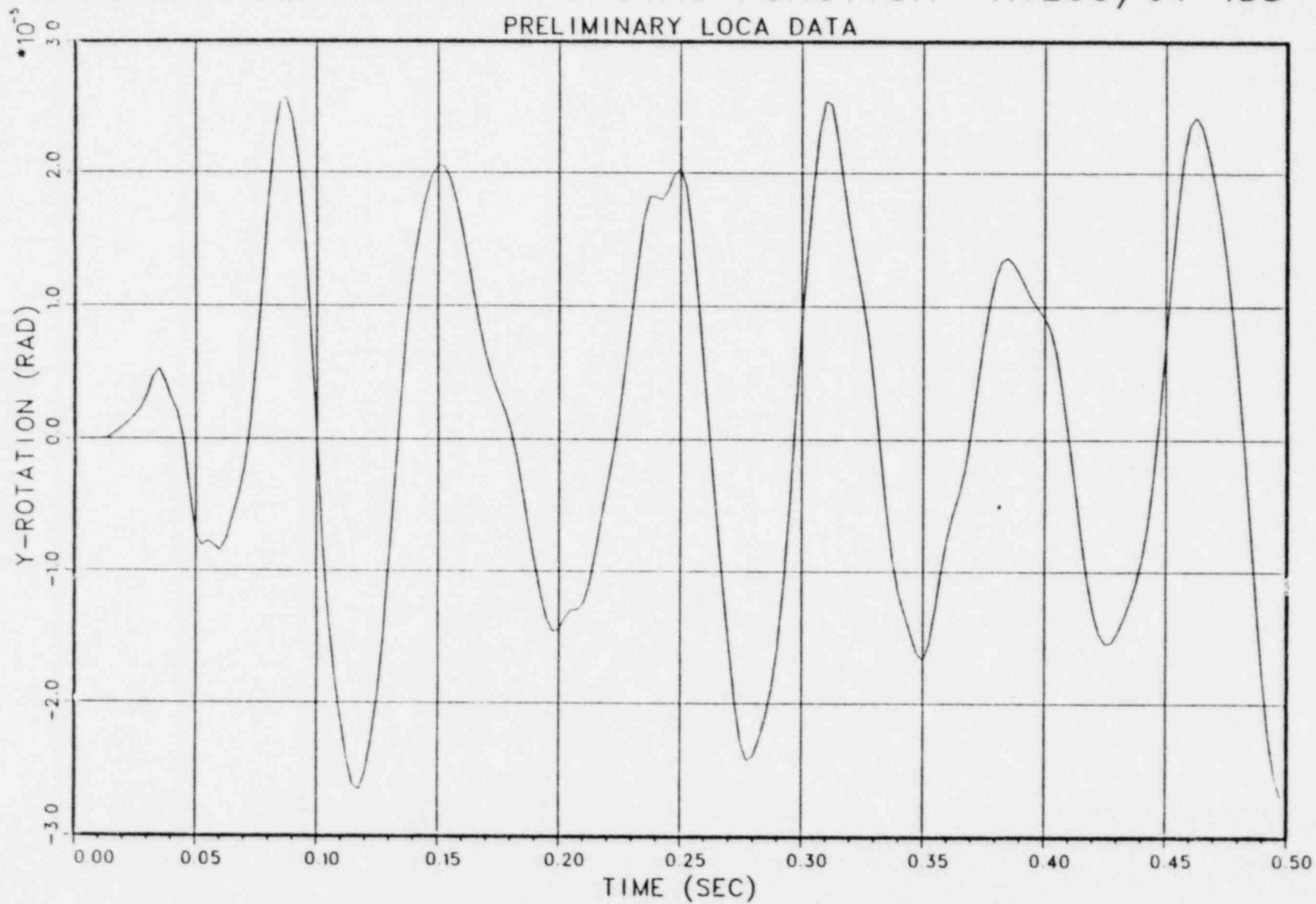
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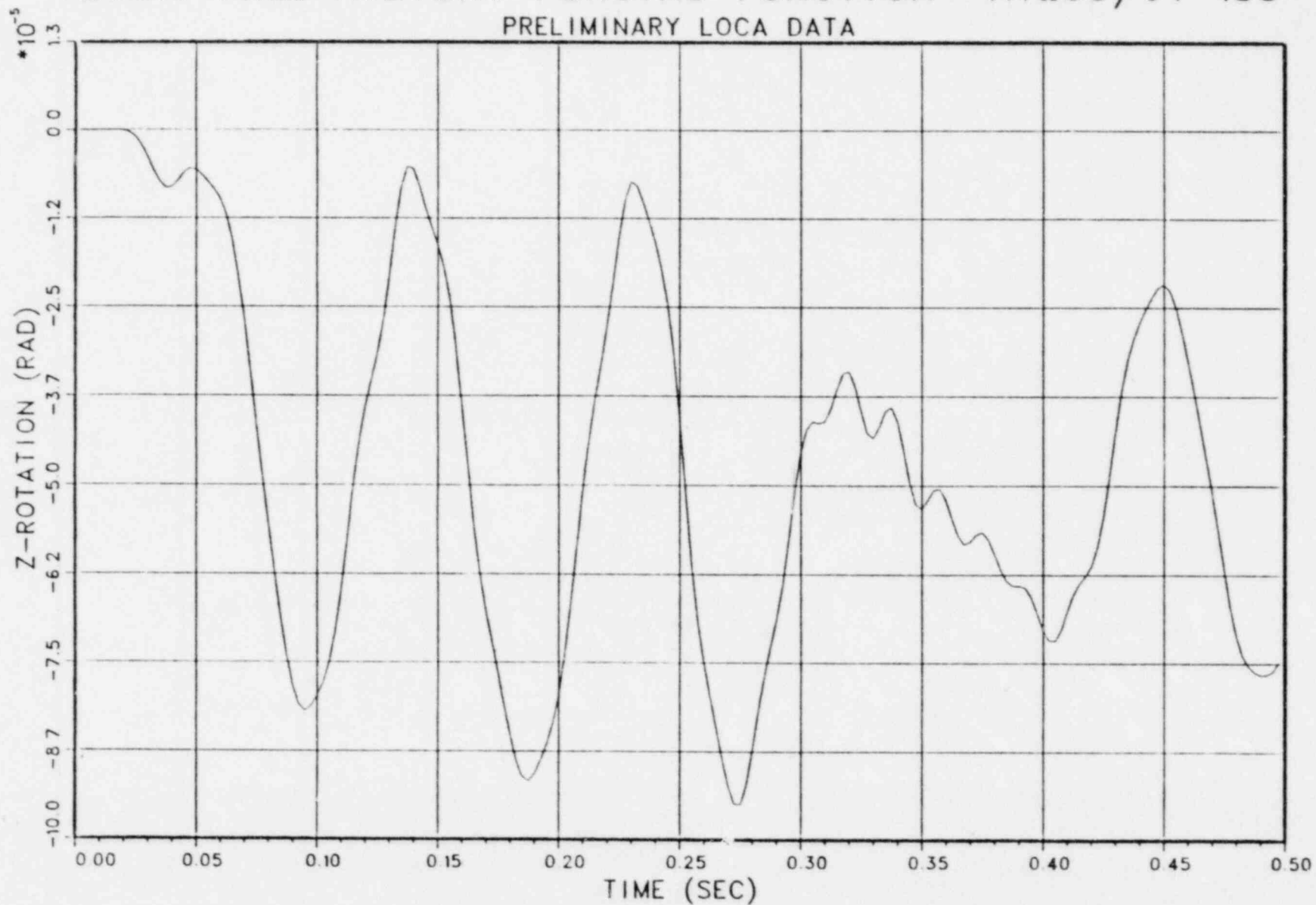
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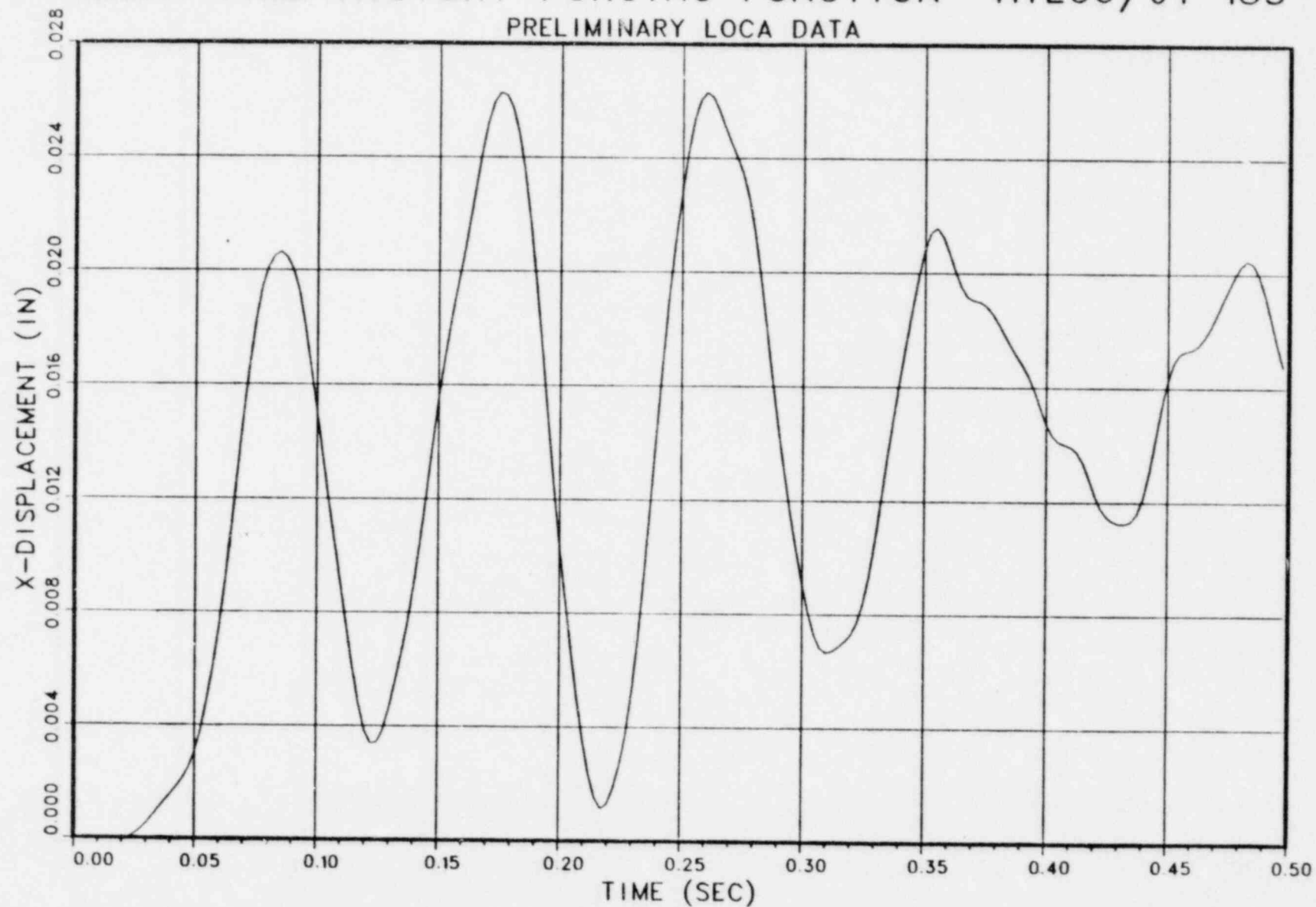
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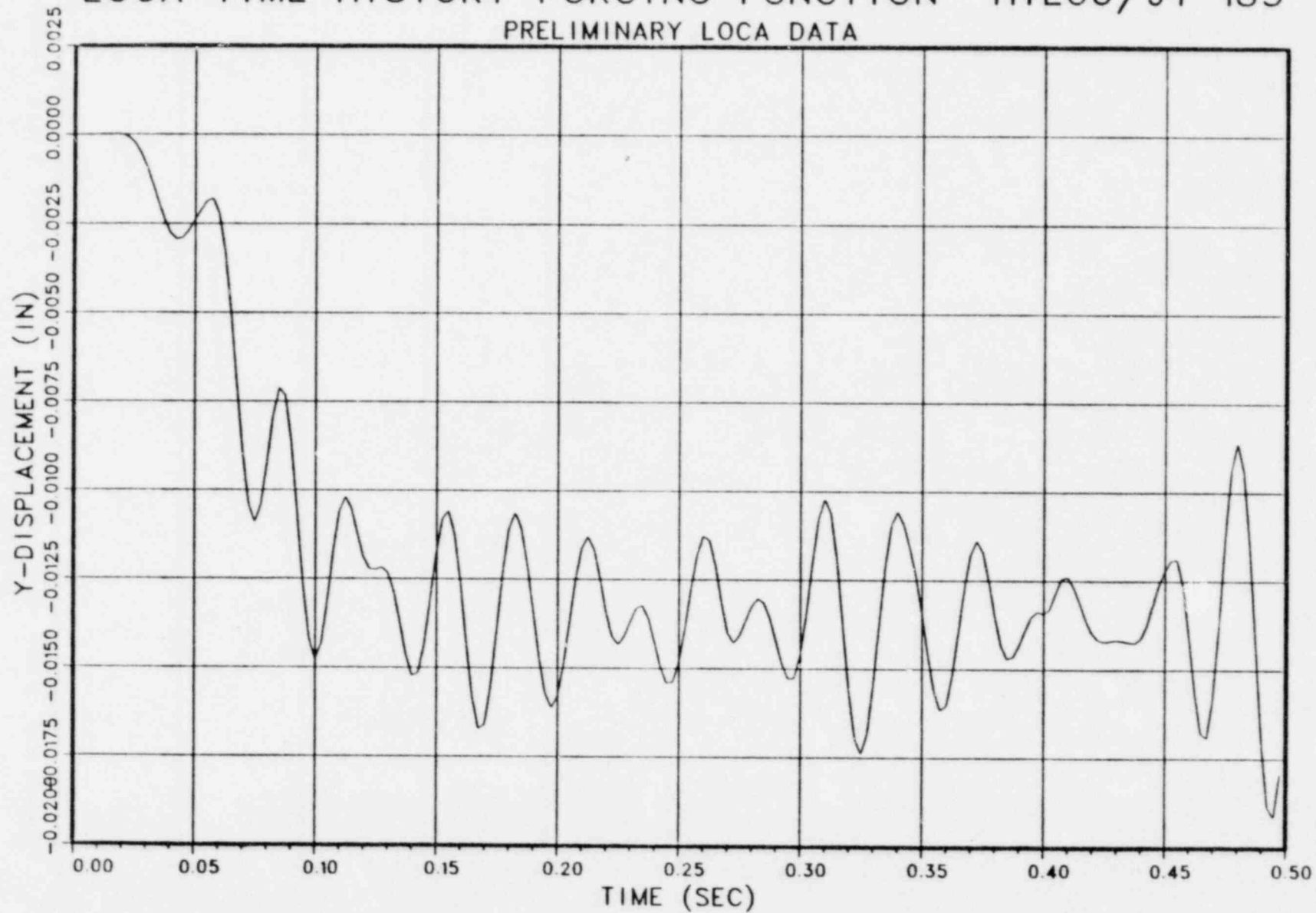
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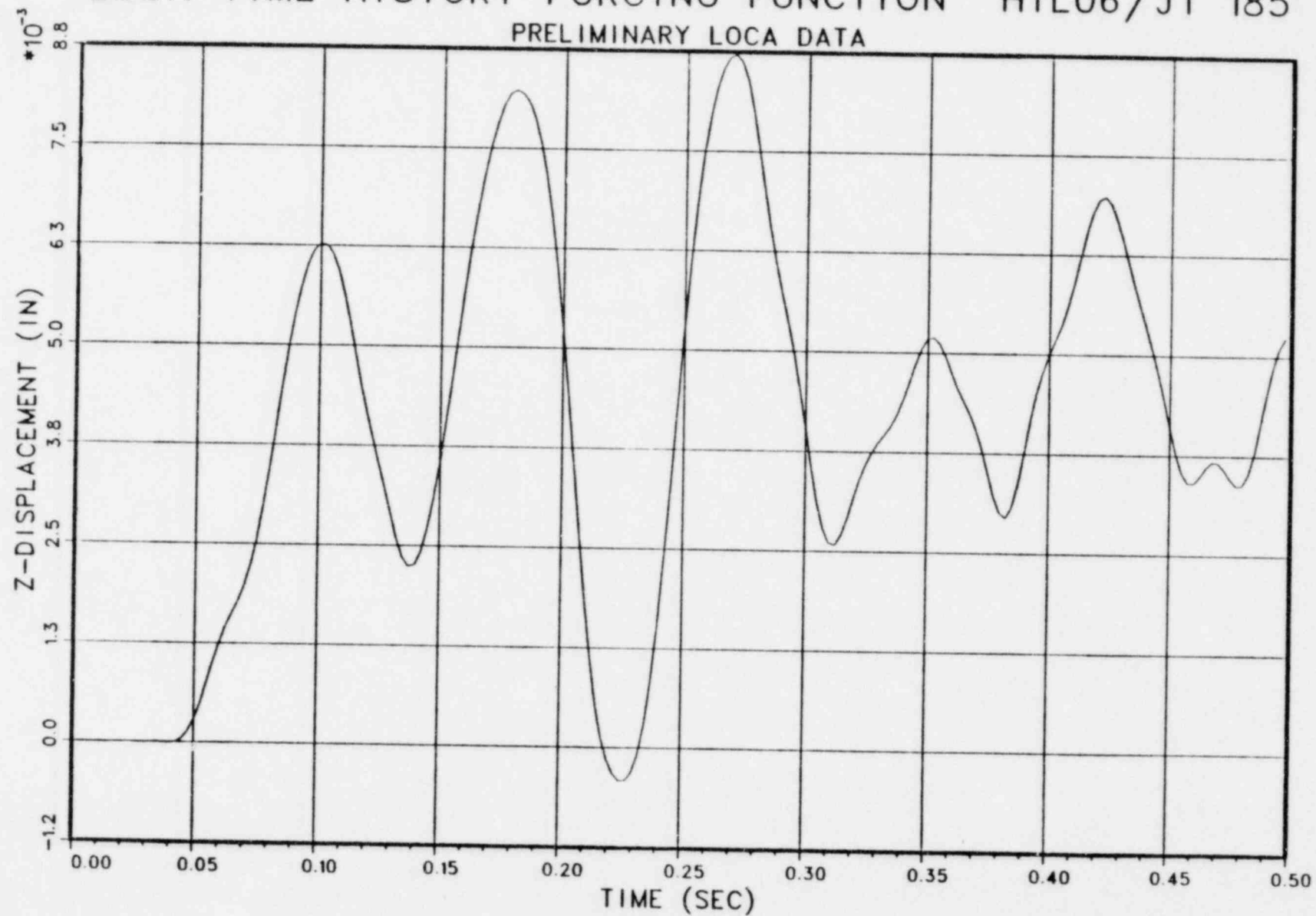


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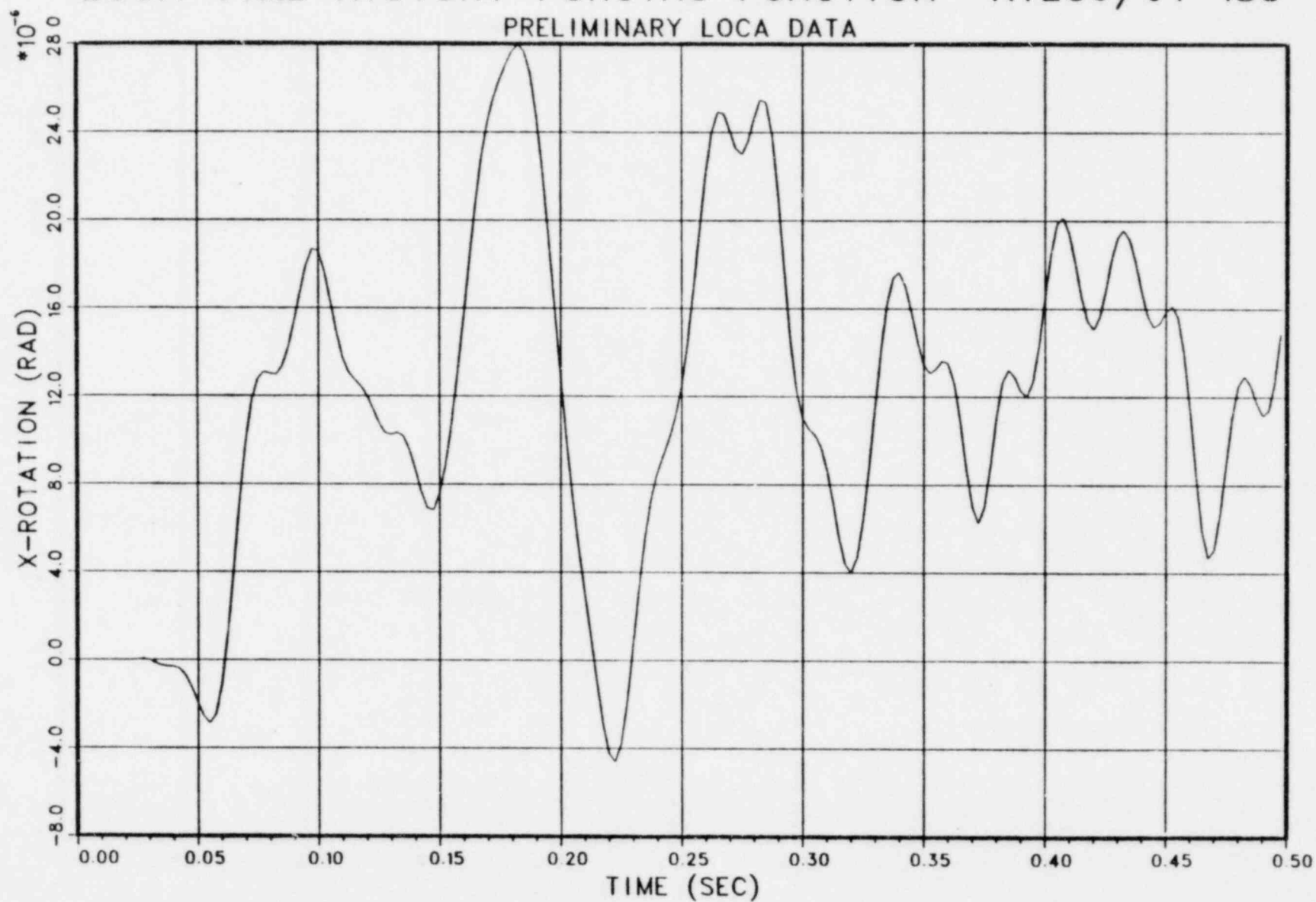


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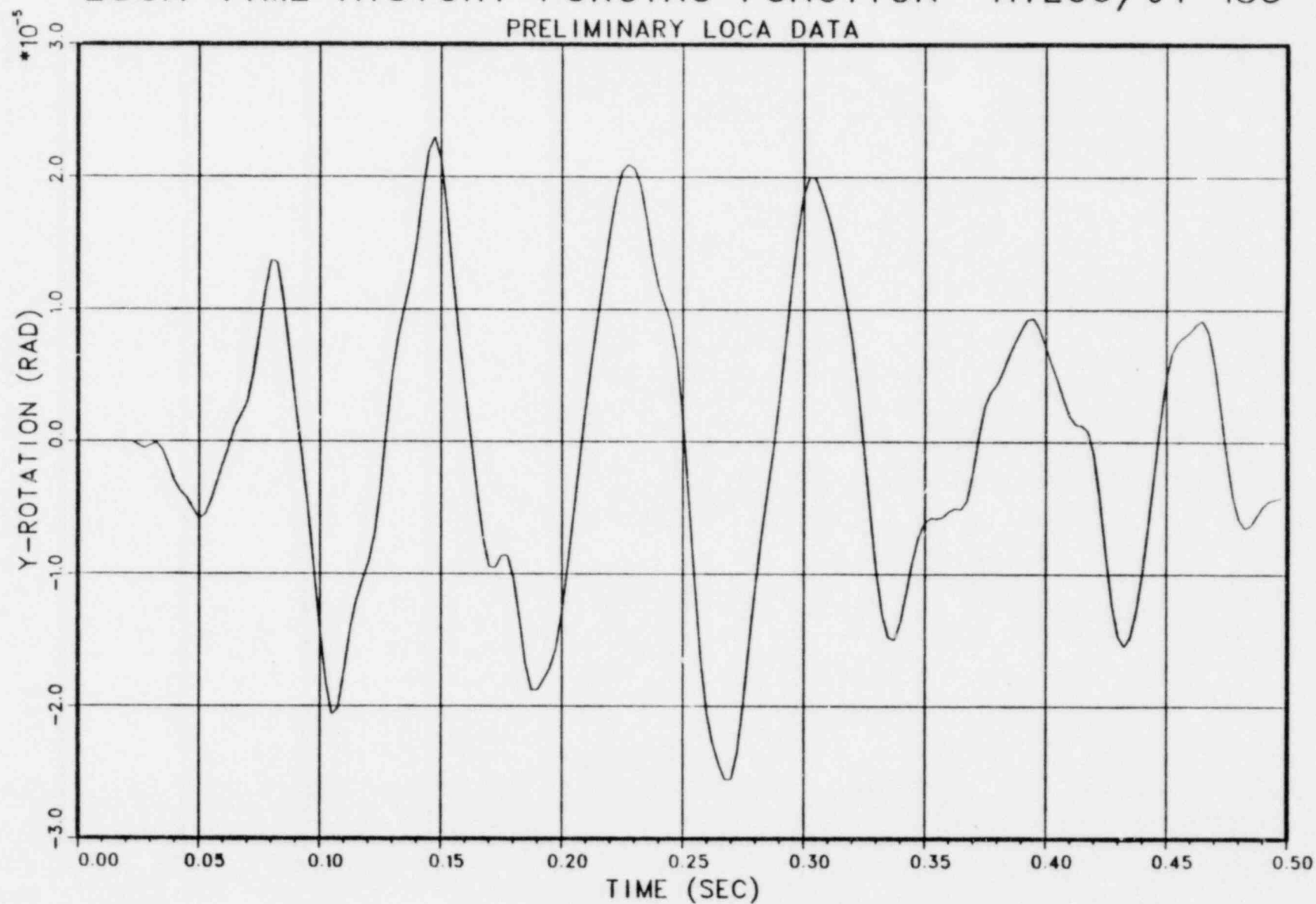
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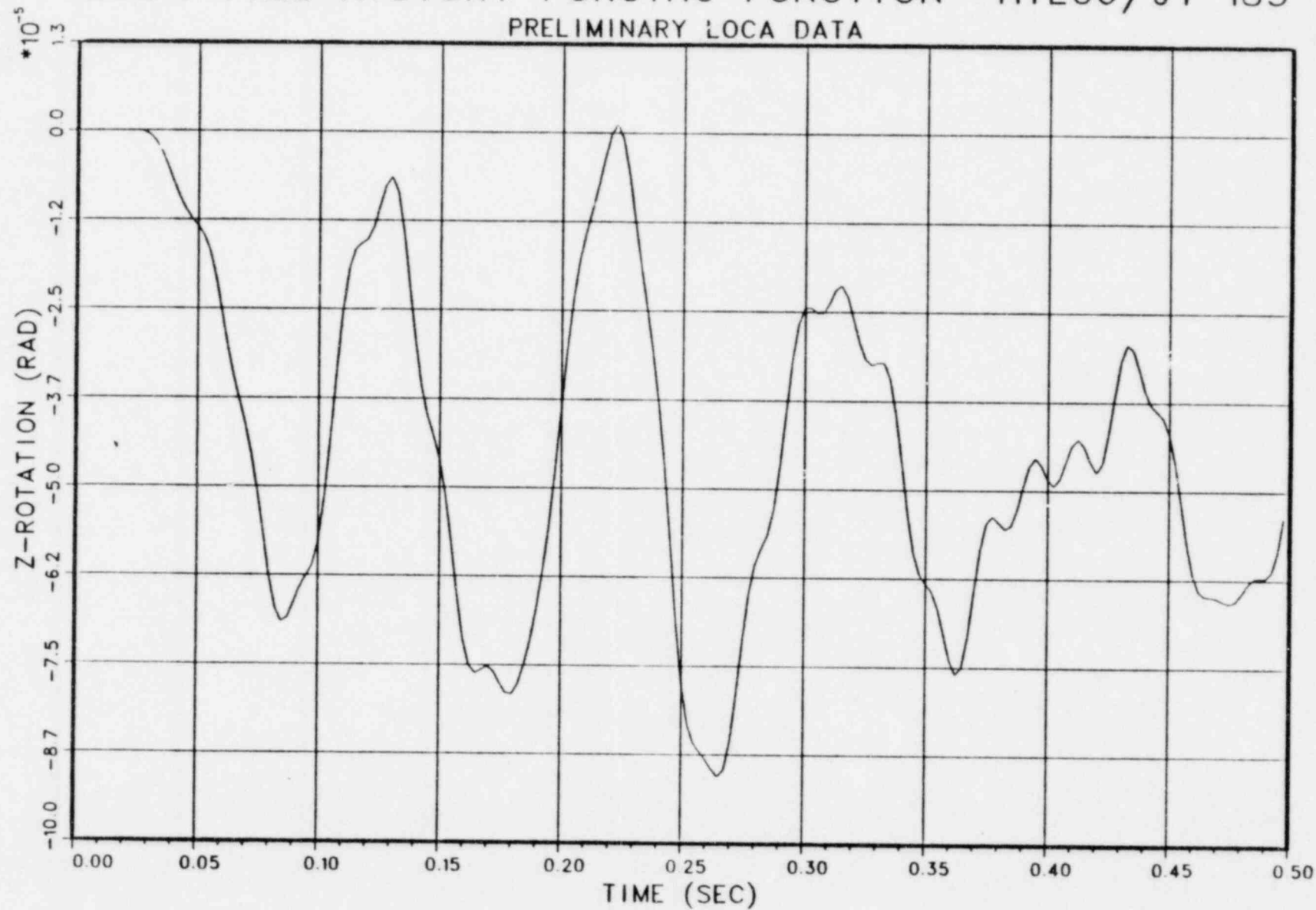
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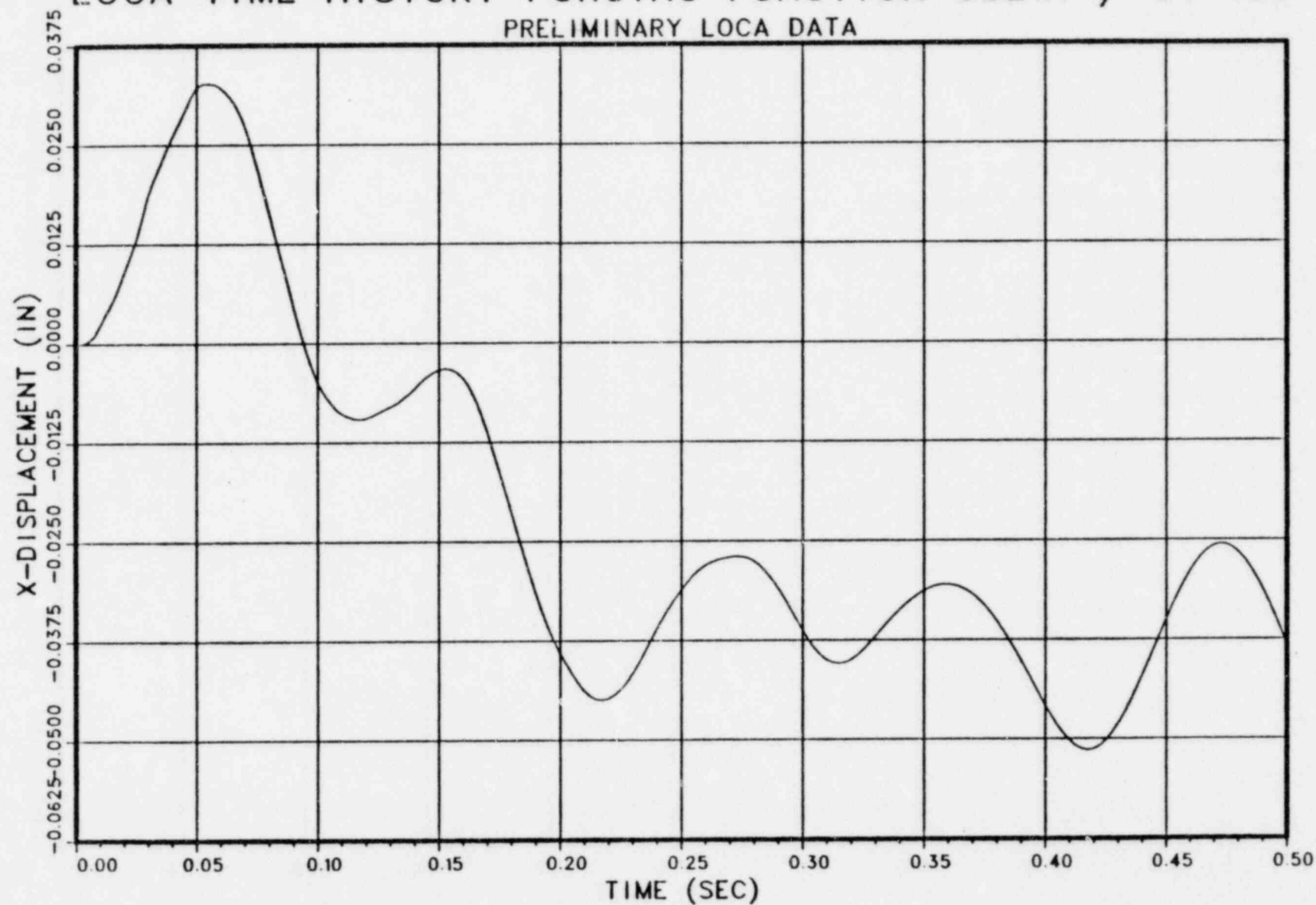


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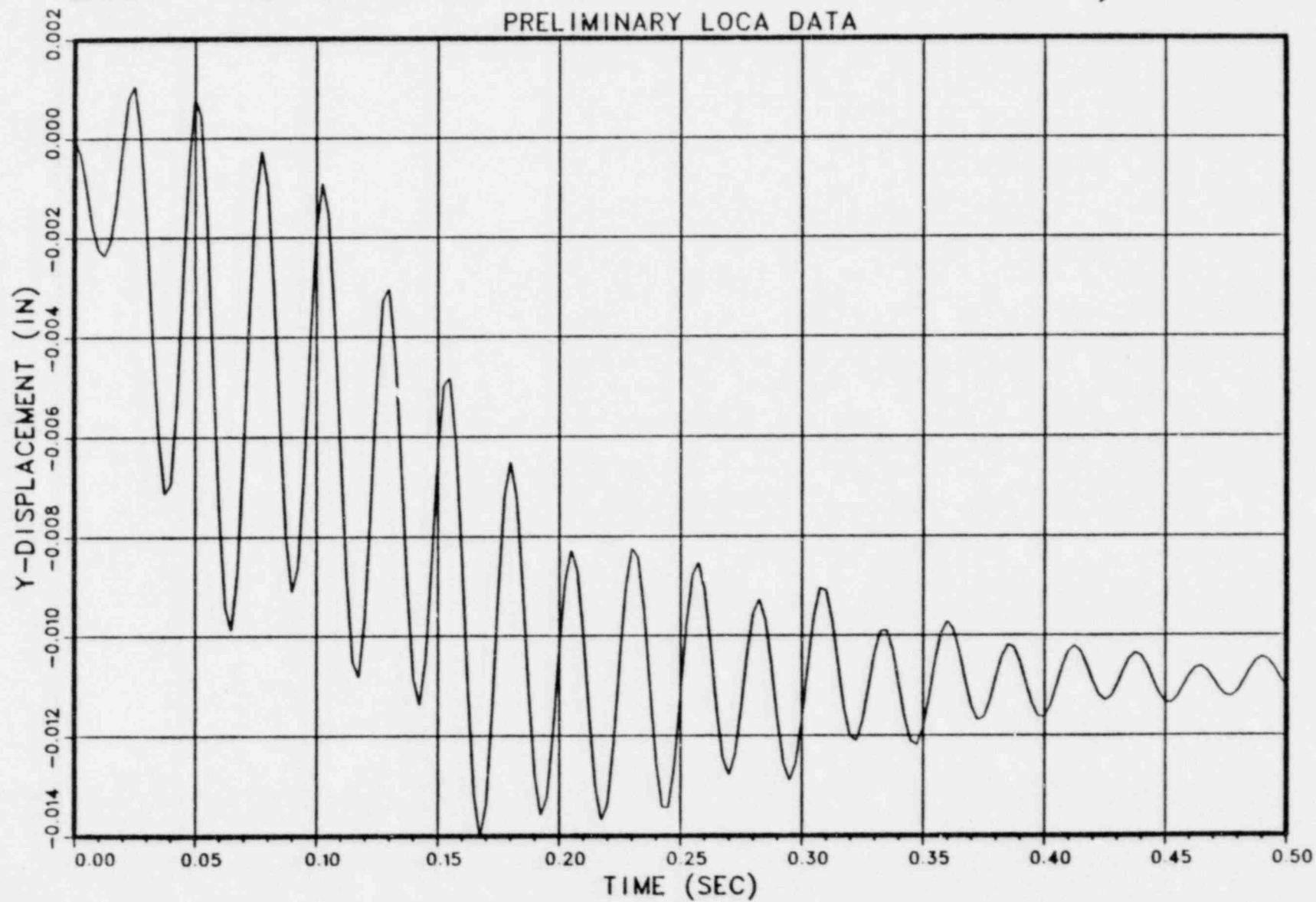
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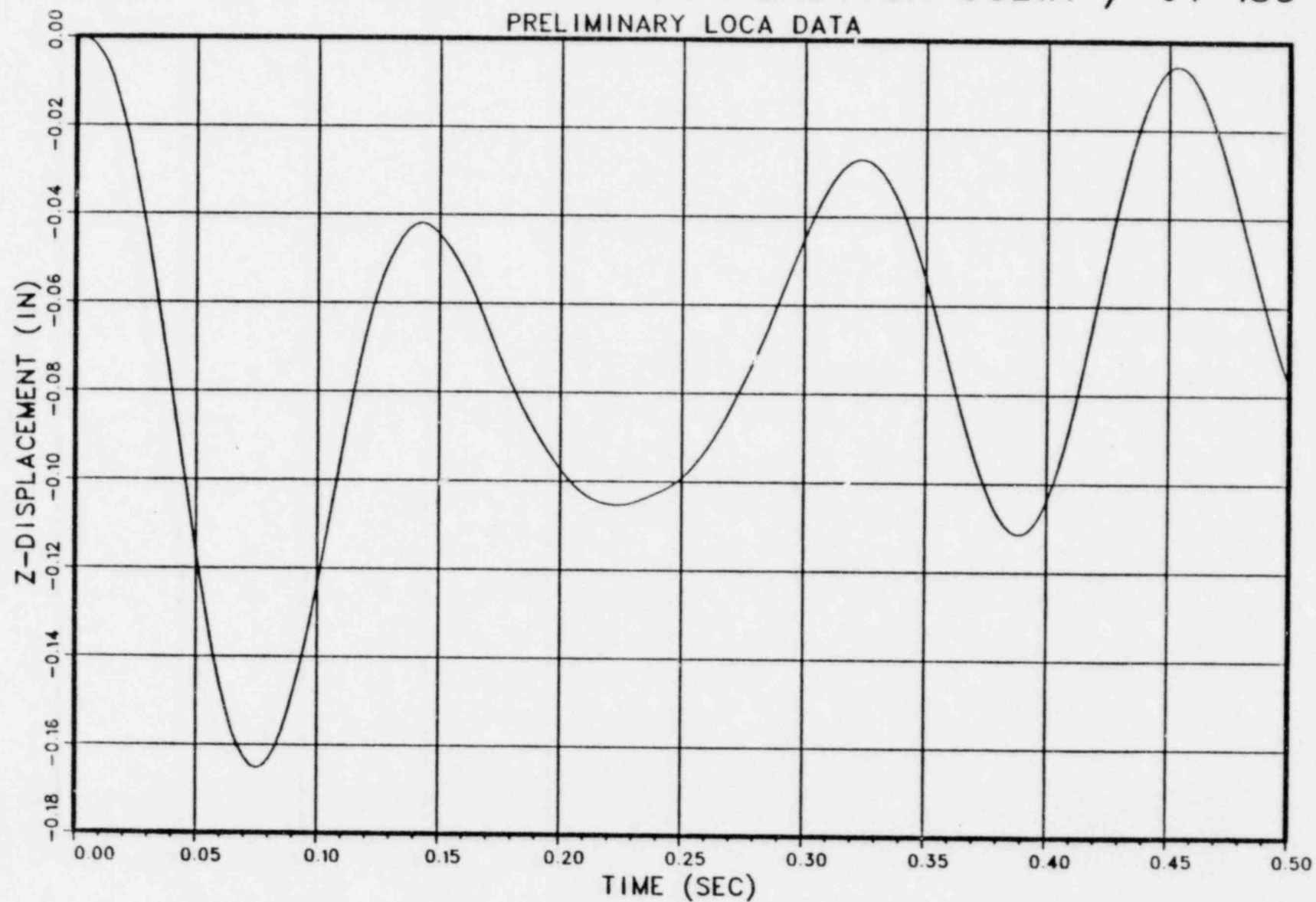


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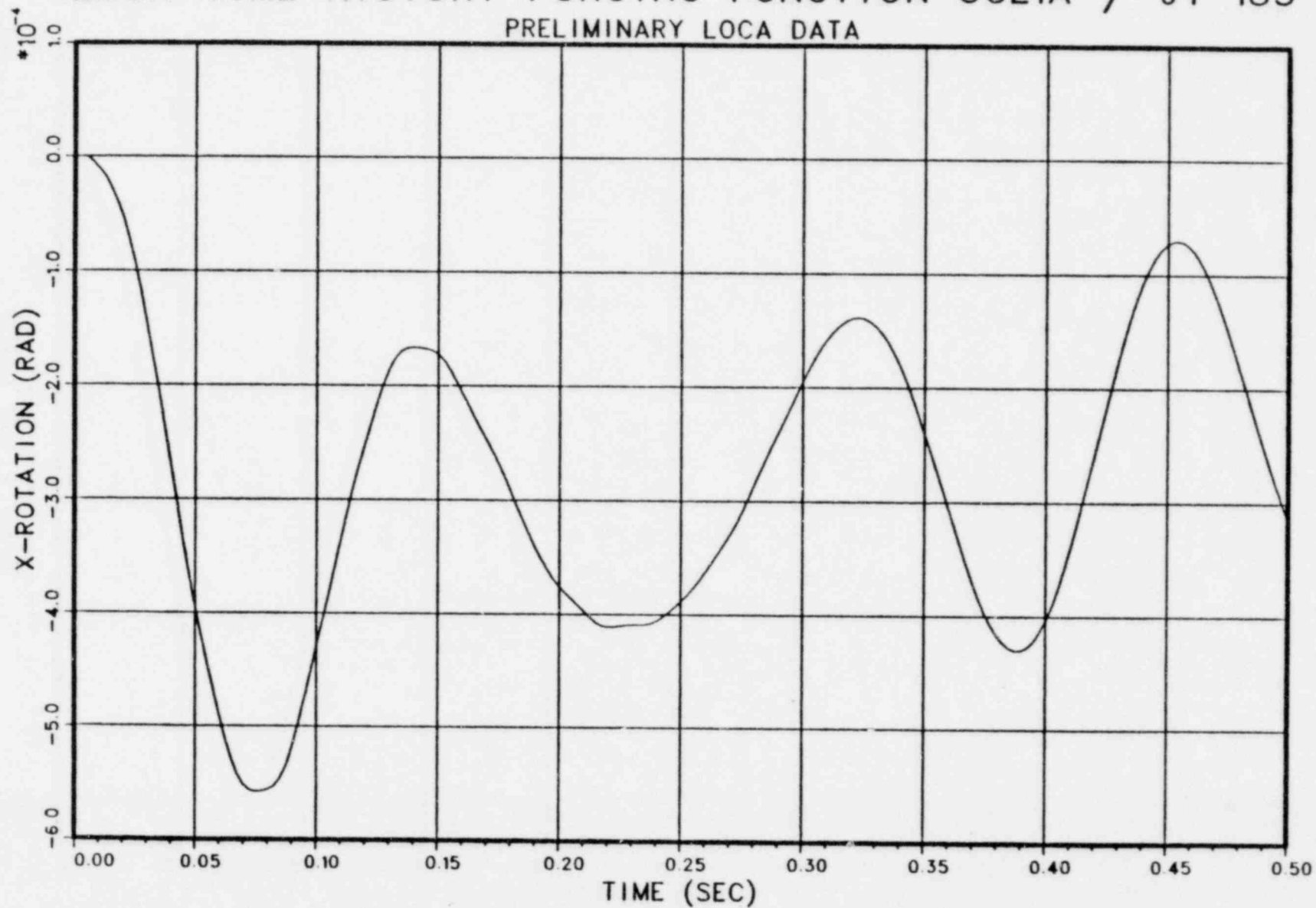
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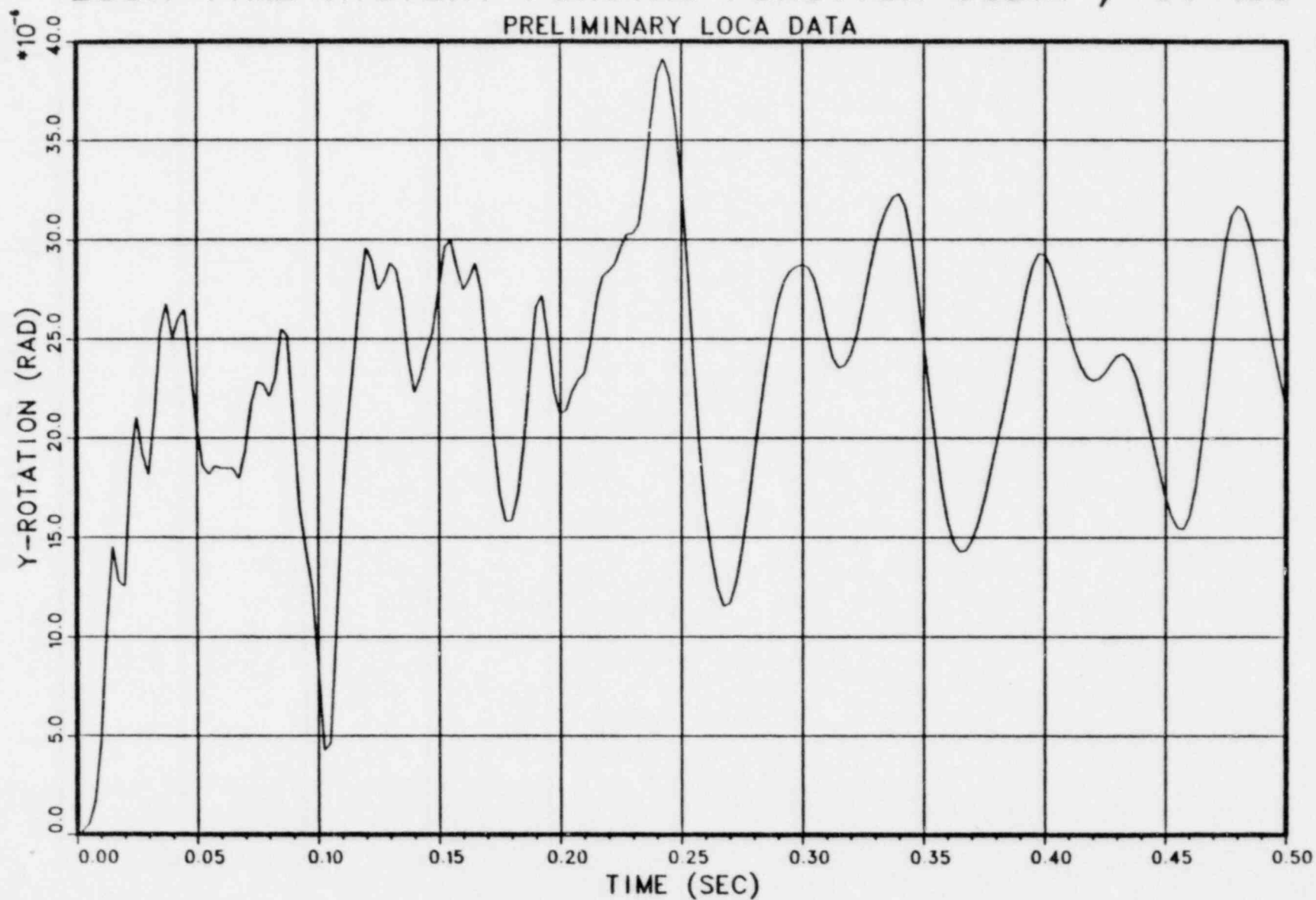
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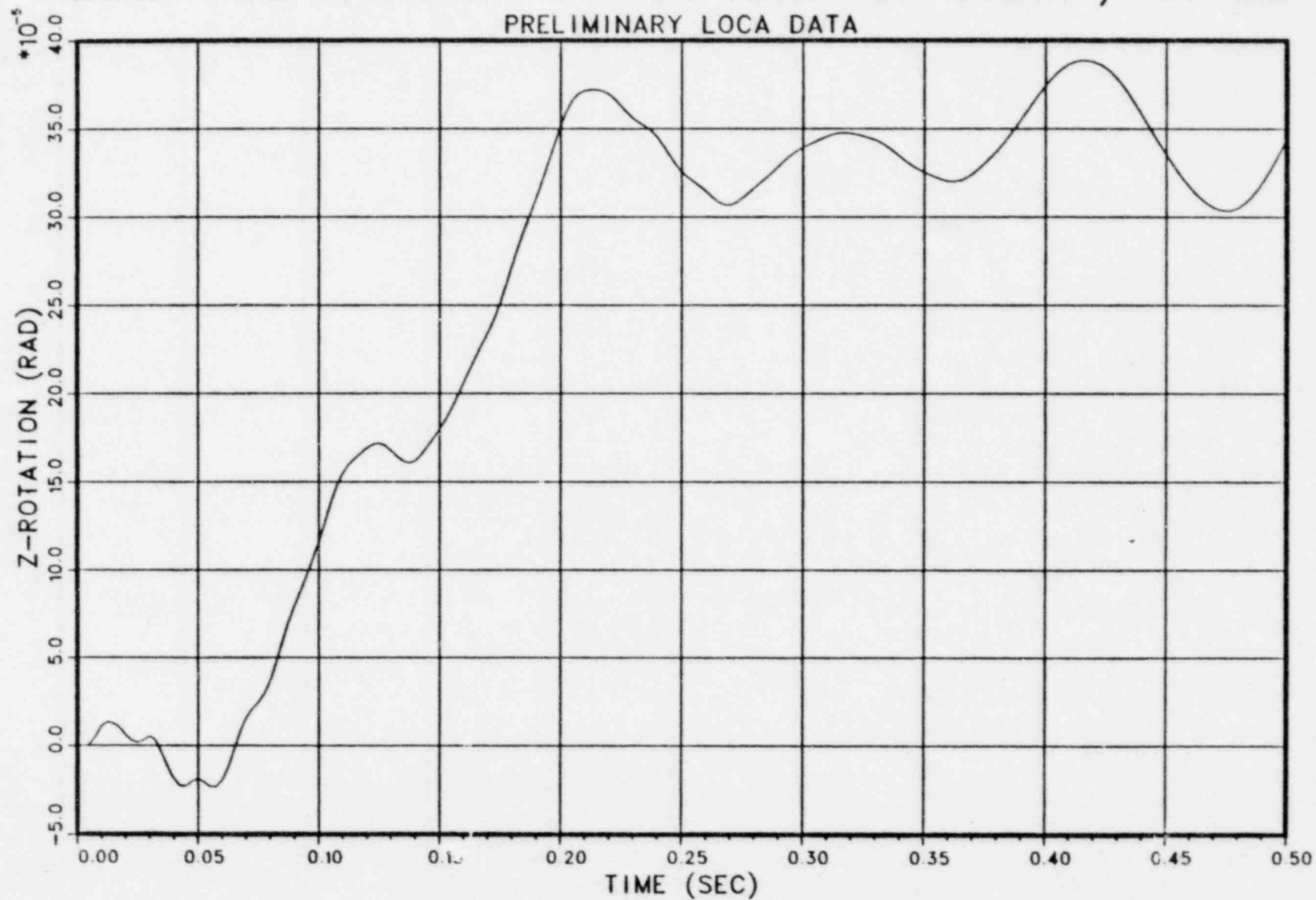
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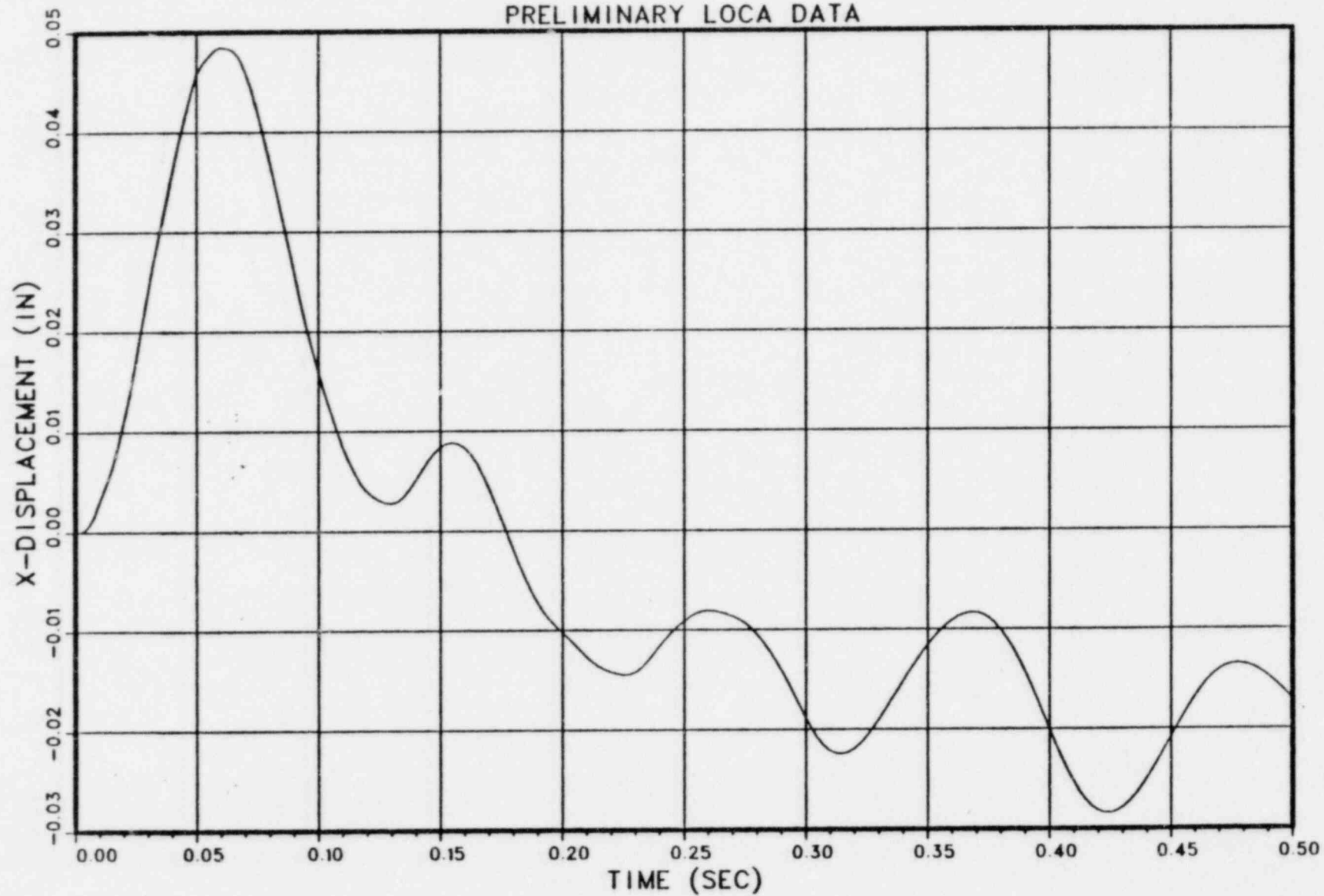
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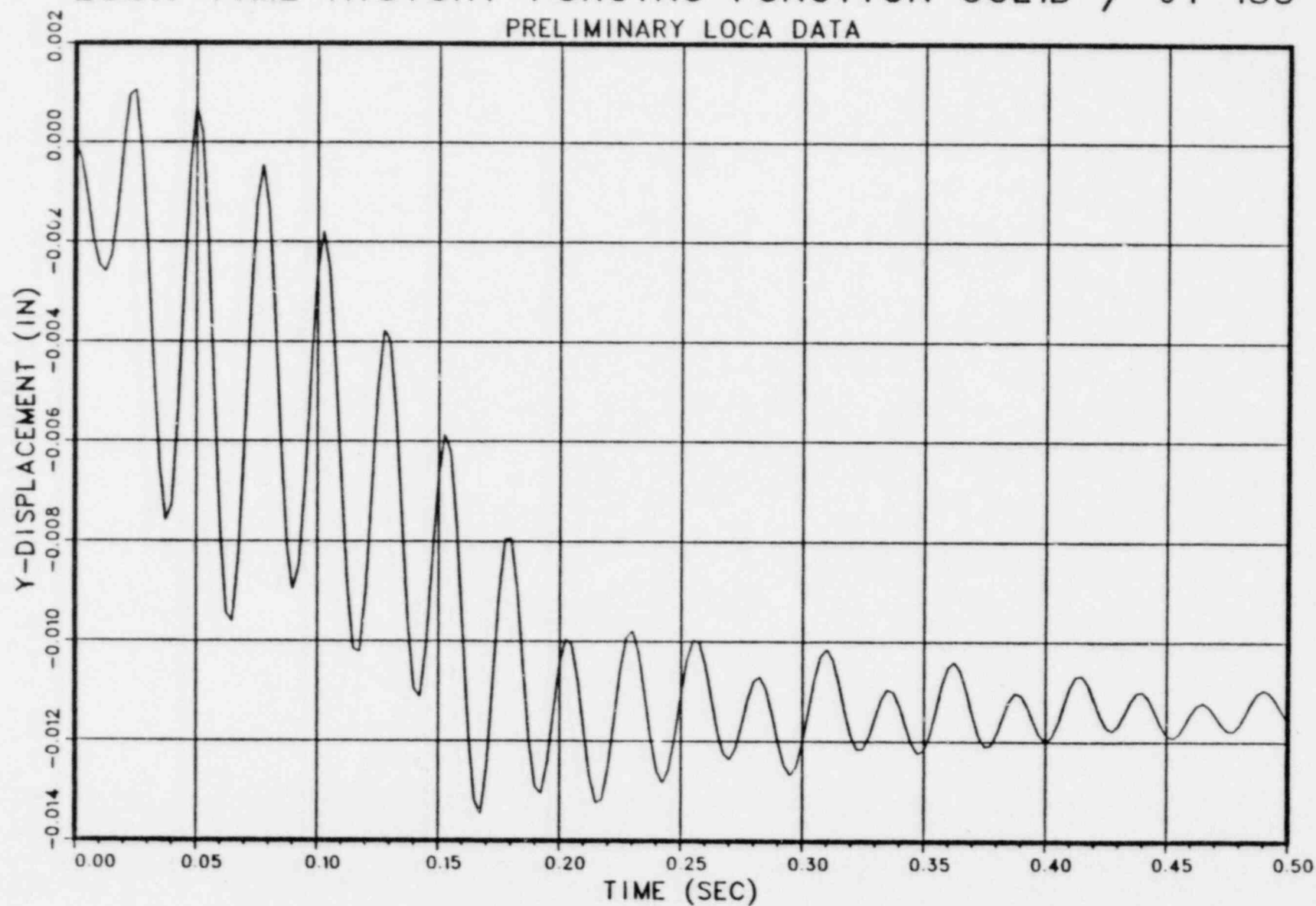
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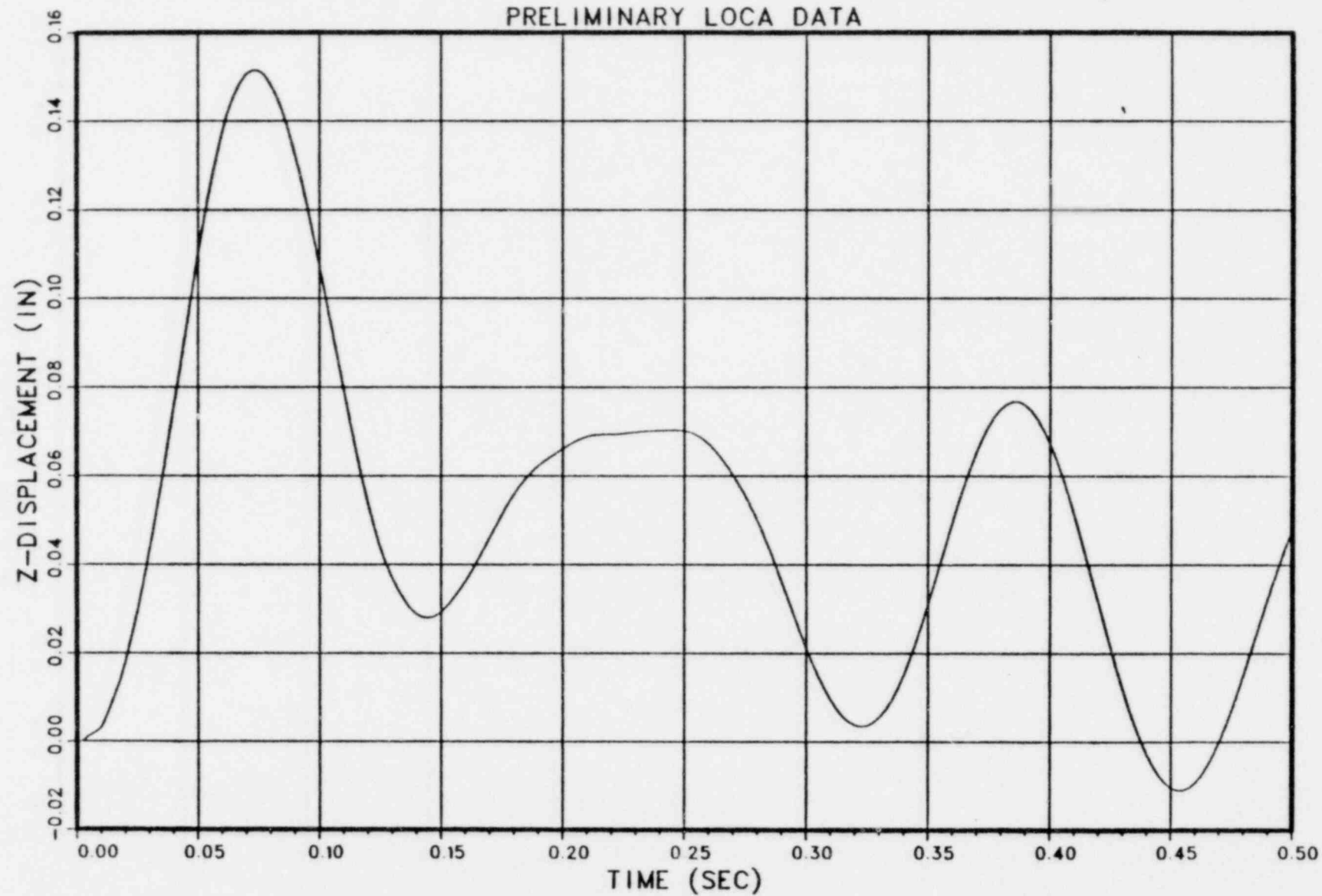
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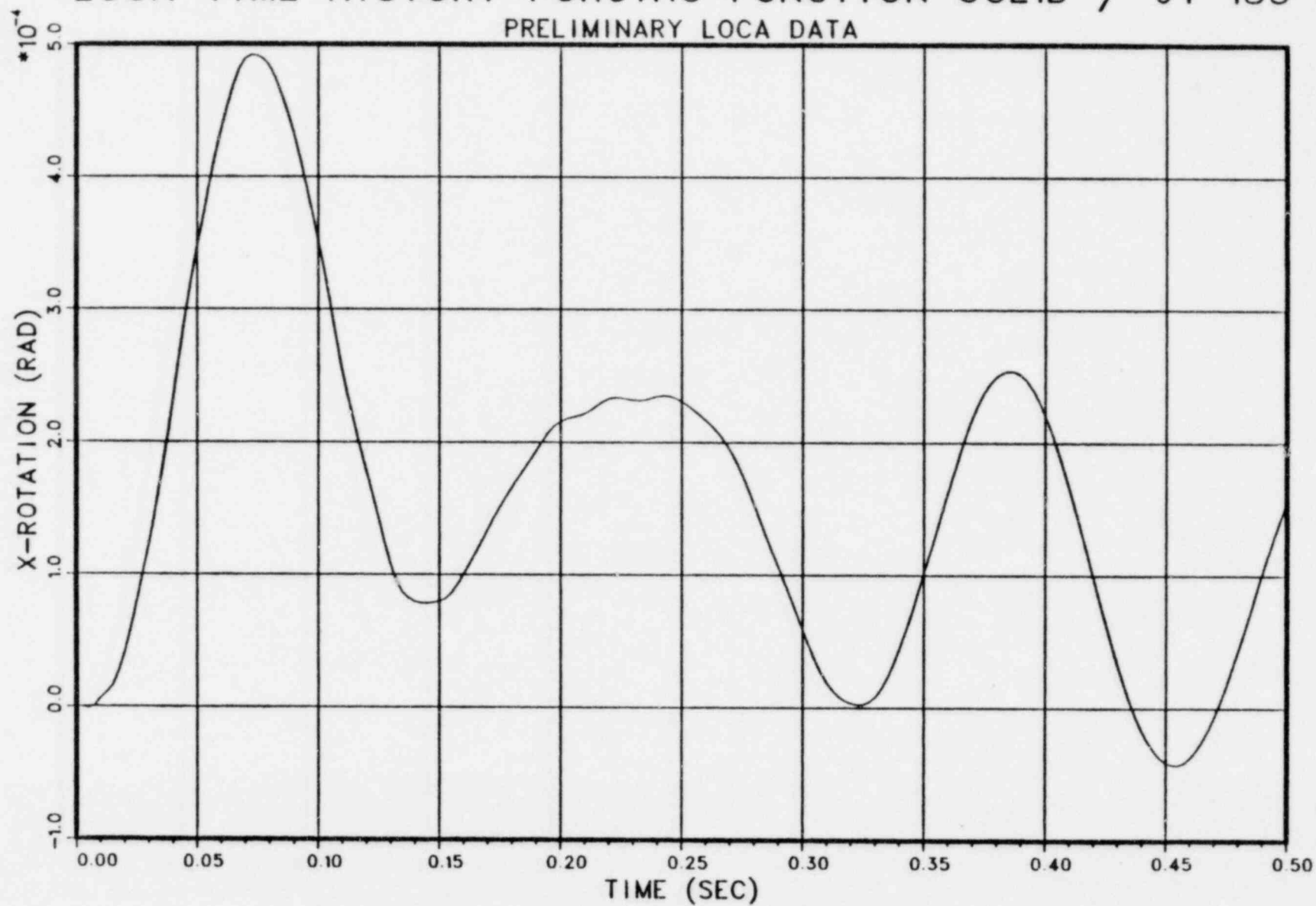
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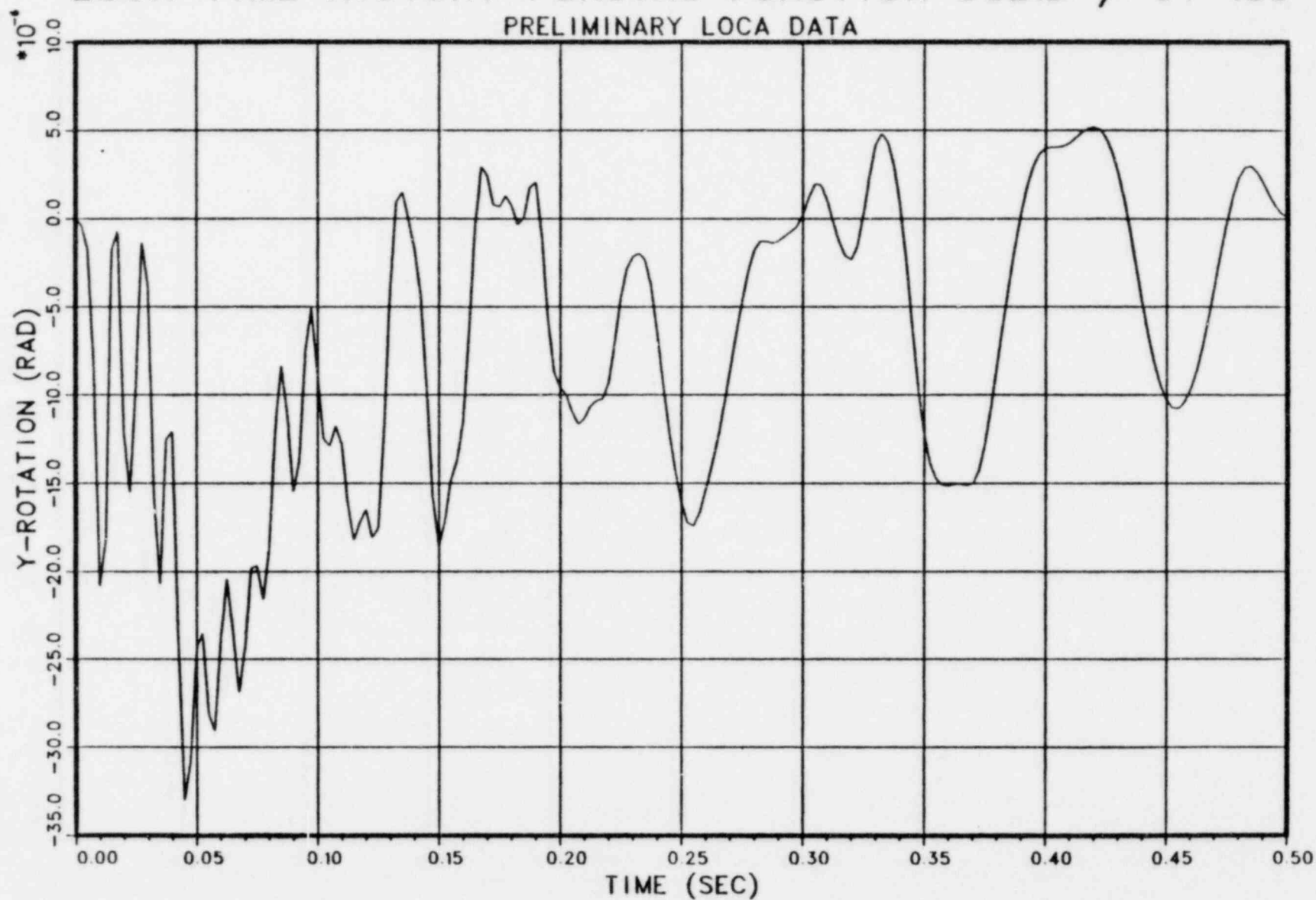
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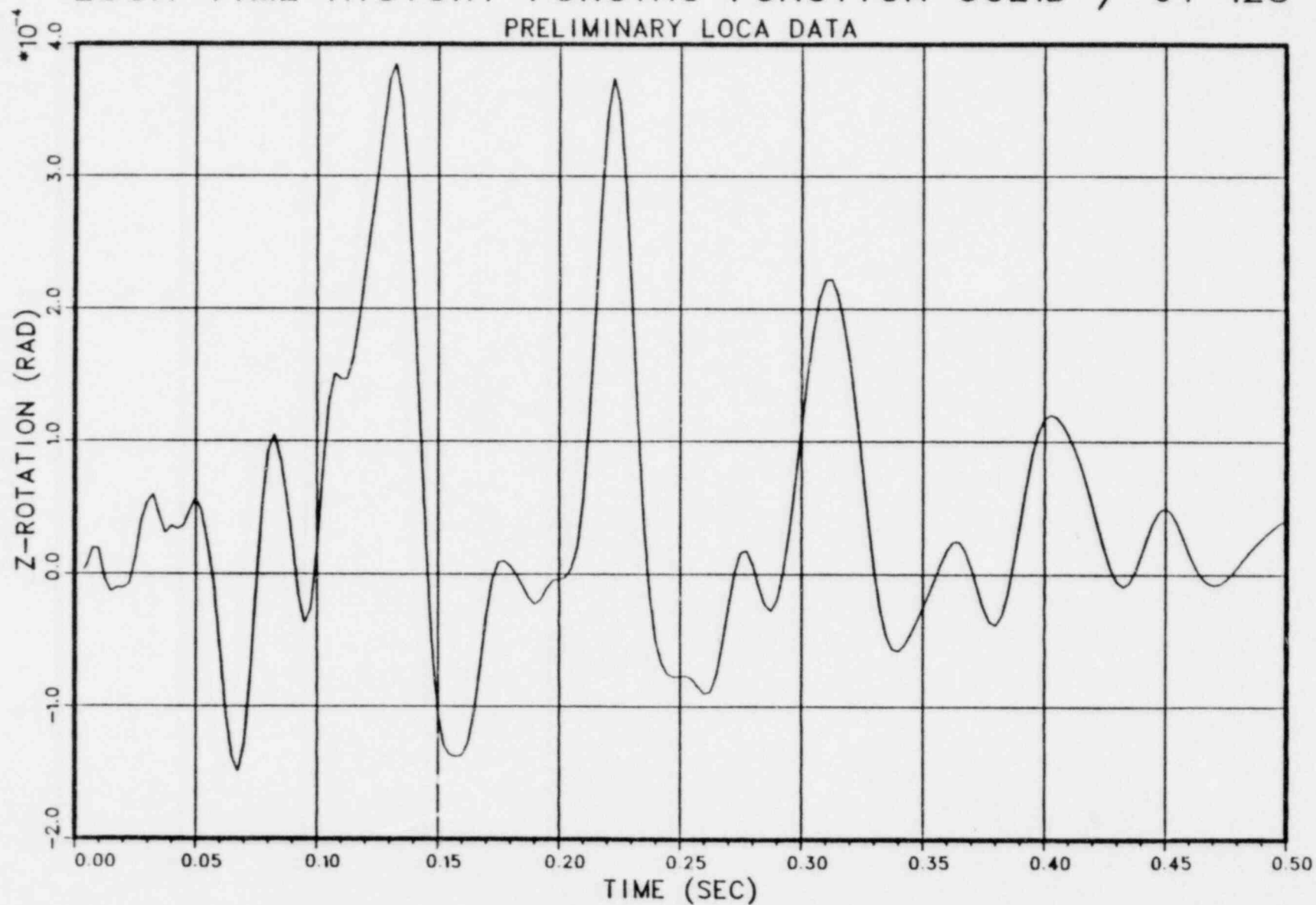
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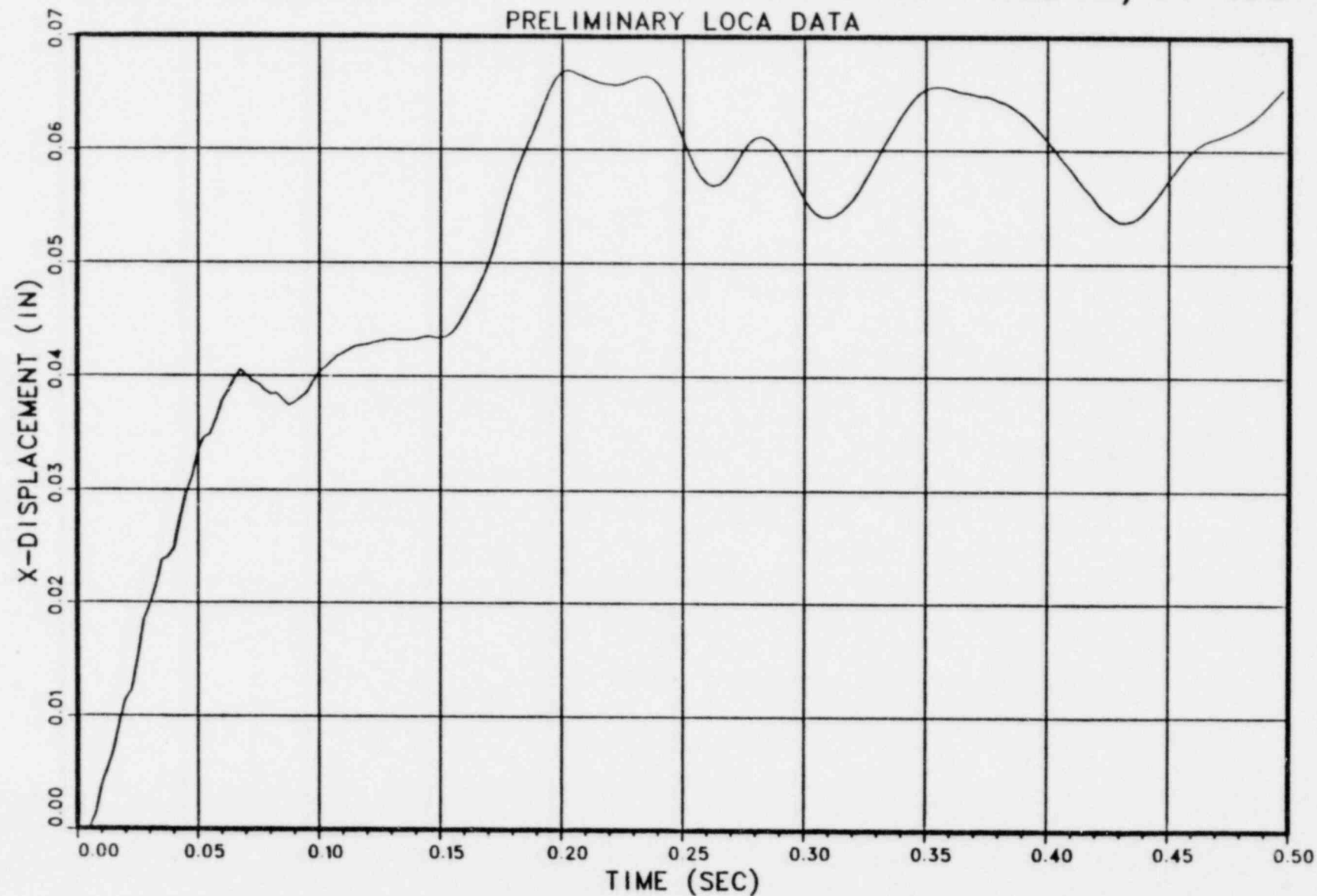
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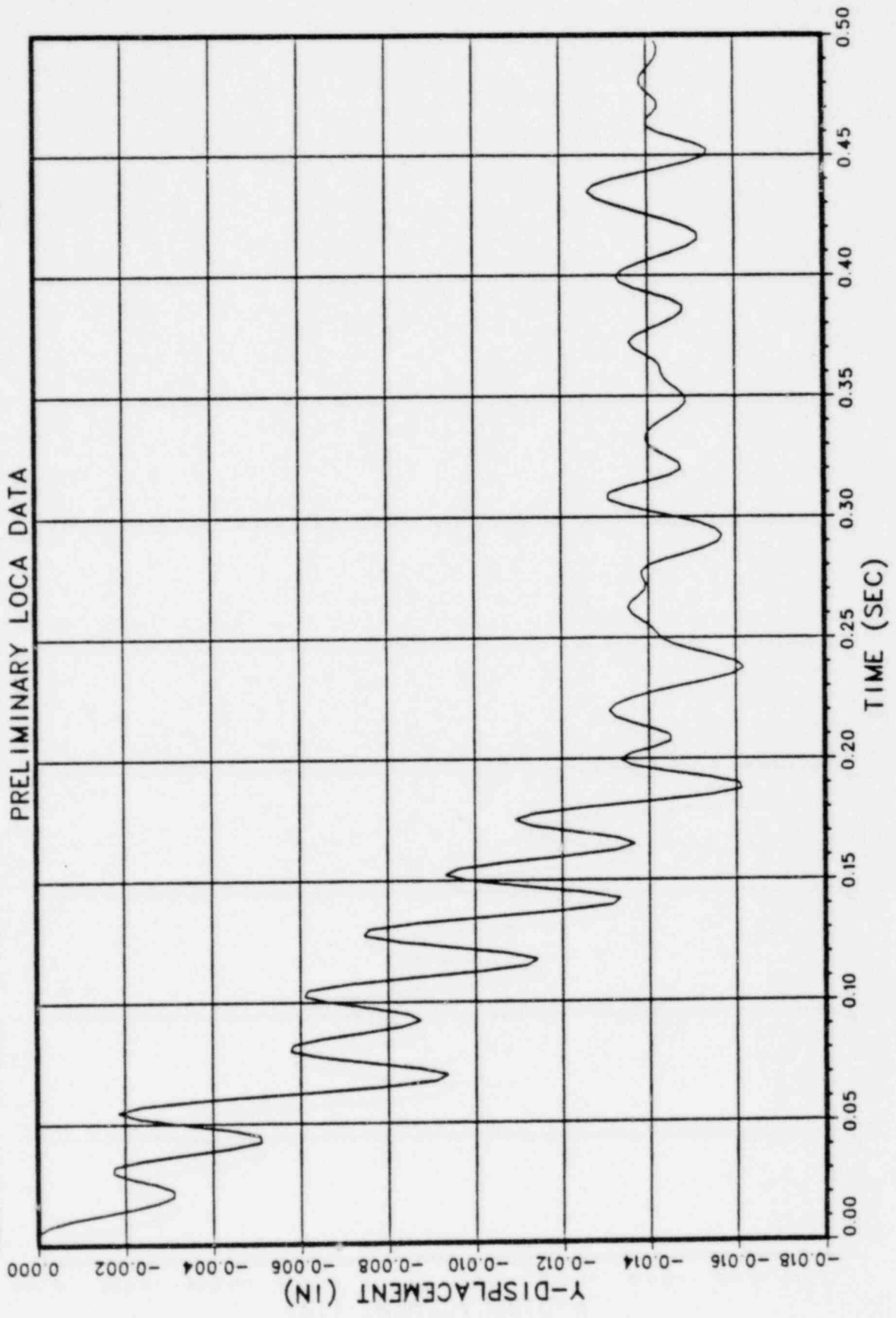
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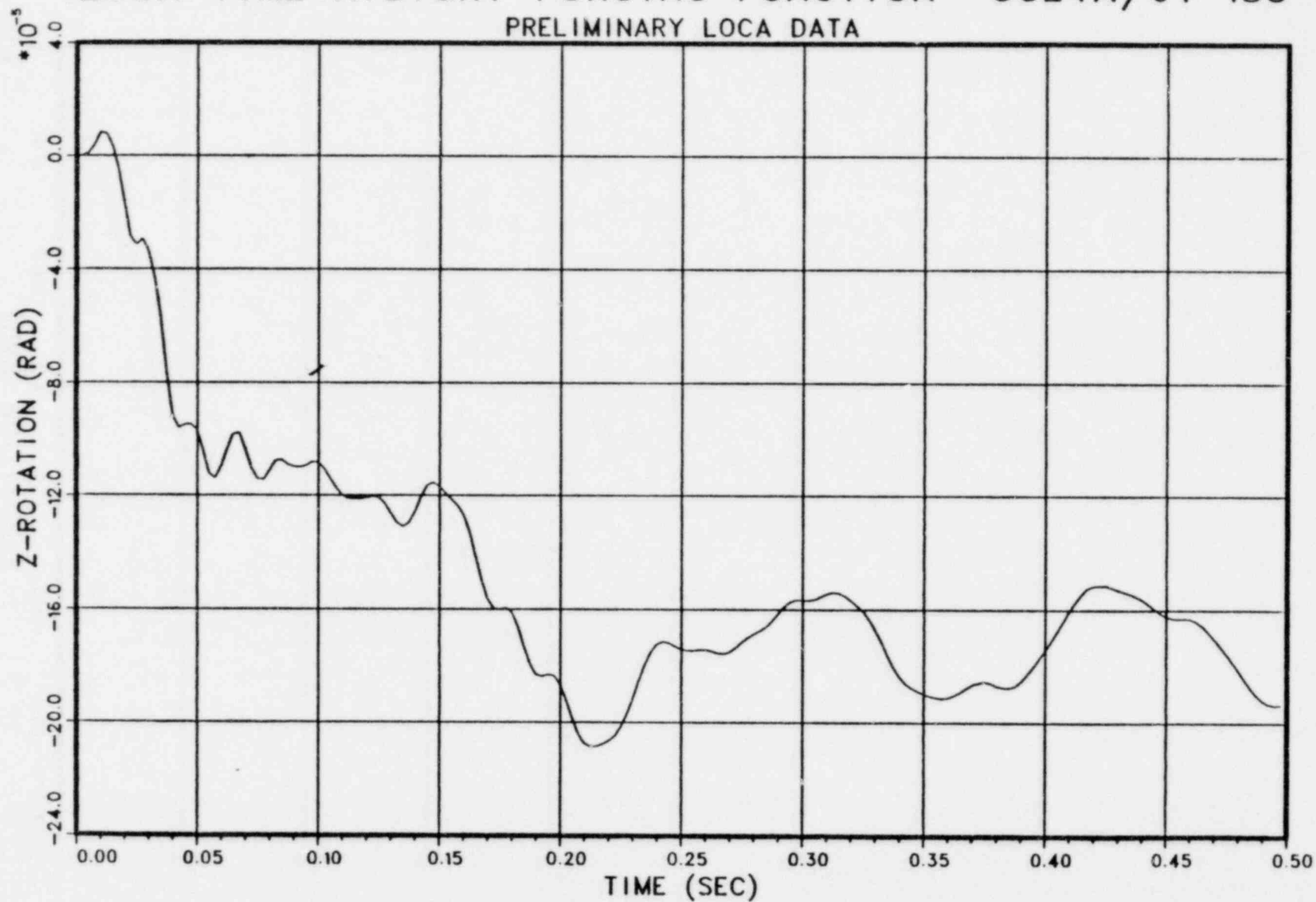
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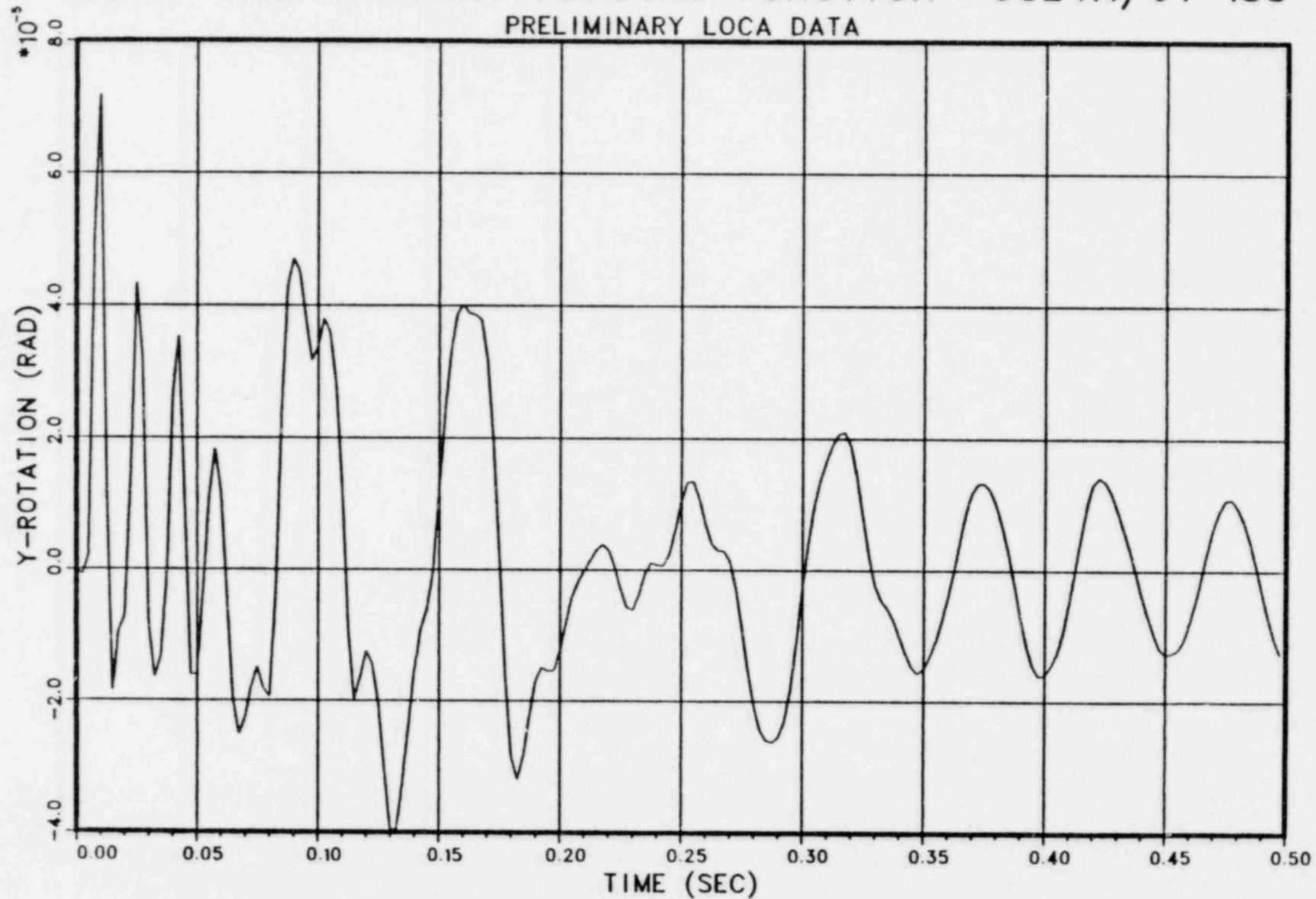
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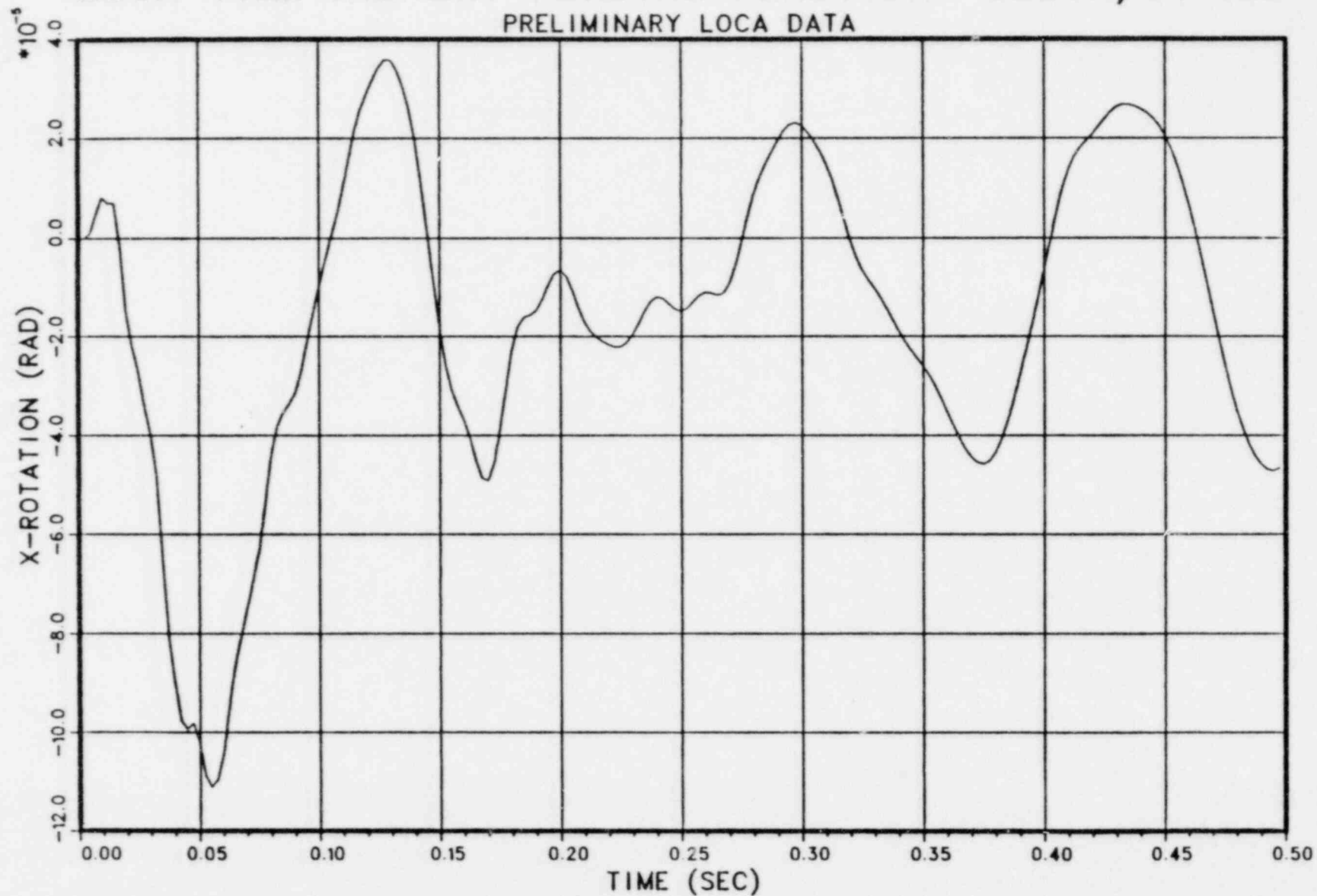
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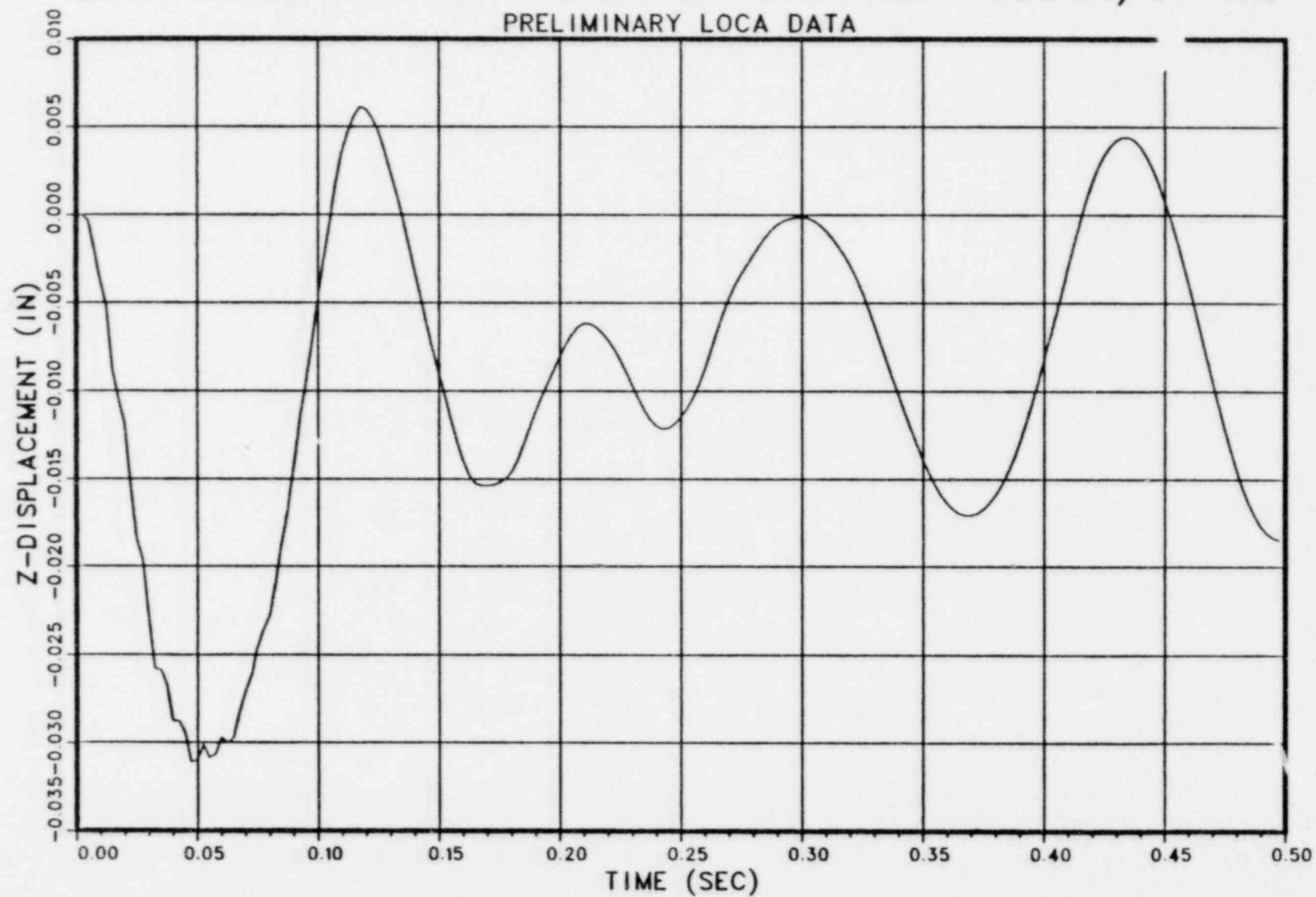
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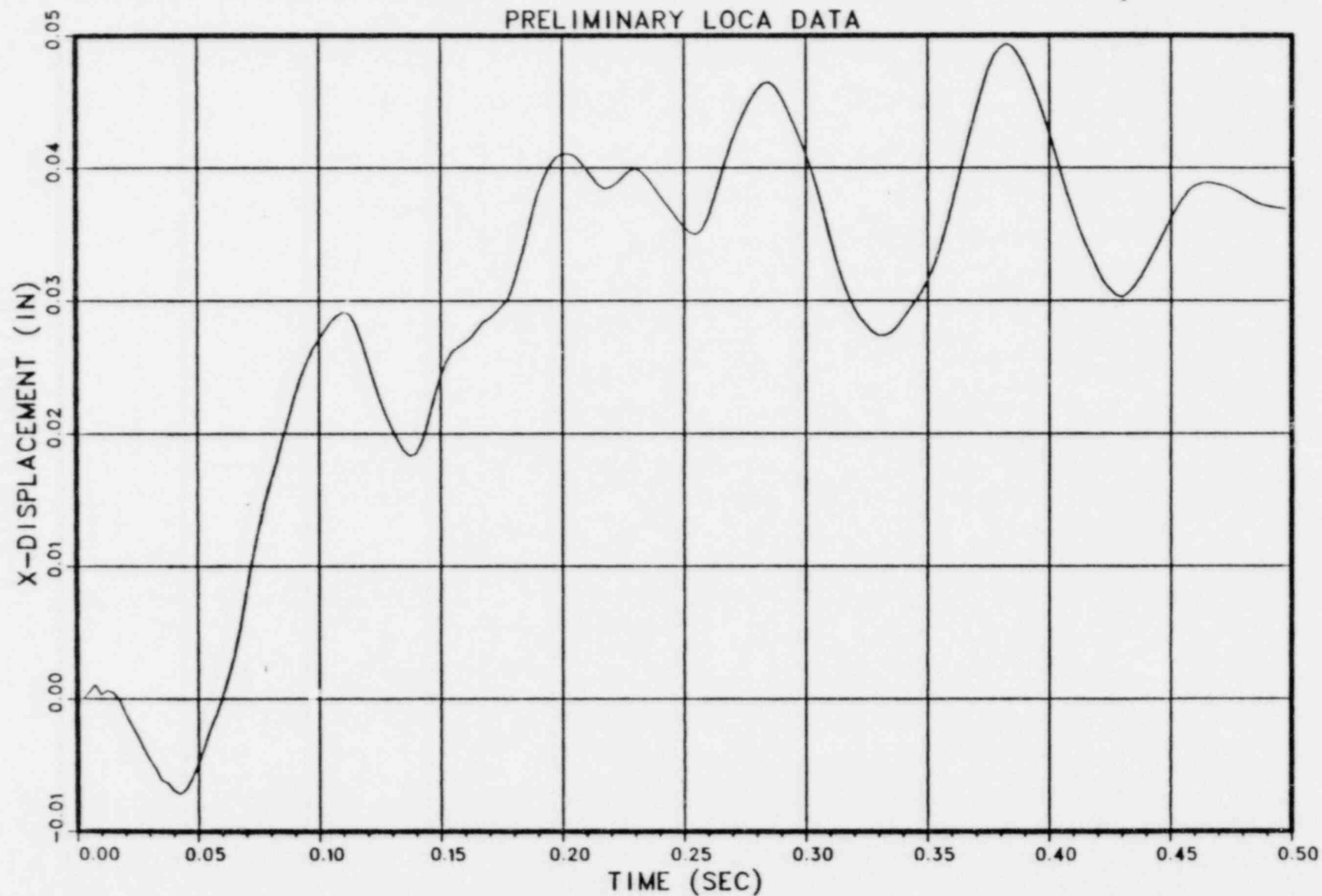
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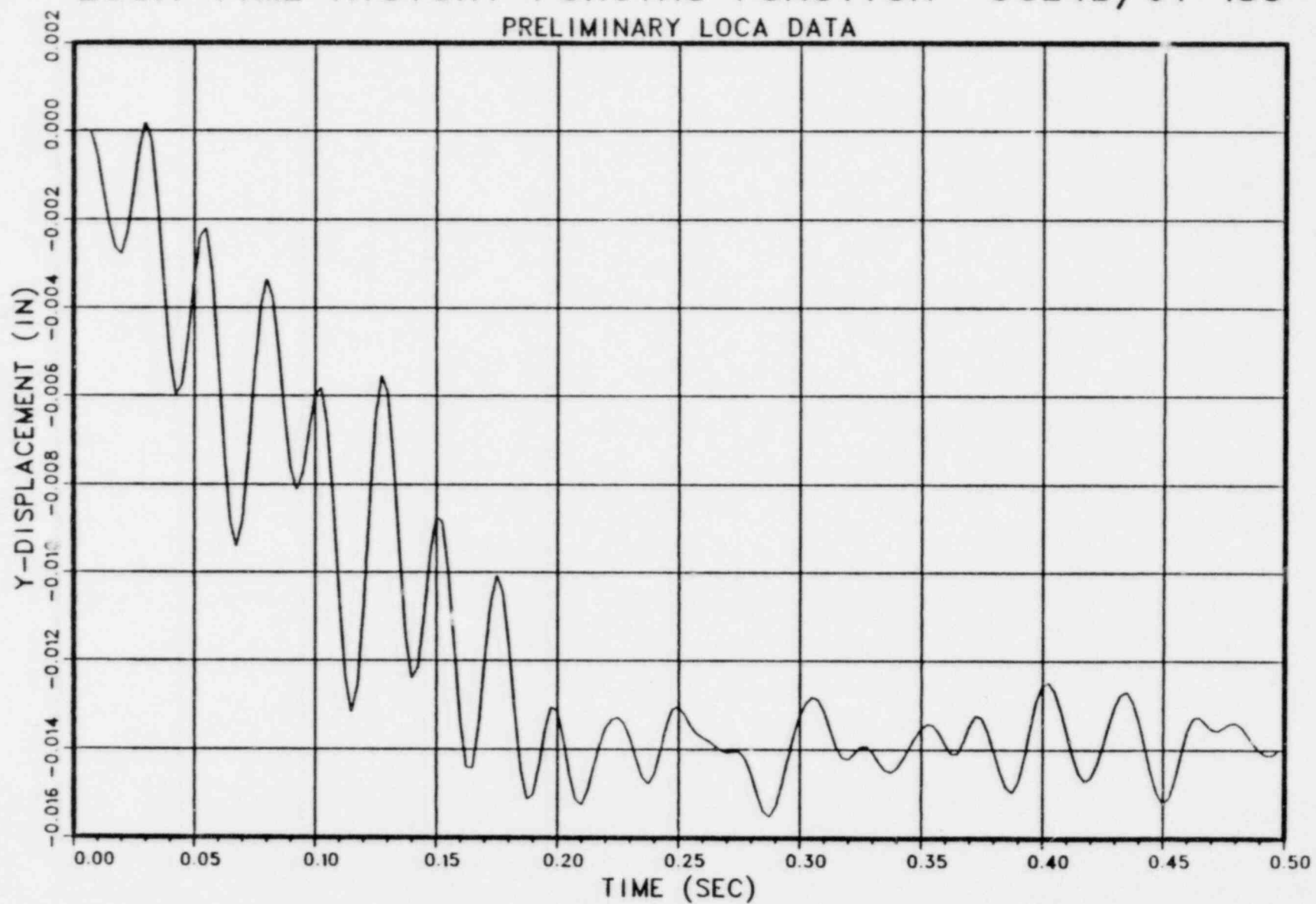
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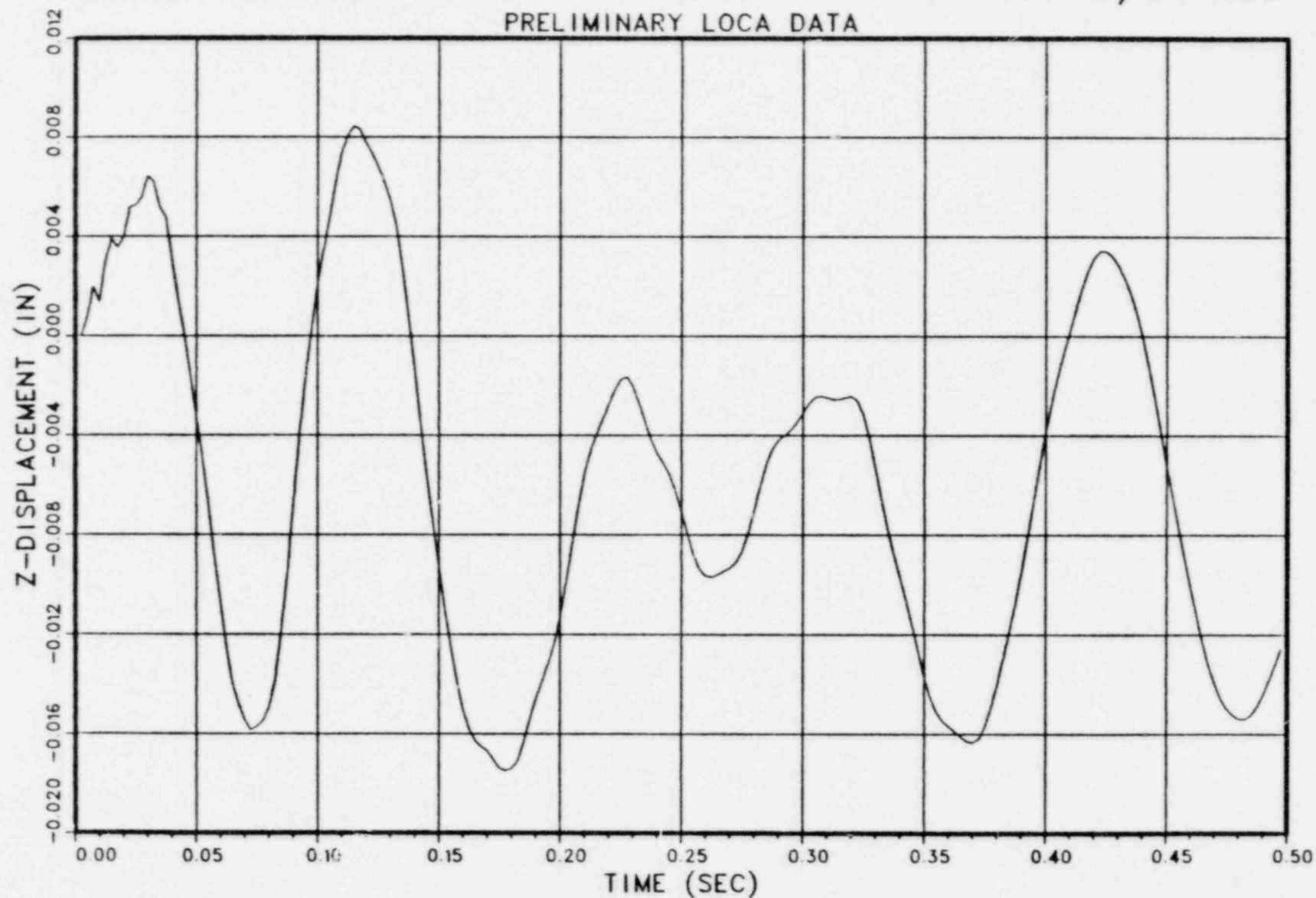
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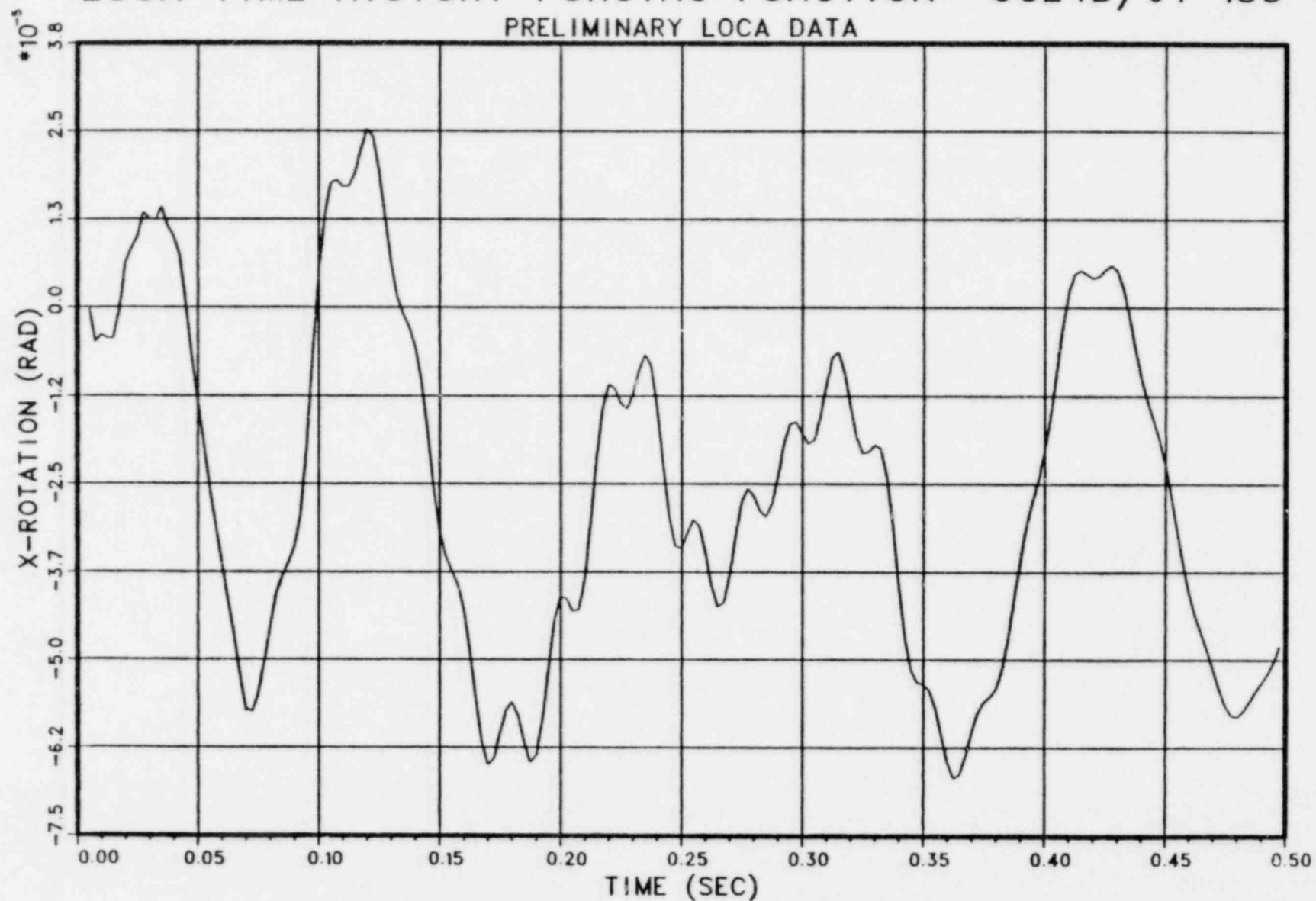
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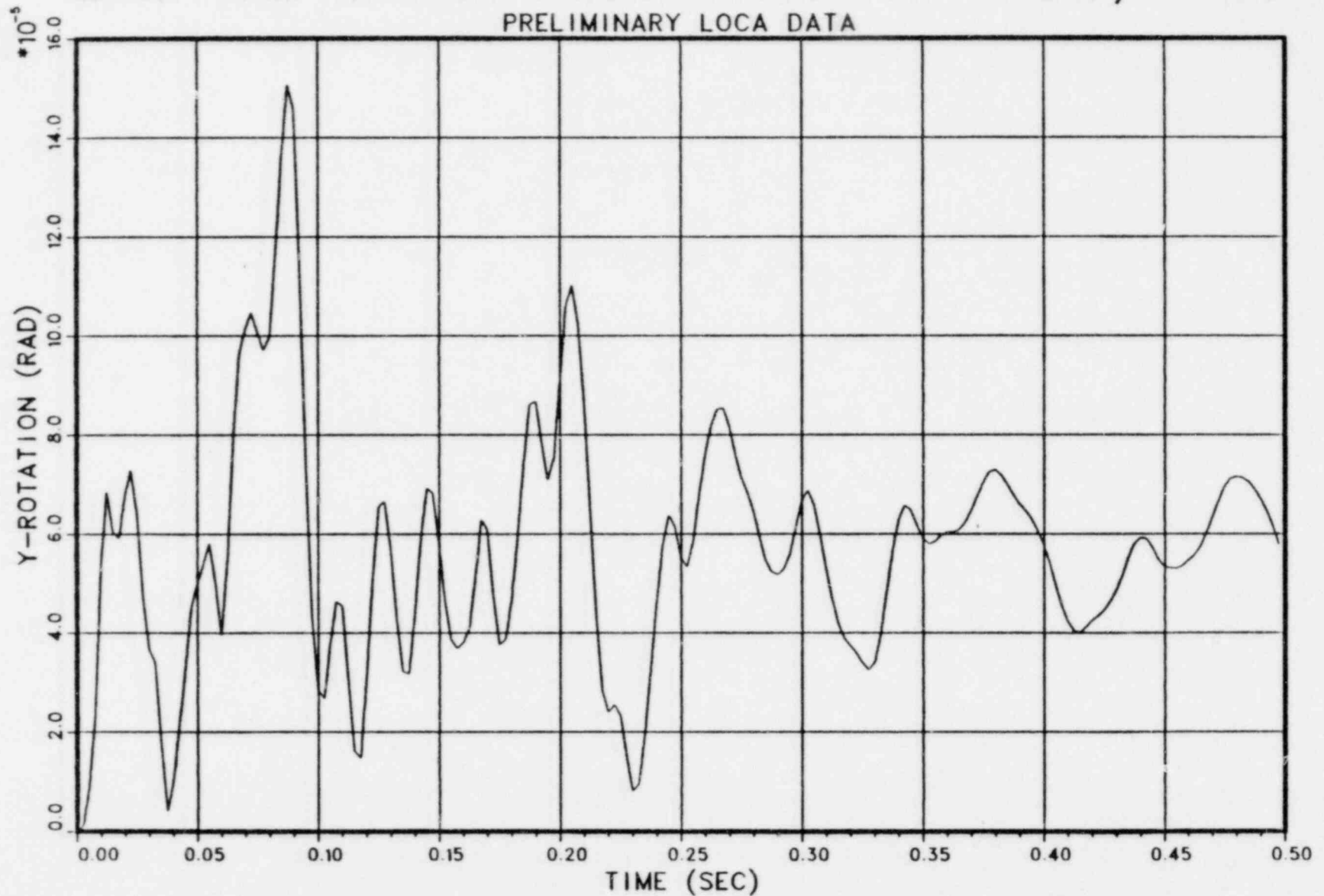
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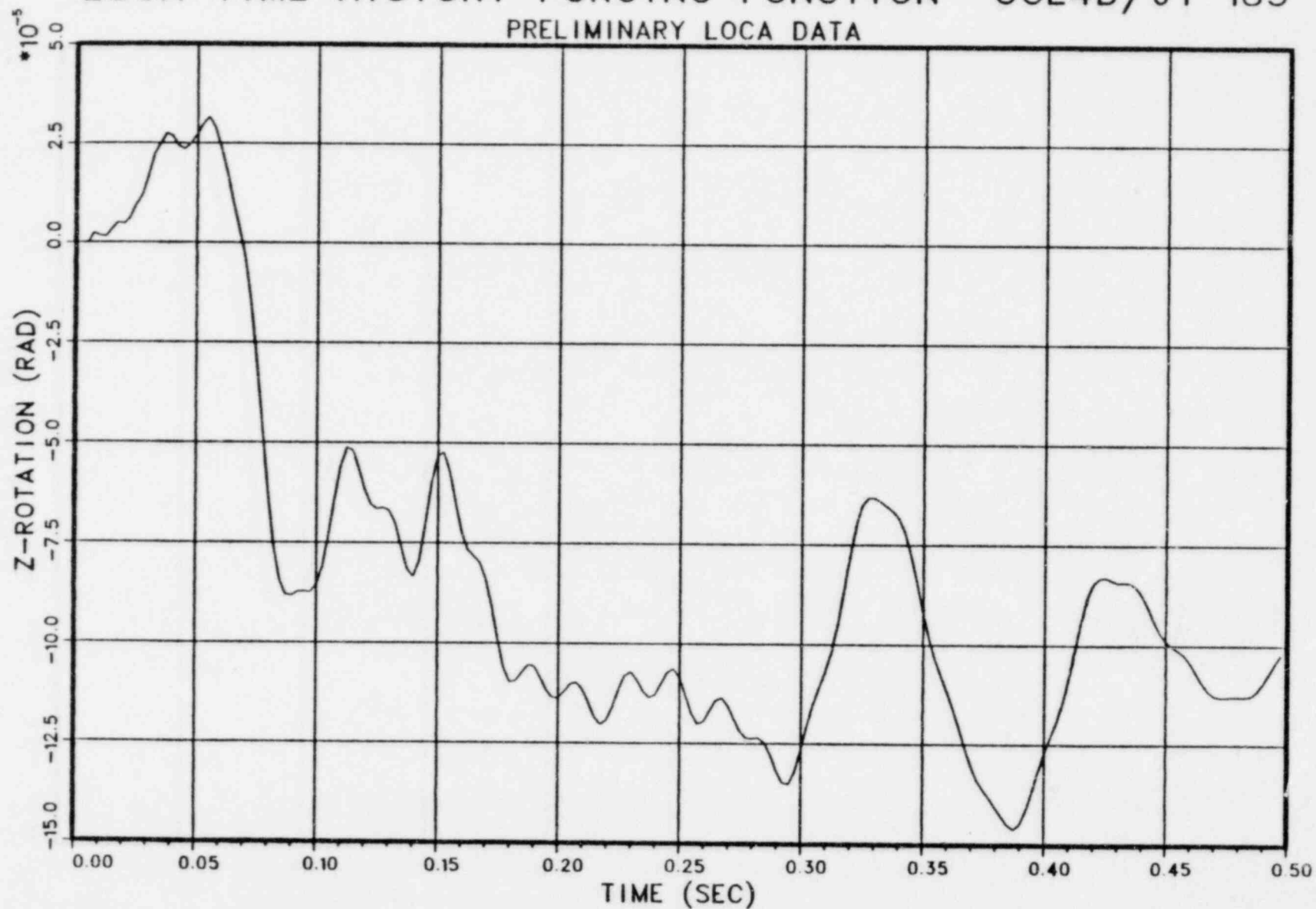
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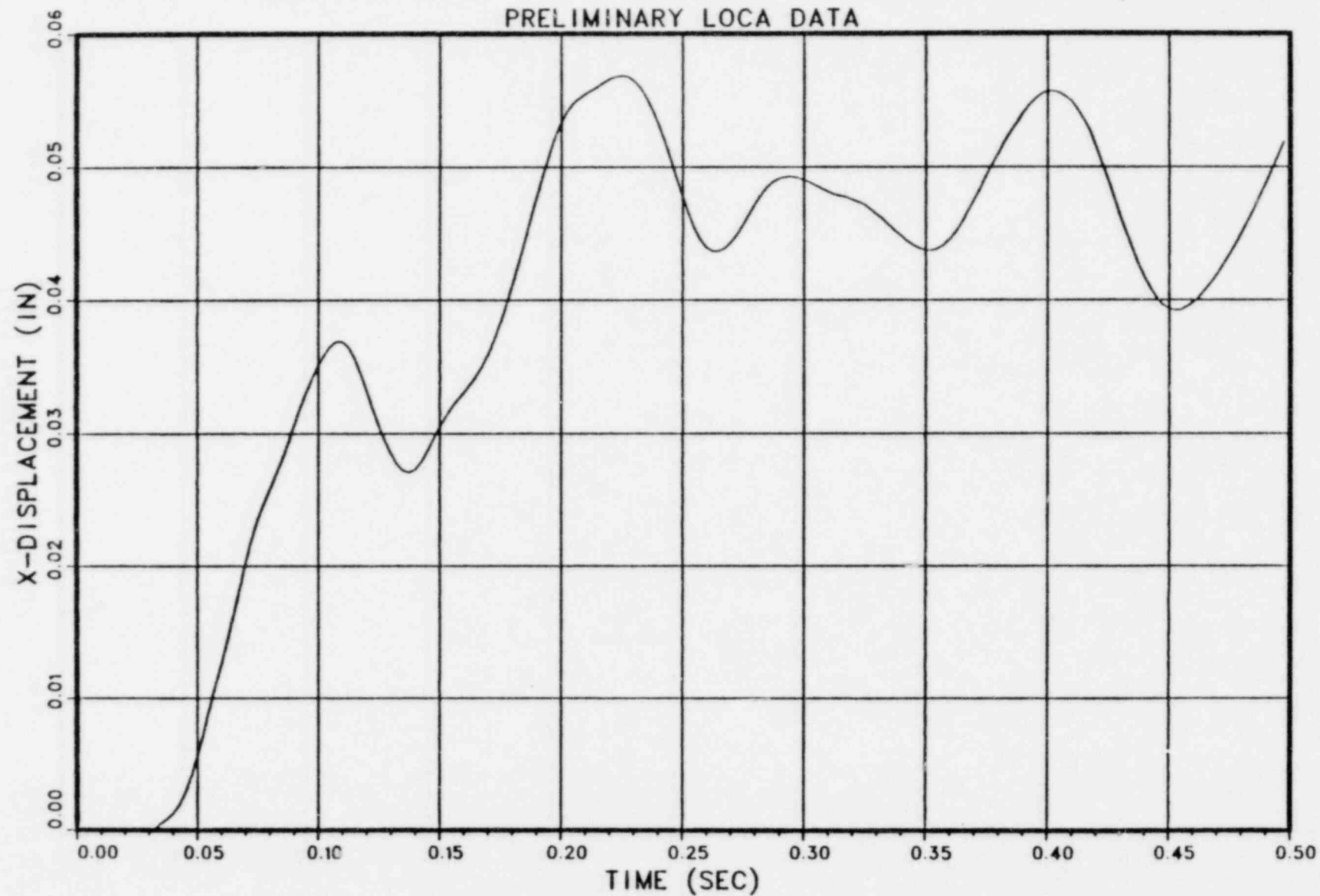
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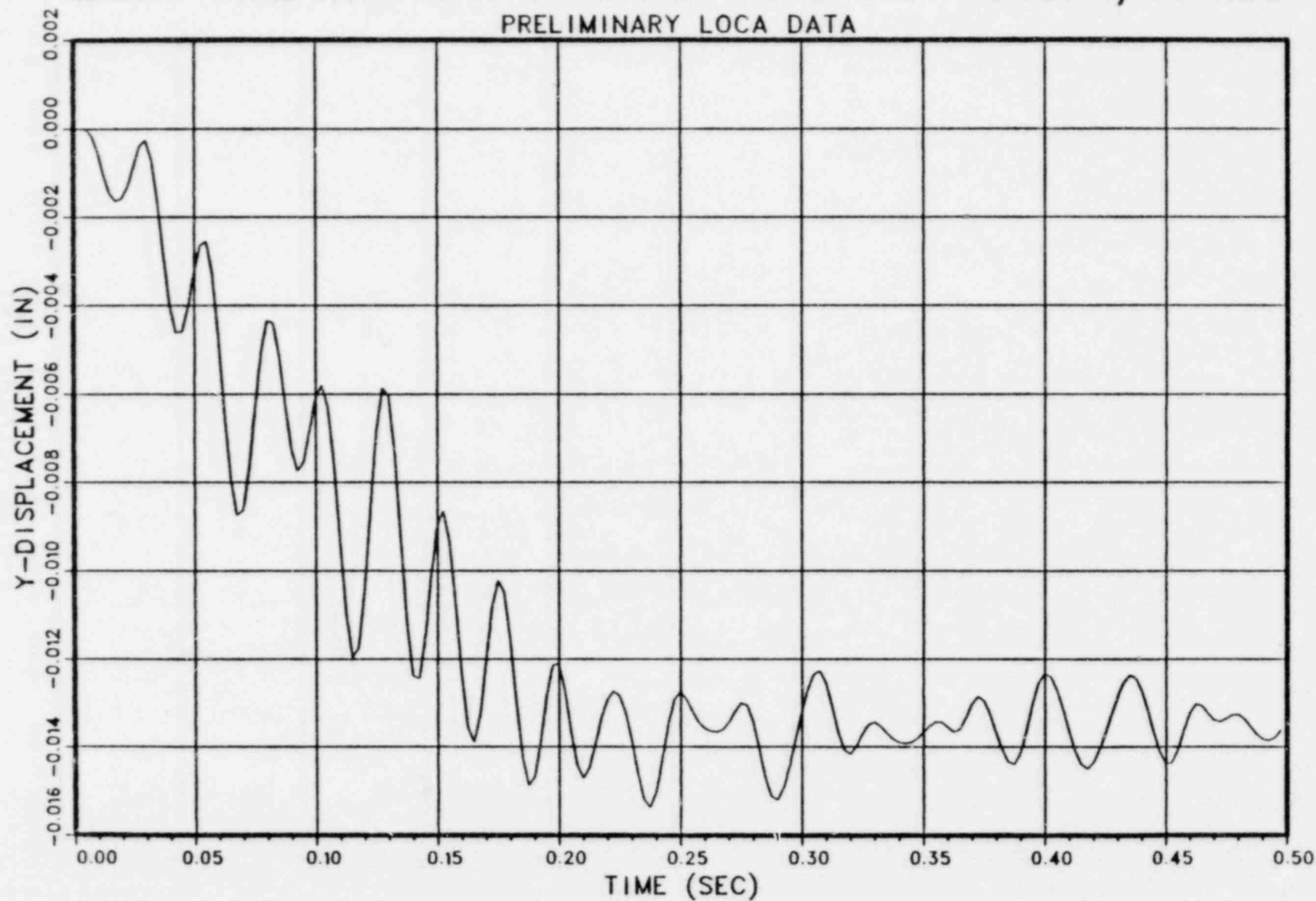
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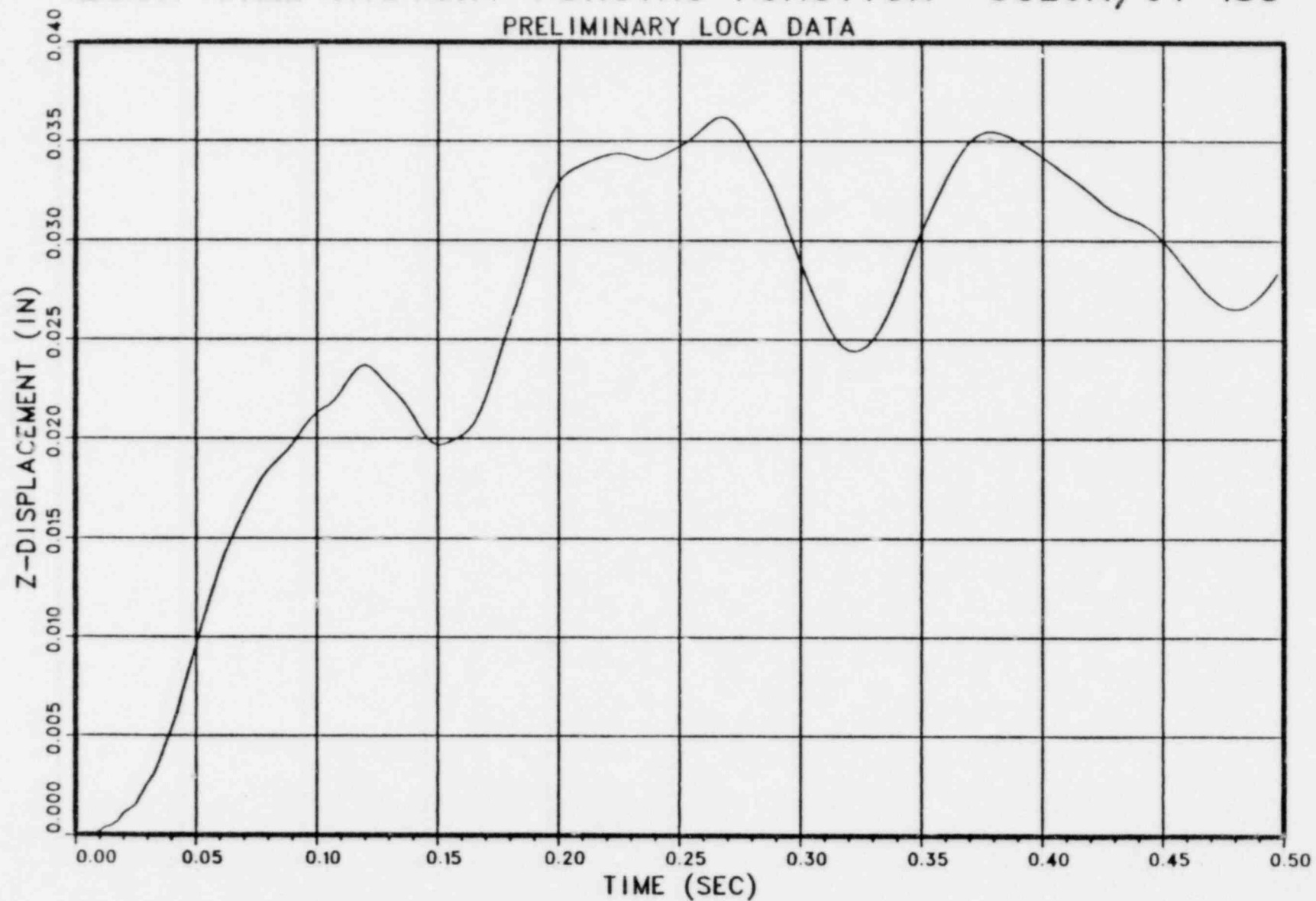
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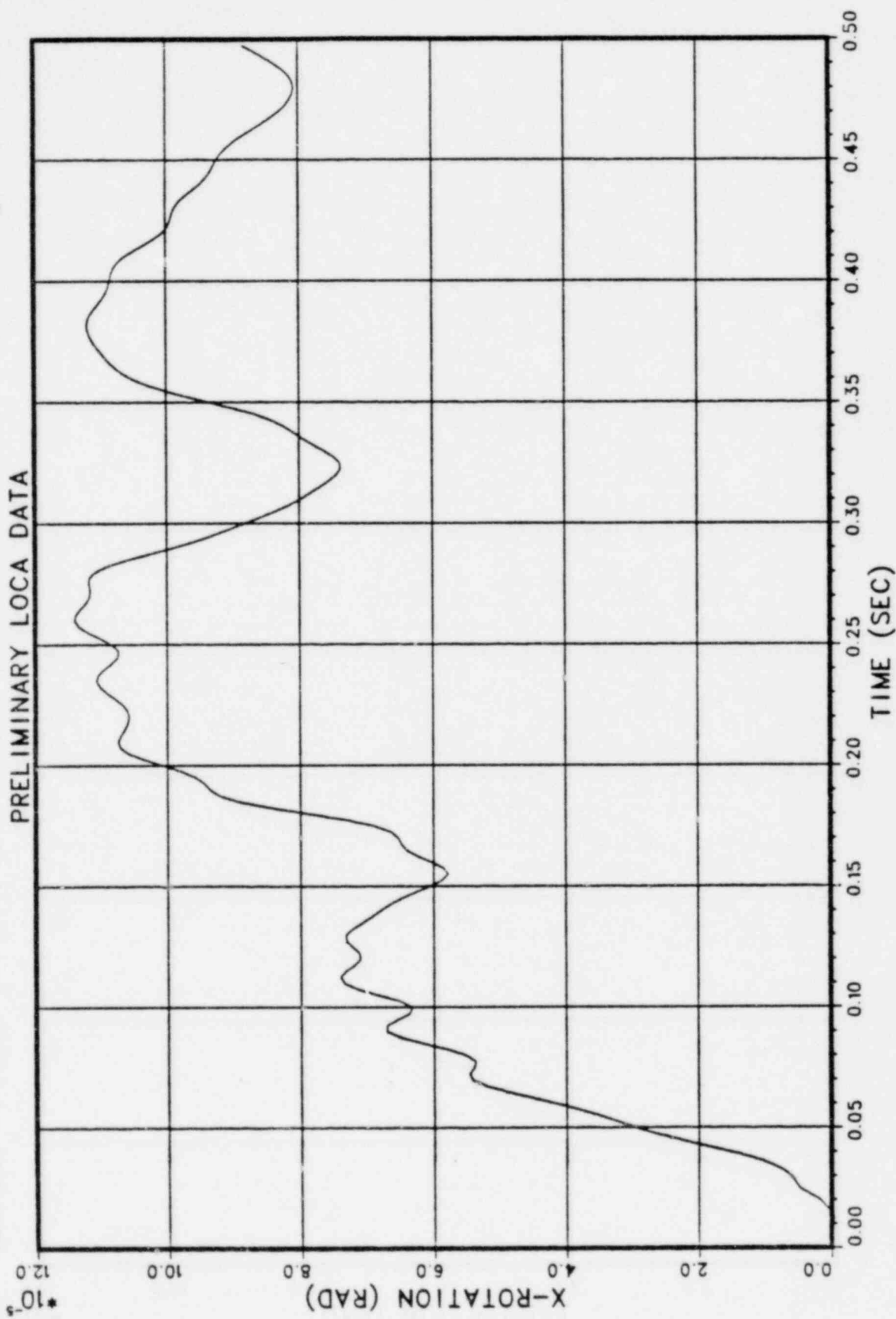
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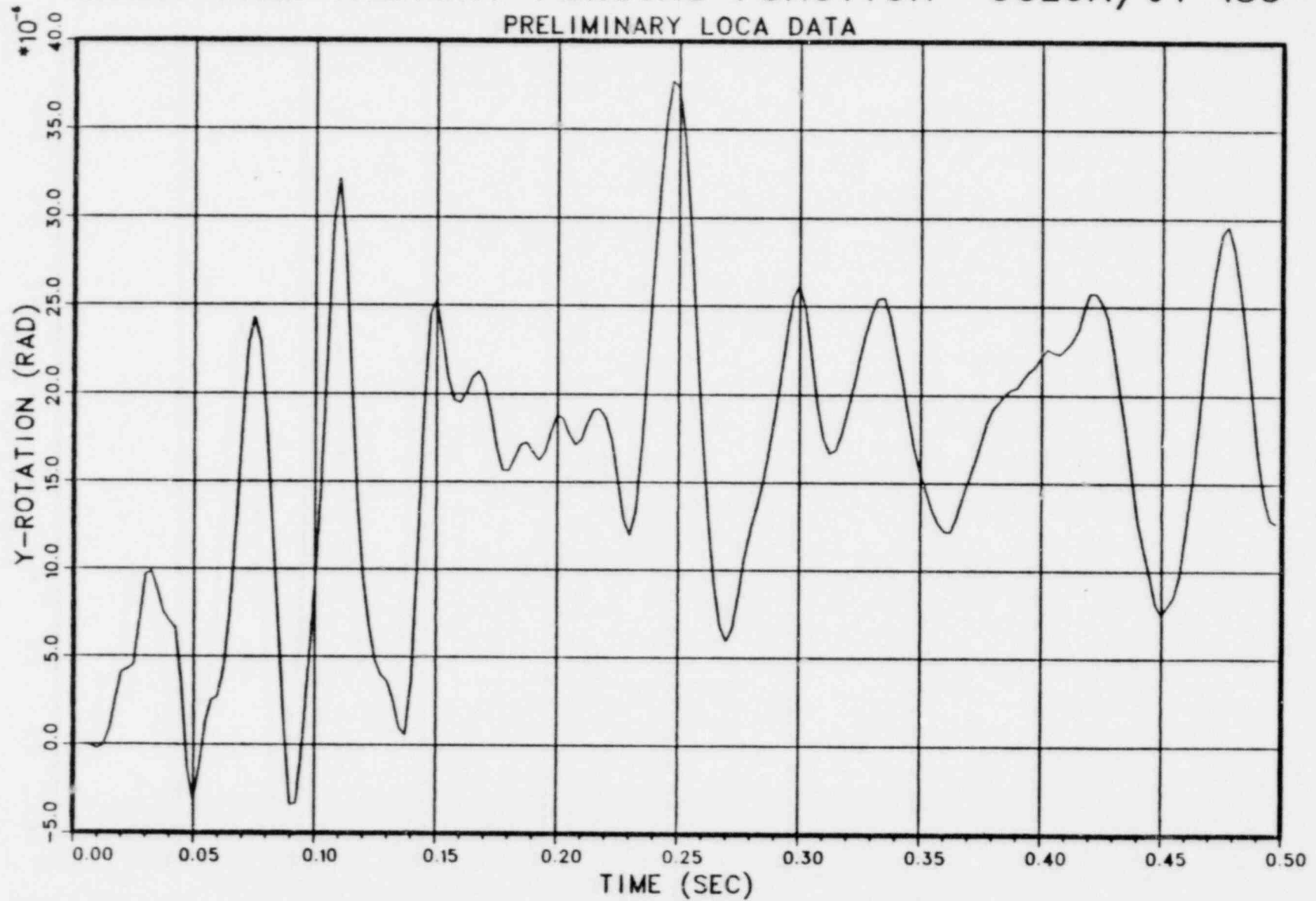
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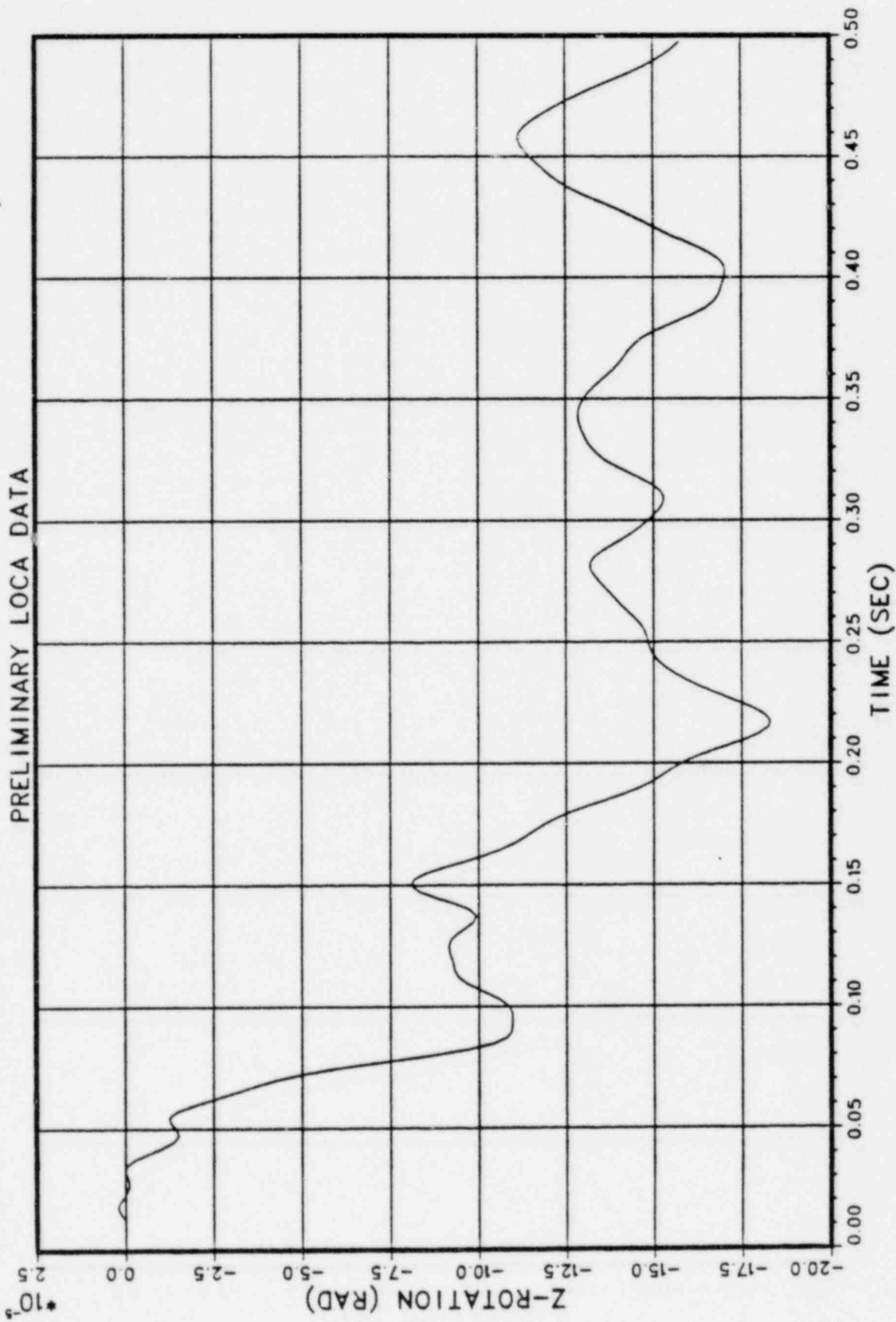
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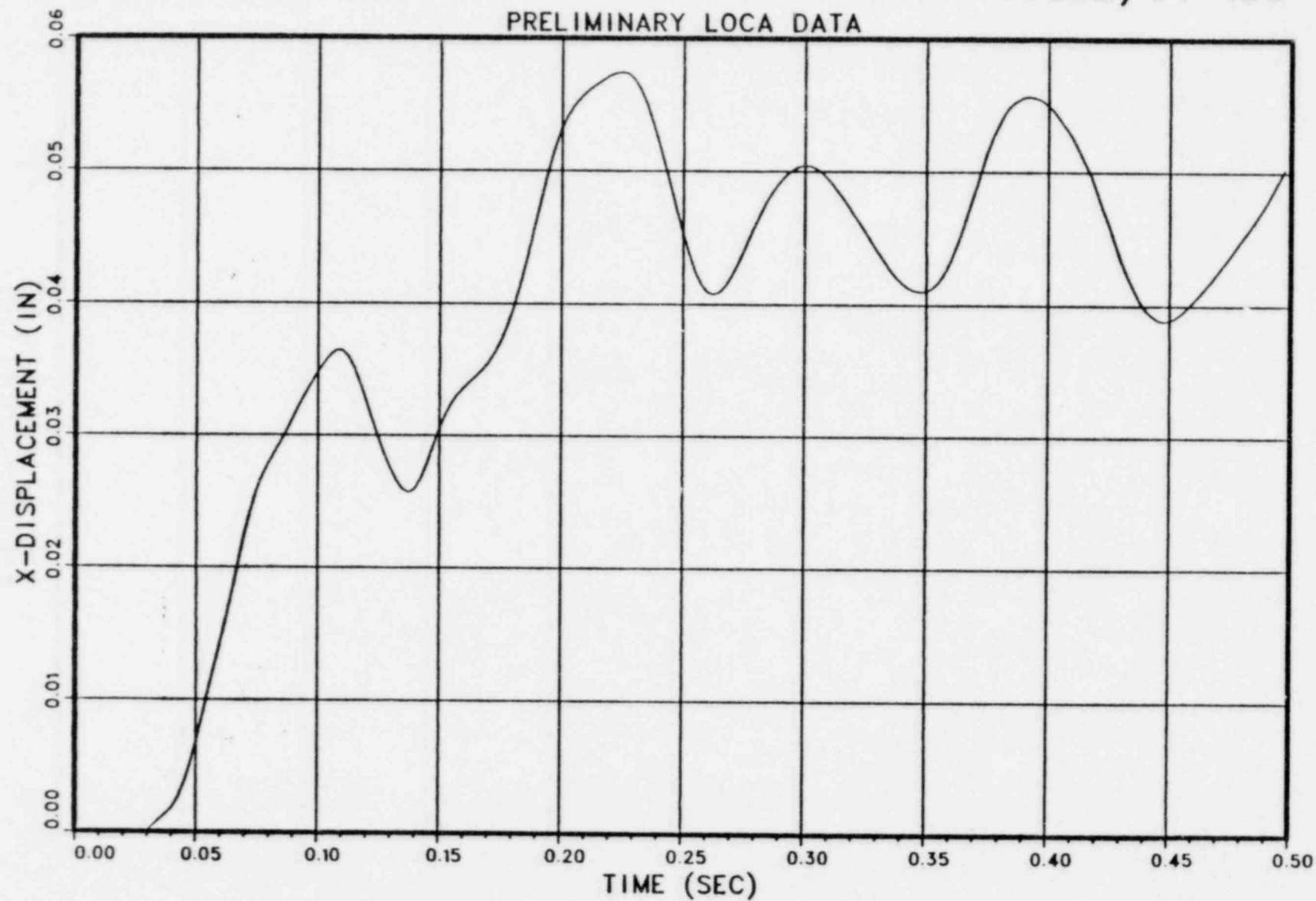
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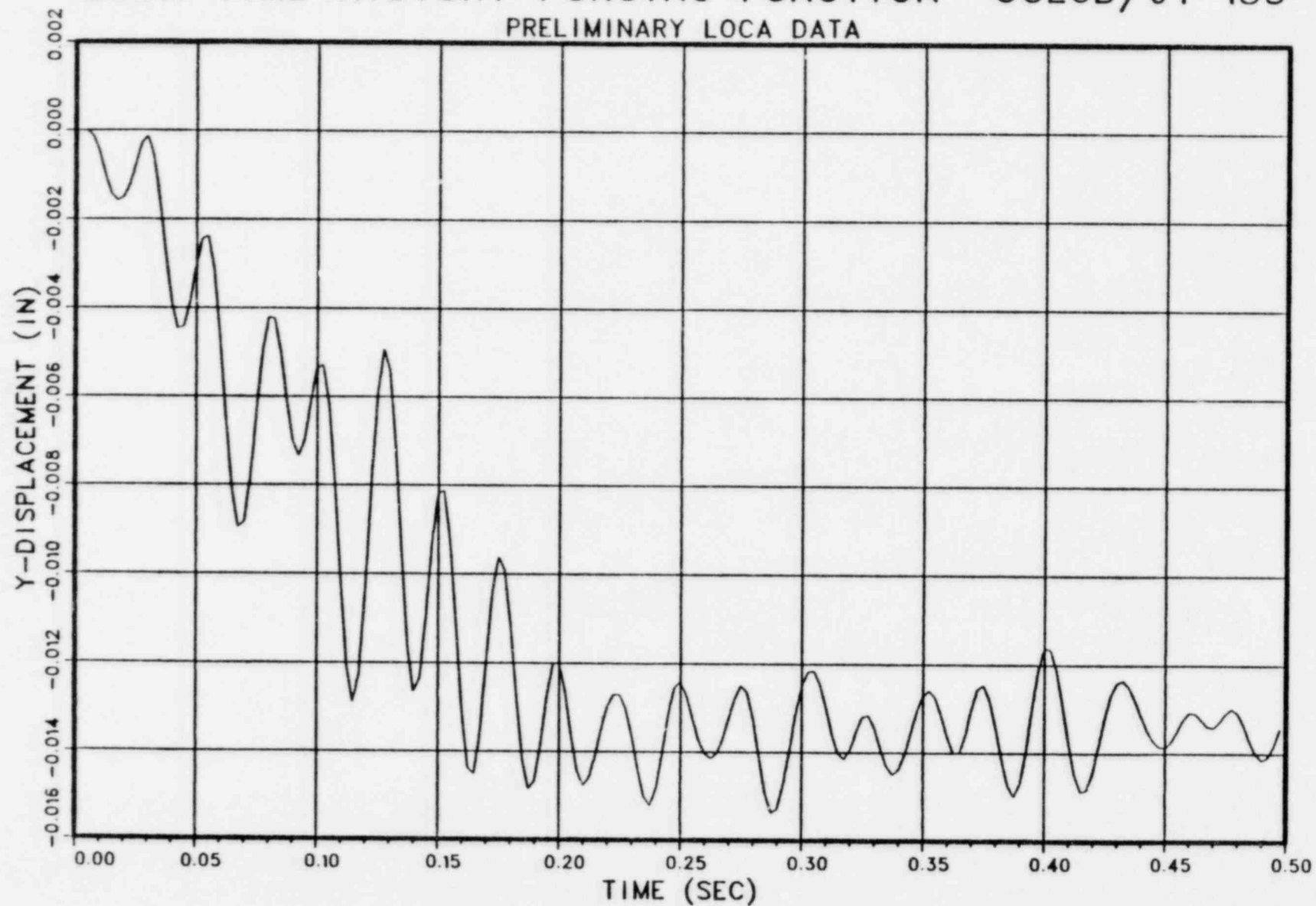
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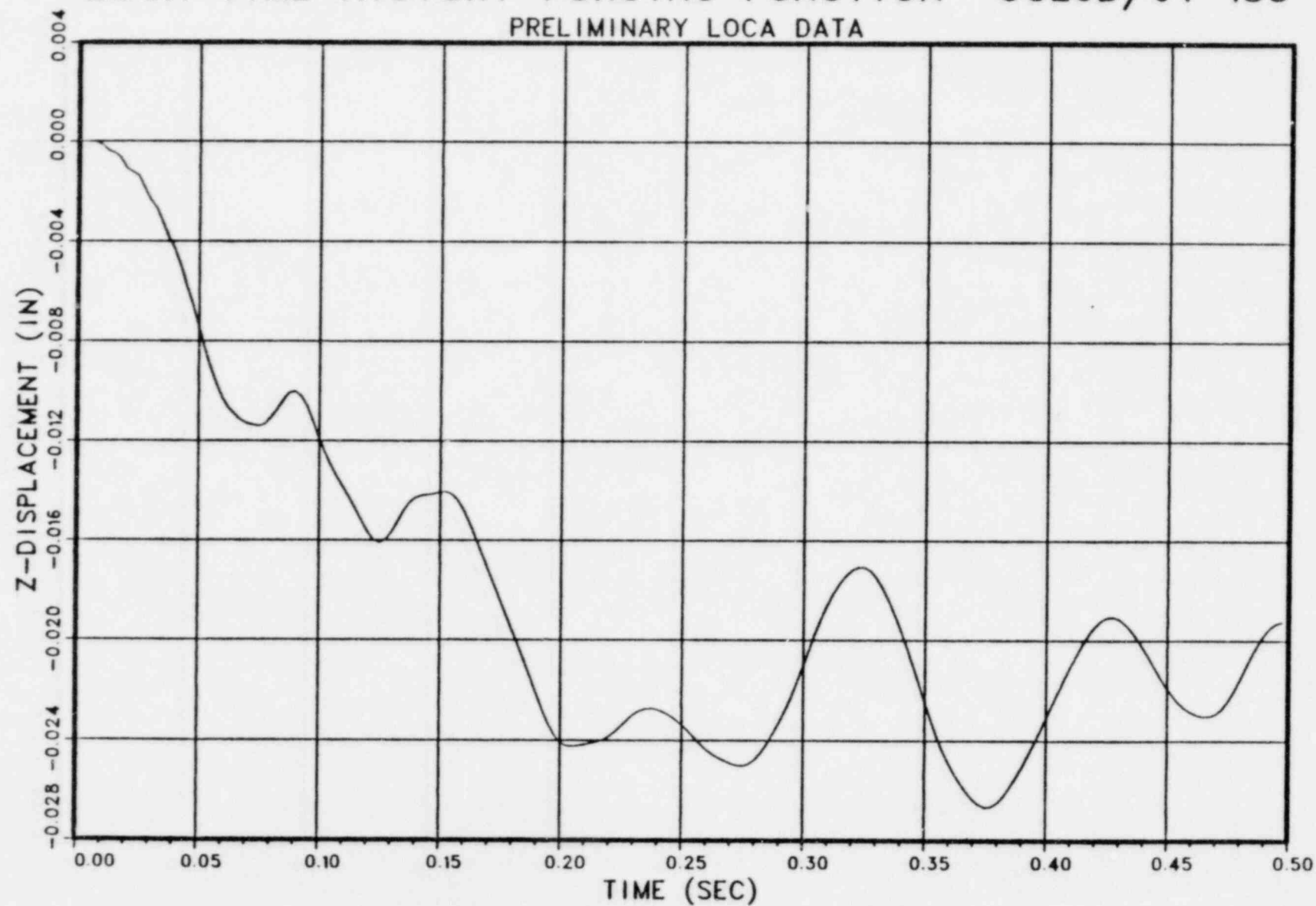
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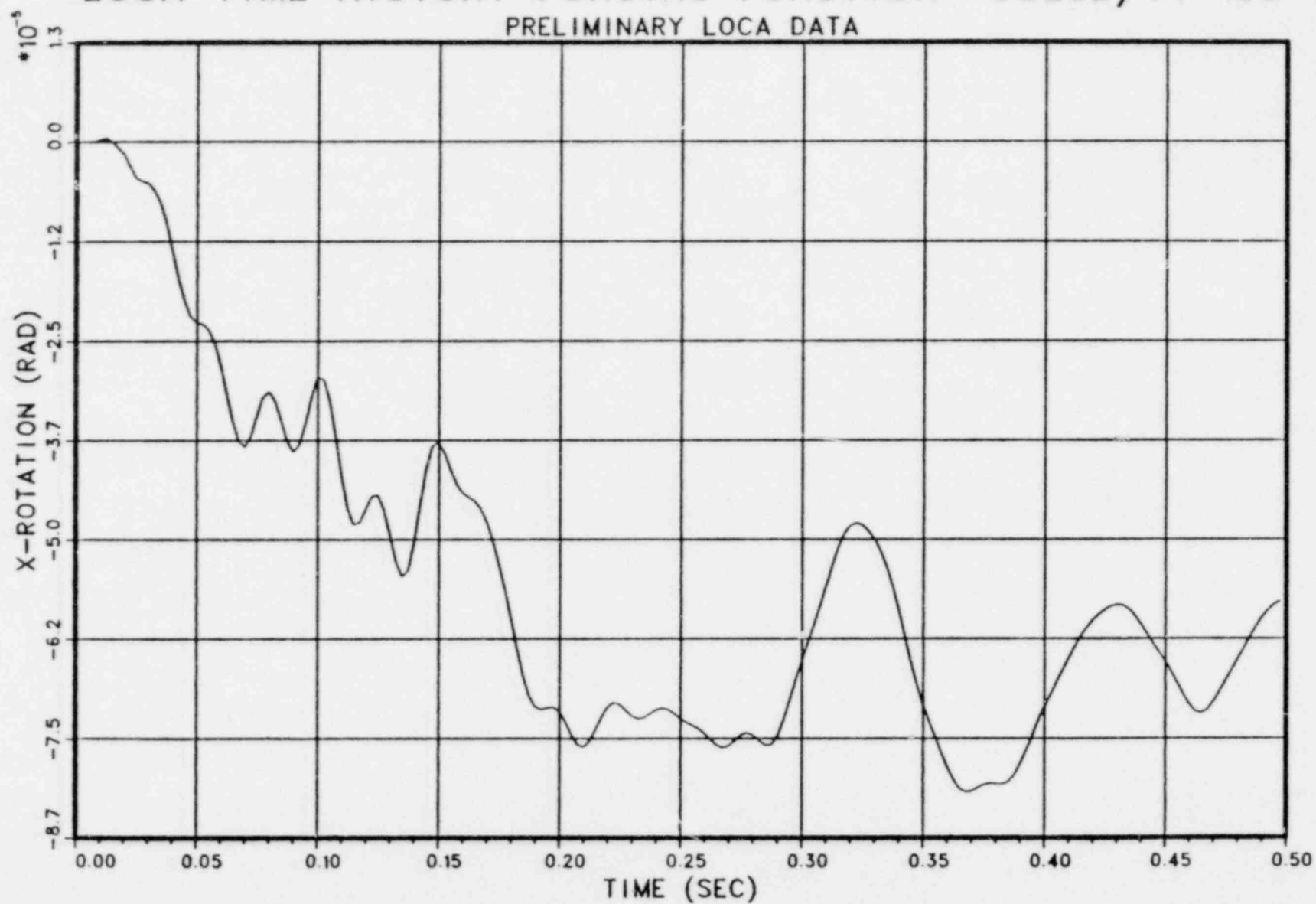


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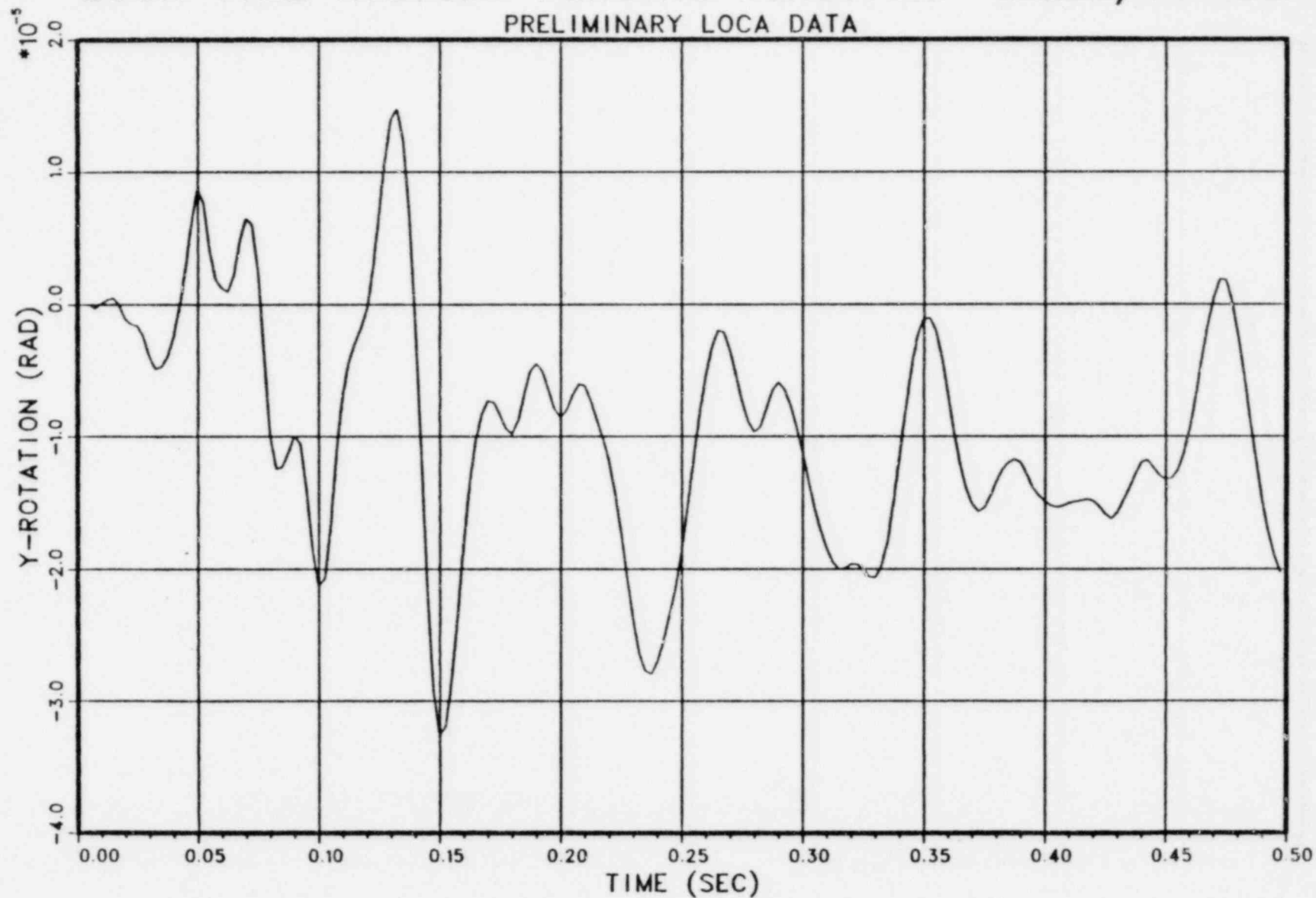


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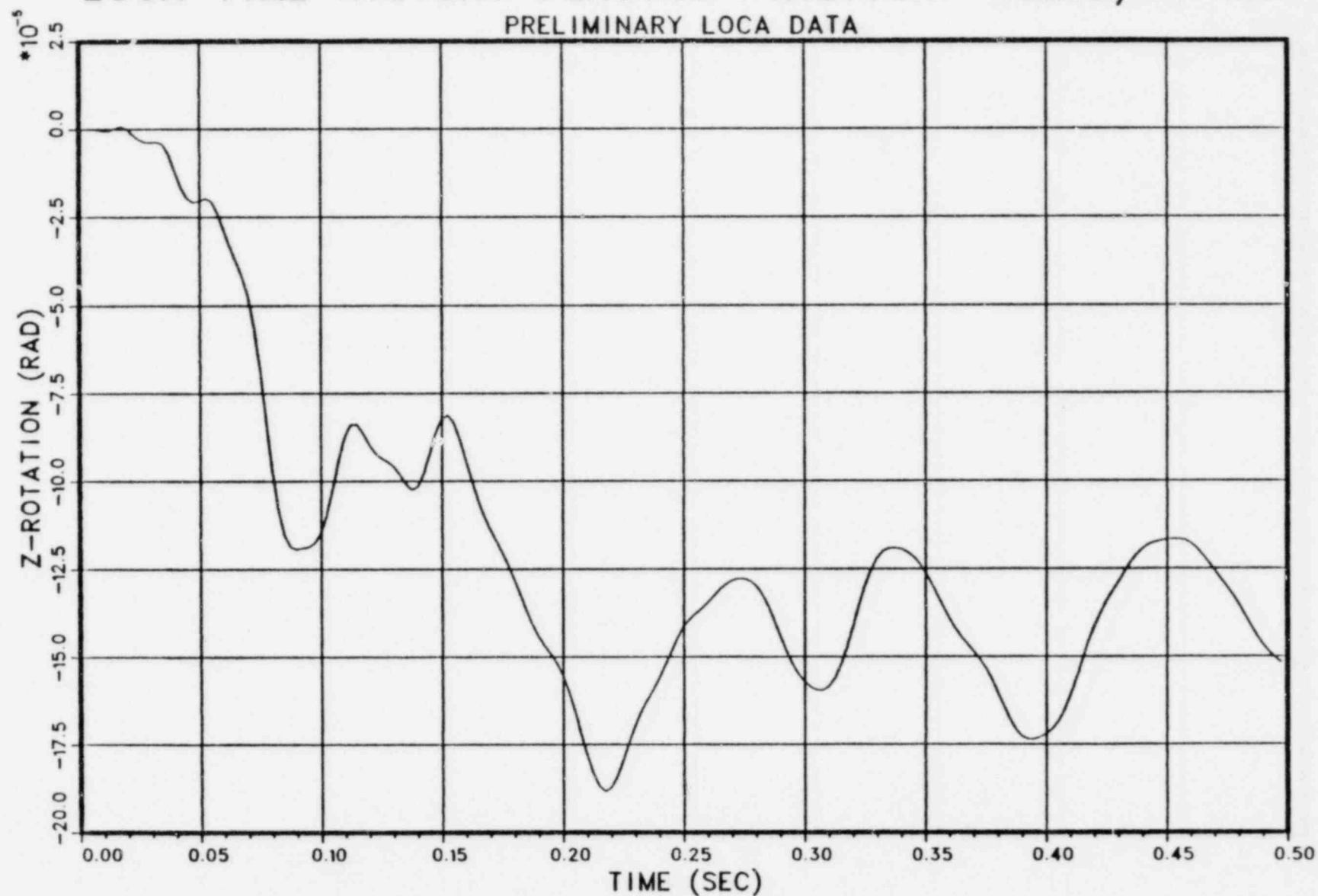
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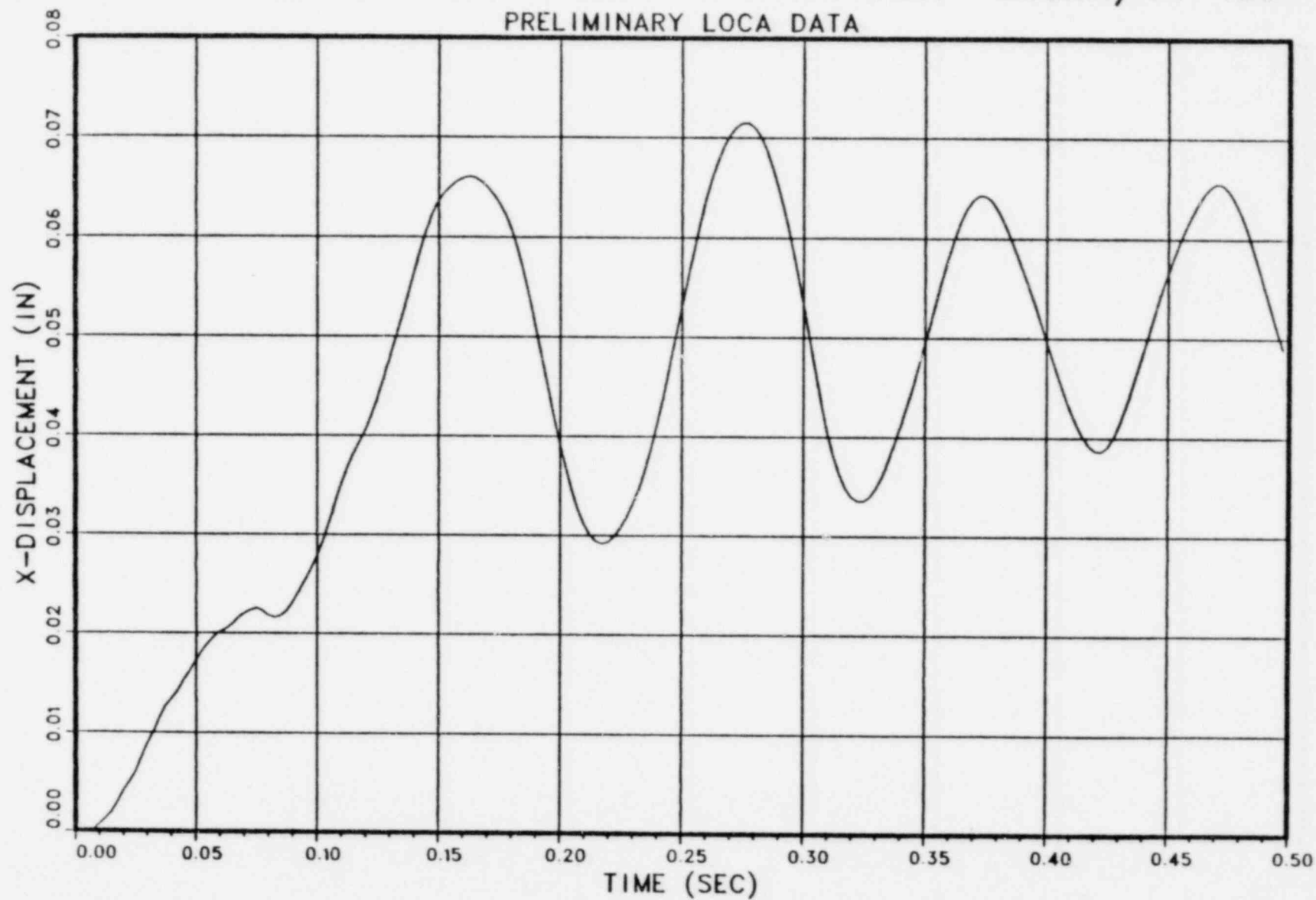
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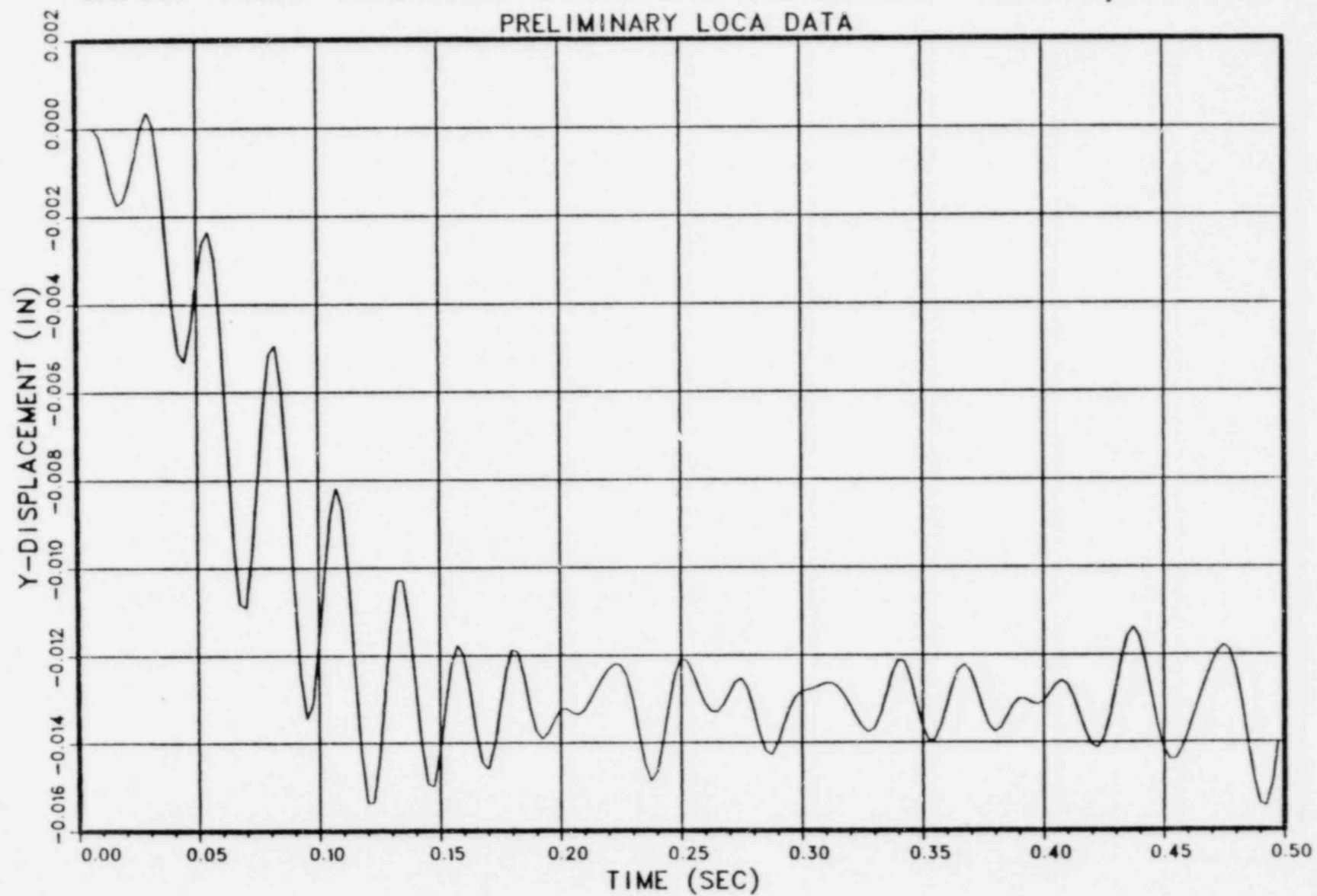
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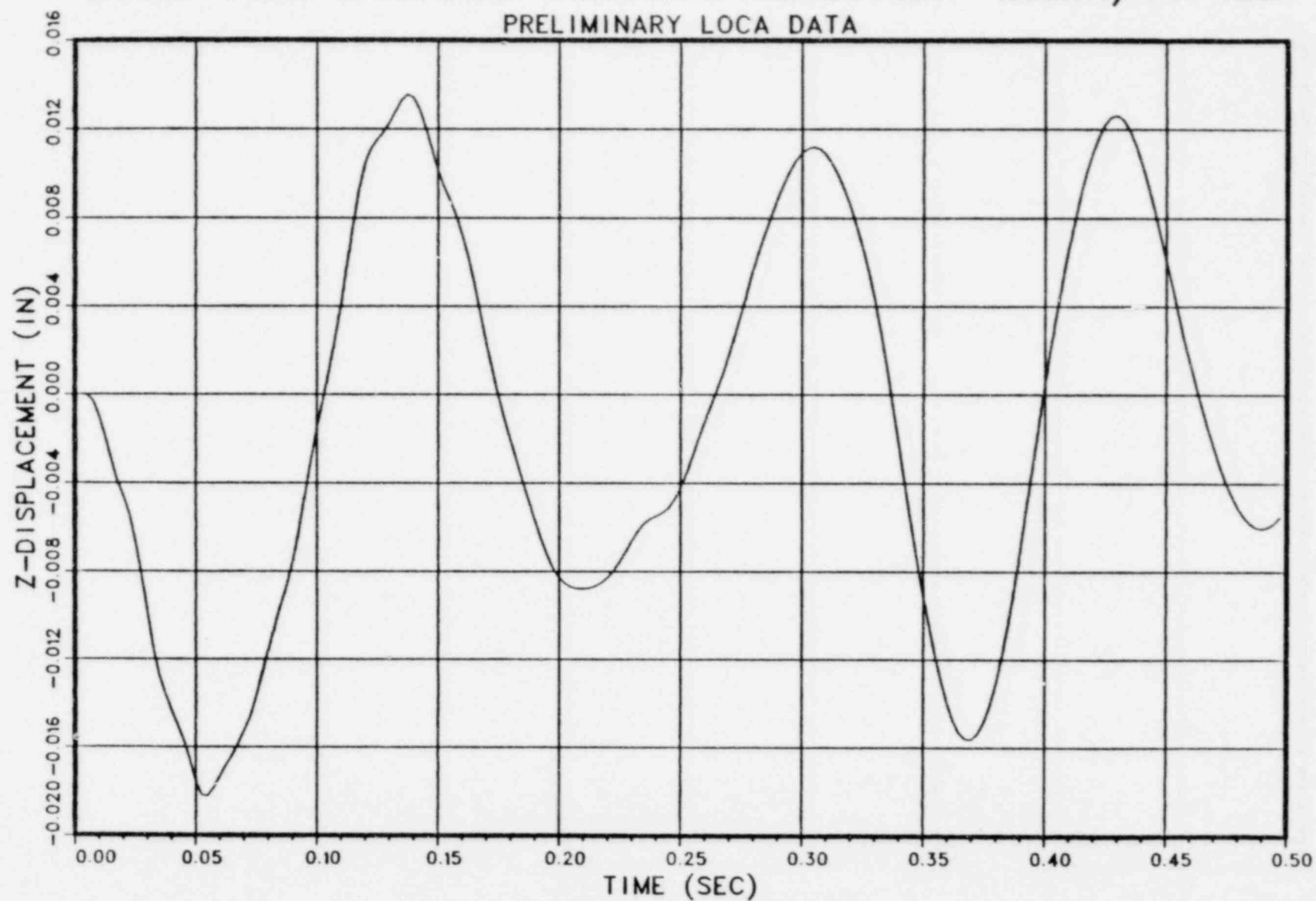
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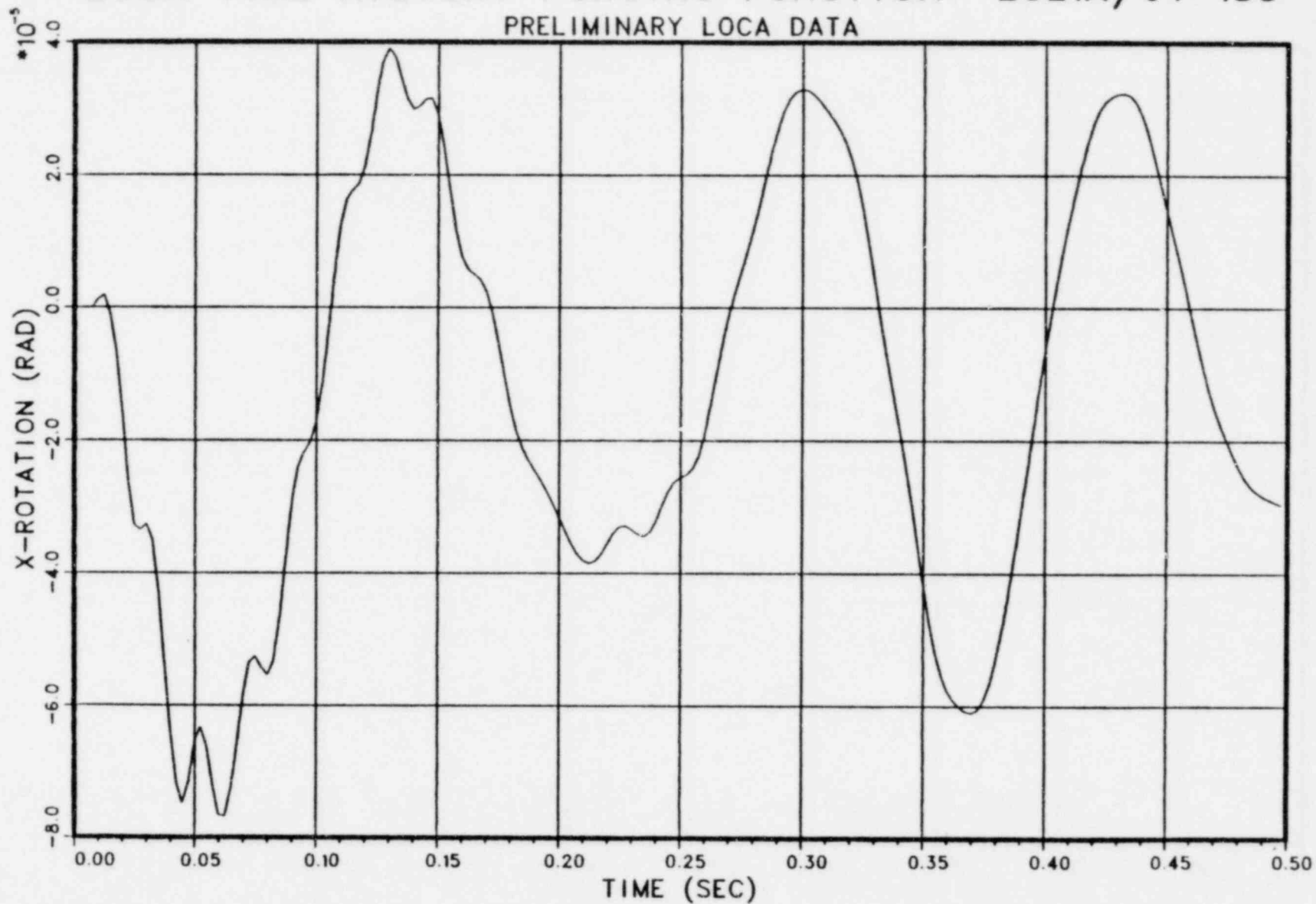
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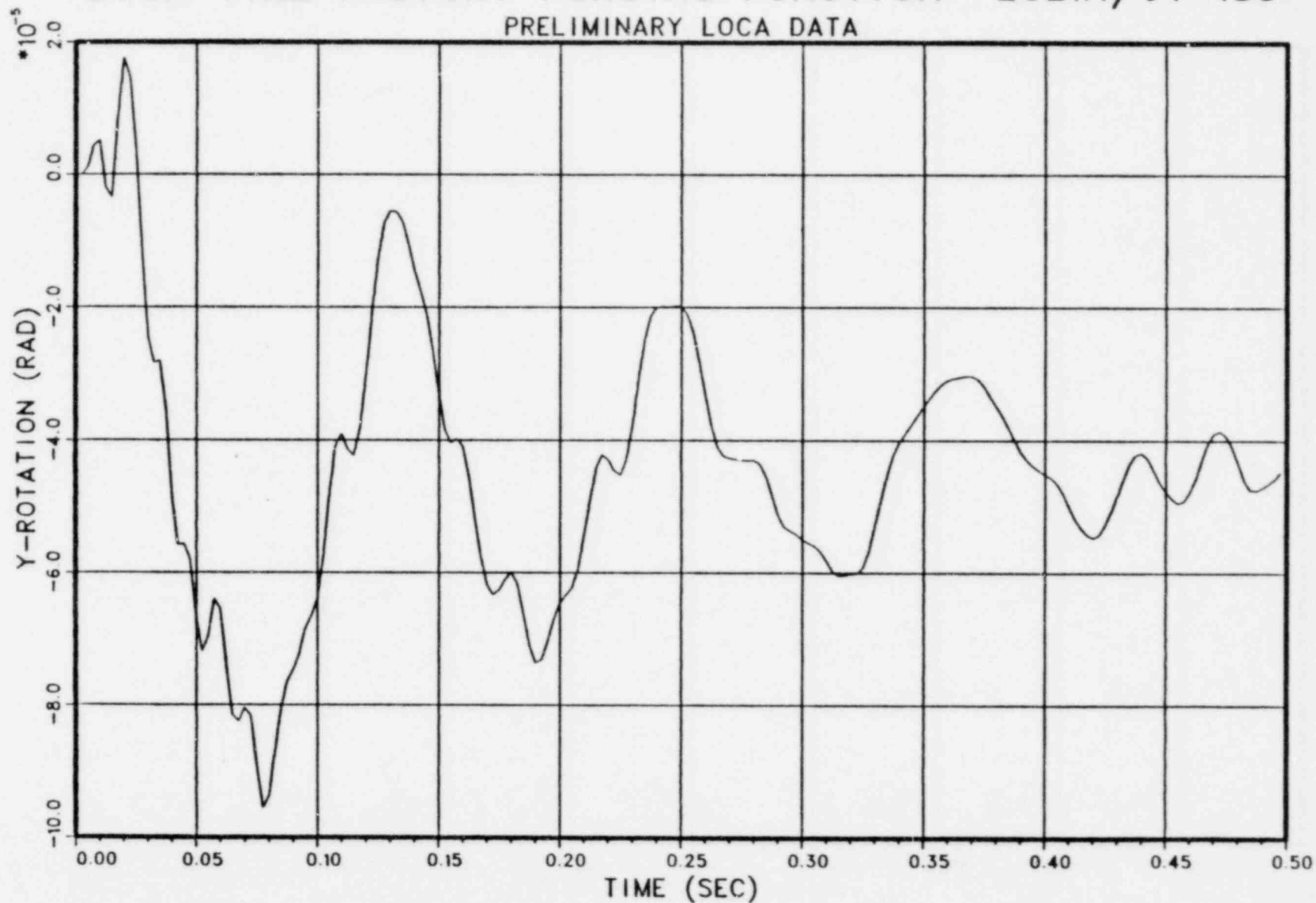
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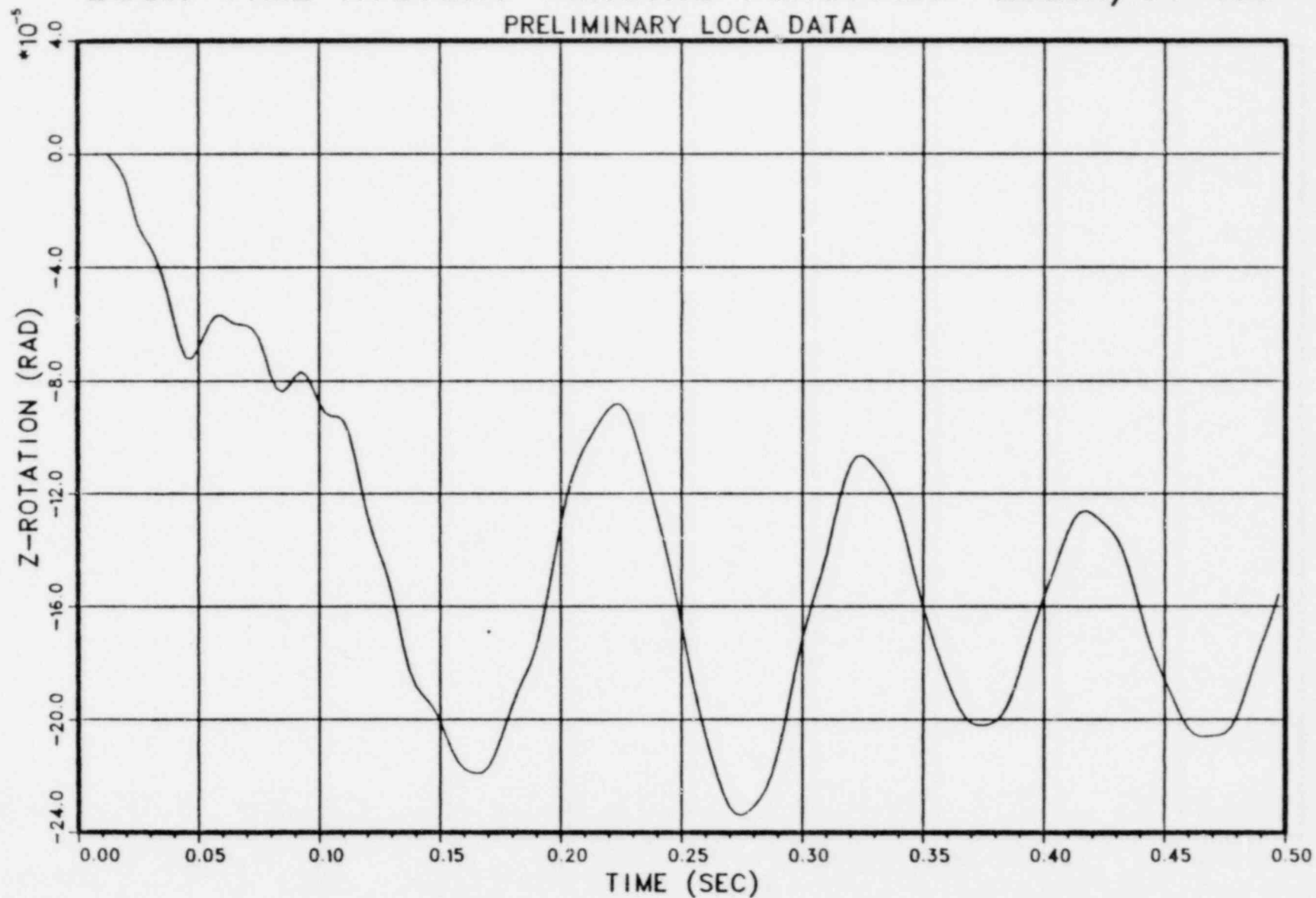
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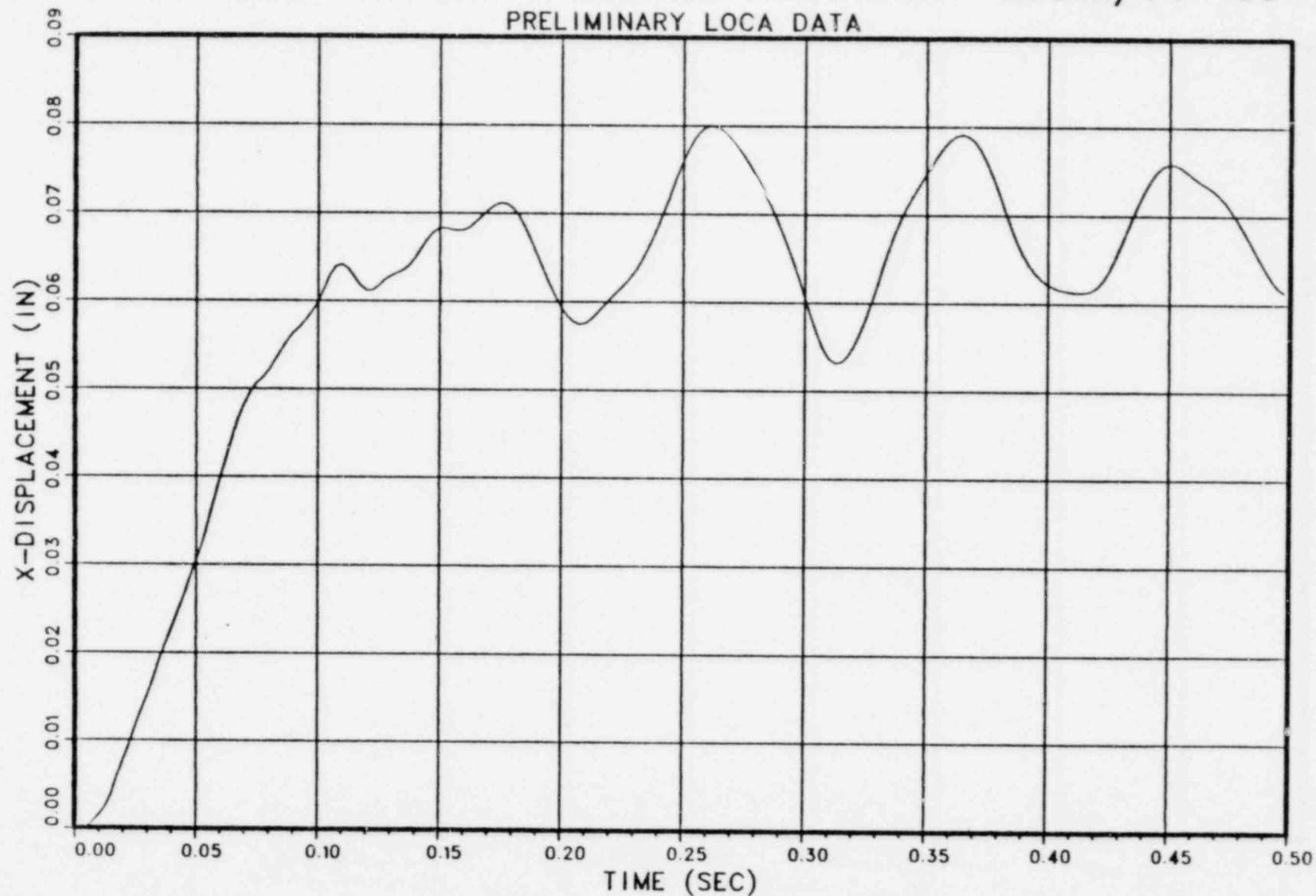
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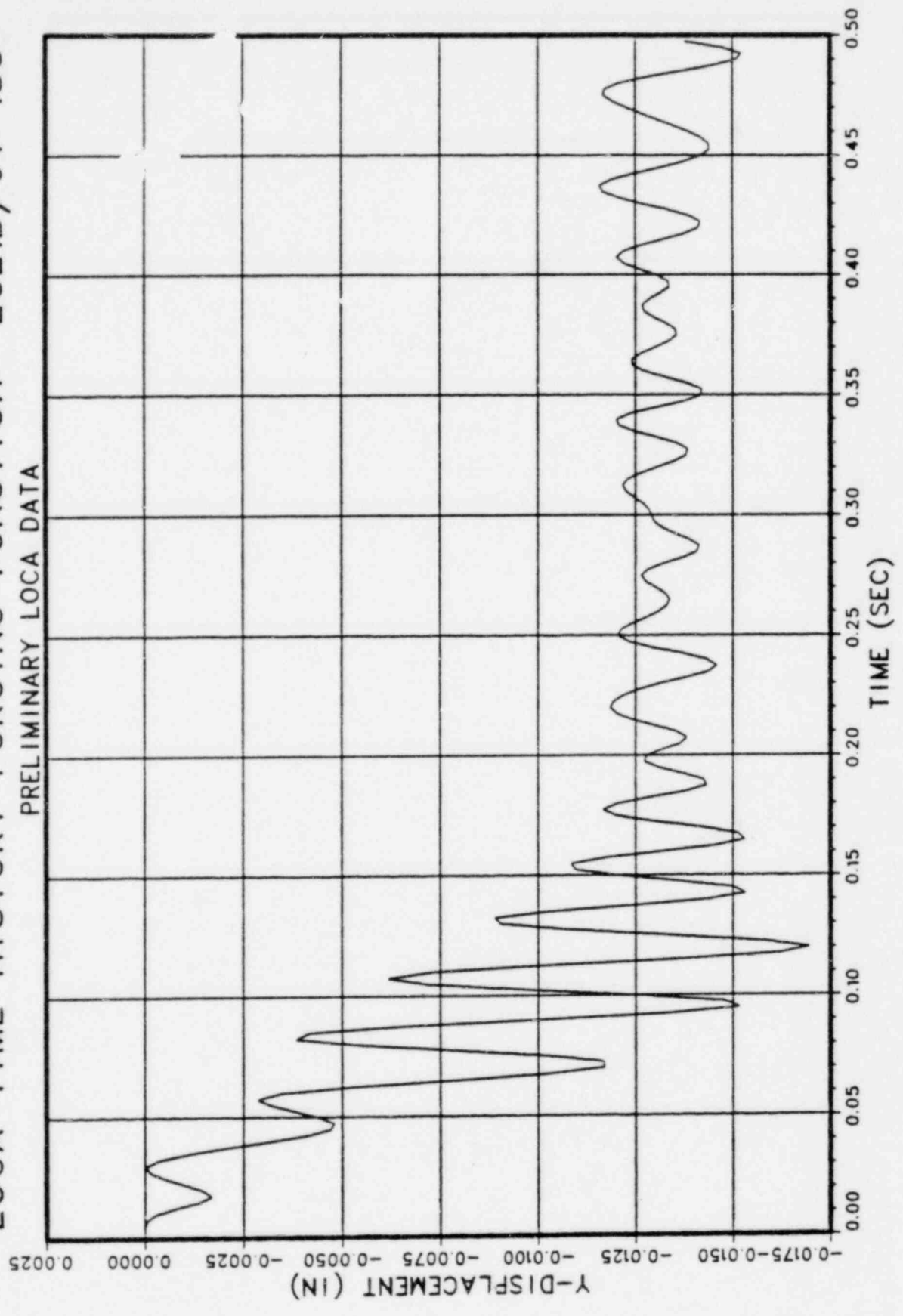
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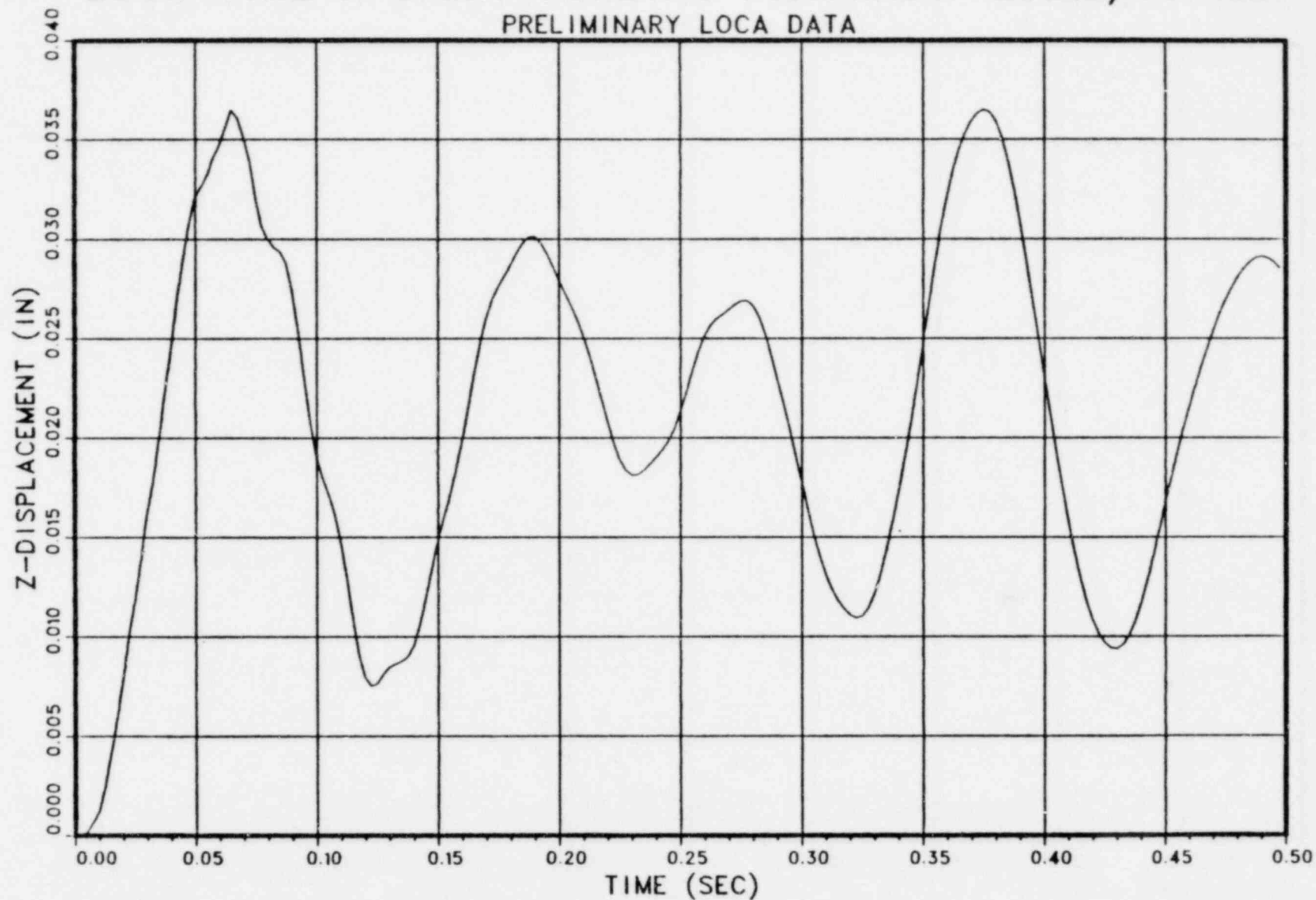
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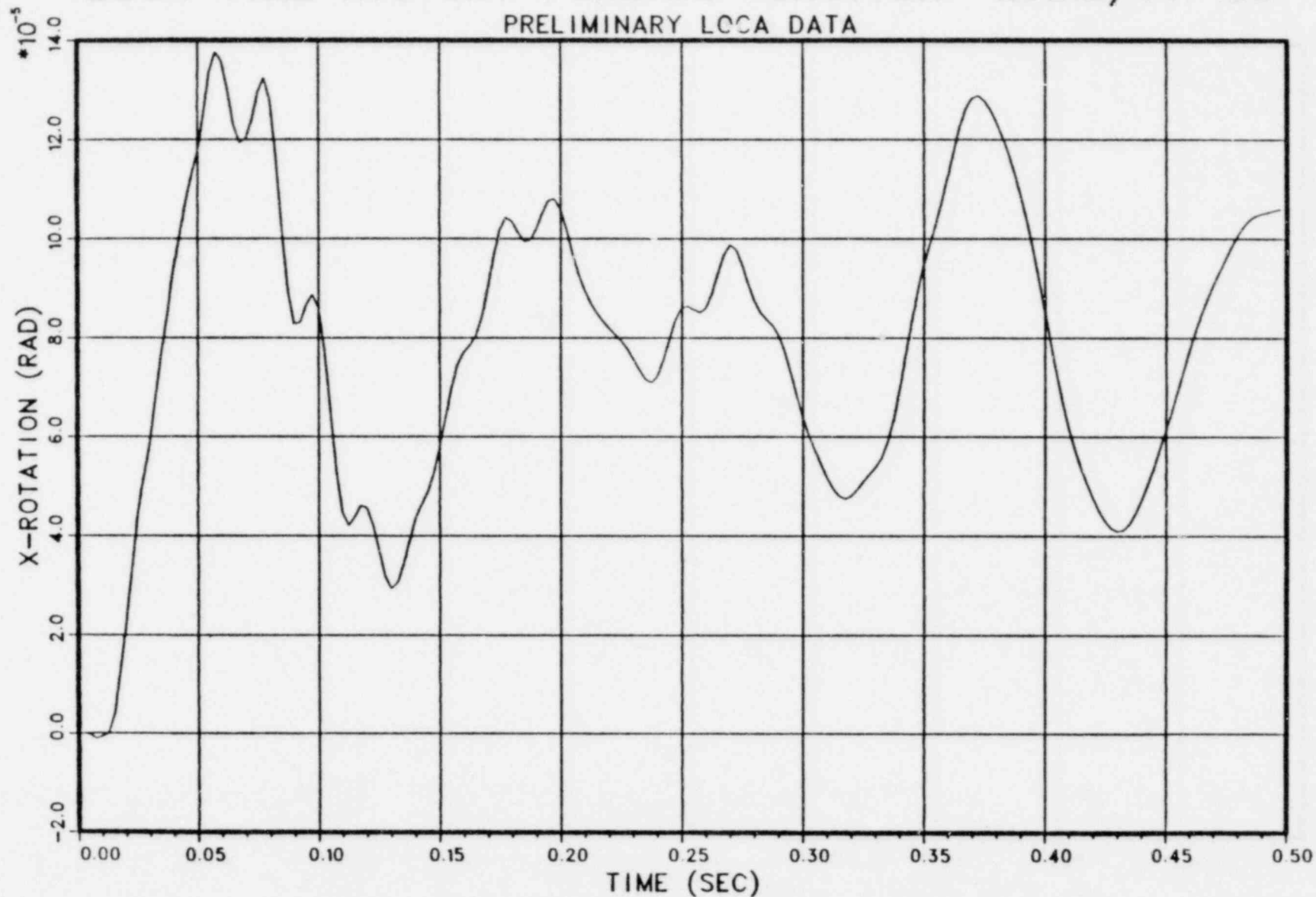
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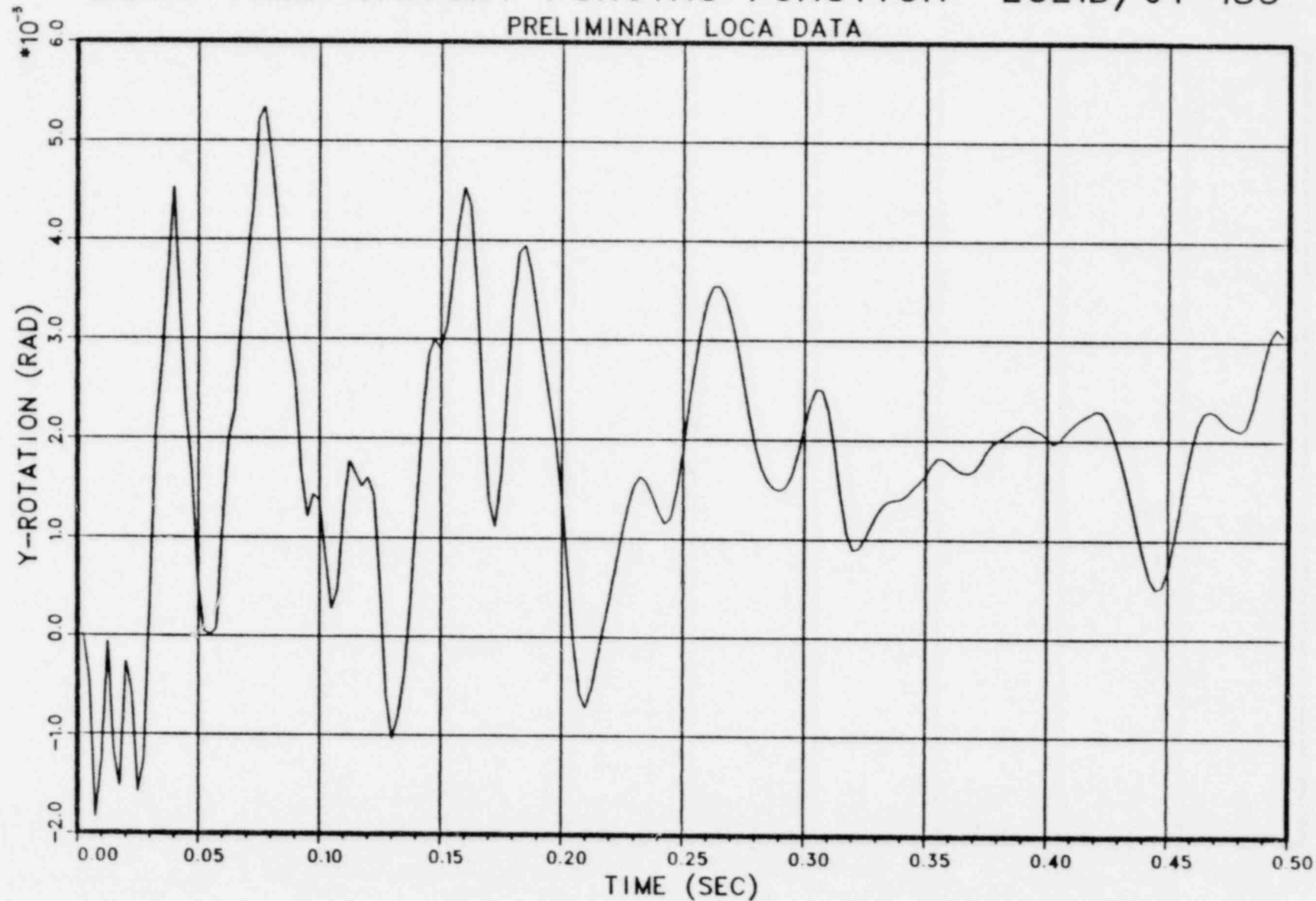
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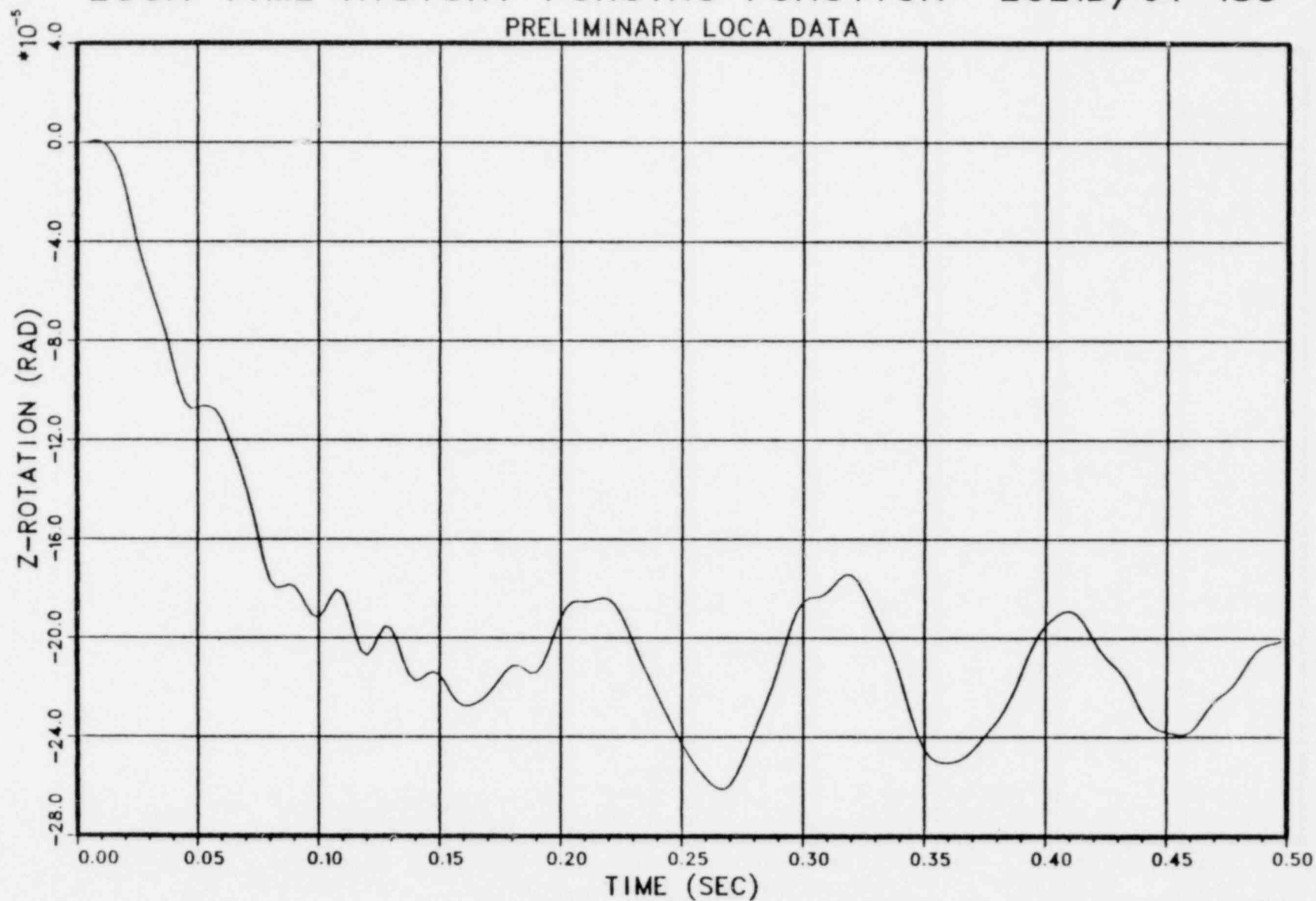
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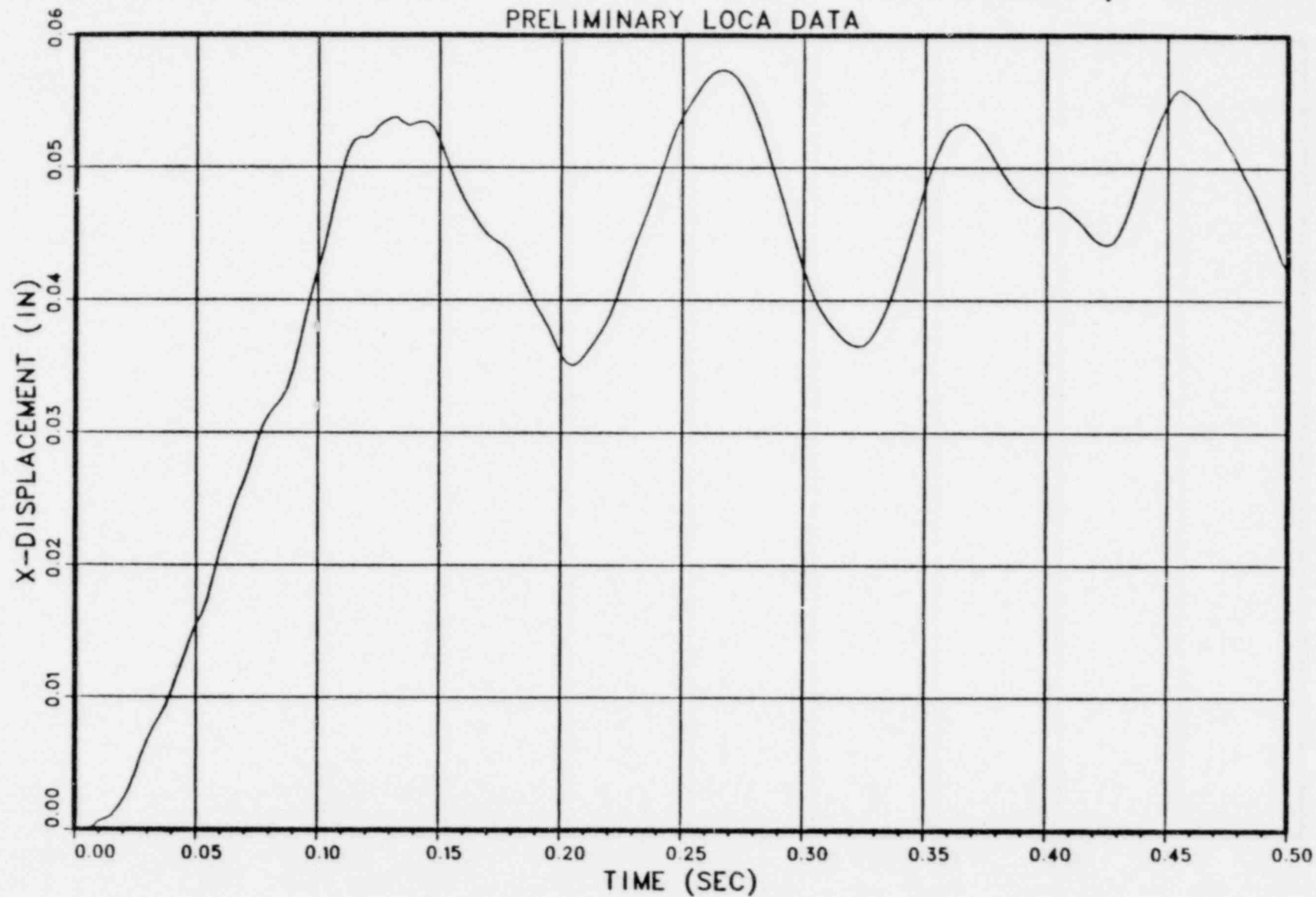
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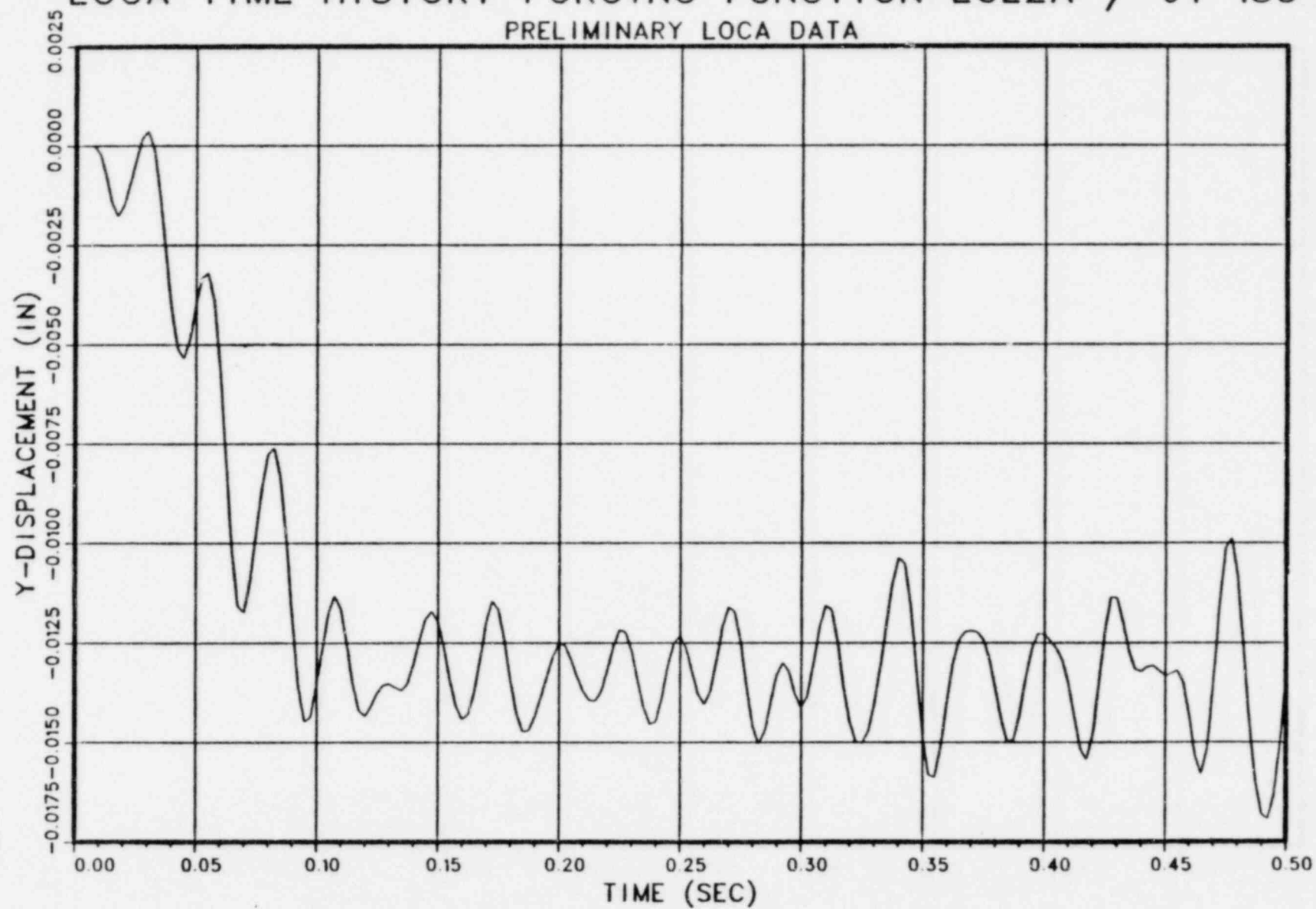
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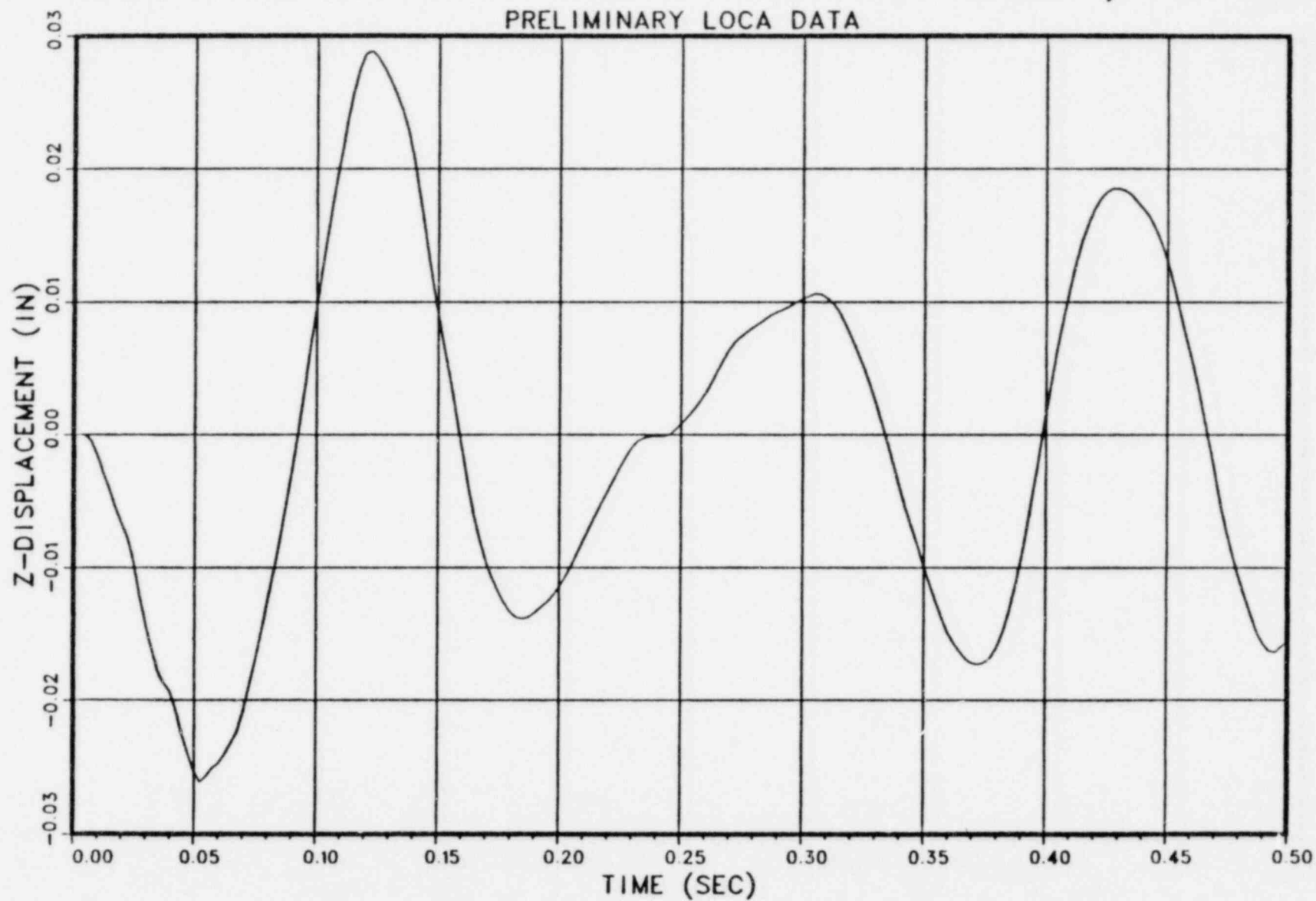


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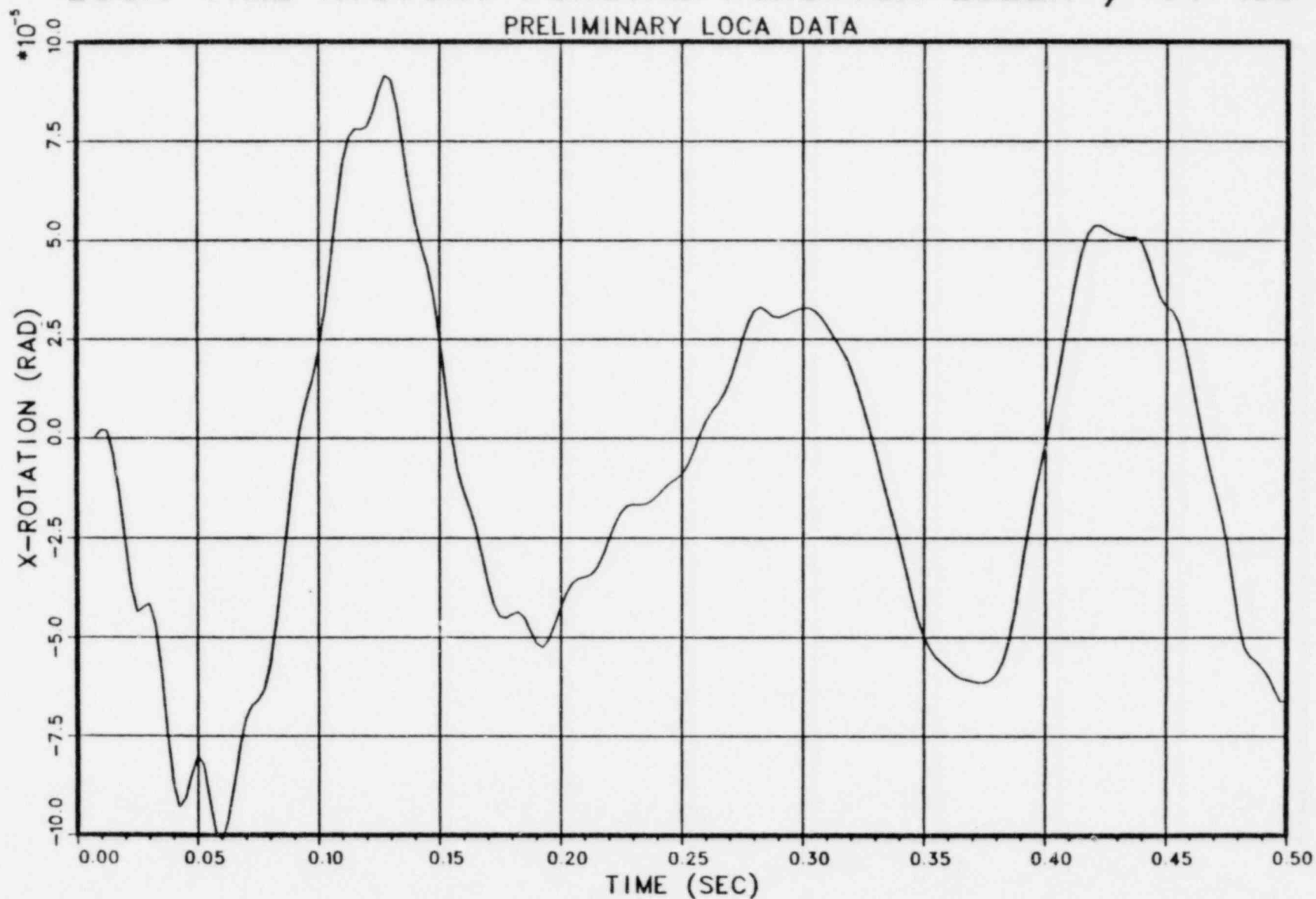


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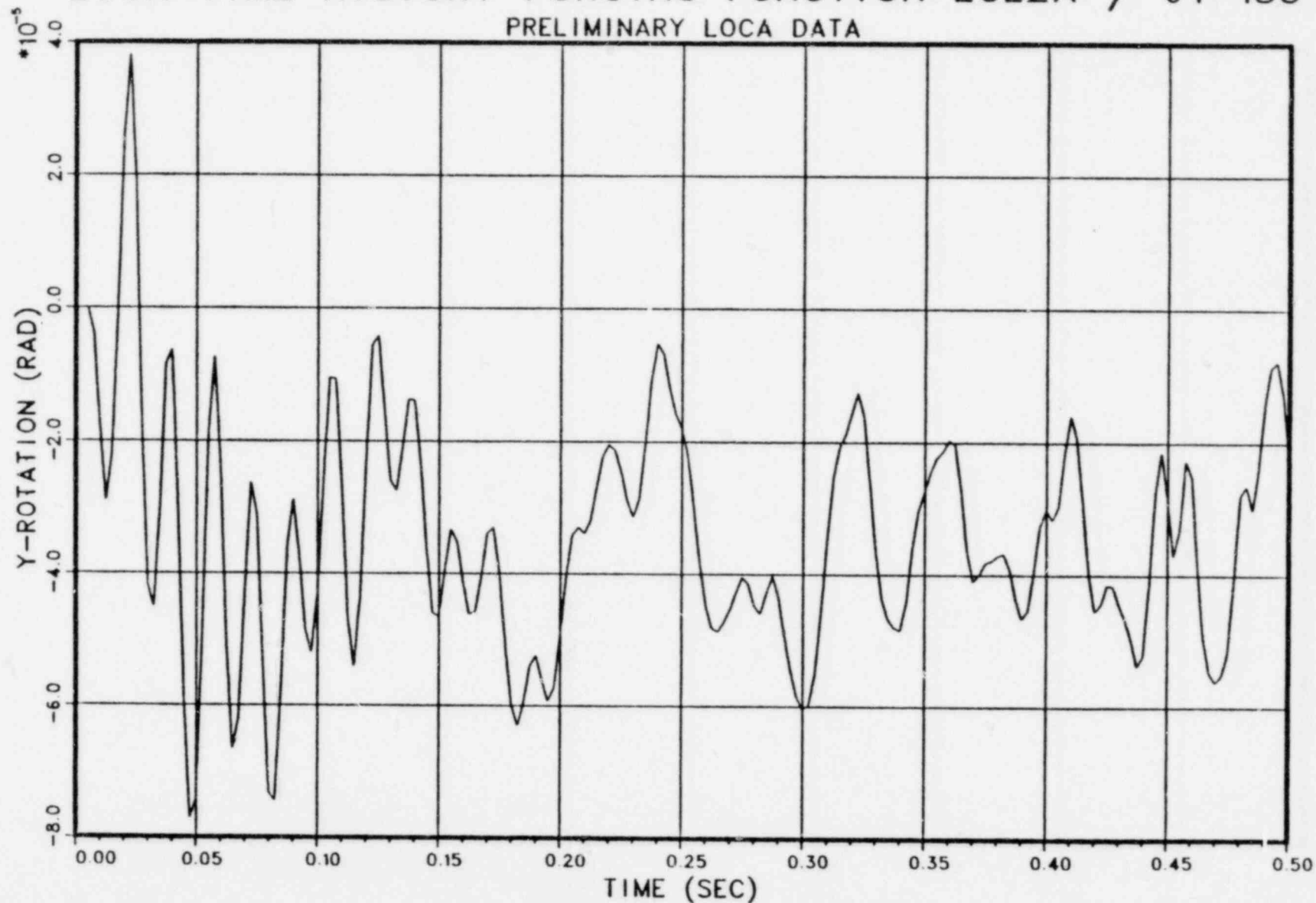
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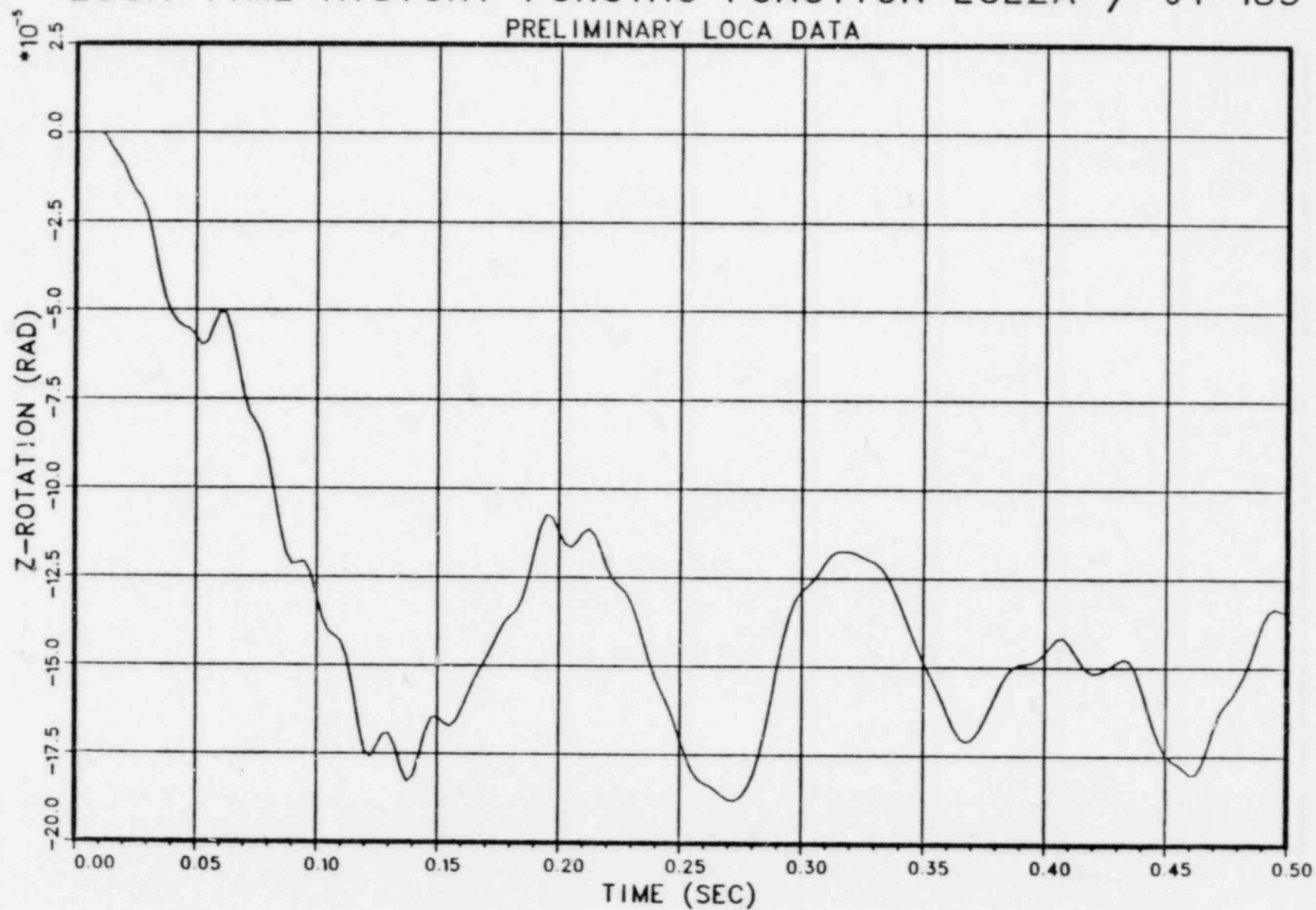
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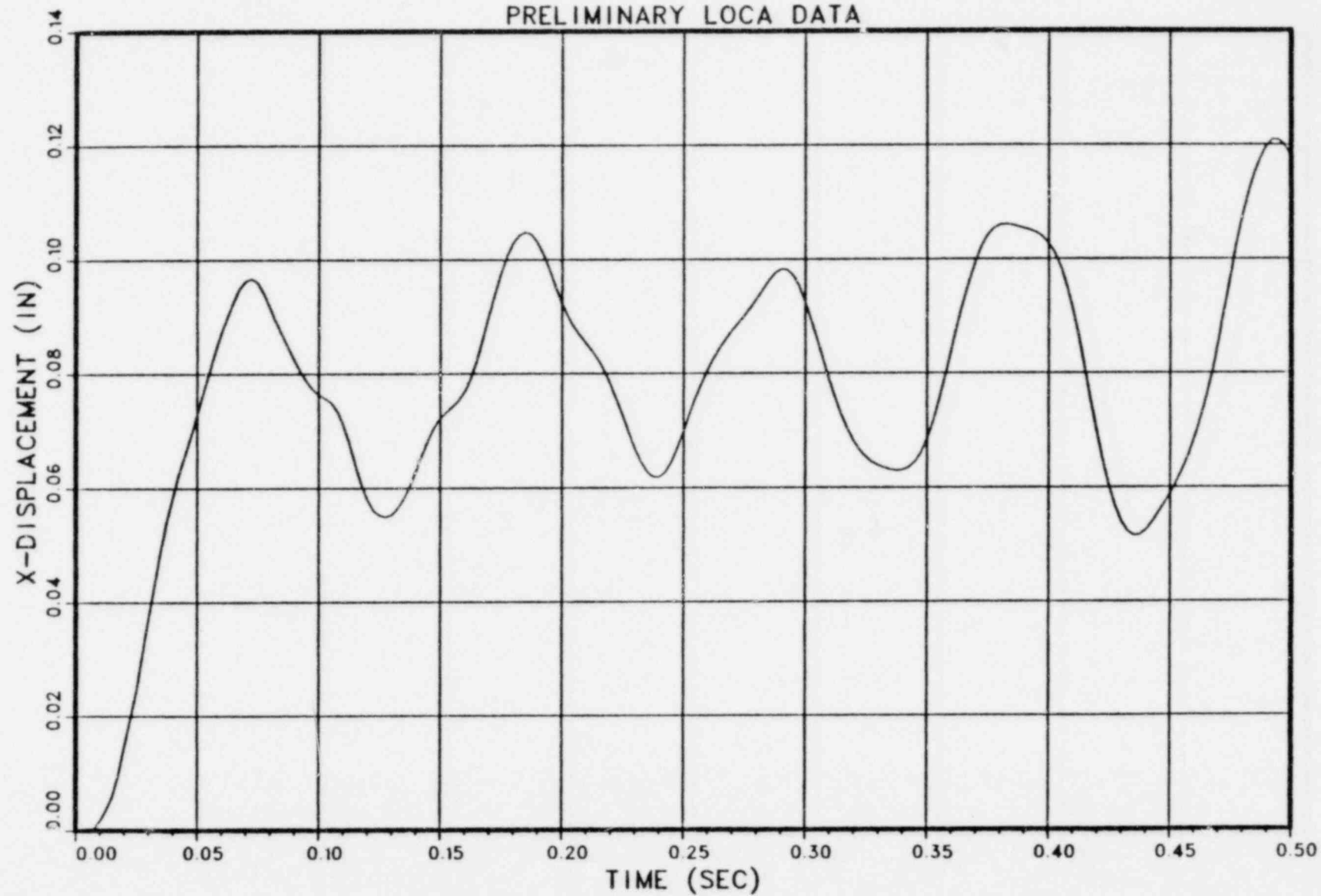


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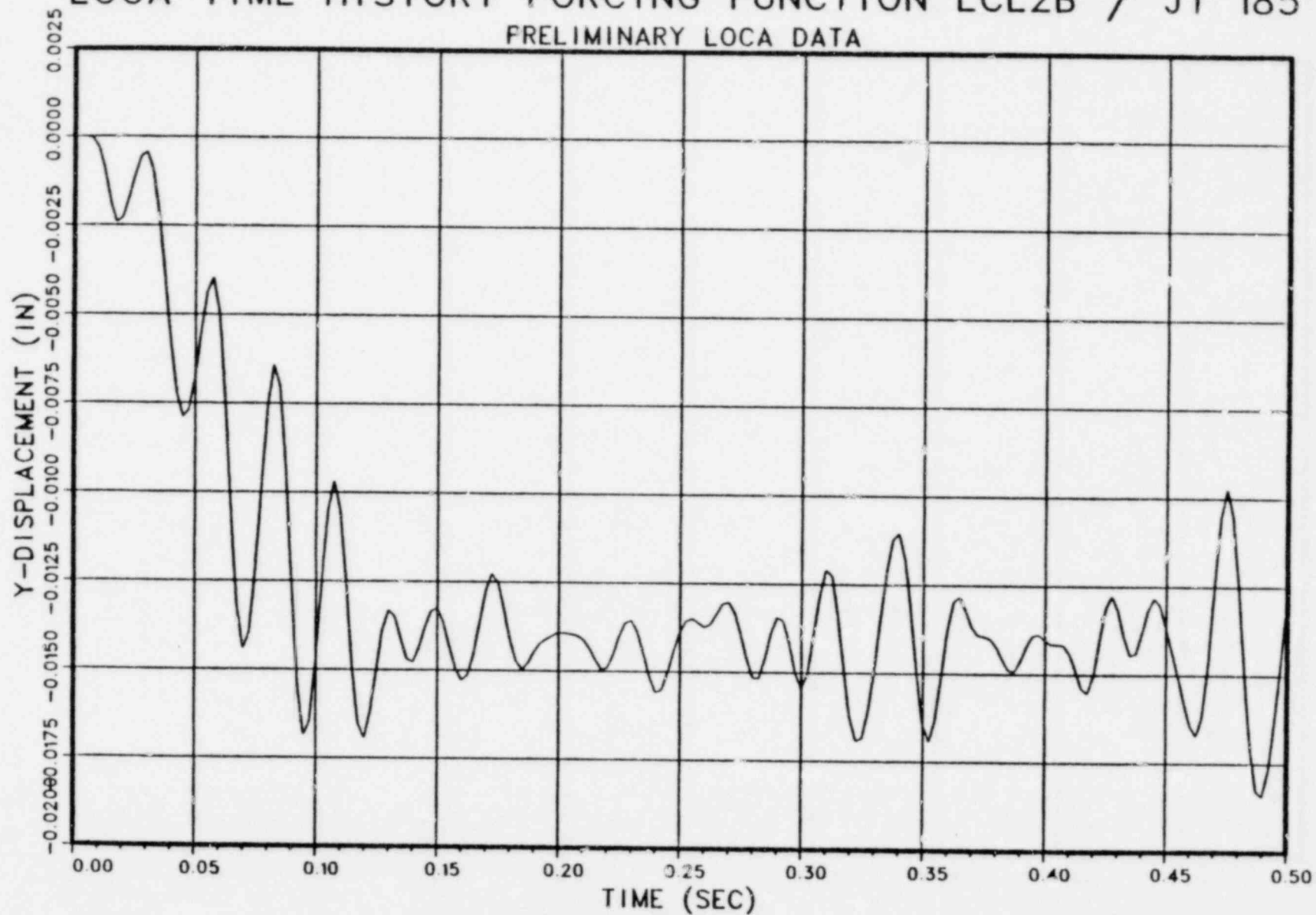
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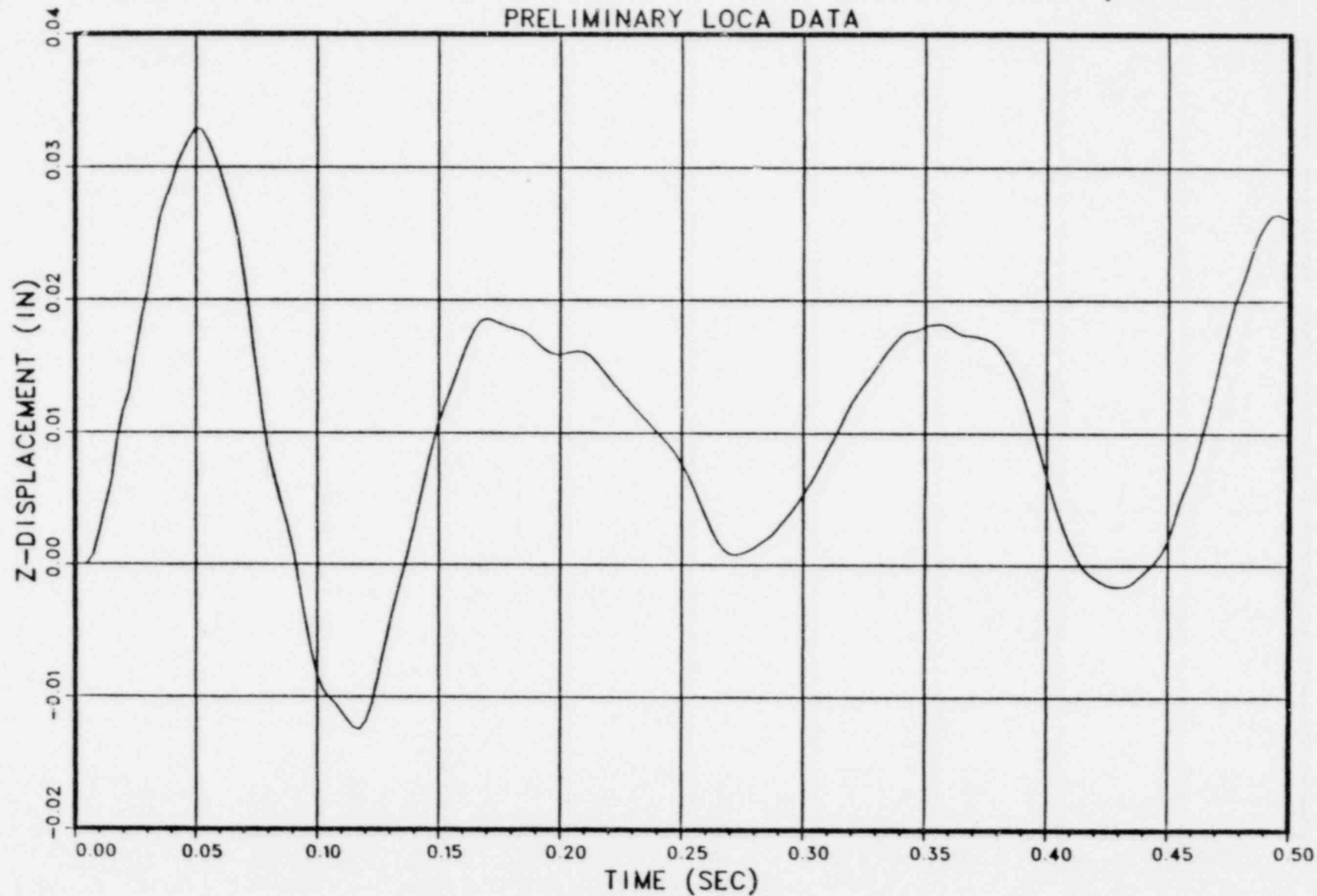


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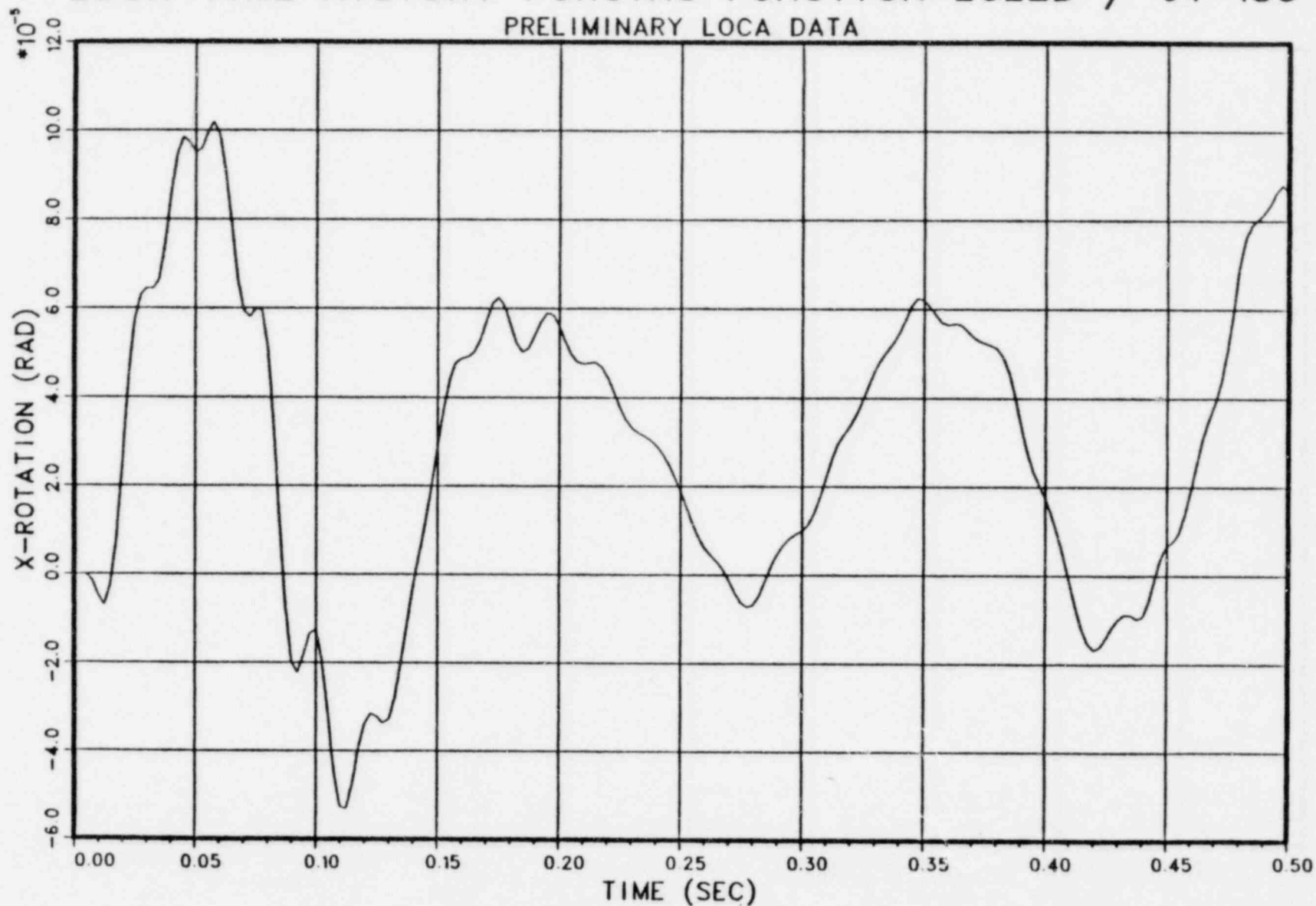
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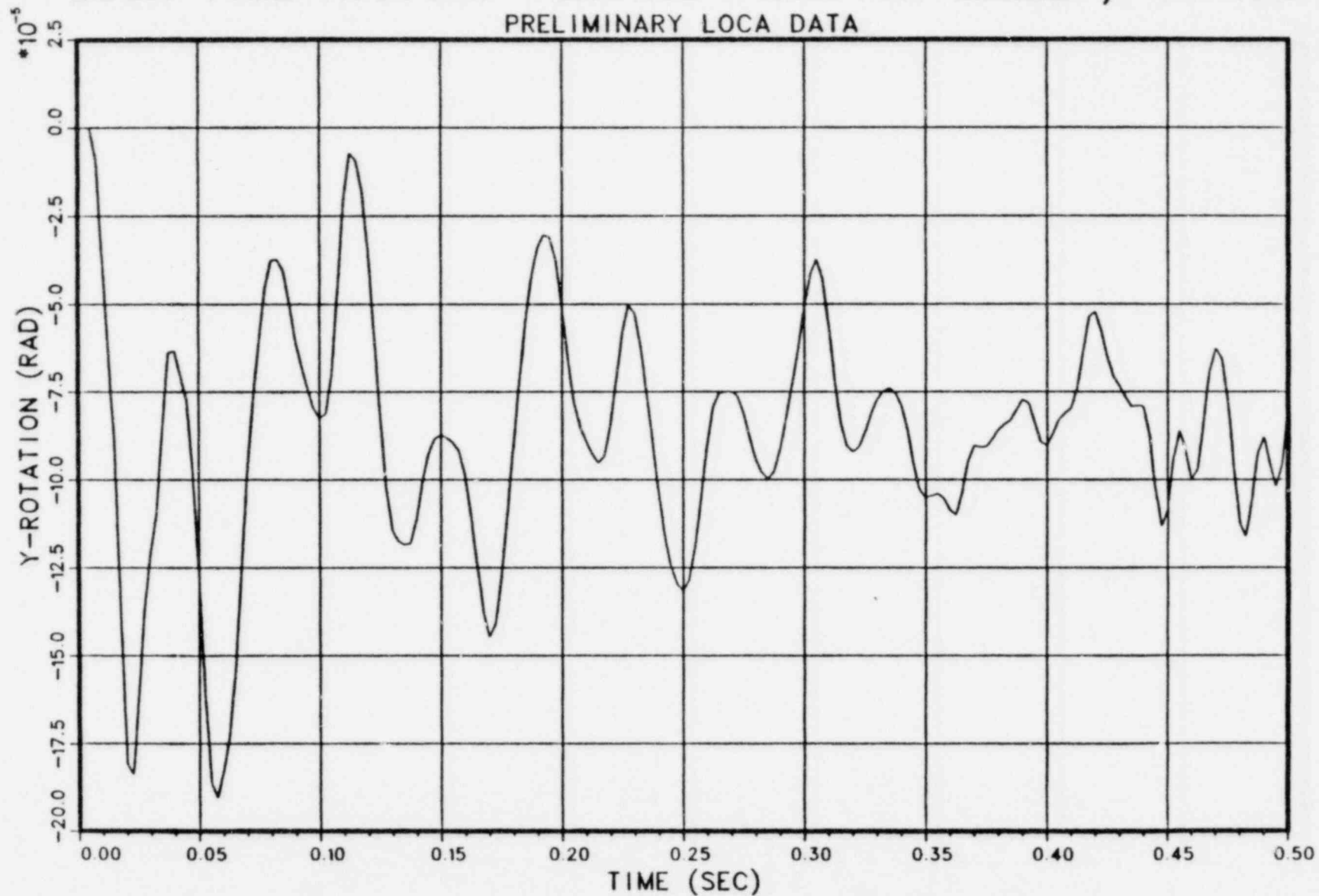
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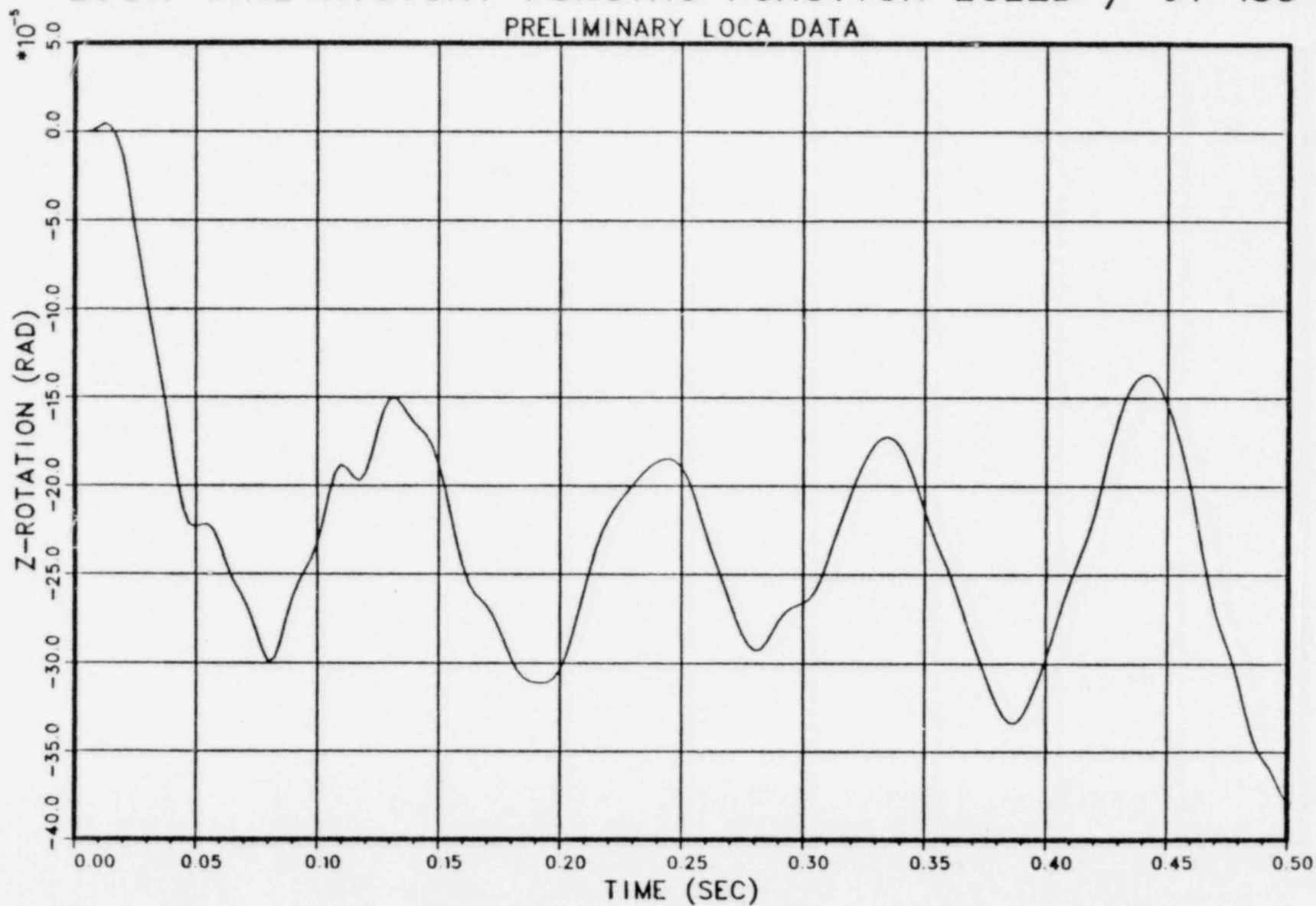
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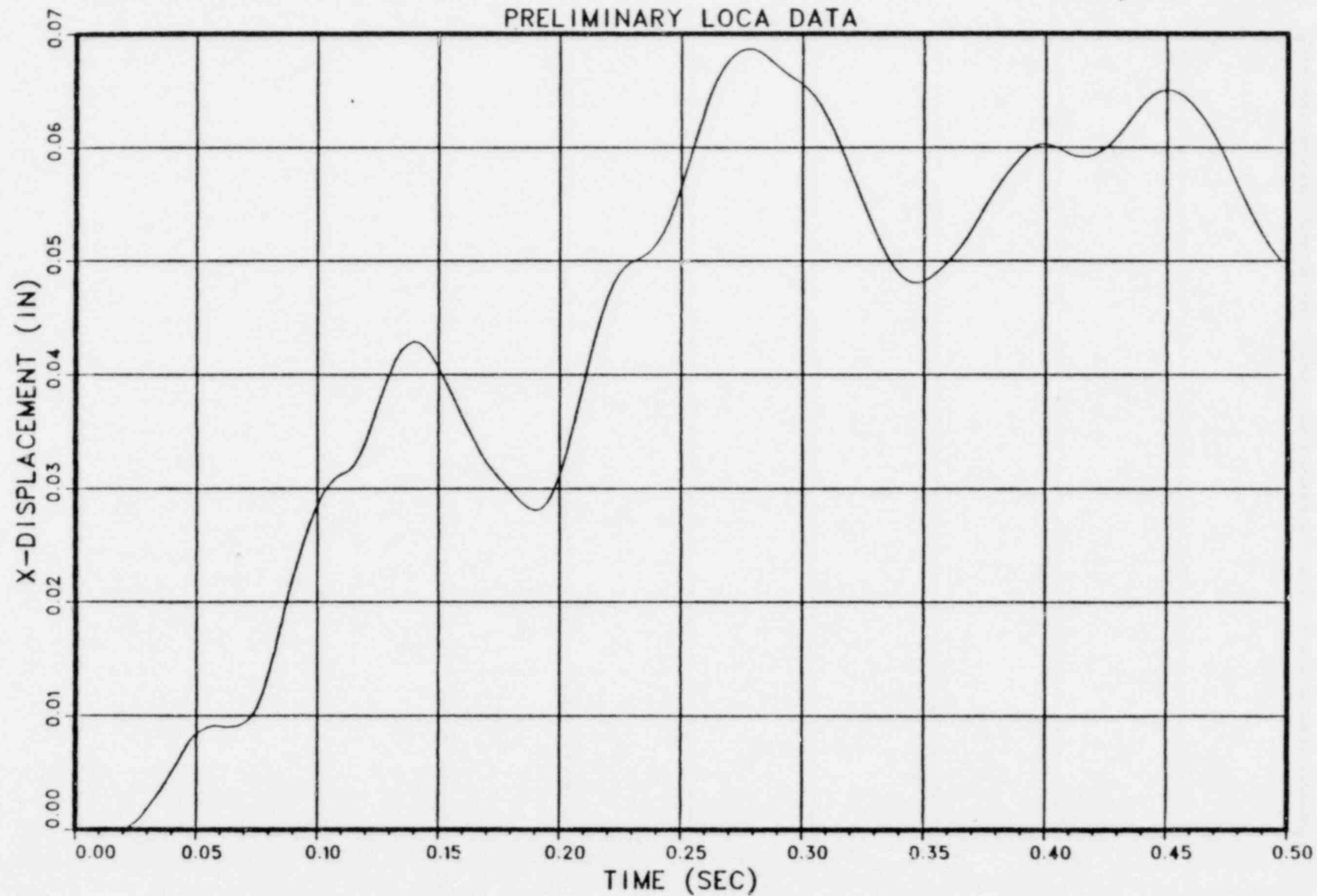
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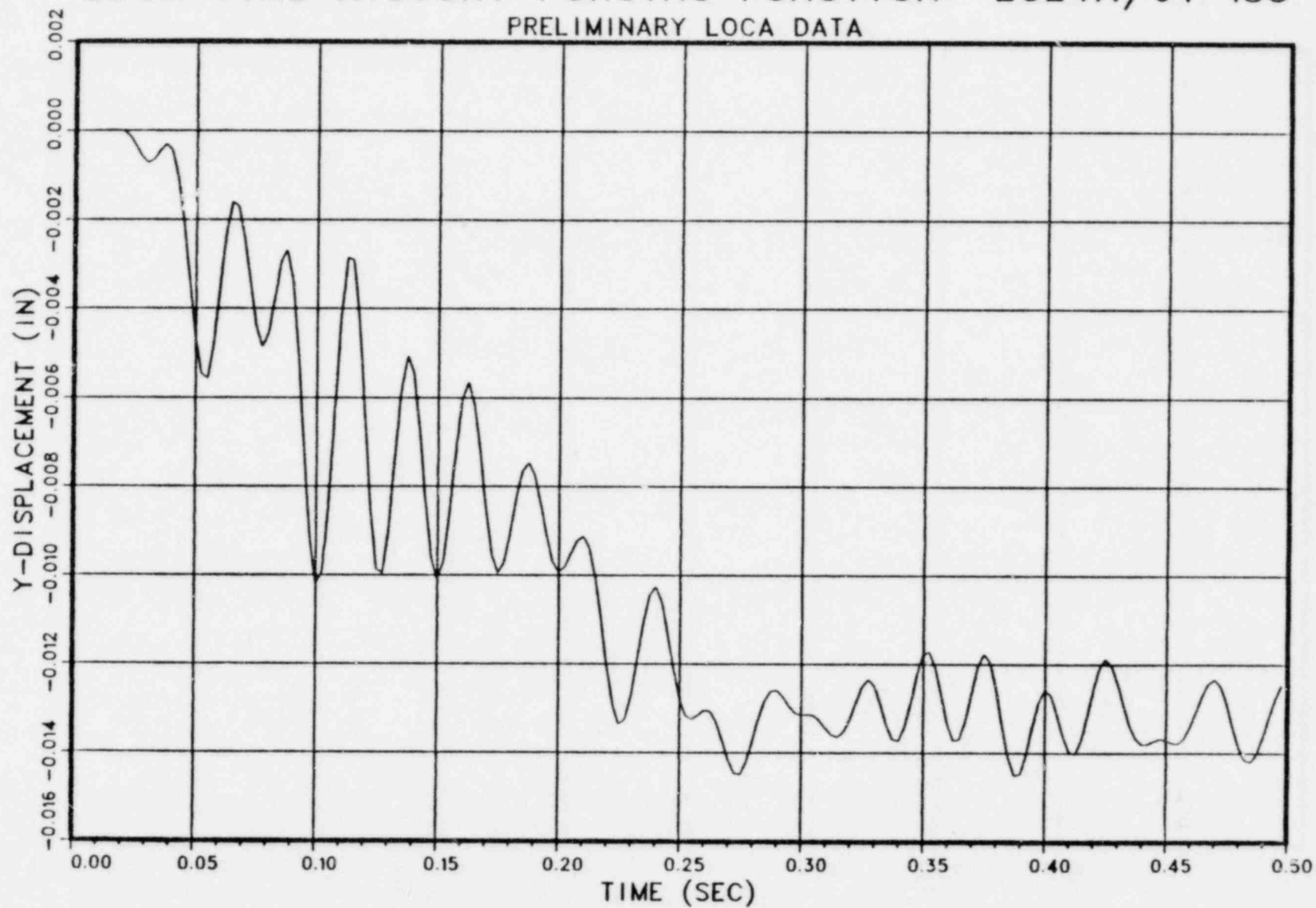
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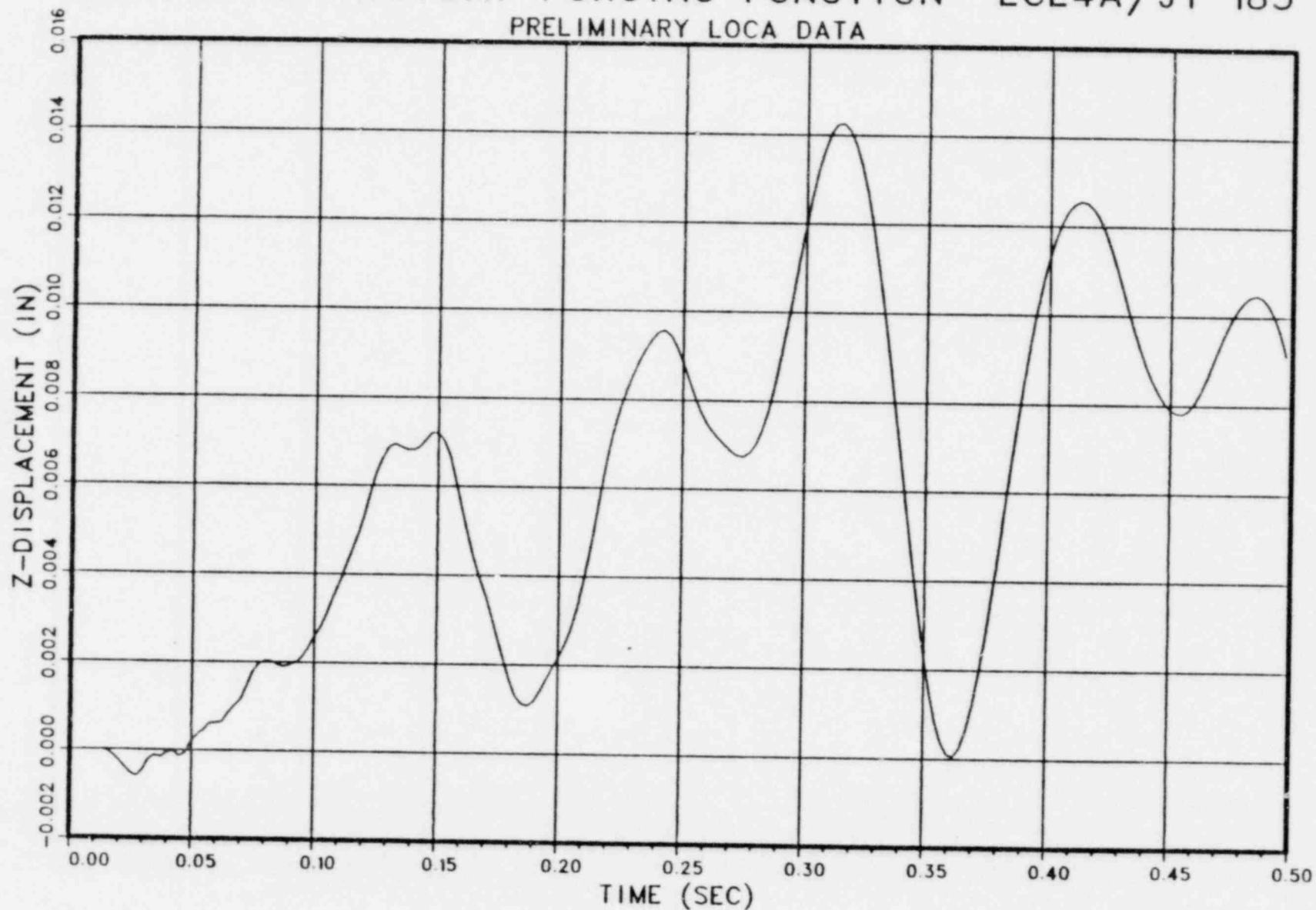


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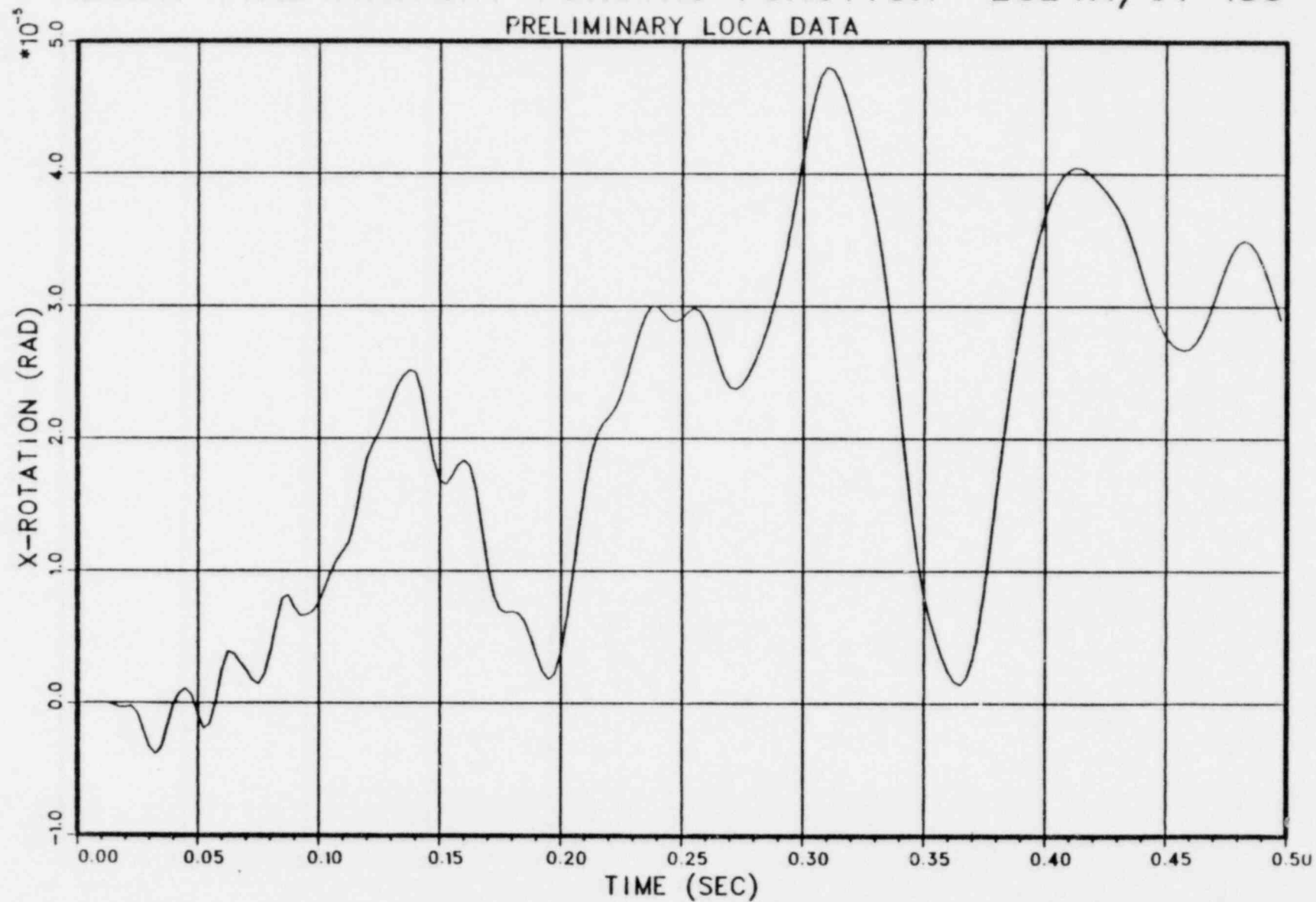


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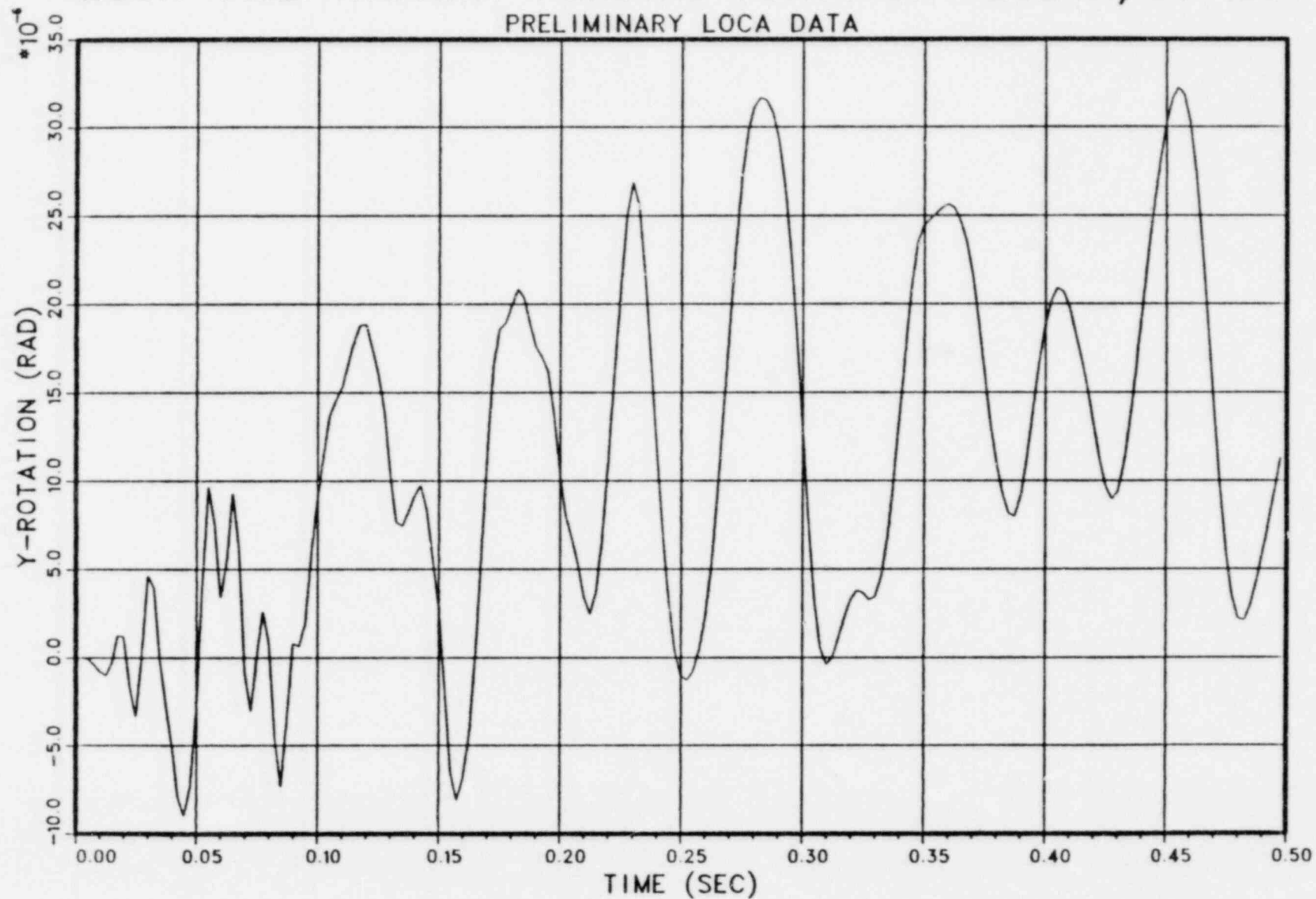


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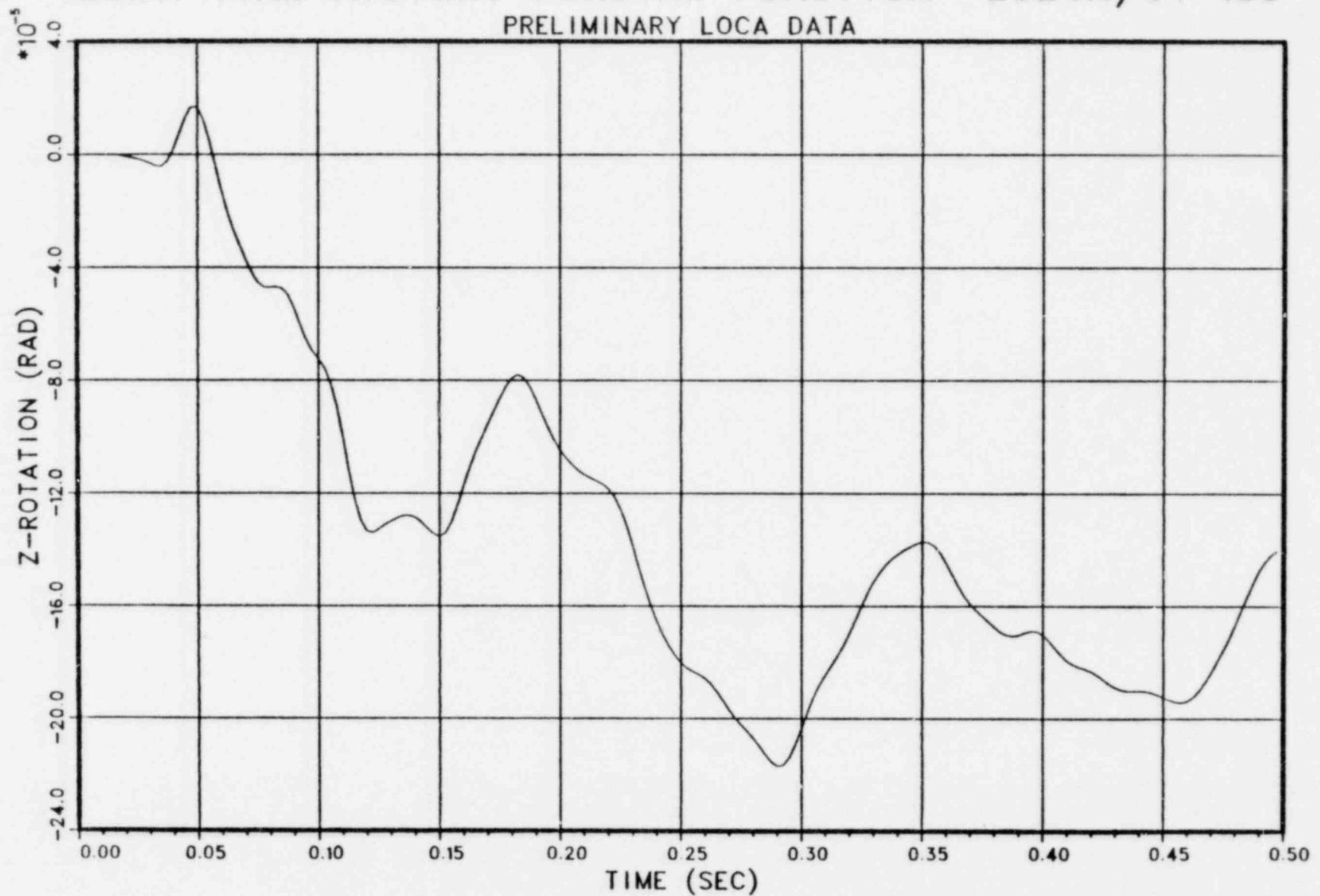


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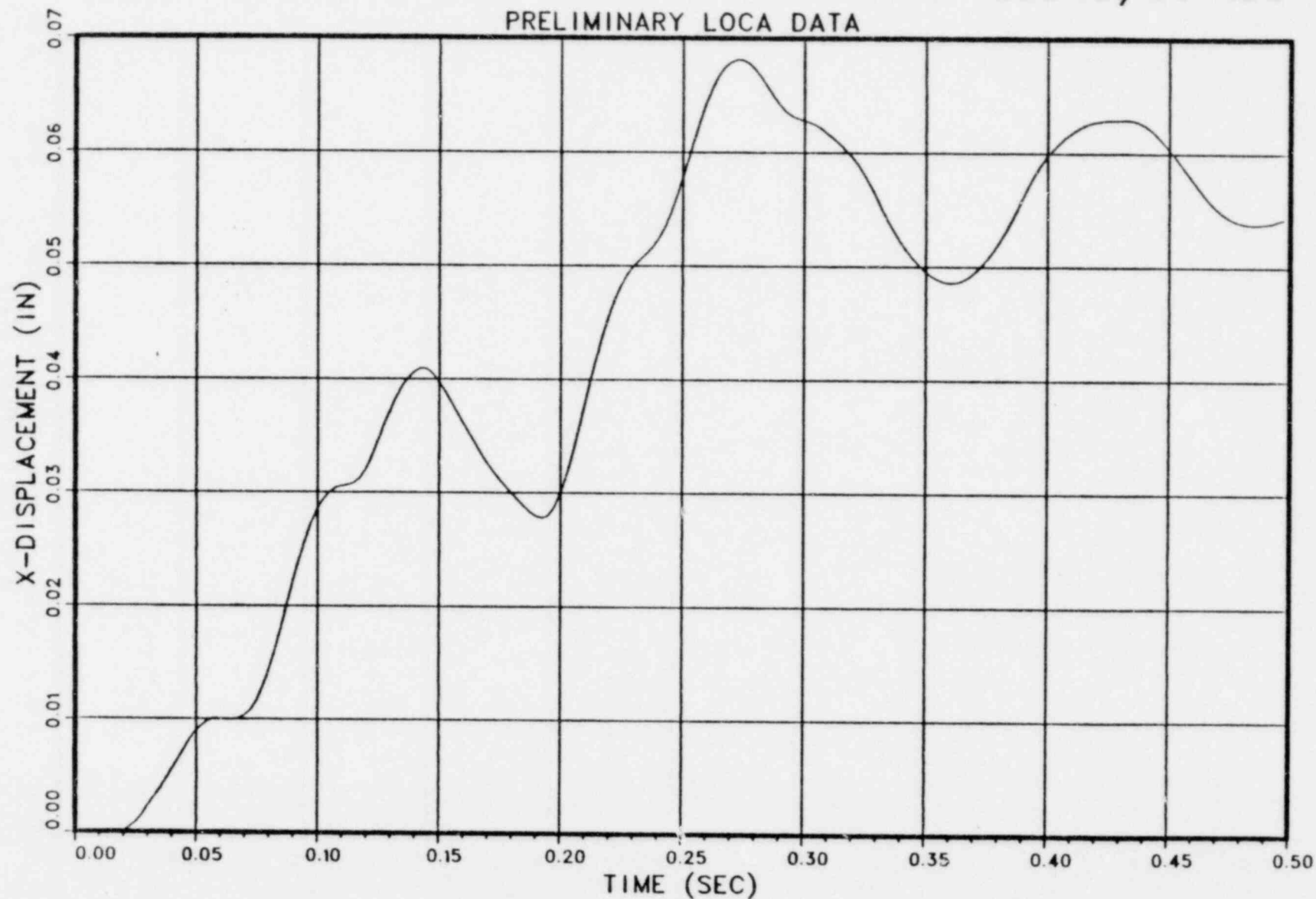
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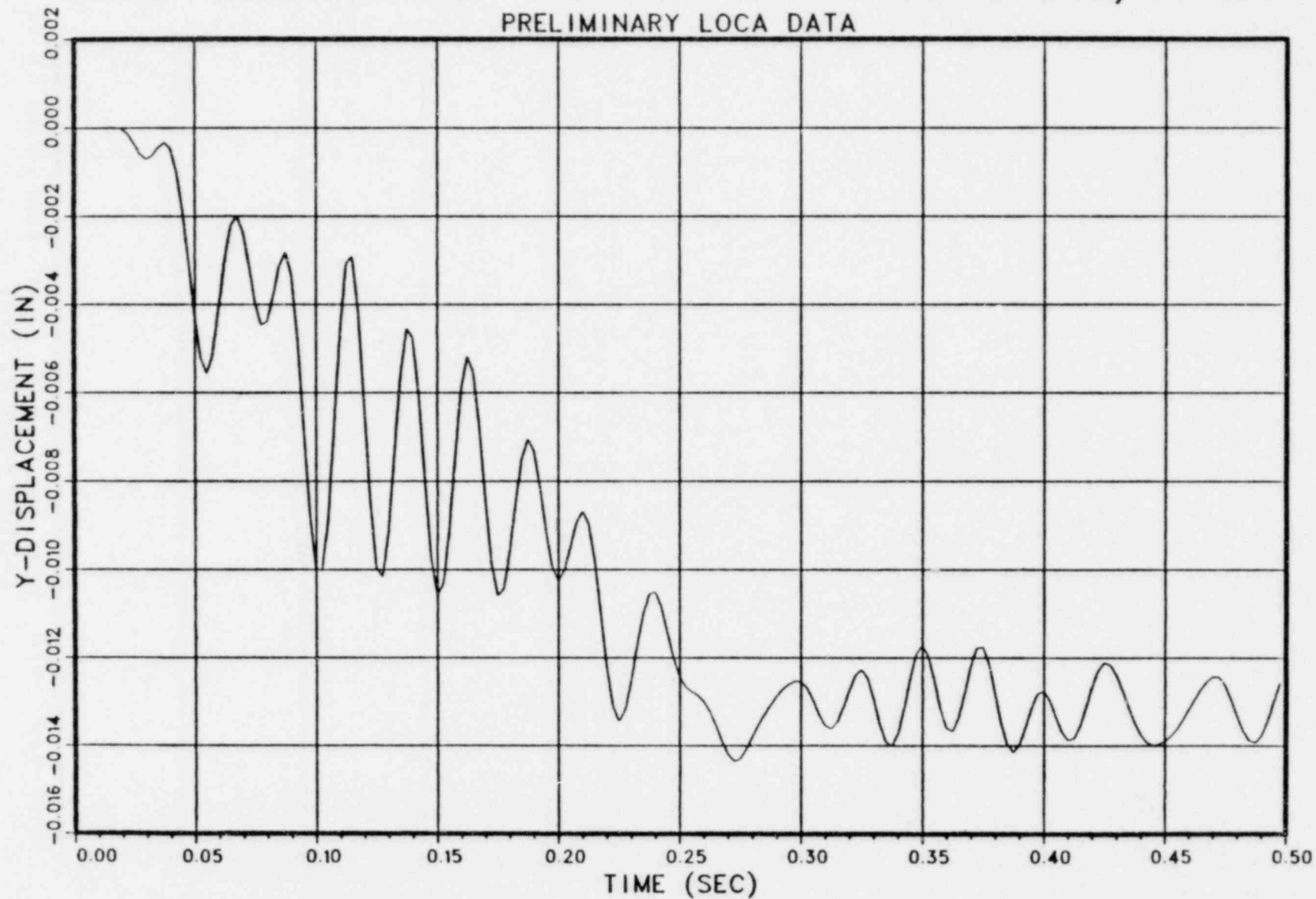
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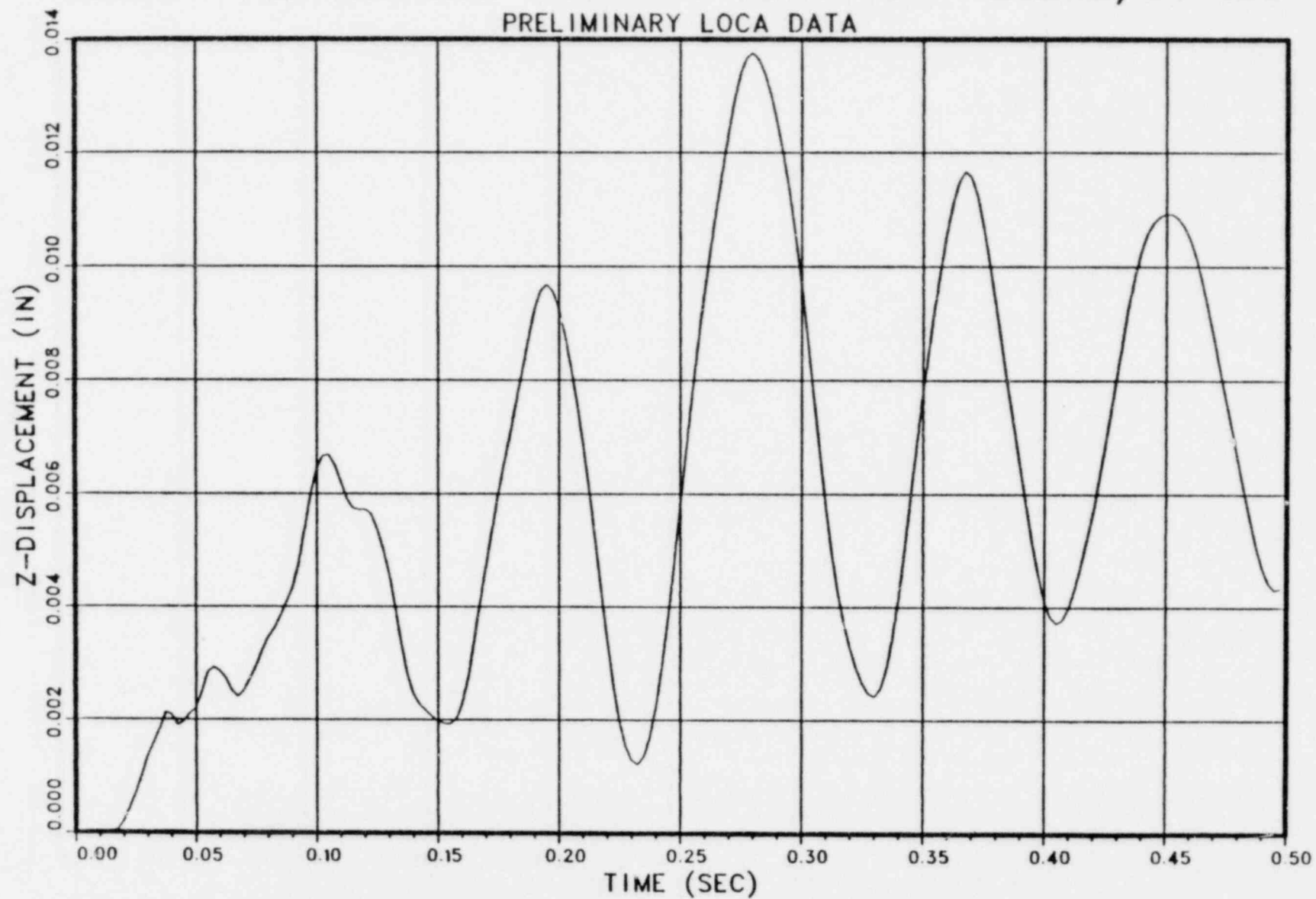
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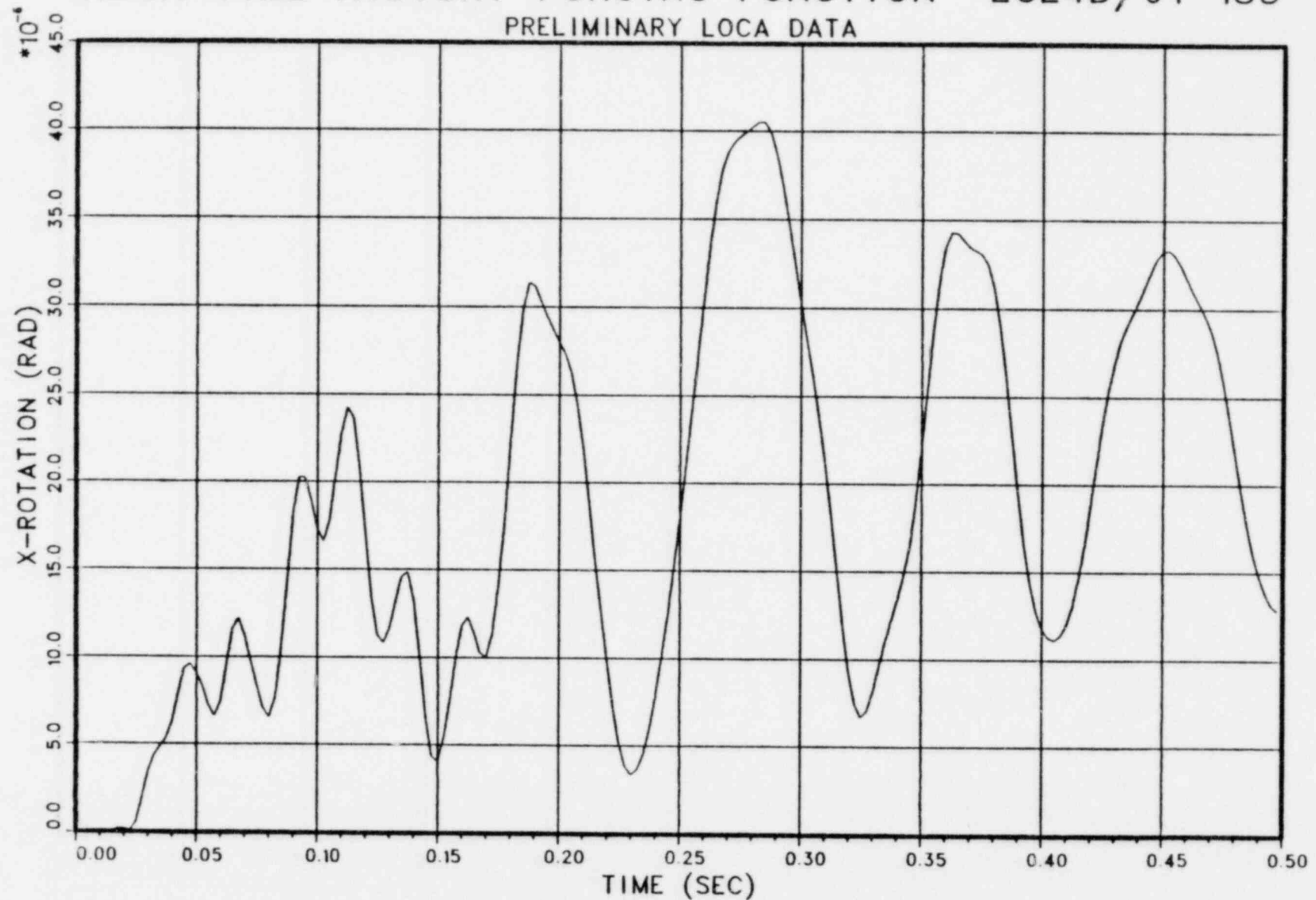


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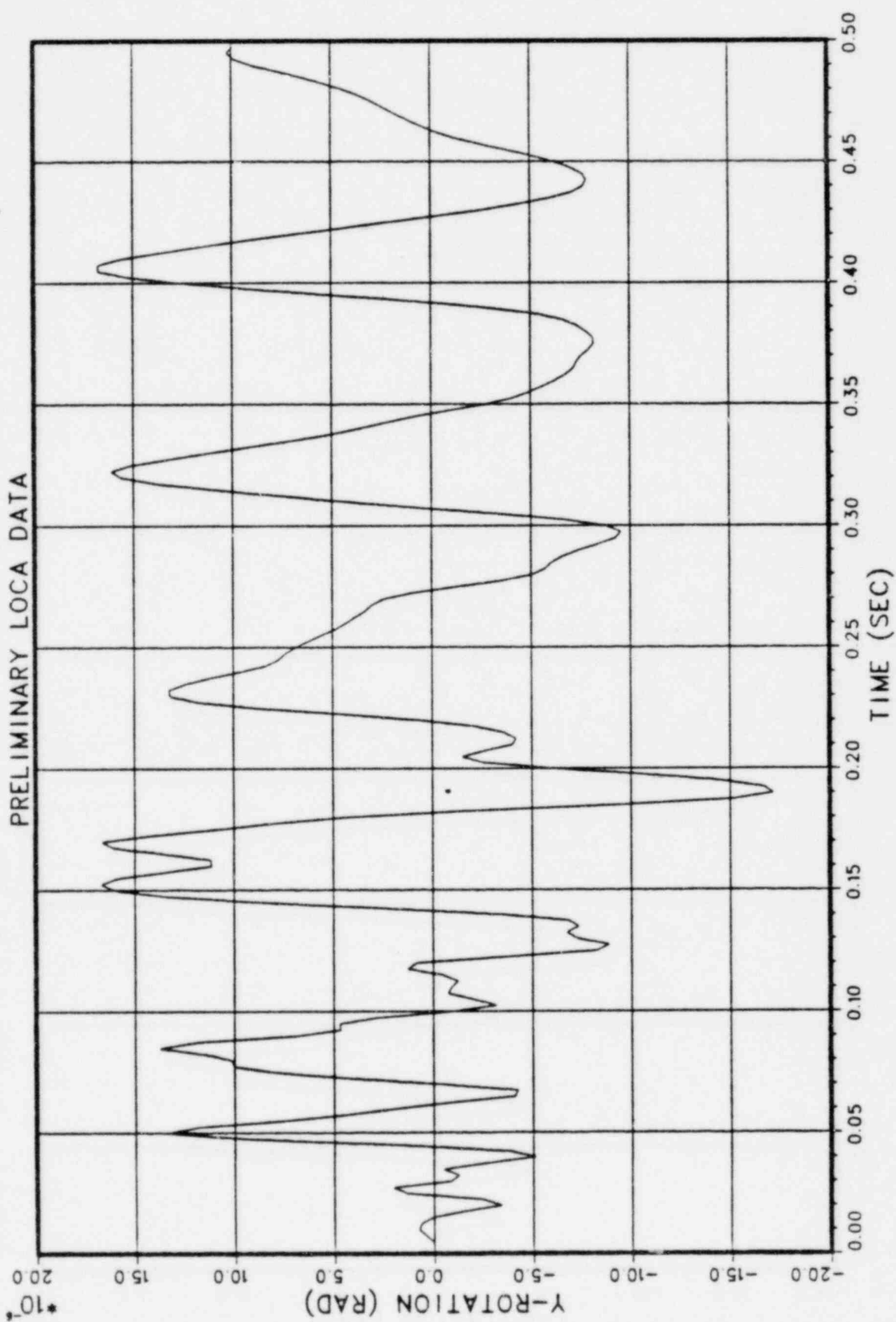


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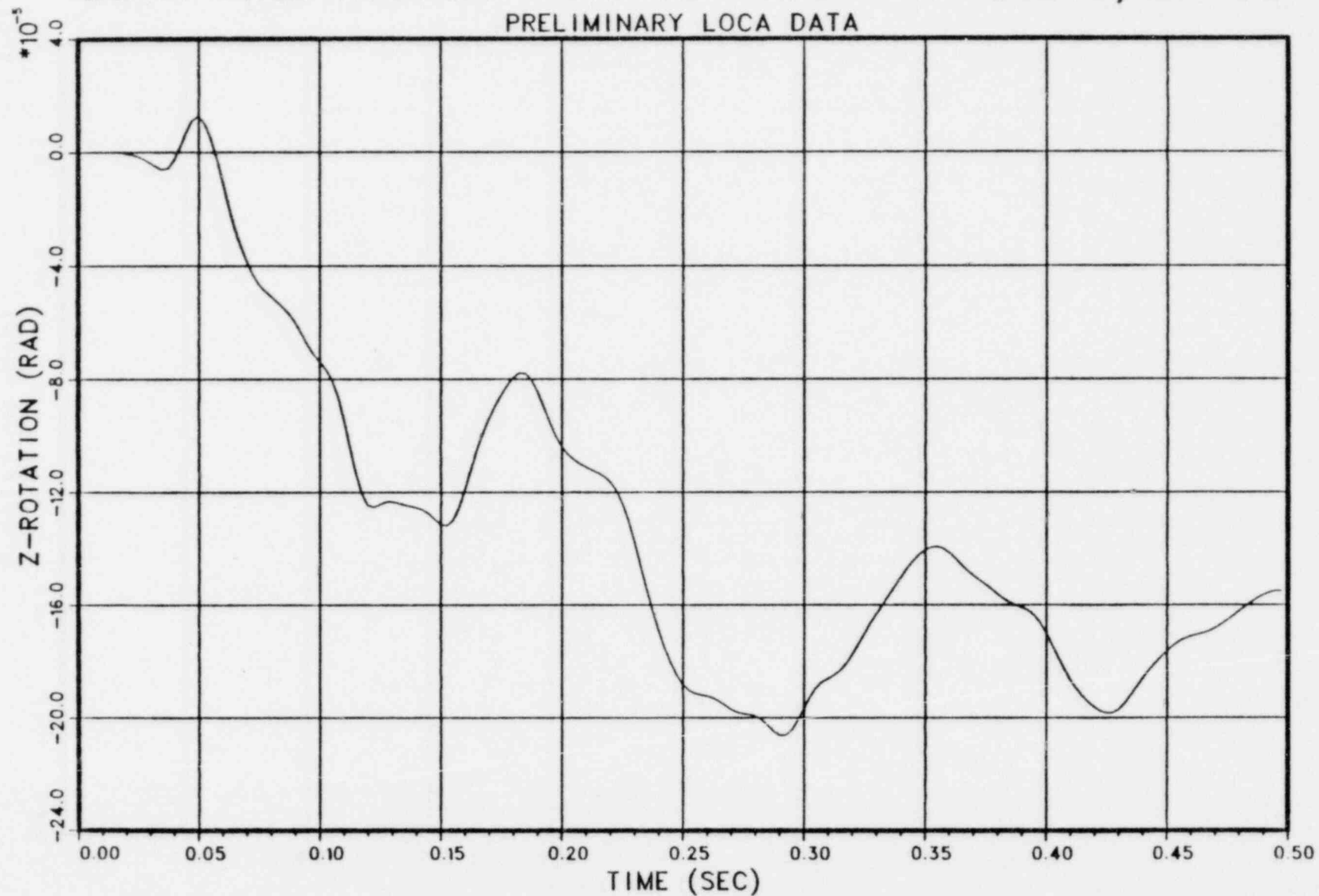
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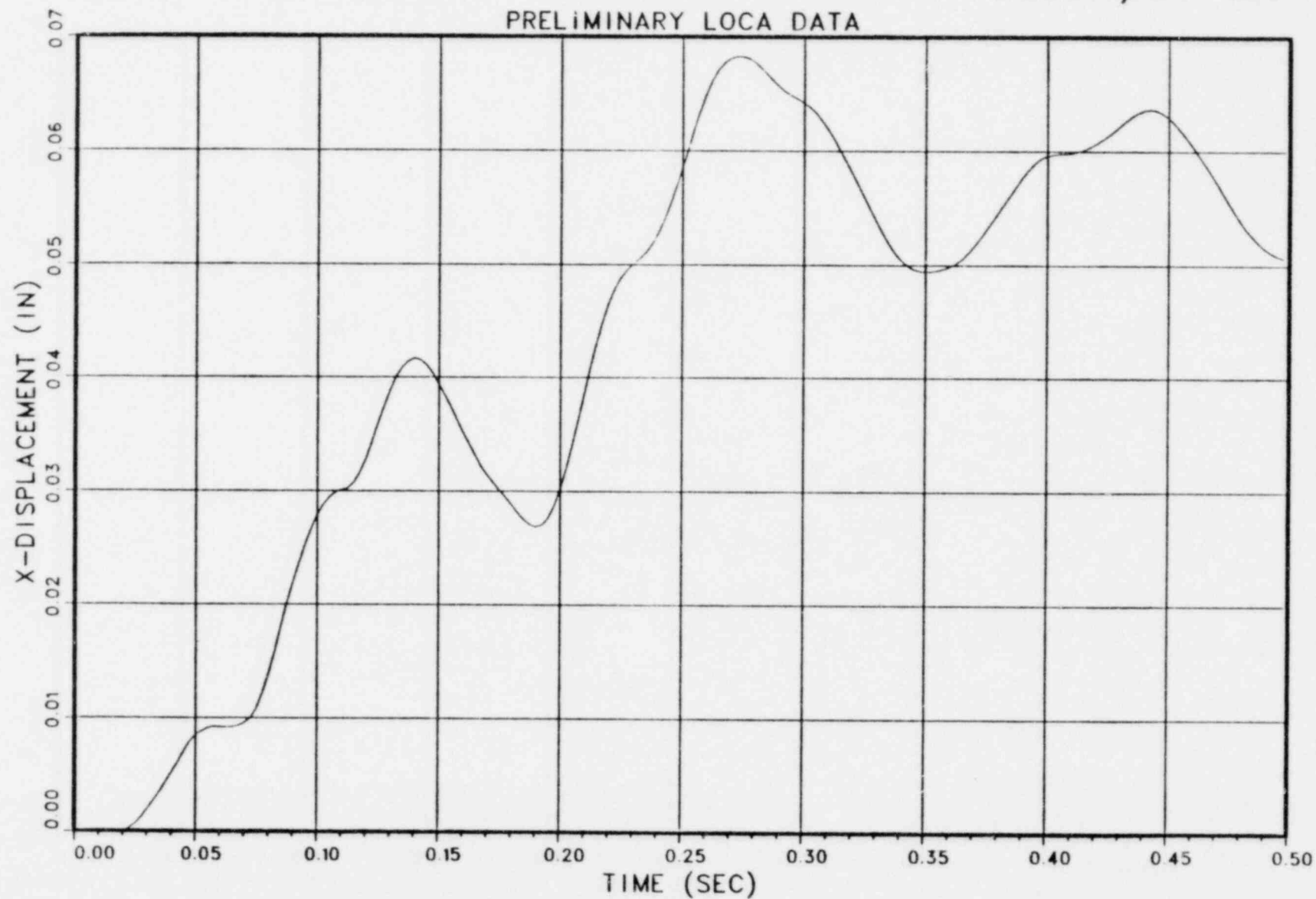
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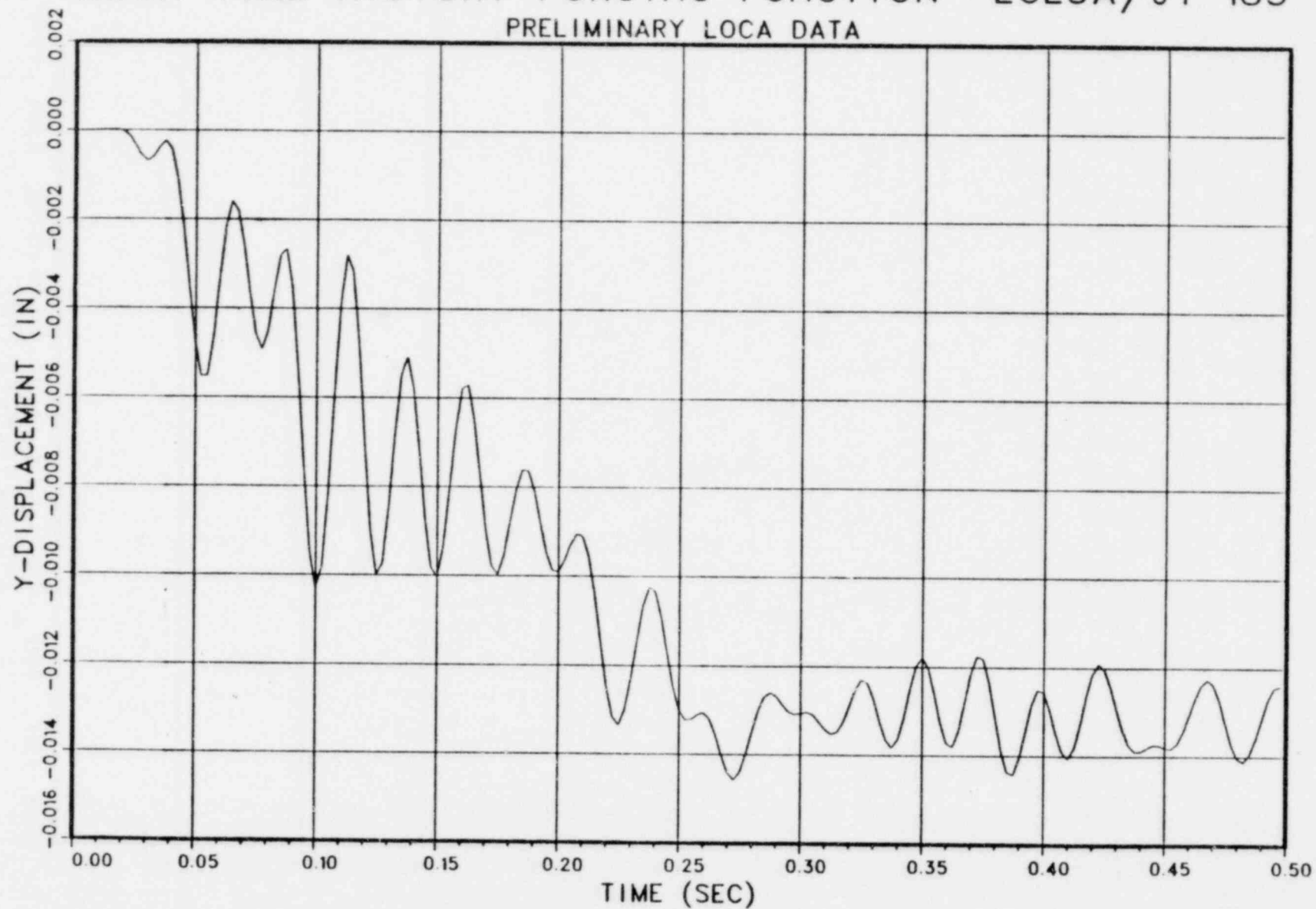
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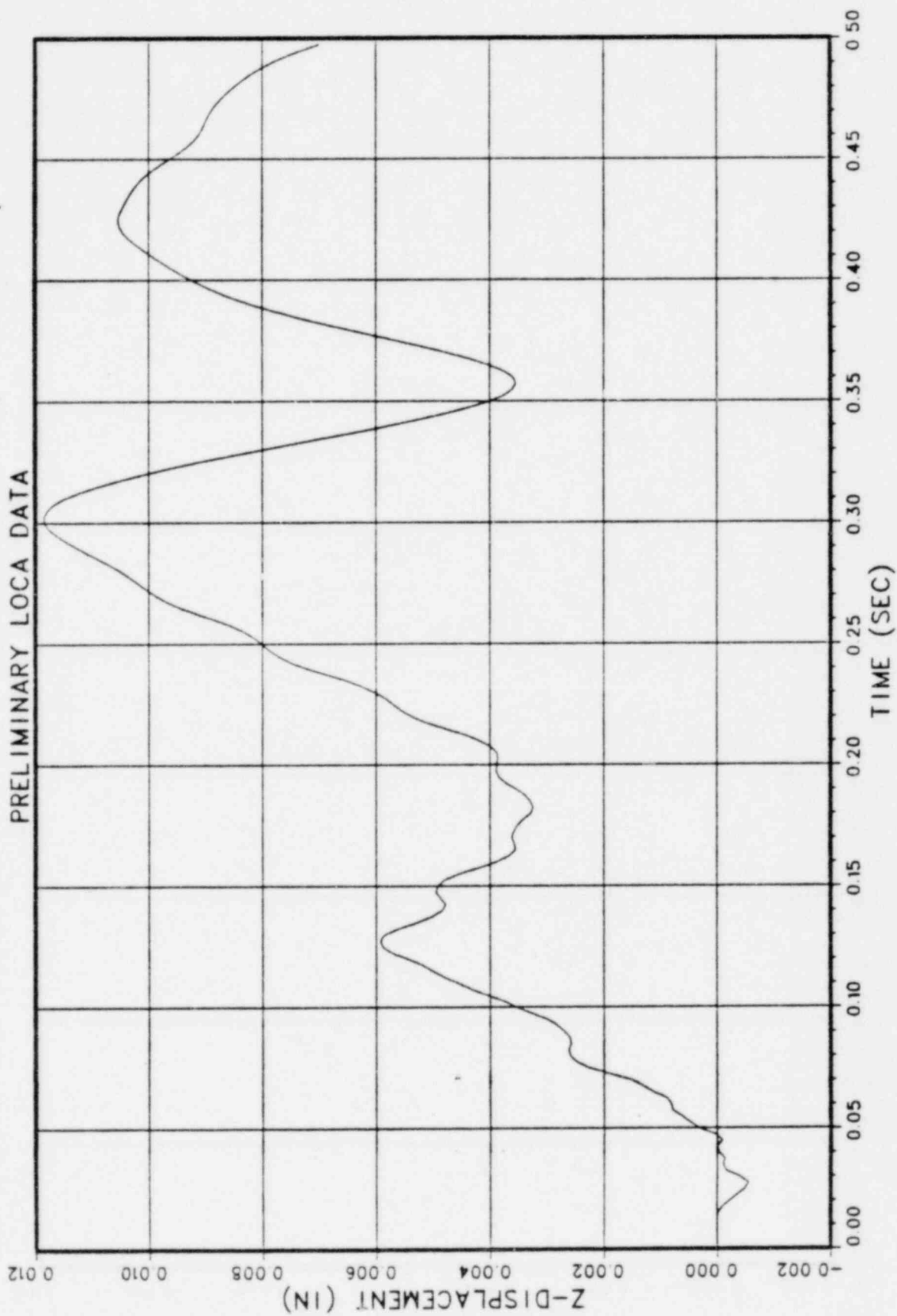
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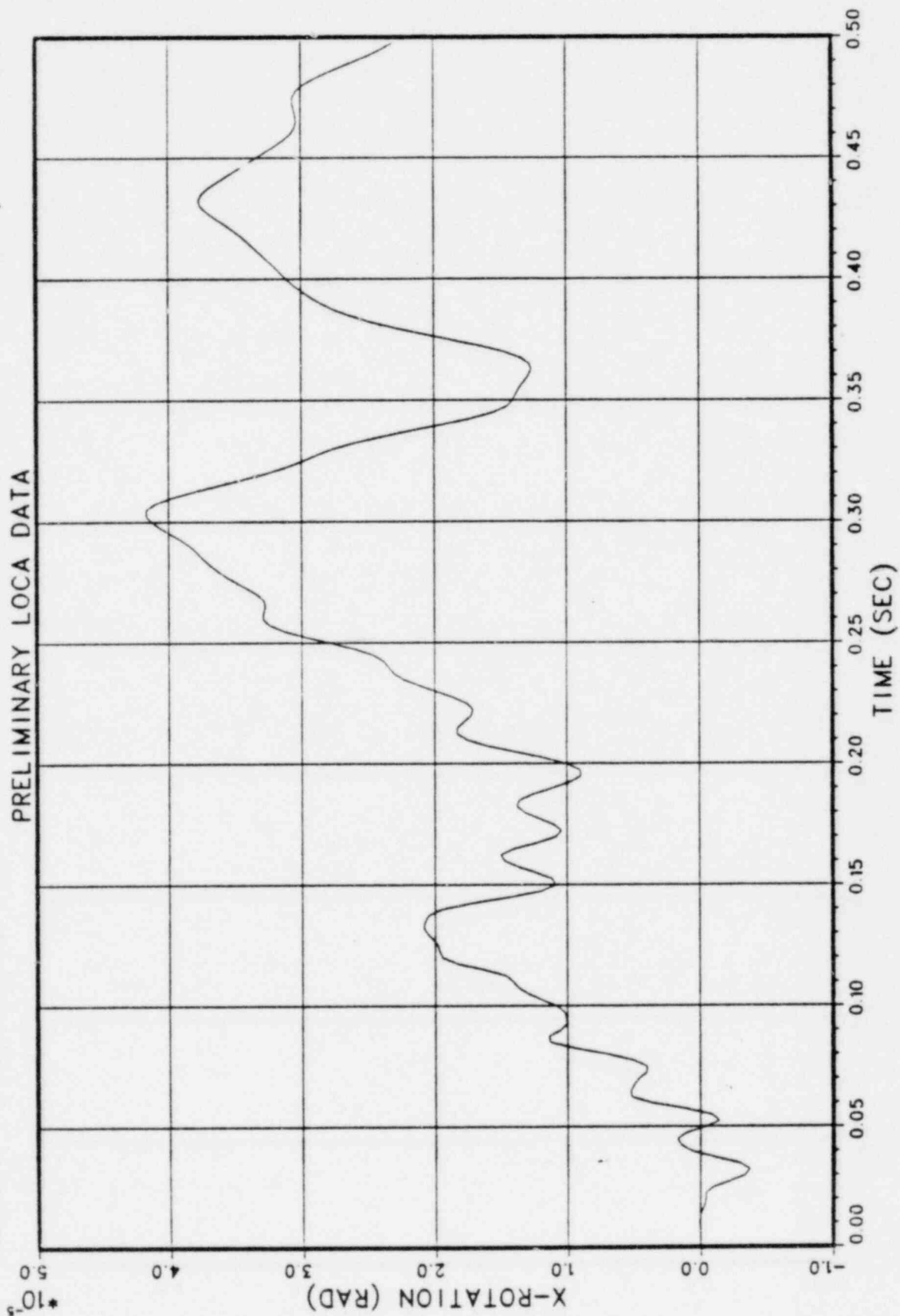
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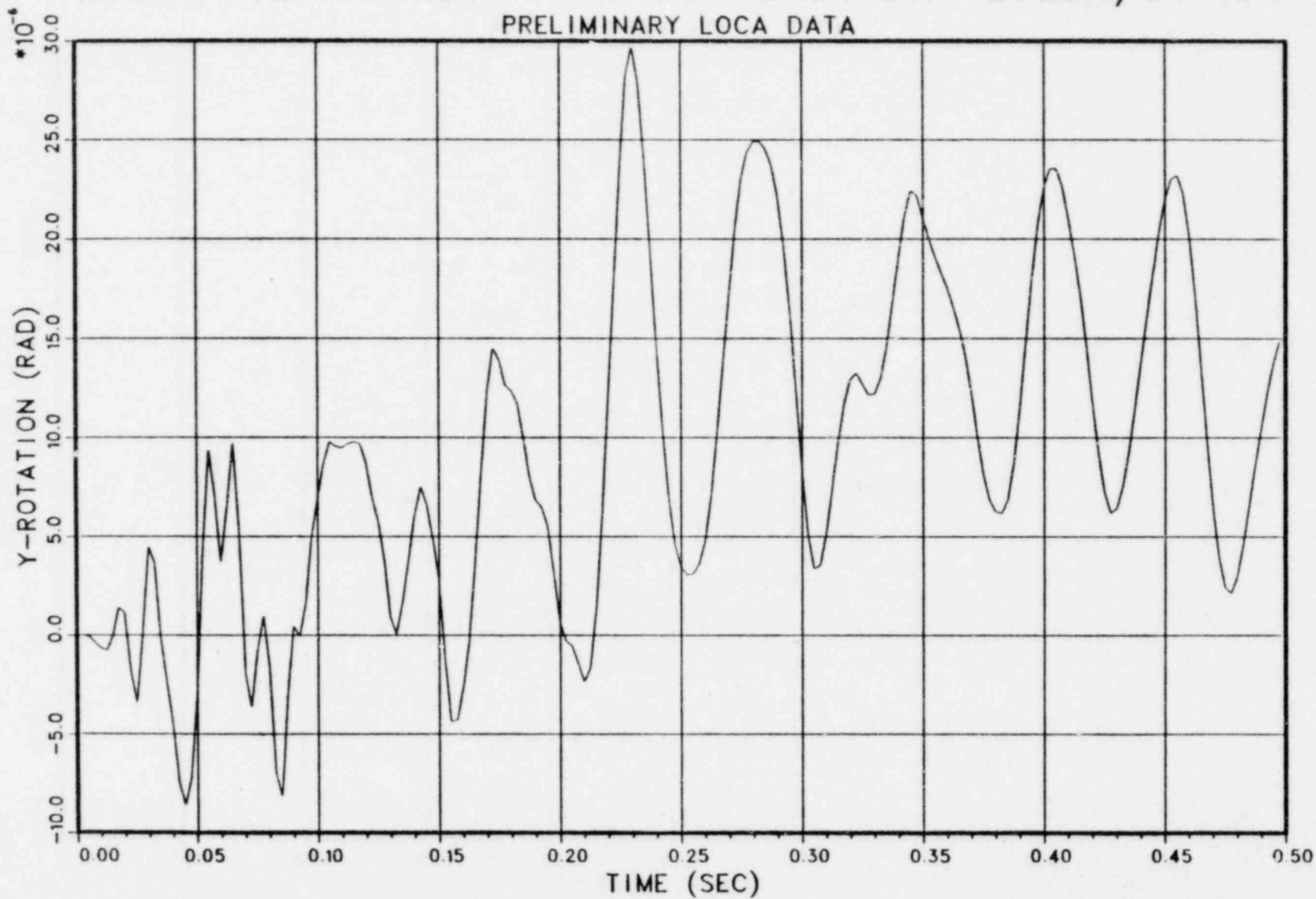
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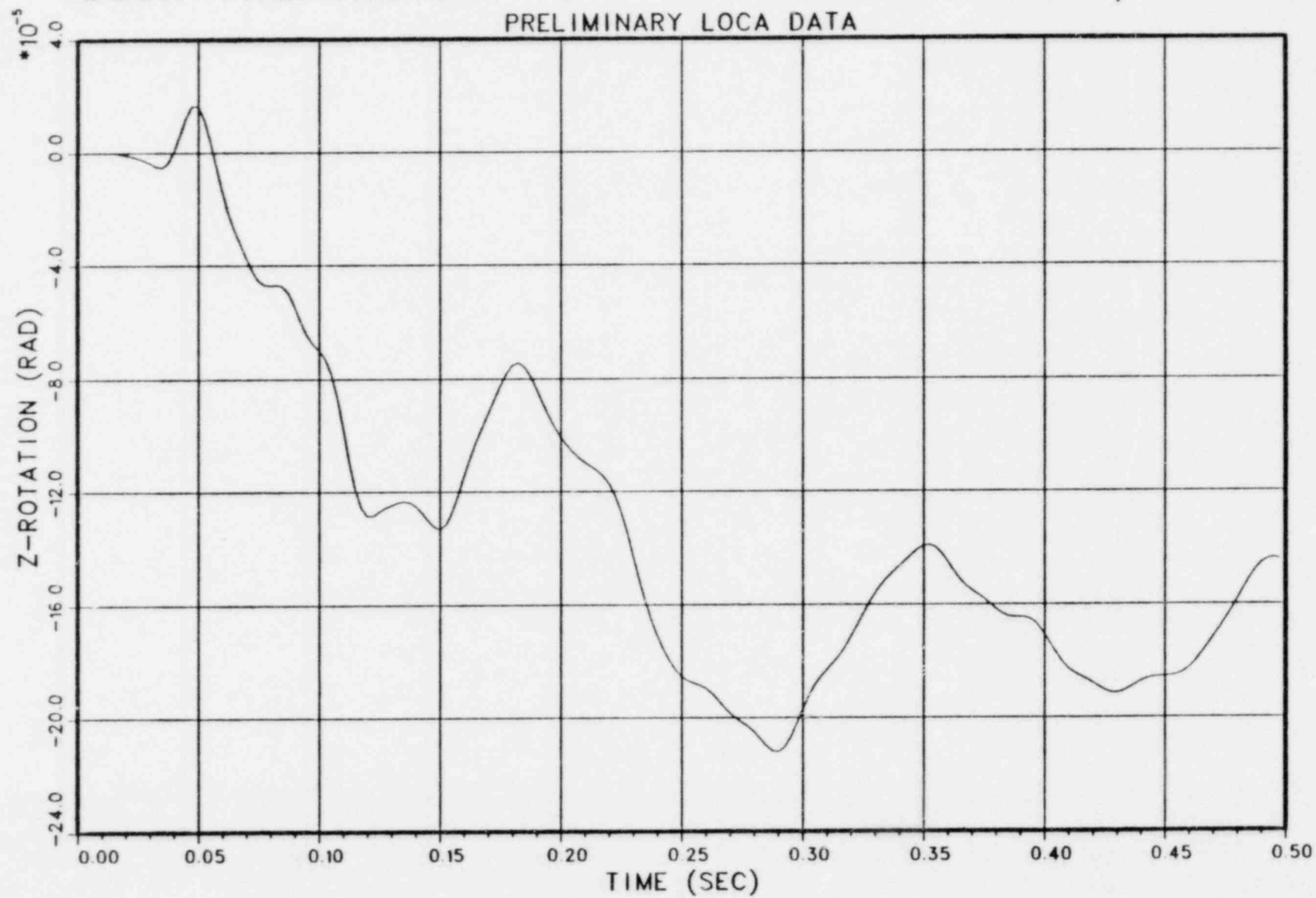
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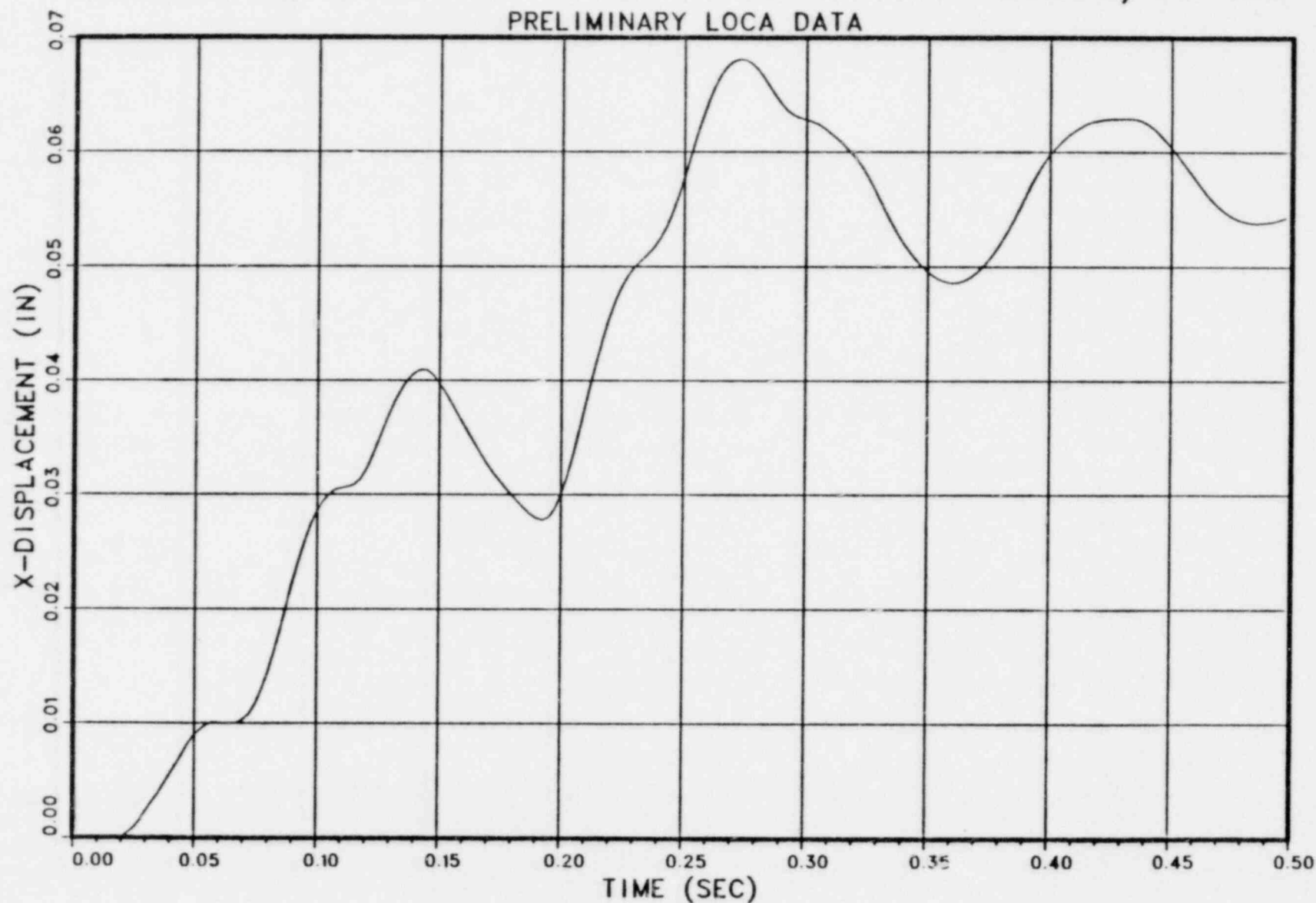
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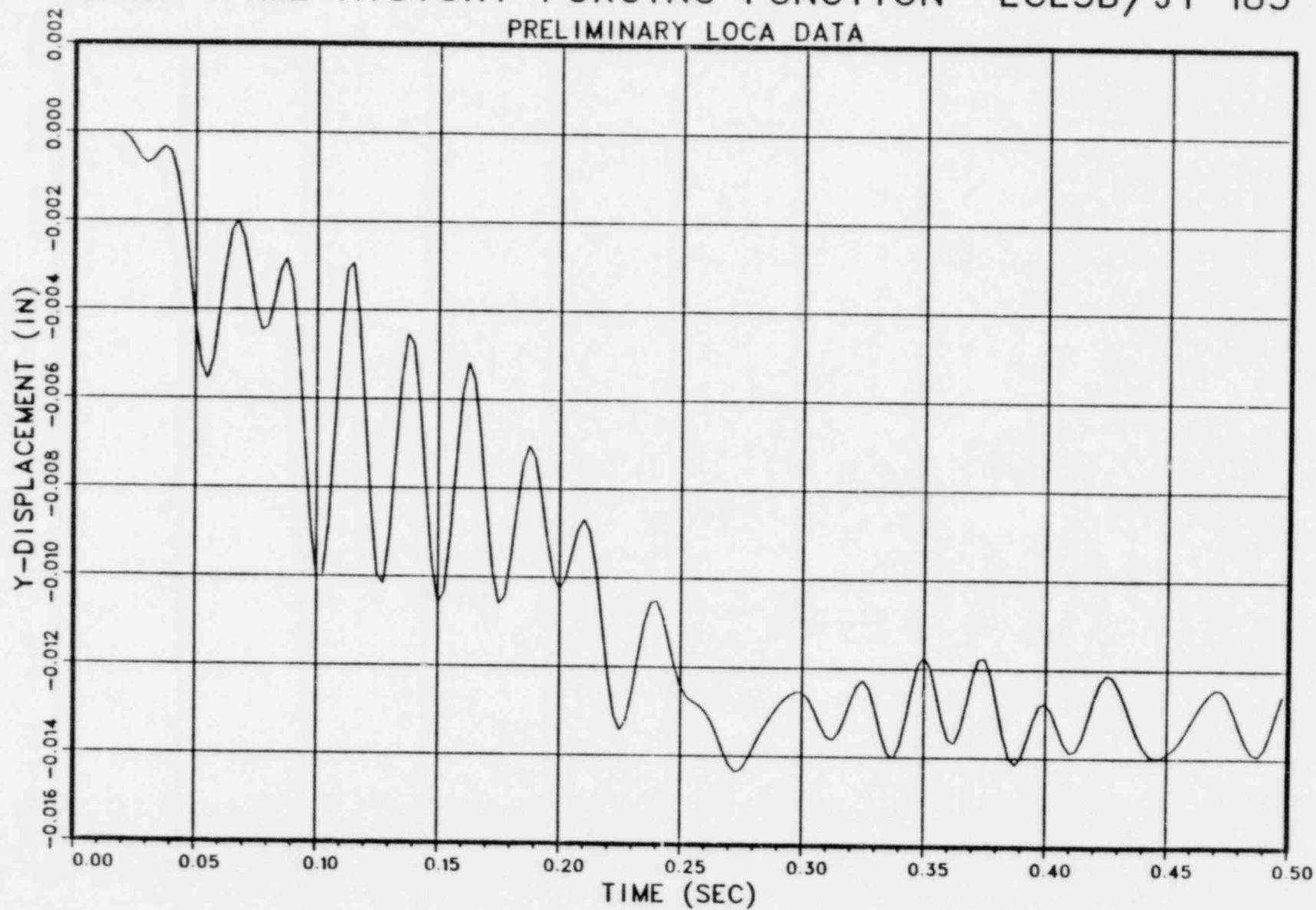
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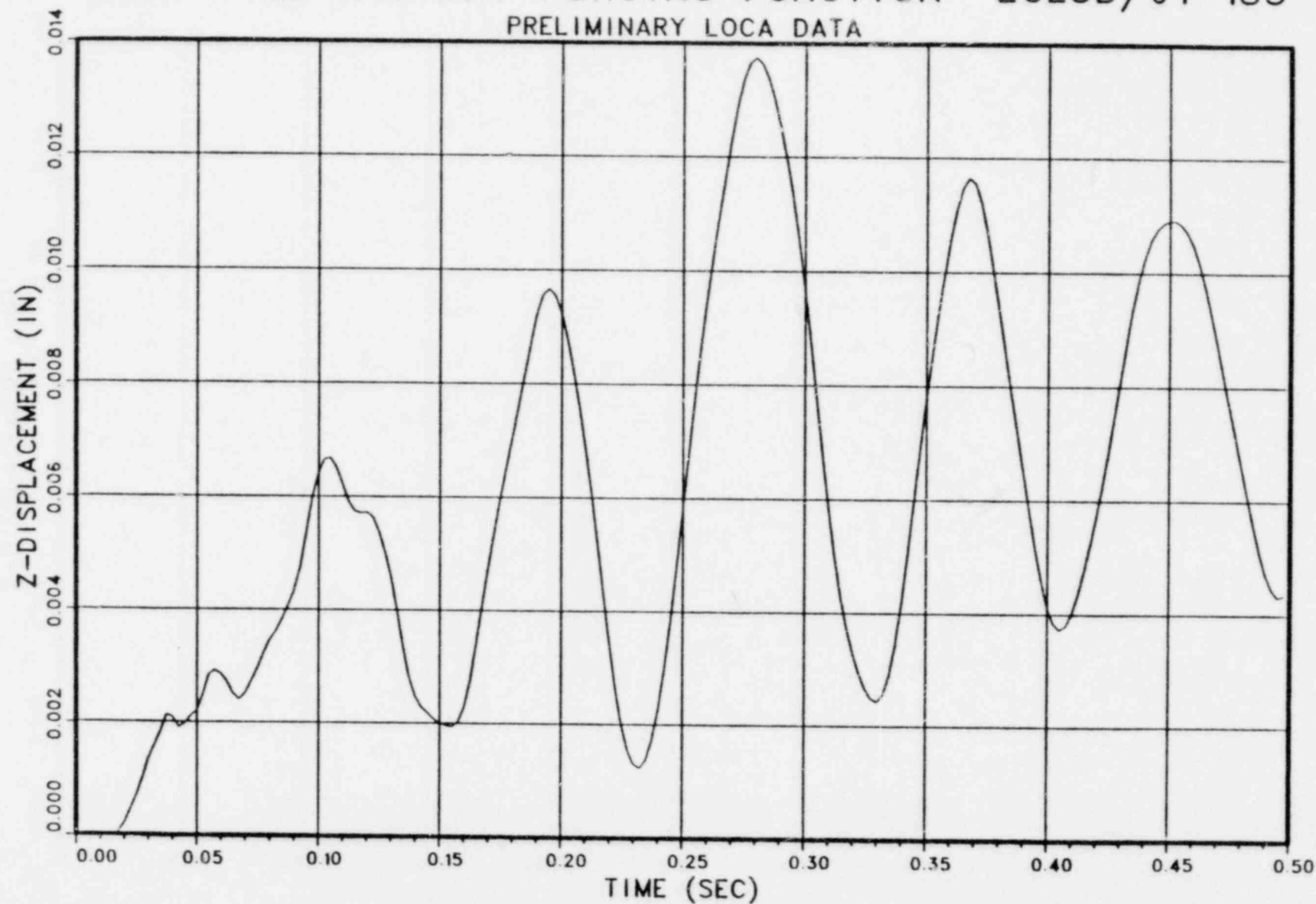
LOCA TIME HISTORY FORCING FUNCTION LCL5B/JT 185

PRELIMINARY LOCA DATA



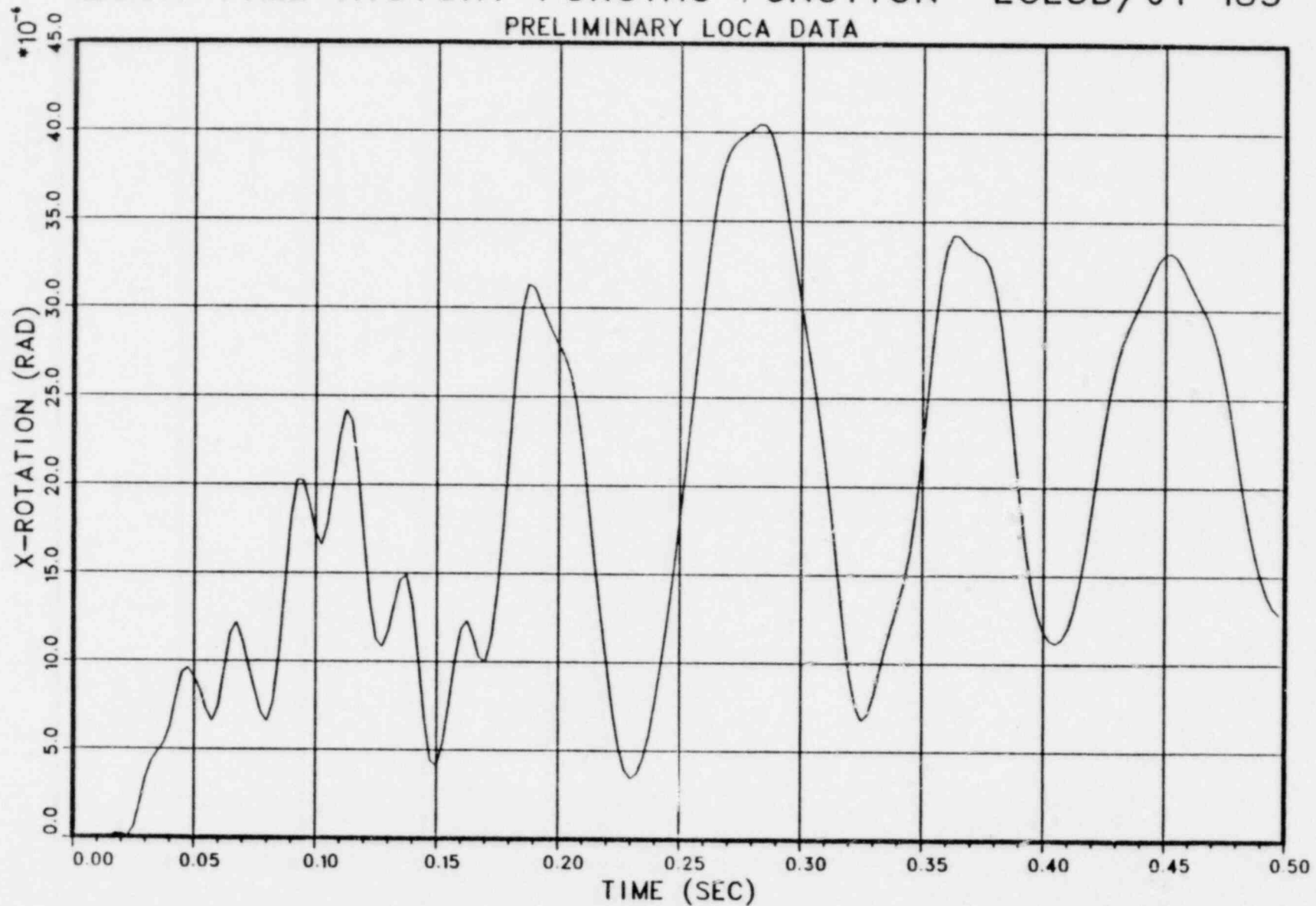
LOCA TIME HISTORY FORCING FUNCTION LCL5B/JT 185

PRELIMINARY LOCA DATA



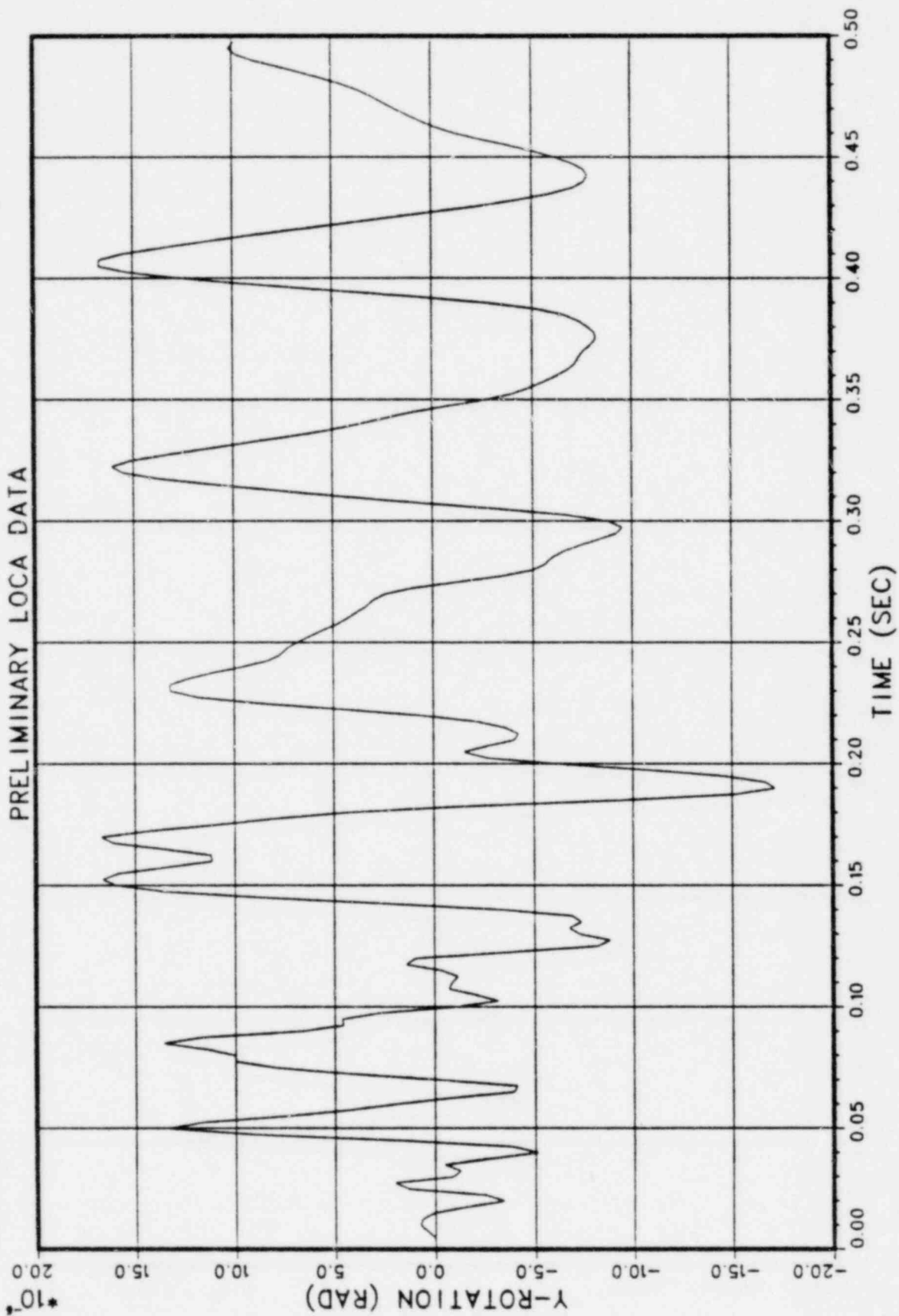
LOCA TIME HISTORY FORCING FUNCTION LCL5B/JT 185

PRELIMINARY LOCA DATA



LOCA TIME HISTORY FORCING FUNCTION LCL5B/JT 185

PRELIMINARY LOCA DATA



LOCA TIME HISTORY FORCING FUNCTION LCL5B/JT 185

PRELIMINARY LOCA DATA

