BNL-104193-2014-TECH

AGS.SN320;BNL-104193-2014-IR

Daily Log Summary for Proton Run from March to July, 1994

E. Bleser

March 1994

Collider Accelerator Department

Brookhaven National Laboratory

U.S. Department of Energy

USDOE Office of Science (SC)

DISCLAIMER

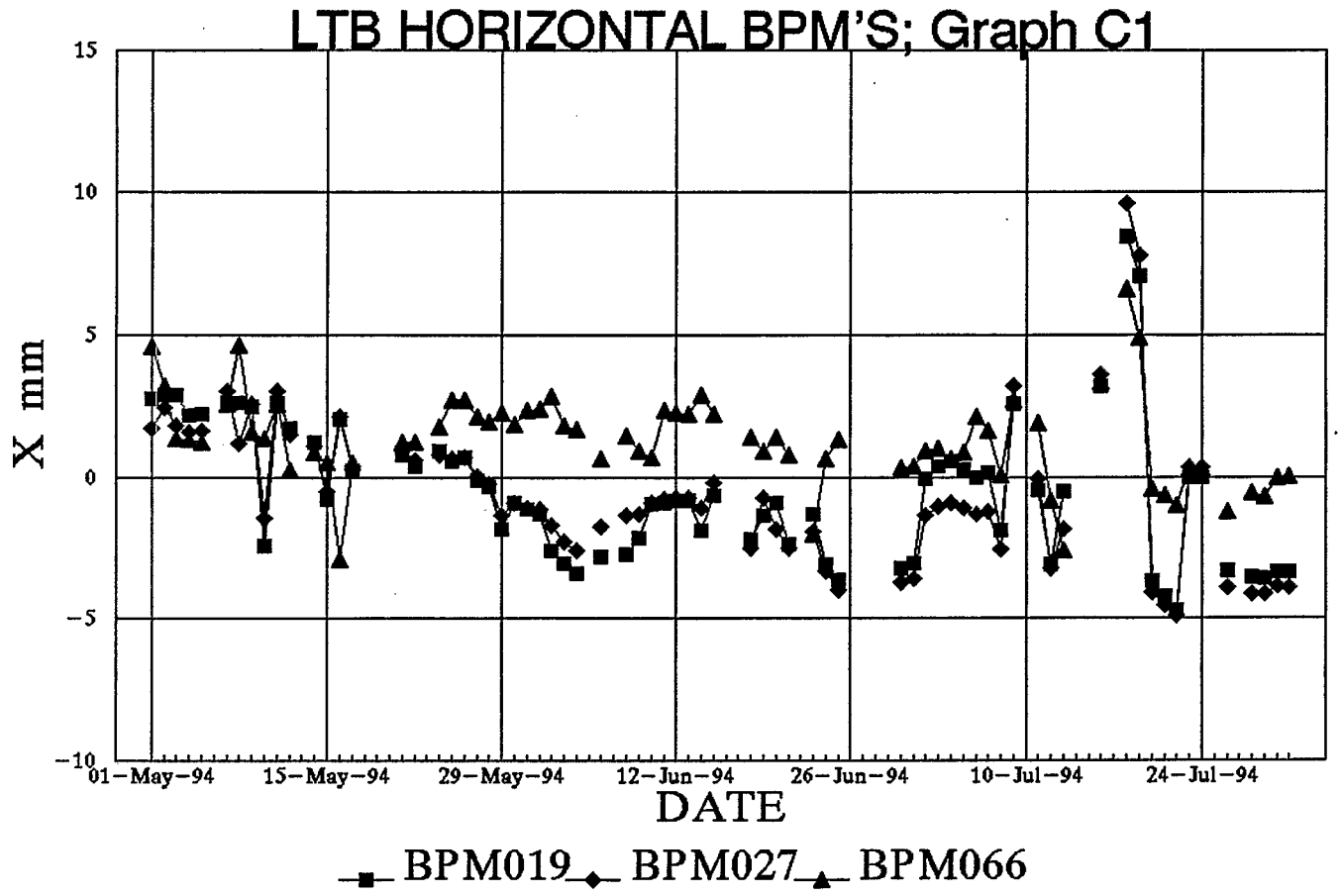
AGS Complex Machine Studies (AGS Studies Report No. 320) Daily Log Summary for Proton Run from March to July, 1994
Study Period: March - July, 1994
Participants: Main Control Room Staff
Principals: K. Zeno and B. Tamminga
Reported by: E. Bleser
Machine: AGS Proton Complex
Aim: To make a daily record of the machine performance.

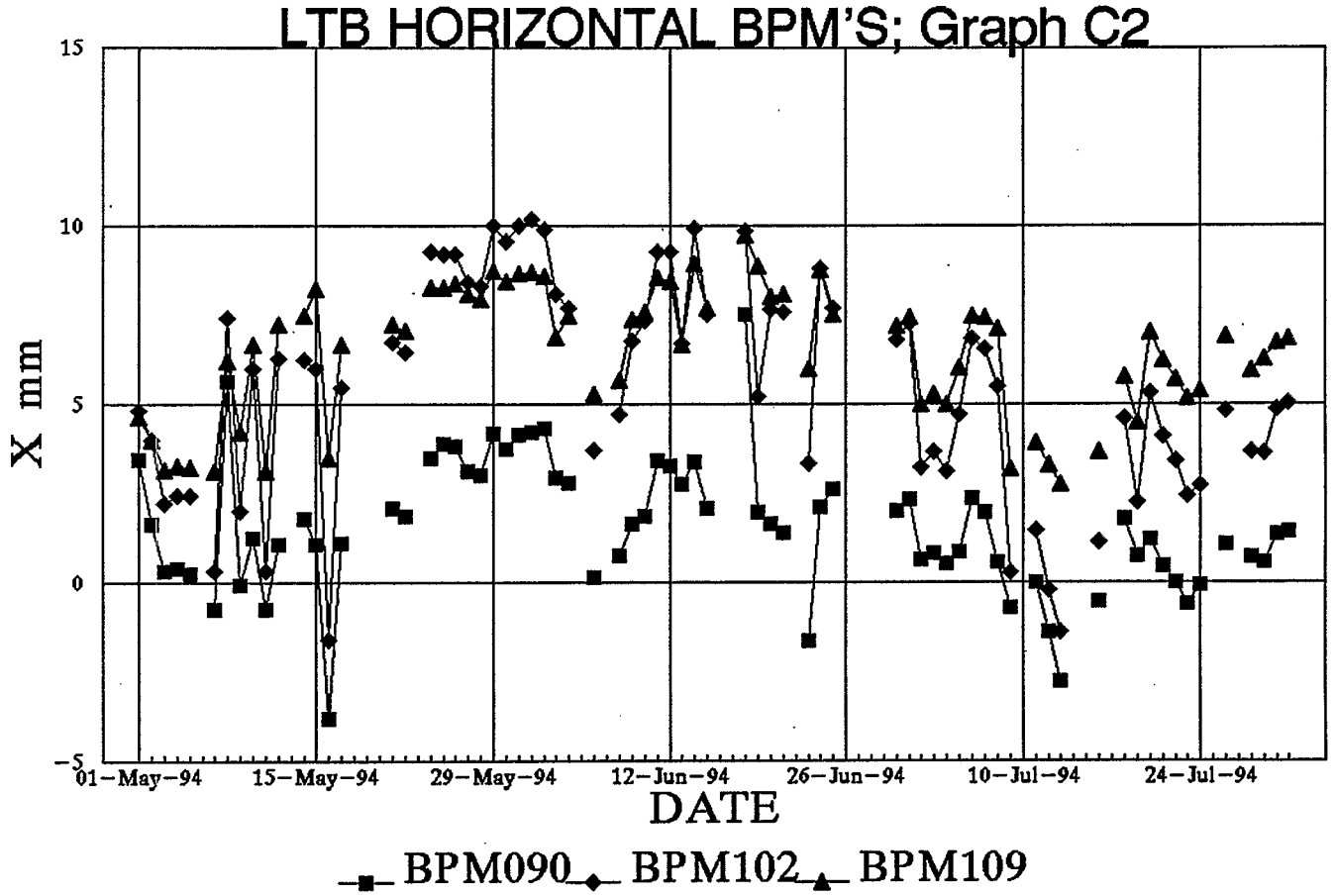
Summary

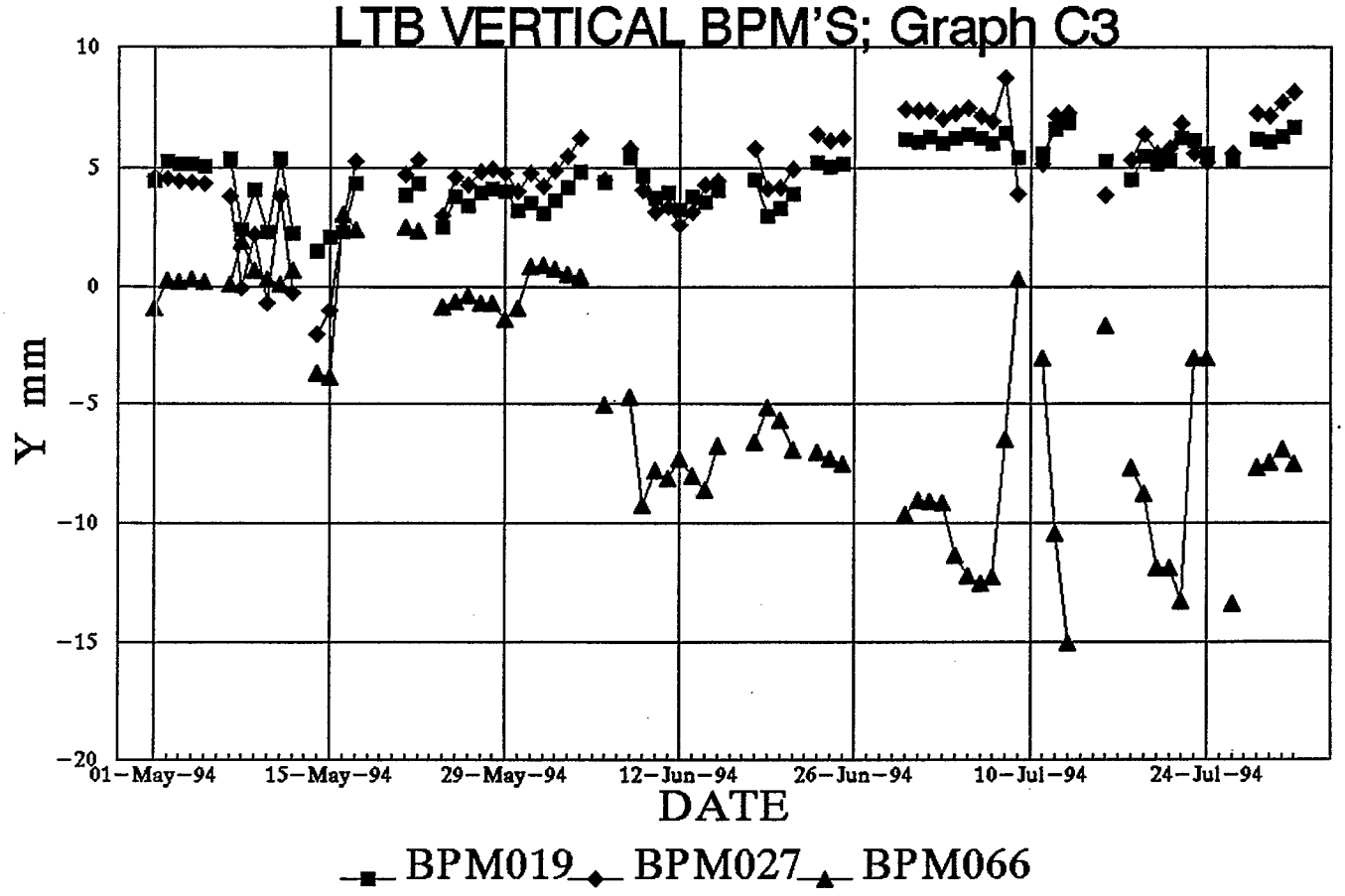
Each morning, the Main Control Room staff records the "morning numbers" describing the performance of the beam. This note presents without comment 36 graphs displaying the data accumulated during the last three months of the 1994 proton run. (Comment is plainly called for and will be forthcoming.) This data is available for anyone to analyze. Subsequent notes will deal with establishing limits for the parameters for the 1995 run and with extracting some physics from this data.

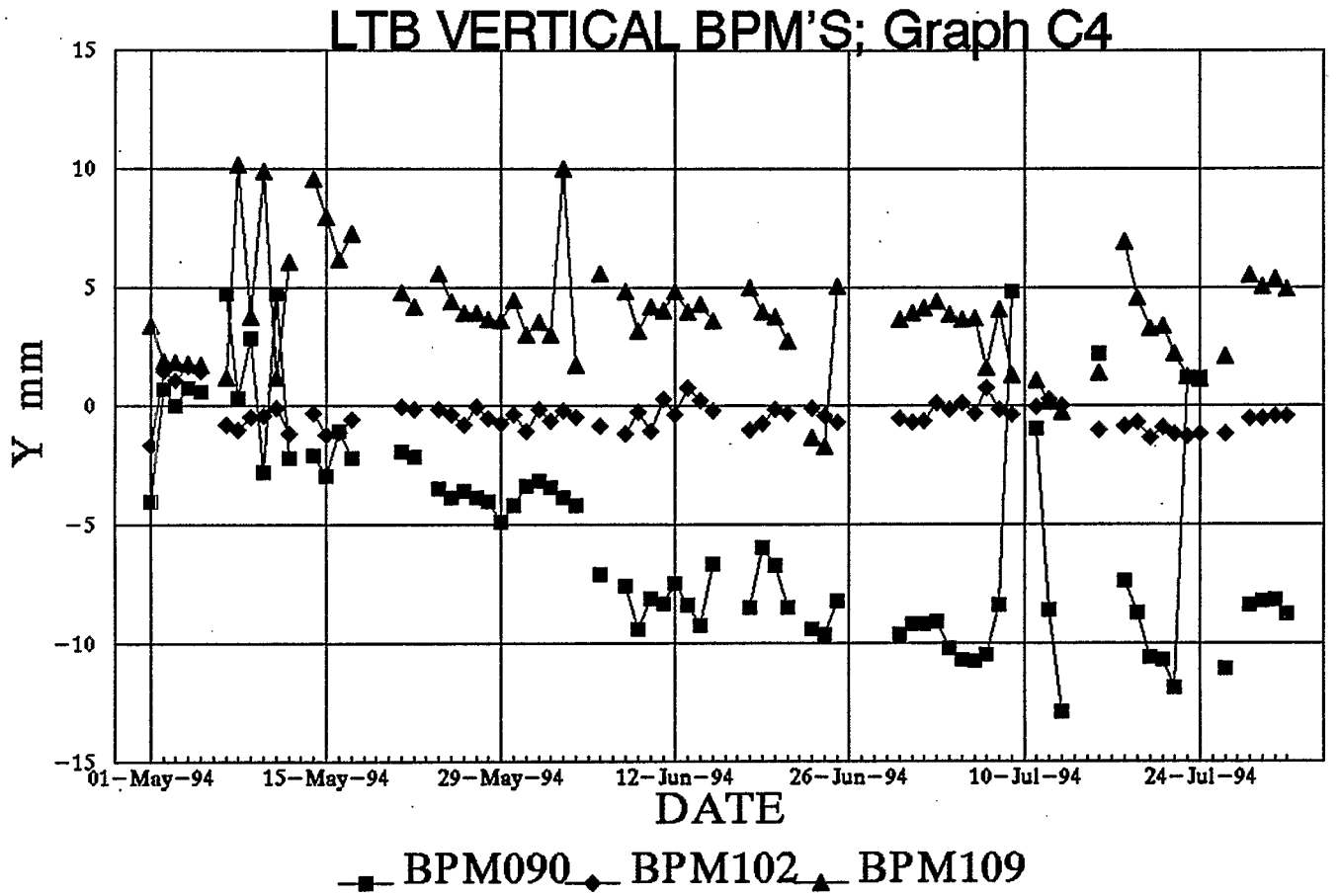
Files

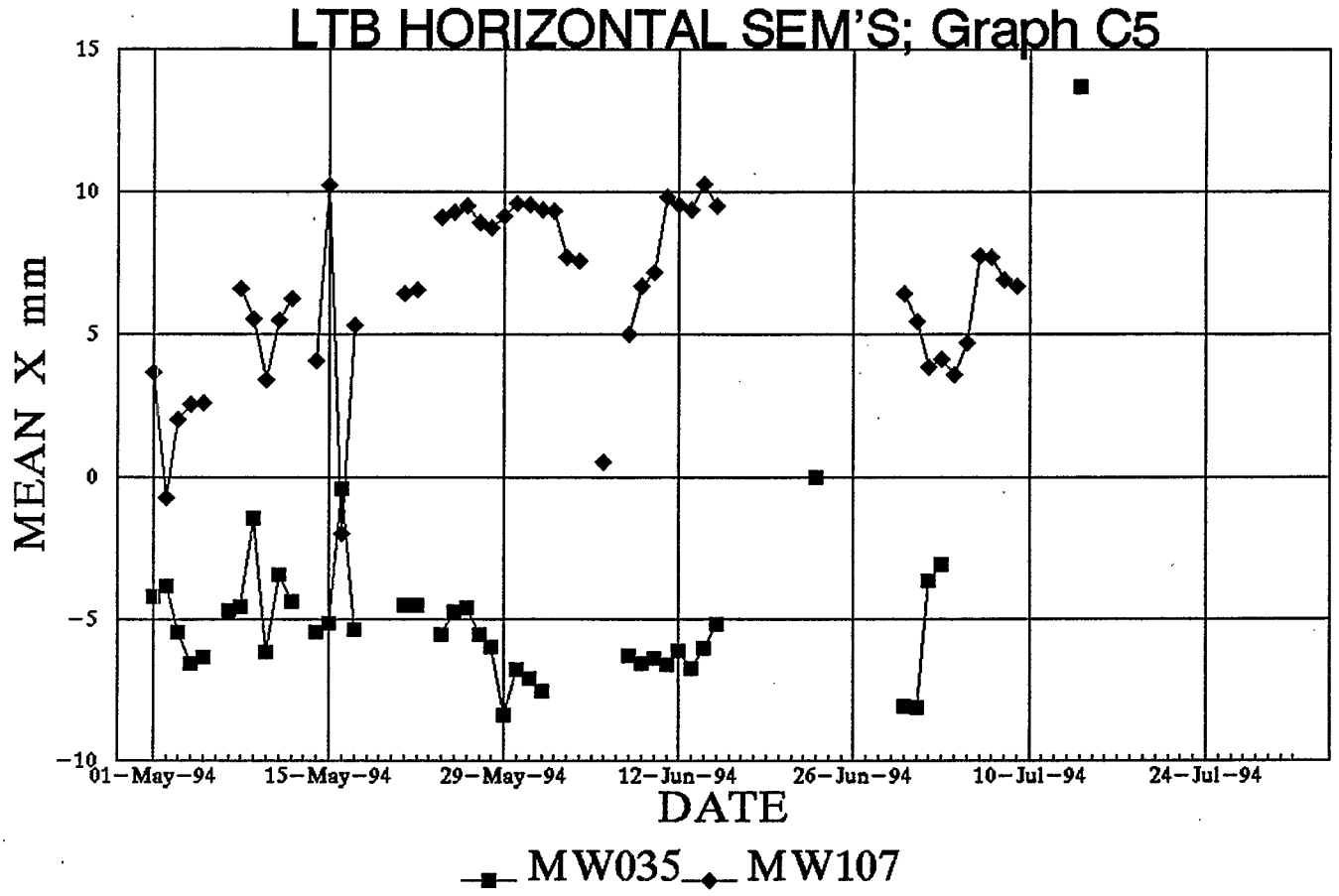
The data is entered into a LOTUS worksheet. The backup of the original worksheet is stored under the name DAILYLOG.WK3 in the root directory of the PC in the center of the Control Room. For this report, this file was rearranged, some obvious errors were corrected and the appended graphs were prepared. The resulting file is stored under the name DL94.WK3 in the root directory of the Control Room PC. People working with the data should use a copy of this file. For the 1995 run, we have prepared a file, DL95.WK3, similar to DL94.WK3. As the data is entered each morning into DL95.WK3, graphs similar to those in this report will be generated automatically.

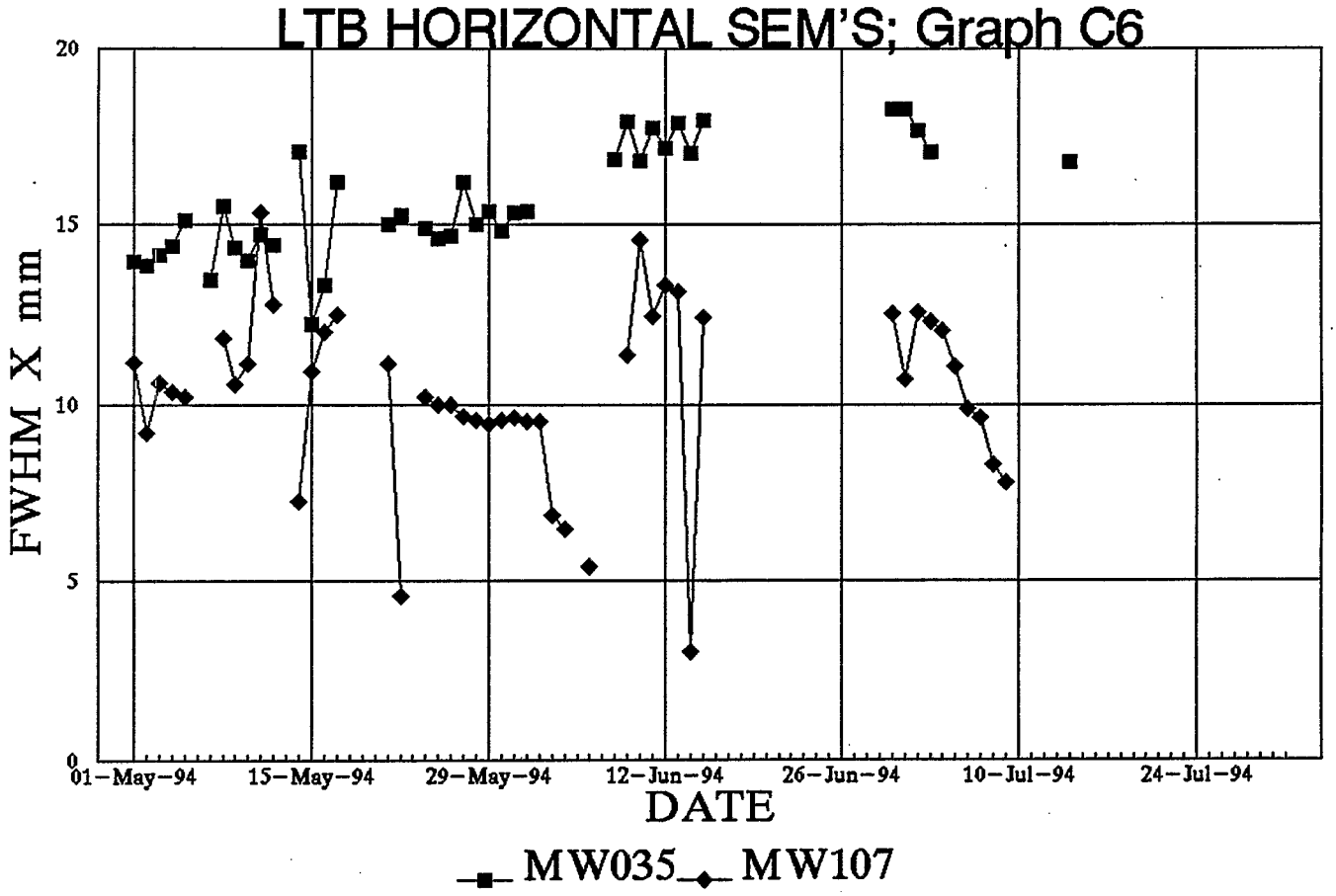

LTB HORIZONTAL BPM'S; Graph C1
15
10
5
0
−5
−10
X mm
01−May−94
15−May−94
29−May−94
12−Jun−94
26−Jun−94
10−Jul−94
24−Jul−94
DATE
BPM019
BPM027
BPM066

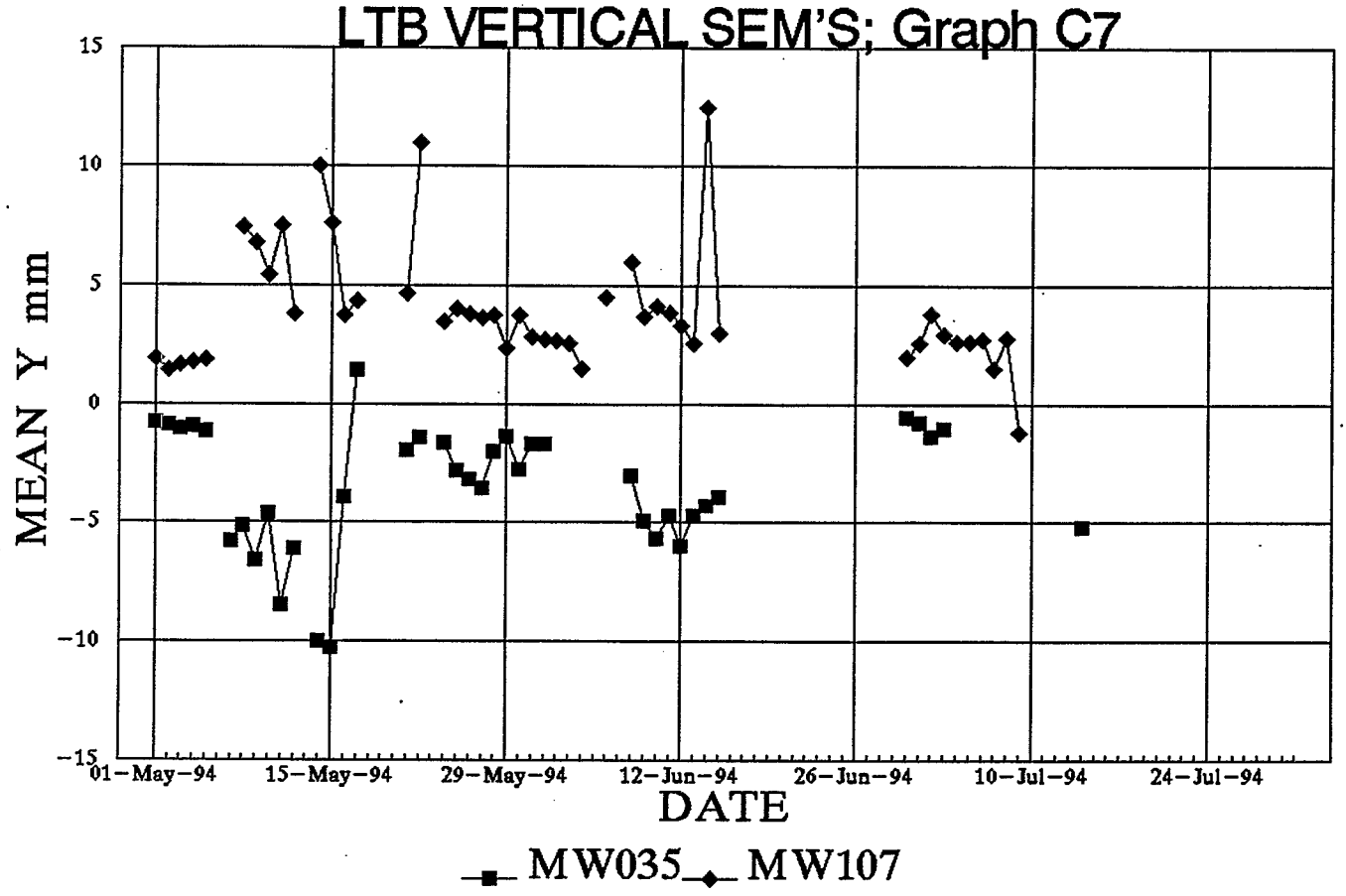

LTB HORIZONTAL BPM'S; Graph C2
15
10
5
0
−5
X mm
01−May−94
15−May−94
29−May−94
12−Jun−94
26−Jun−94
10−Jul−94
24−Jul−94
DATE
BPM090
BPM102
BPM109

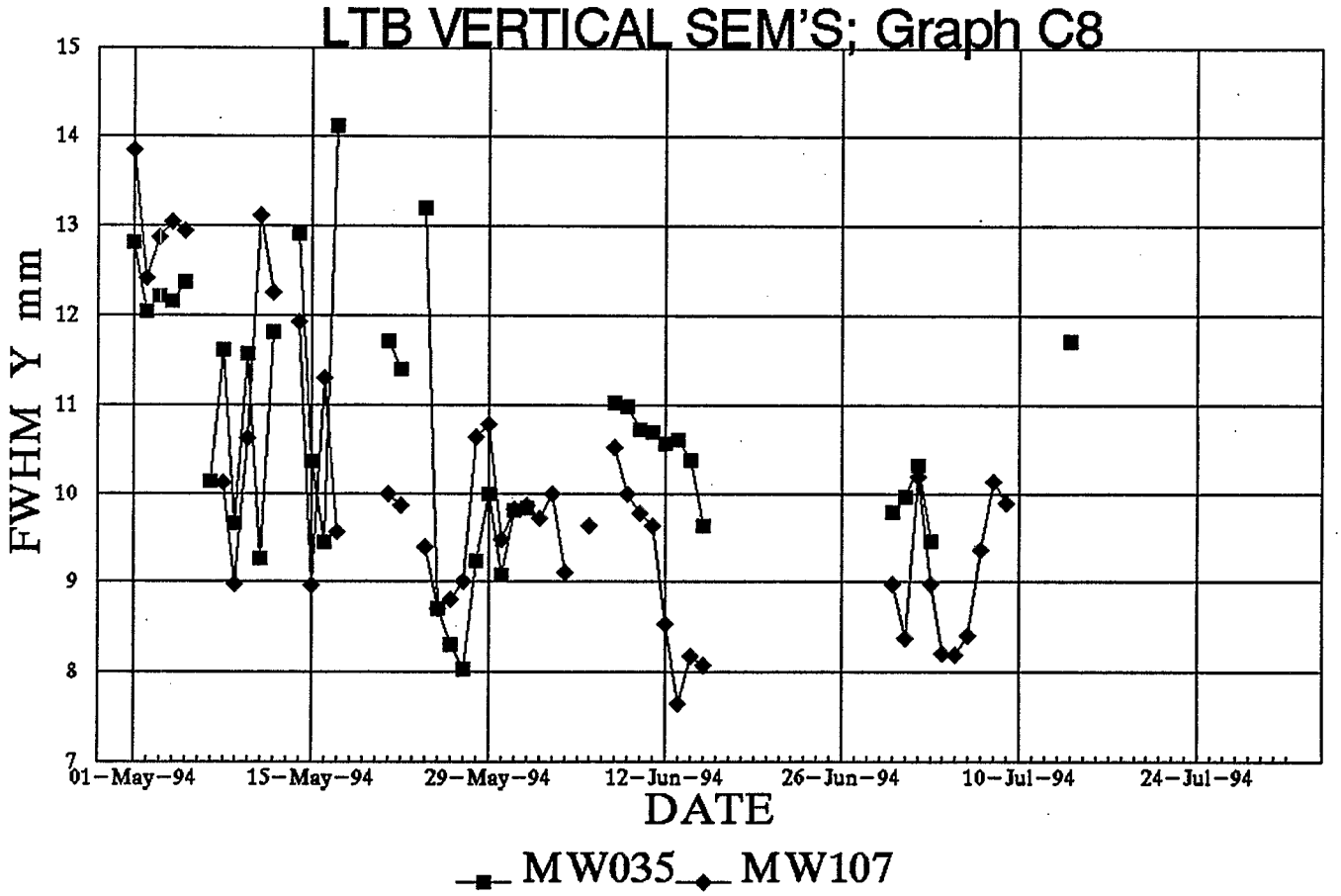

LTB VERTICAL BPM'S; Graph C3
Y mm
10
5
0
-5
-10
-15
-20
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
BPM019
BPM027
BPM066

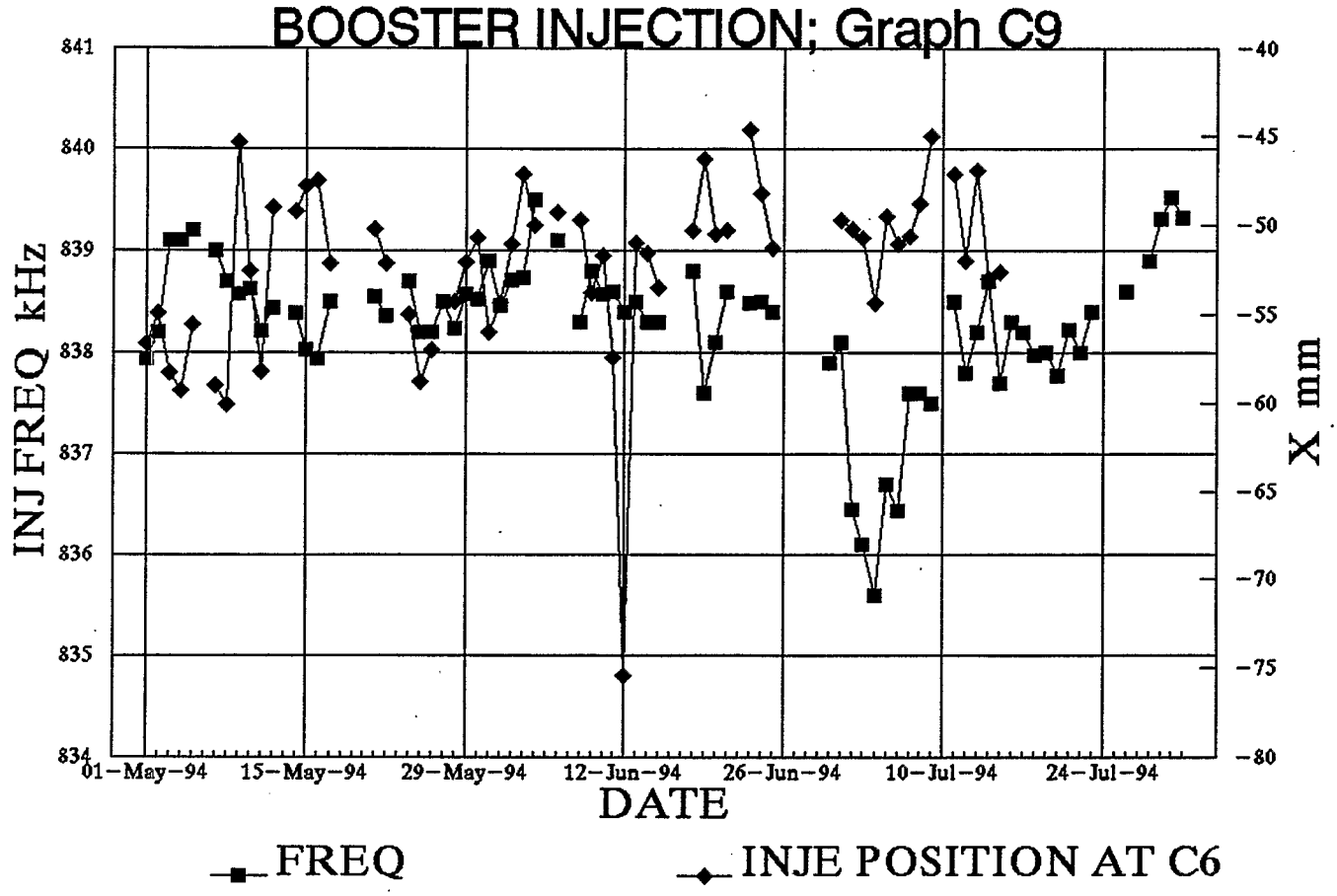

LTB VERTICAL BPM'S; Graph C4
Y mm
15
10
5
0
-5
-10
-15
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
BPM090
BPM102
BPM109

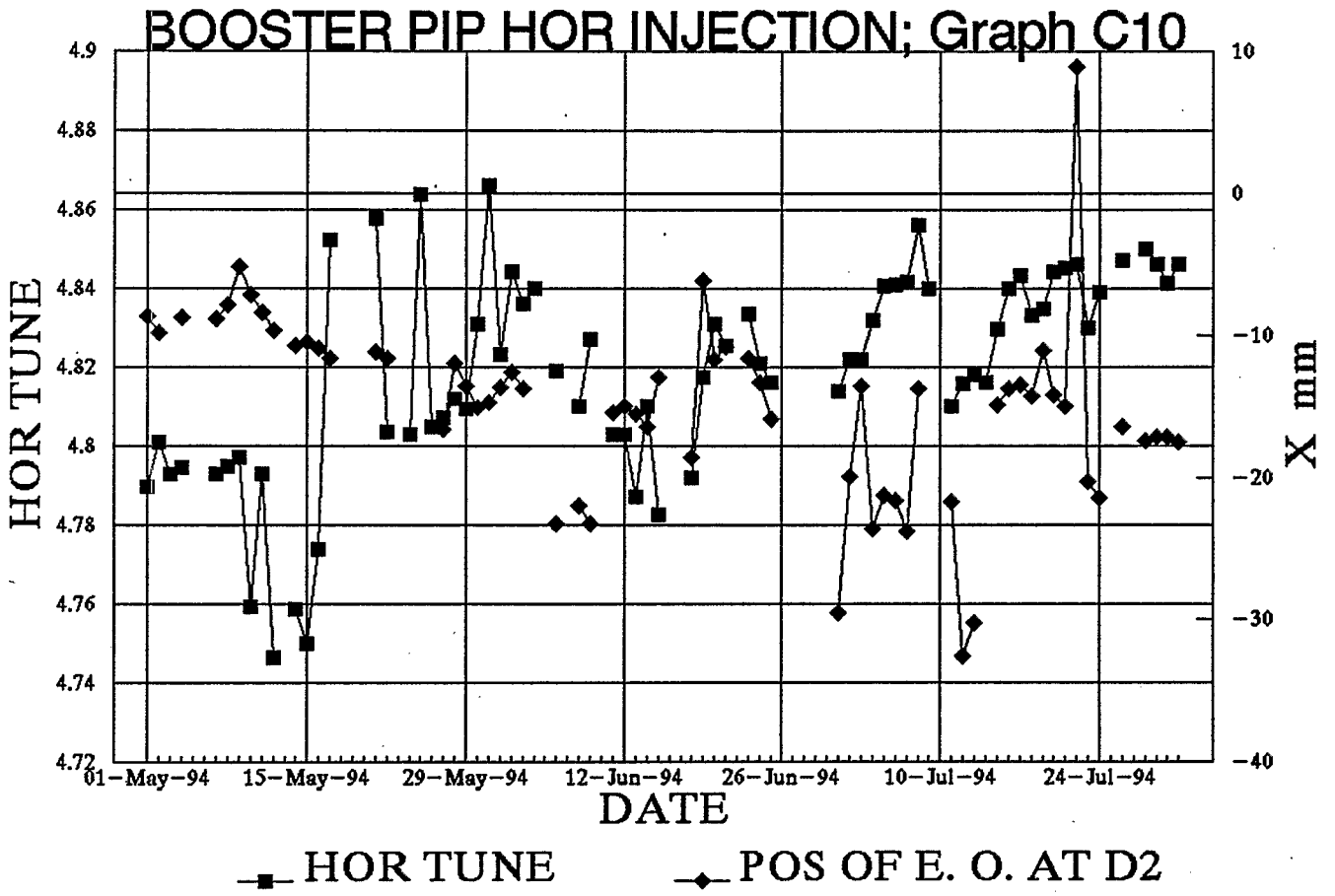

LTB HORIZONTAL SEM'S; Graph C5
MEAN X mm
15
10
5
0
-5
-10
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
MW035
MW107

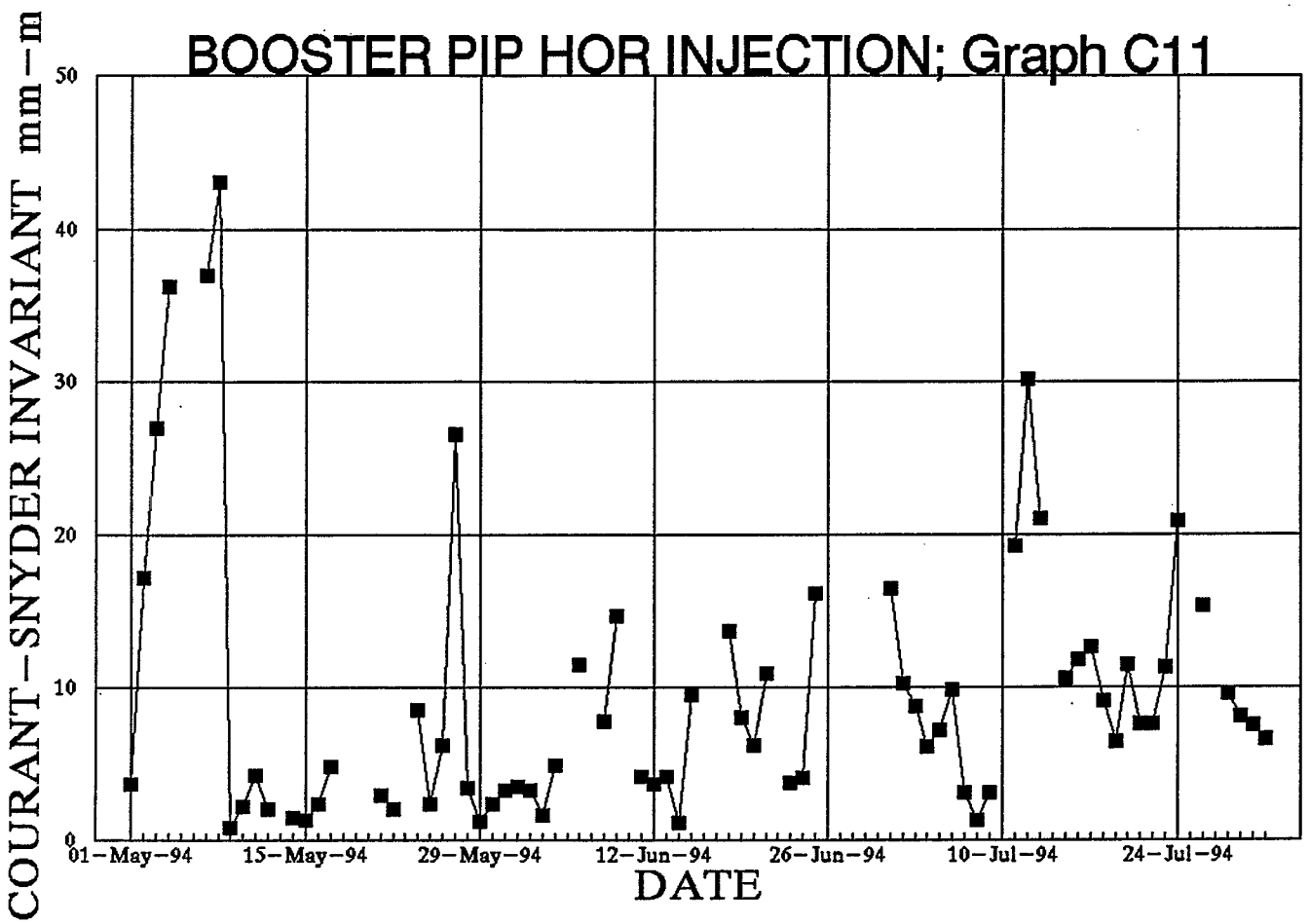

LTB HORIZONTAL SEM'S; Graph C6
FWHM X mm
20
15
10
5
0
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
MW035
MW107

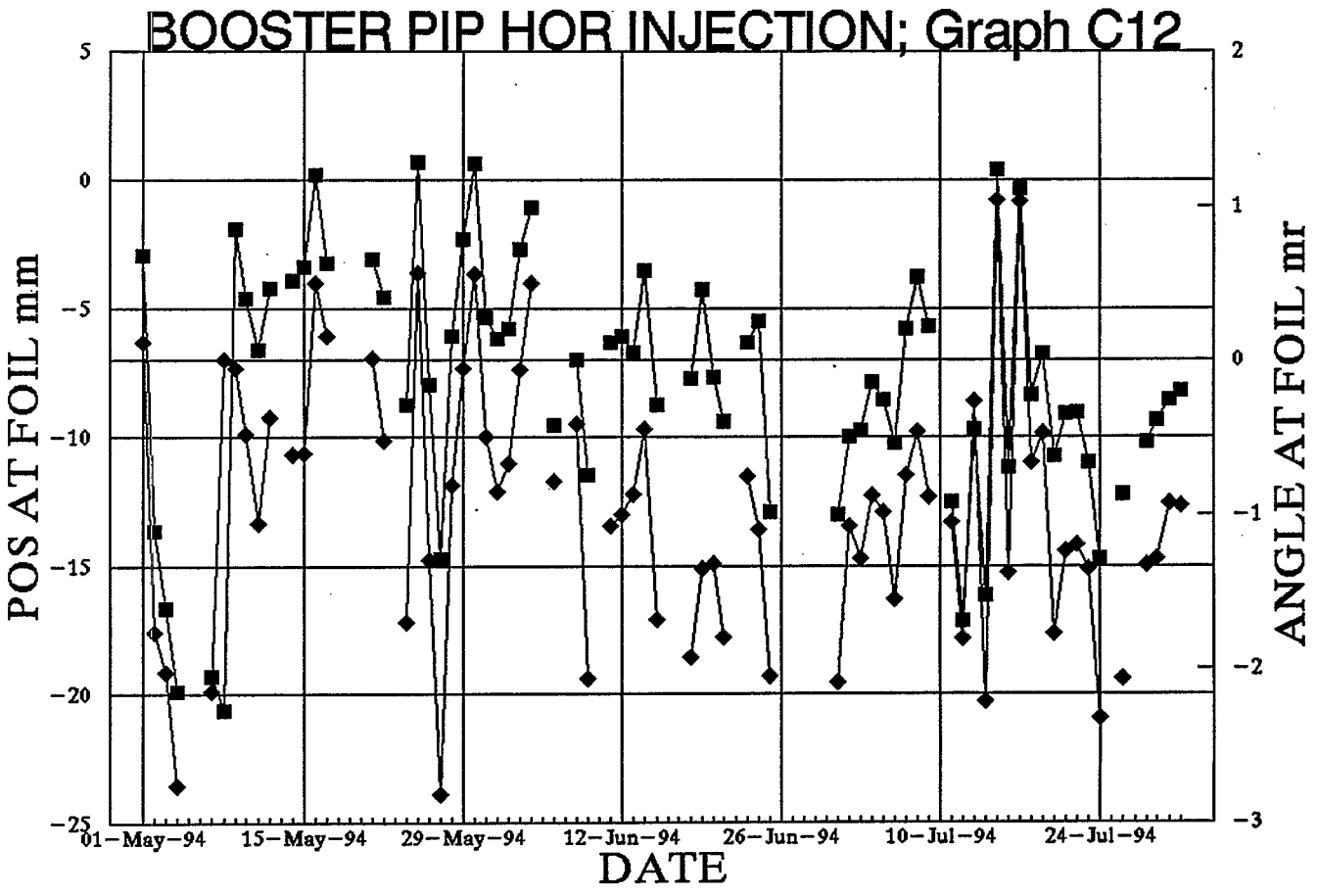

LTB VERTICAL SEM'S; Graph C7
MEAN Y mm
15
10
5
0
-5
-10
-15
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
MW035
MW107

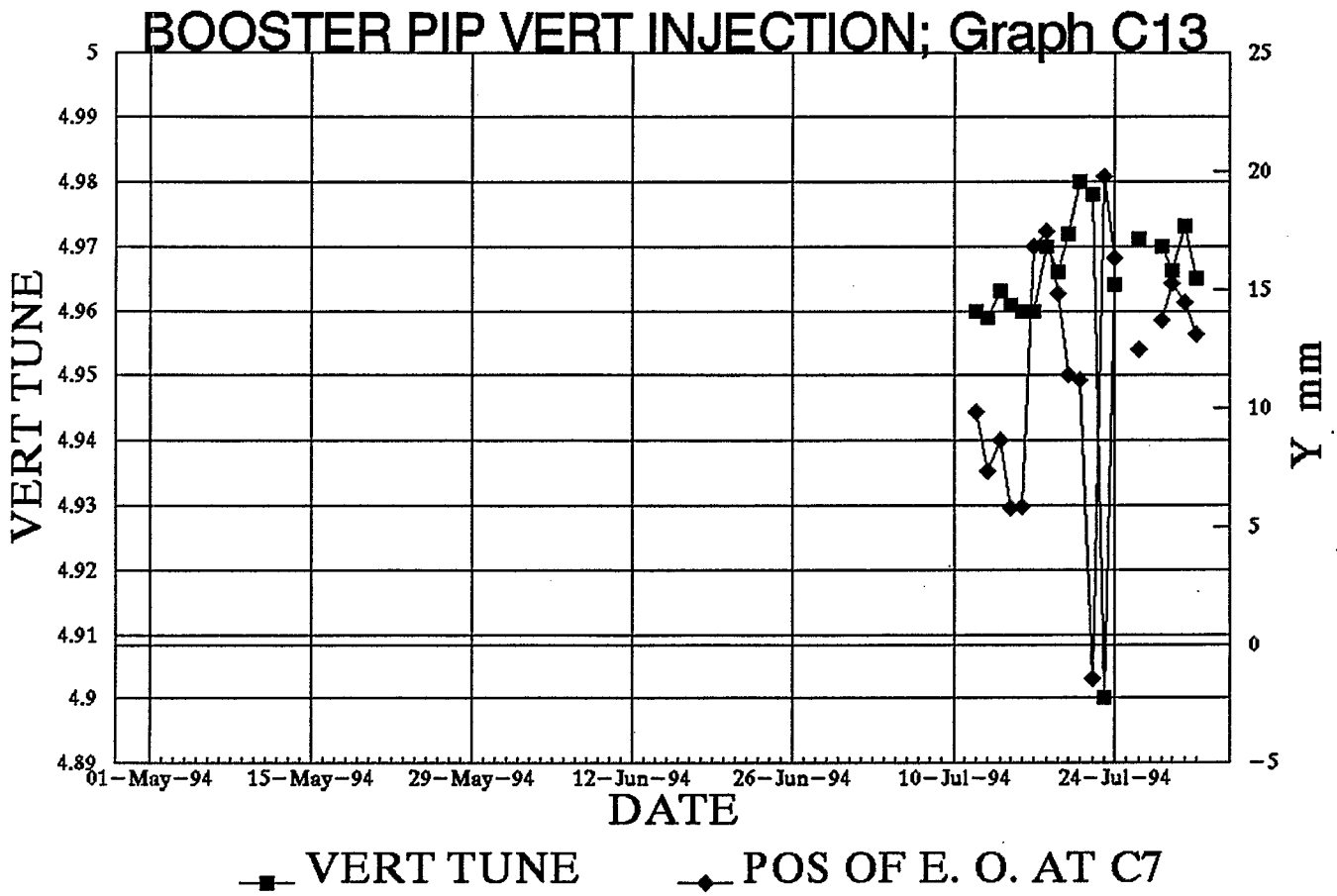

LTB VERTICAL SEM'S; Graph C8
FWHM Y mm
15
14
13
12
11
10
9
8
7
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
MW035
MW107

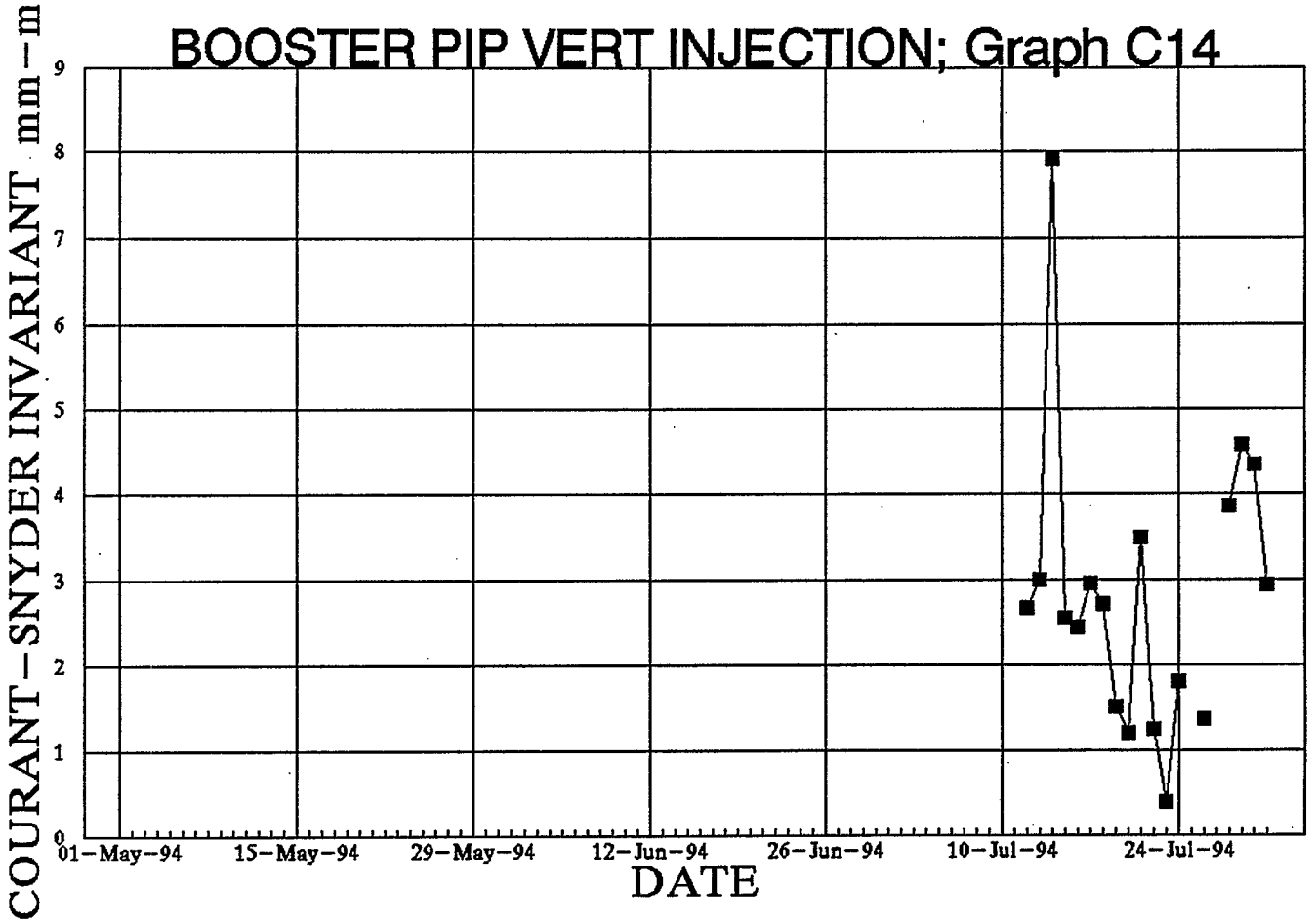

BOOSTER INJECTION; Graph C9
INJ FREQ kHz
X mm
DATE
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
FREQ
INJE POSITION AT C6


BOOSTER PIP HOR INJECTION; Graph C10
HOR TUNE
X mm
DATE
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
HOR TUNE
POS OF E. O. AT D2


BOOSTER PIP HOR INJECTION; Graph C11
COURANT-SNYDER INVARIANT mm-m
50
40
30
20
10
0
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE


BOOSTER PIP HOR INJECTION; Graph C12
POS AT FOIL mm
5
0
-5
-10
-15
-20
-25
ANGLE AT FOIL mr
2
1
0
-1
-2
-3
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE


BOOSTER PIP VERT INJECTION; Graph C13
VERT TUNE
Y mm
DATE
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
VERT TUNE
POS OF E. O. AT C7


BOOSTER PIP VERT INJECTION; Graph C14
COURANT-SNYDER INVARIANT mm-m
DATE
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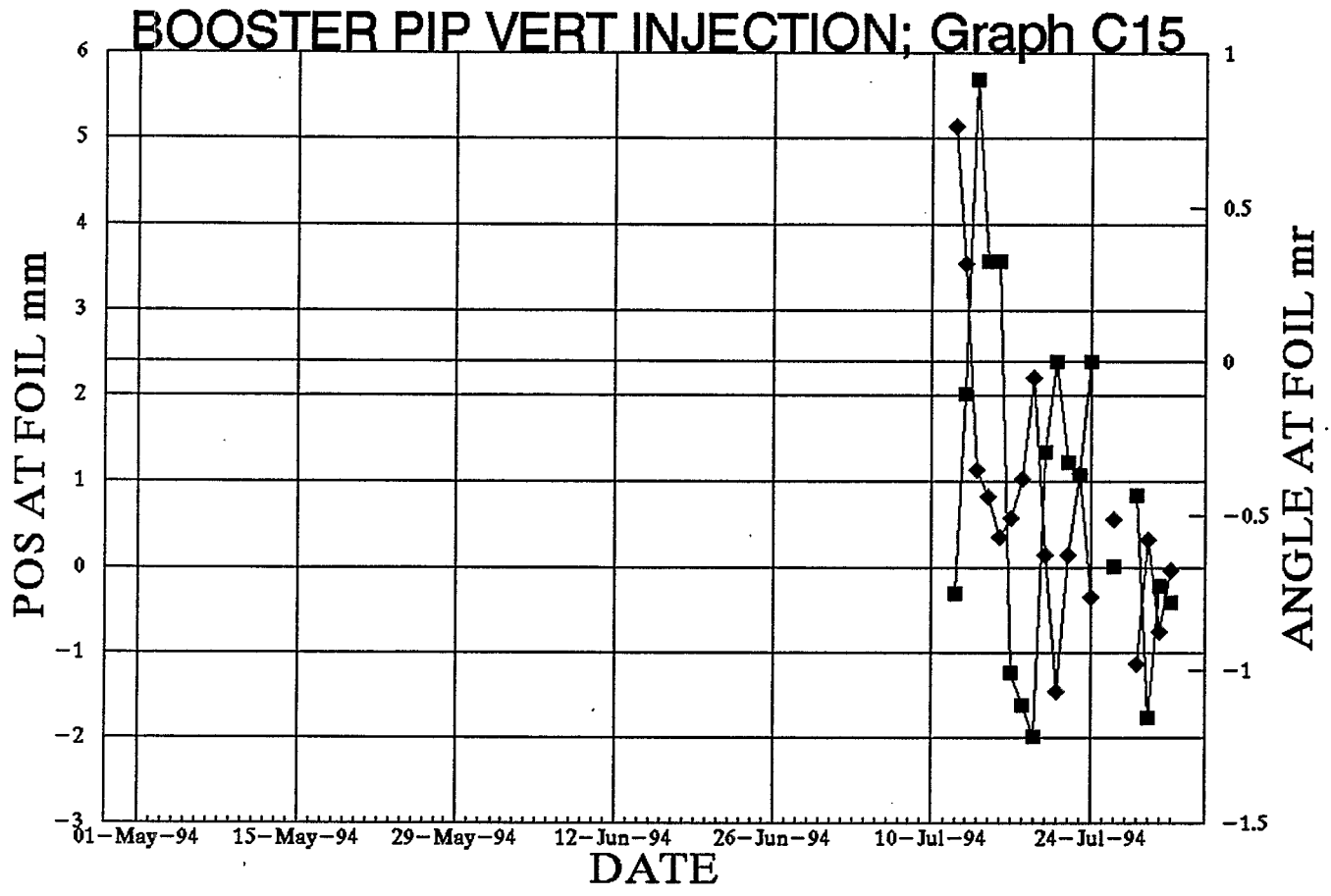
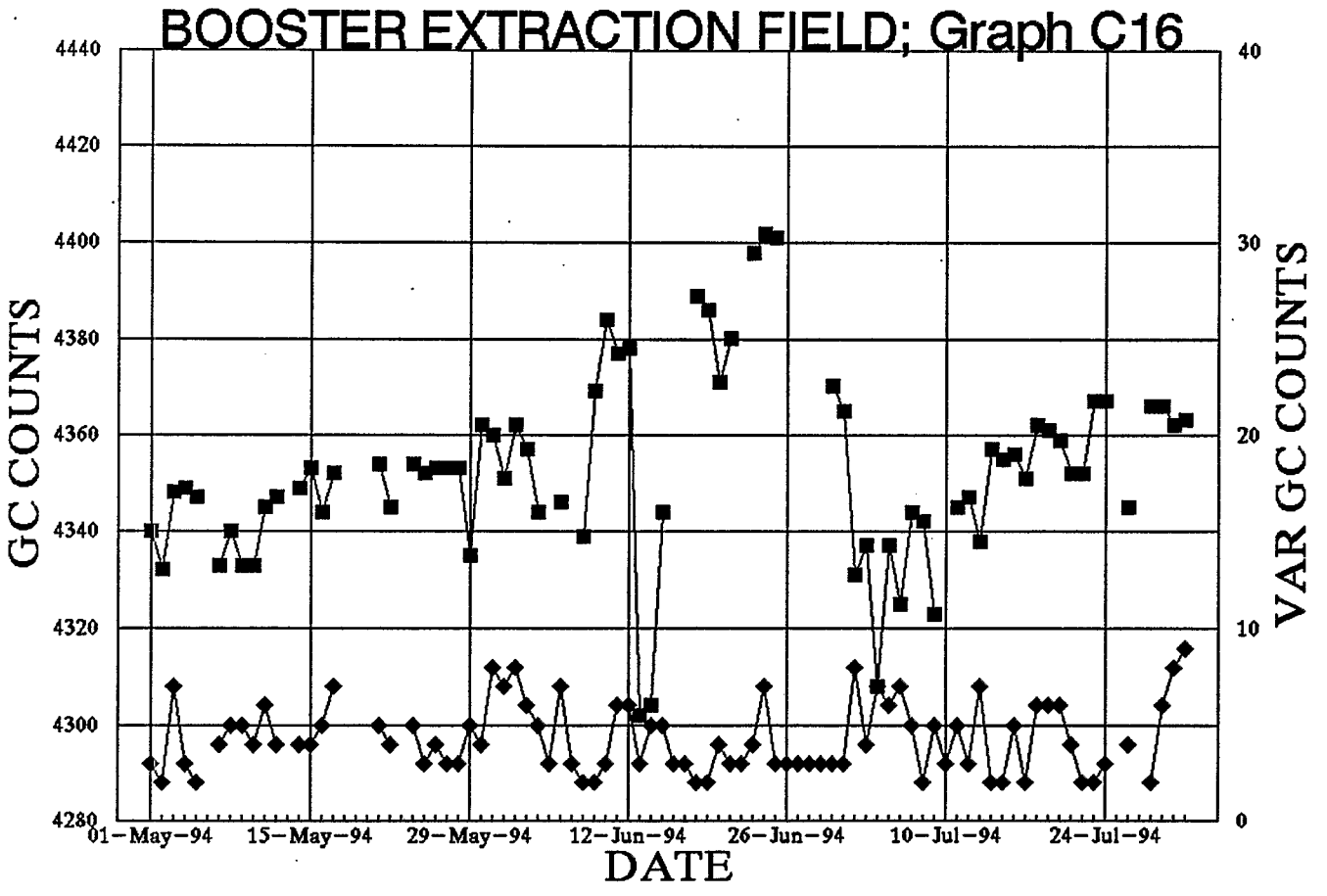
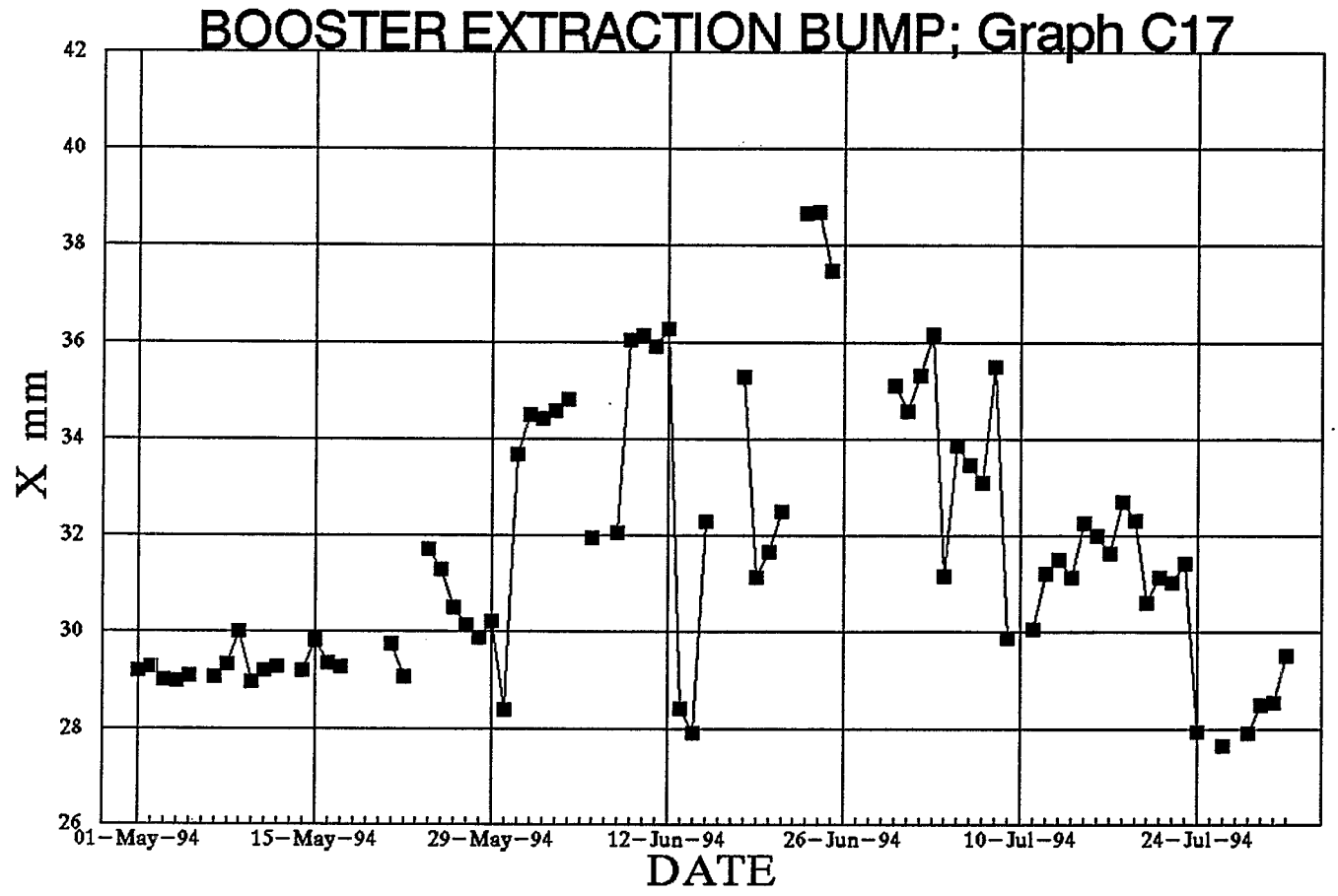
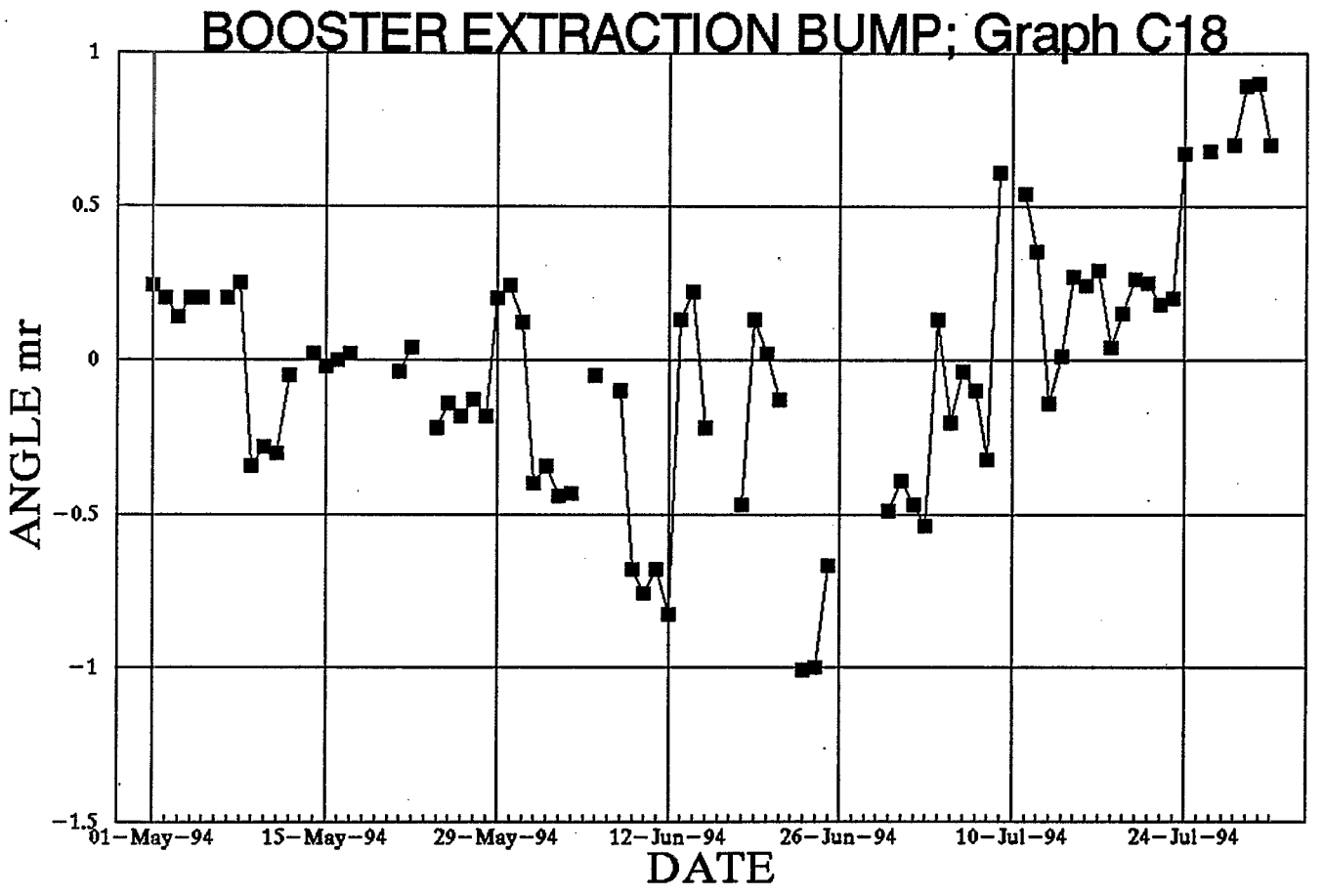
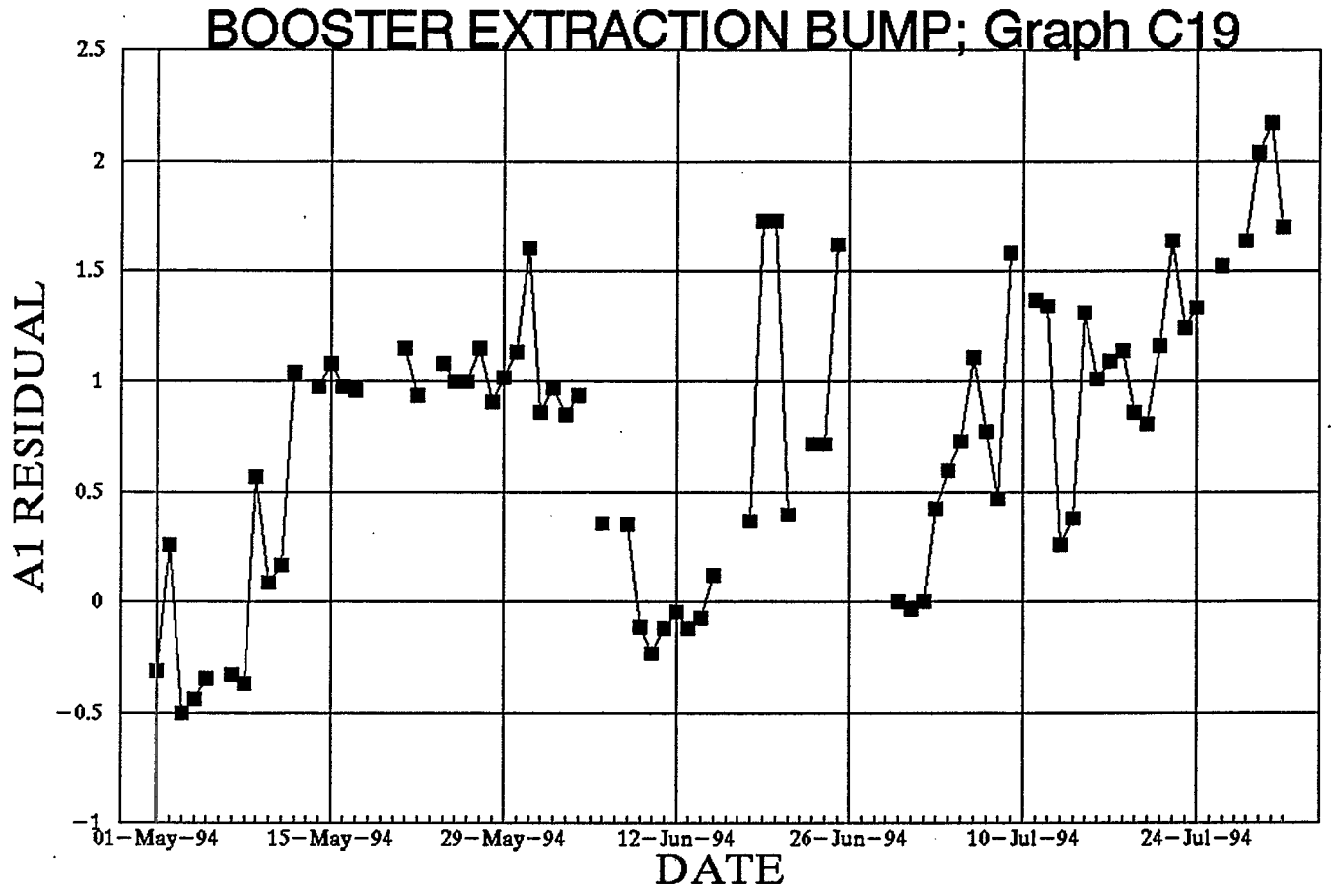
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94

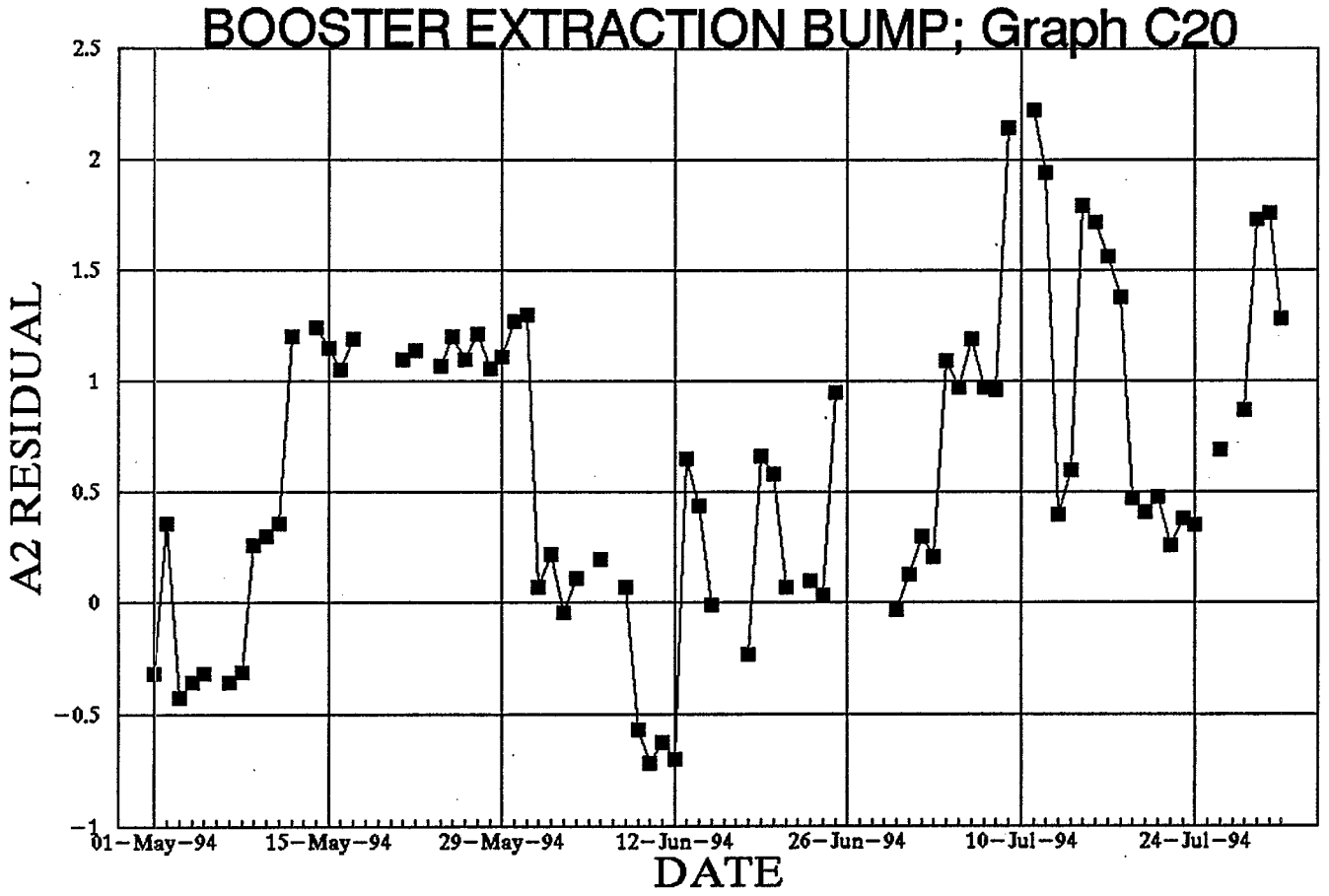

BOOSTER PIP VERT INJECTION; Graph C15
POS AT FOIL mm
ANGLE AT FOIL mr
DATE
6
5
4
3
2
1
0
−1
−2
−3
1
0.5
0
−0.5
−1
−1.5
01−May−94
15−May−94
29−May−94
12−Jun−94
26−Jun−94
10−Jul−94
24−Jul−94

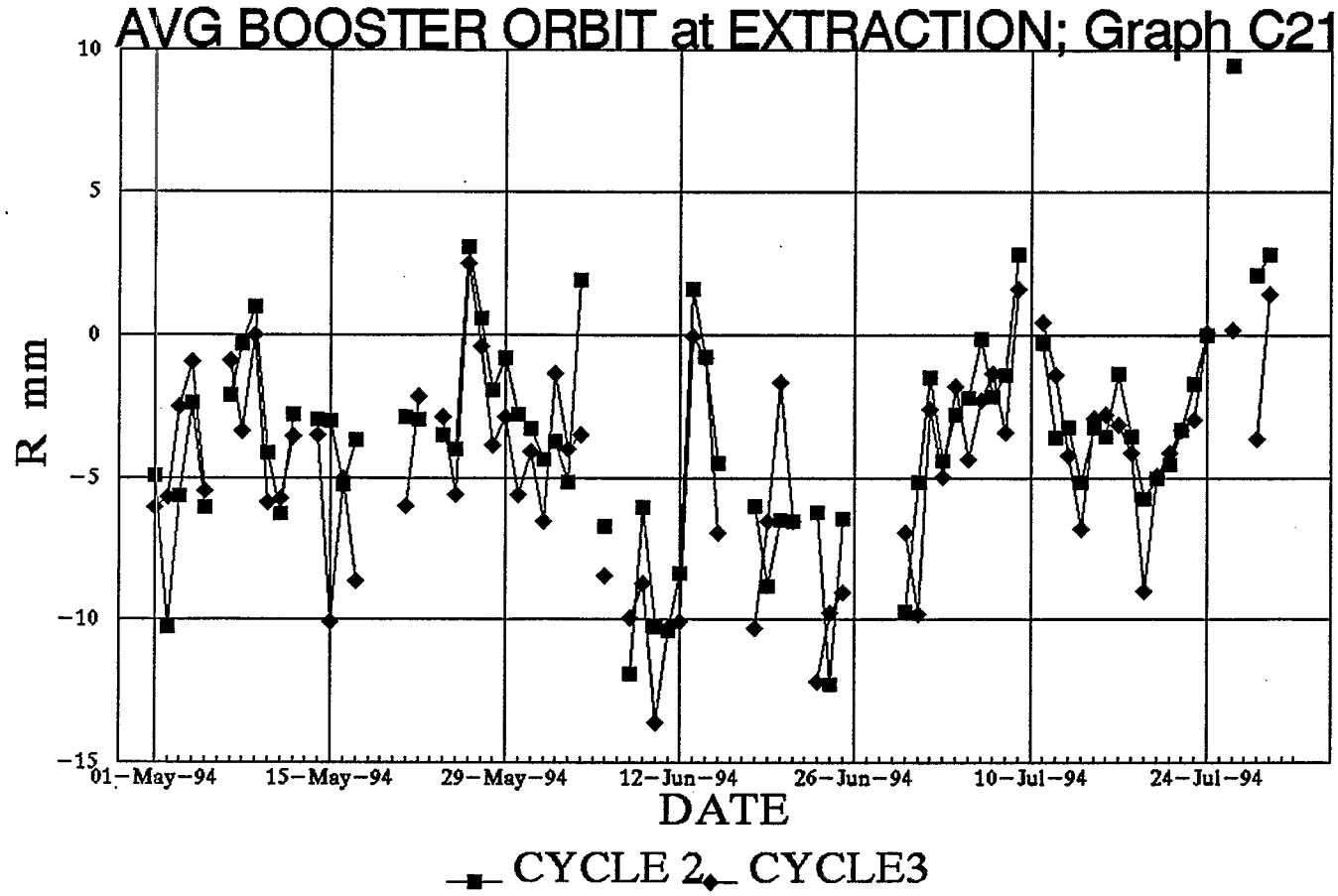

BOOSTER EXTRACTION FIELD; Graph C16
GC COUNTS
VAR GC COUNTS
DATE
4440
4420
4400
4380
4360
4340
4320
4300
4280
40
30
20
10
0
01−May−94
15−May−94
29−May−94
12−Jun−94
26−Jun−94
10−Jul−94
24−Jul−94

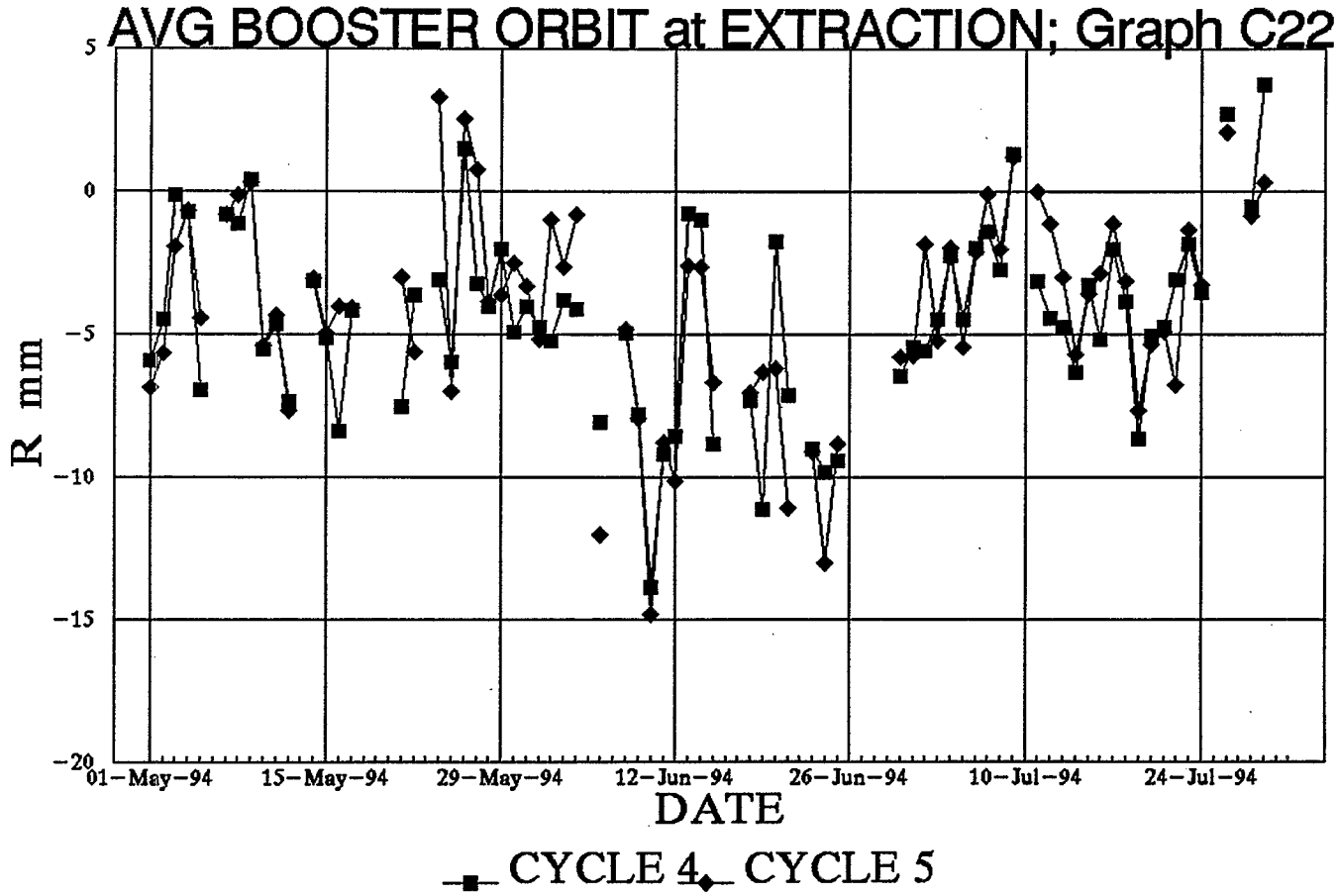

BOOSTER EXTRACTION BUMP; Graph C17
X mm
42
40
38
36
34
32
30
28
26
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE

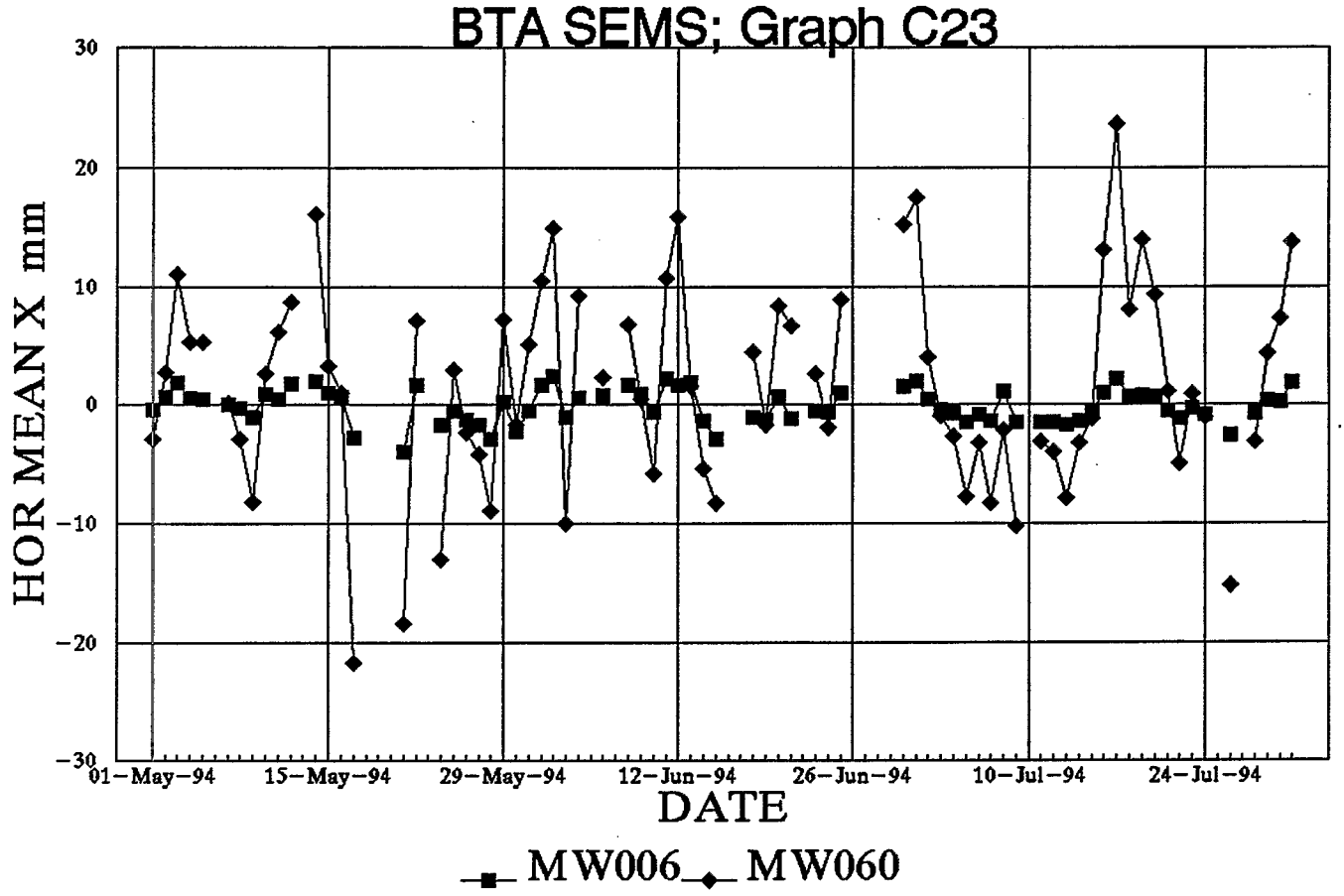

BOOSTER EXTRACTION BUMP; Graph C18
ANGLE mr
1
0.5
0
-0.5
-1
-1.5
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE


BOOSTER EXTRACTION BUMP; Graph C19
A1 RESIDUAL
2.5
2
1.5
1
0.5
0
−0.5
−1
01−May−94
15−May−94
29−May−94
12−Jun−94
26−Jun−94
10−Jul−94
24−Jul−94
DATE


BOOSTER EXTRACTION BUMP; Graph C20
A2 RESIDUAL
2.5
2
1.5
1
0.5
0
−0.5
−1
01−May−94
15−May−94
29−May−94
12−Jun−94
26−Jun−94
10−Jul−94
24−Jul−94
DATE


AVG BOOSTER ORBIT at EXTRACTION; Graph C21
10
5
0
−5
−10
−15
R mm
01−May−94
15−May−94
29−May−94
12−Jun−94
26−Jun−94
10−Jul−94
24−Jul−94
DATE
CYCLE 2
CYCLE3


AVG BOOSTER ORBIT at EXTRACTION; Graph C22
5
0
−5
−10
−15
−20
R mm
01−May−94
15−May−94
29−May−94
12−Jun−94
26−Jun−94
10−Jul−94
24−Jul−94
DATE
CYCLE 4
CYCLE 5


BTA SEMS; Graph C23
HOR MEAN X mm
30
20
10
0
-10
-20
-30
01-May-94
15-May-94
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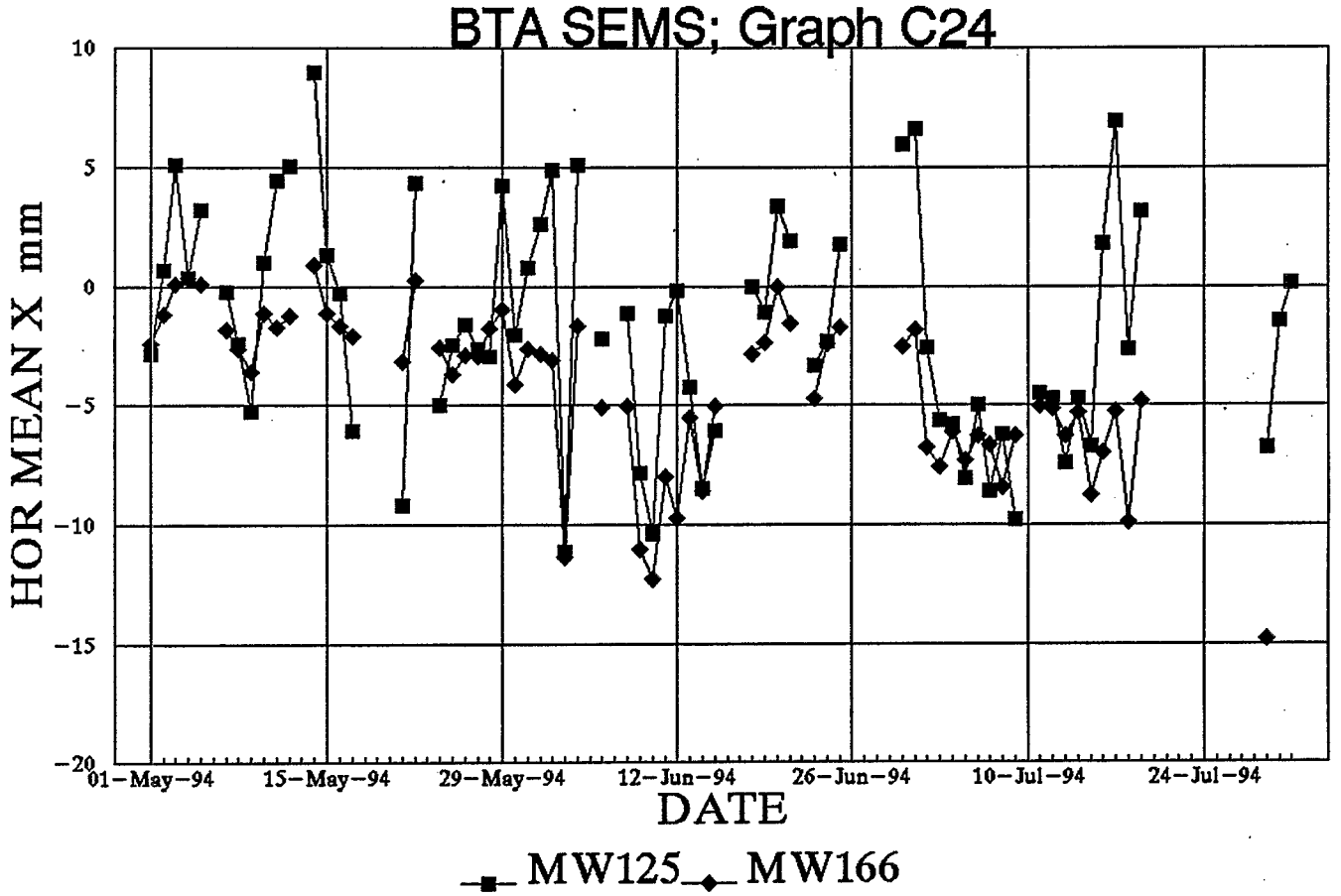
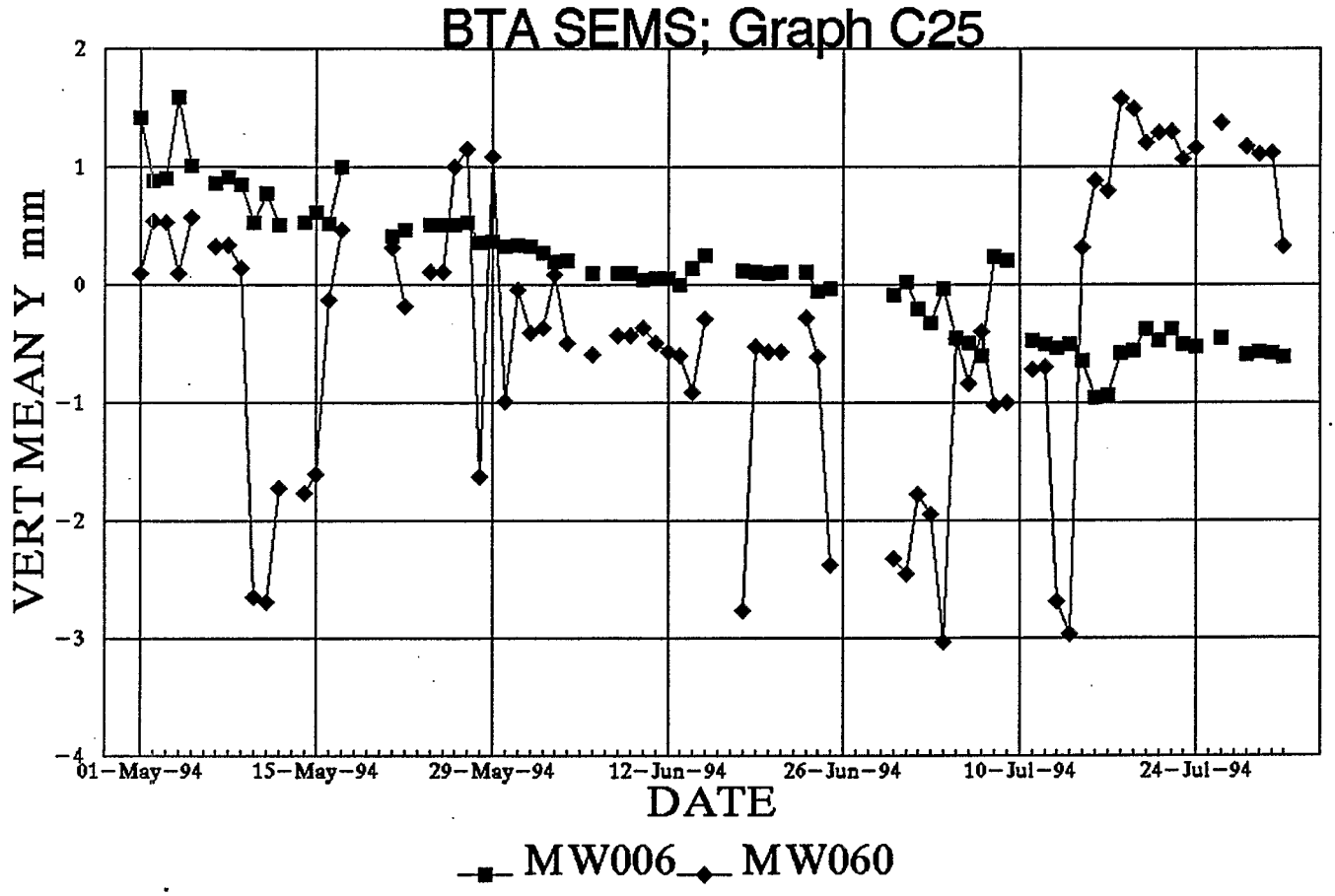
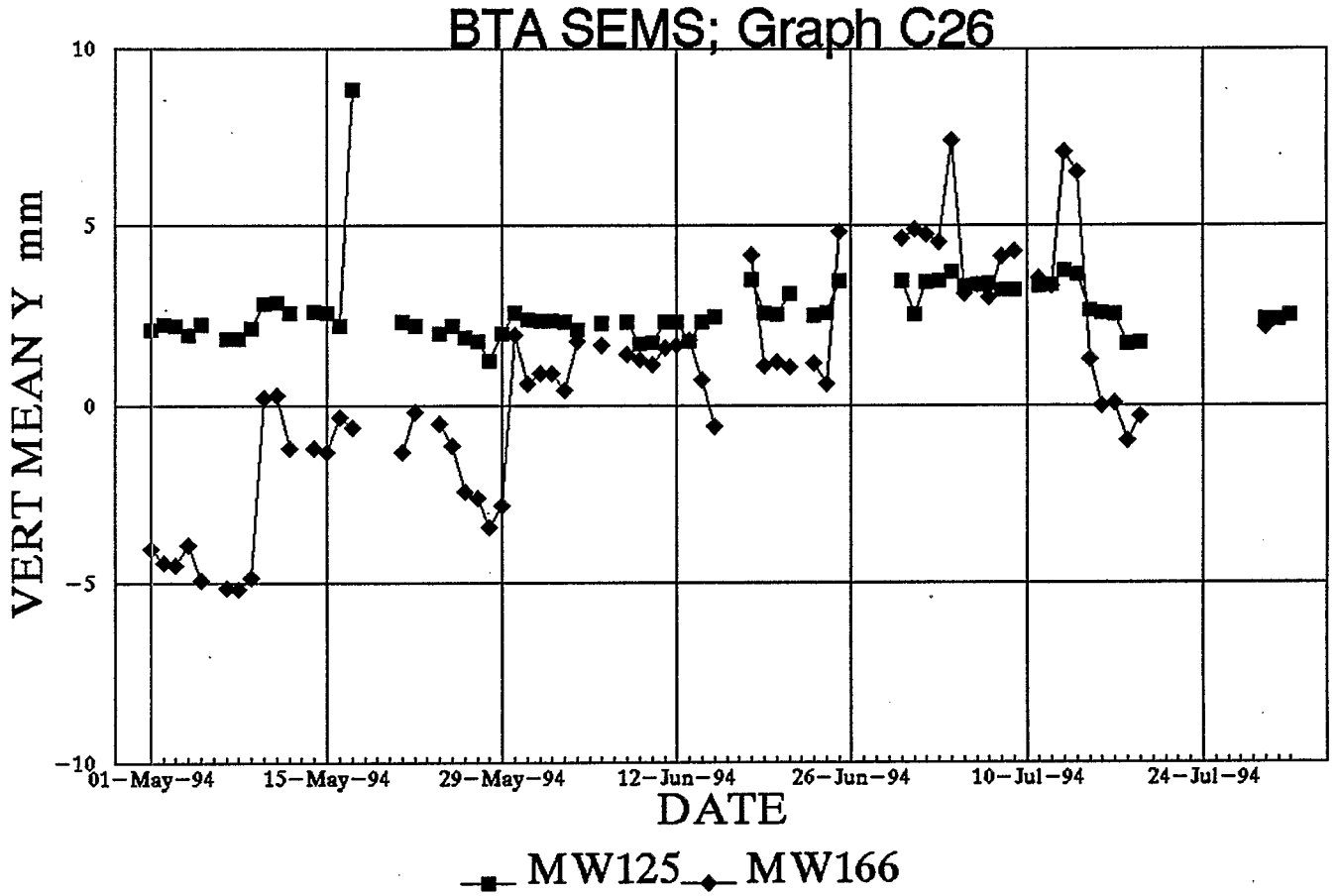
10-Jul-94
24-Jul-94
DATE
MW006
MW060


BTA SEMS; Graph C24
HOR MEAN X mm
10
5
0
-5
-10
-15
-20
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
MW125
MW166


BTA SEMS; Graph C25
VERT MEAN Y mm
2
1
0
-1
-2
-3
-4
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
MW006
MW060


BTA SEMS; Graph C26
VERT MEAN Y mm
10
5
0
-5
-10
01-May-94
15-May-94
29-May-94
12-Jun-94
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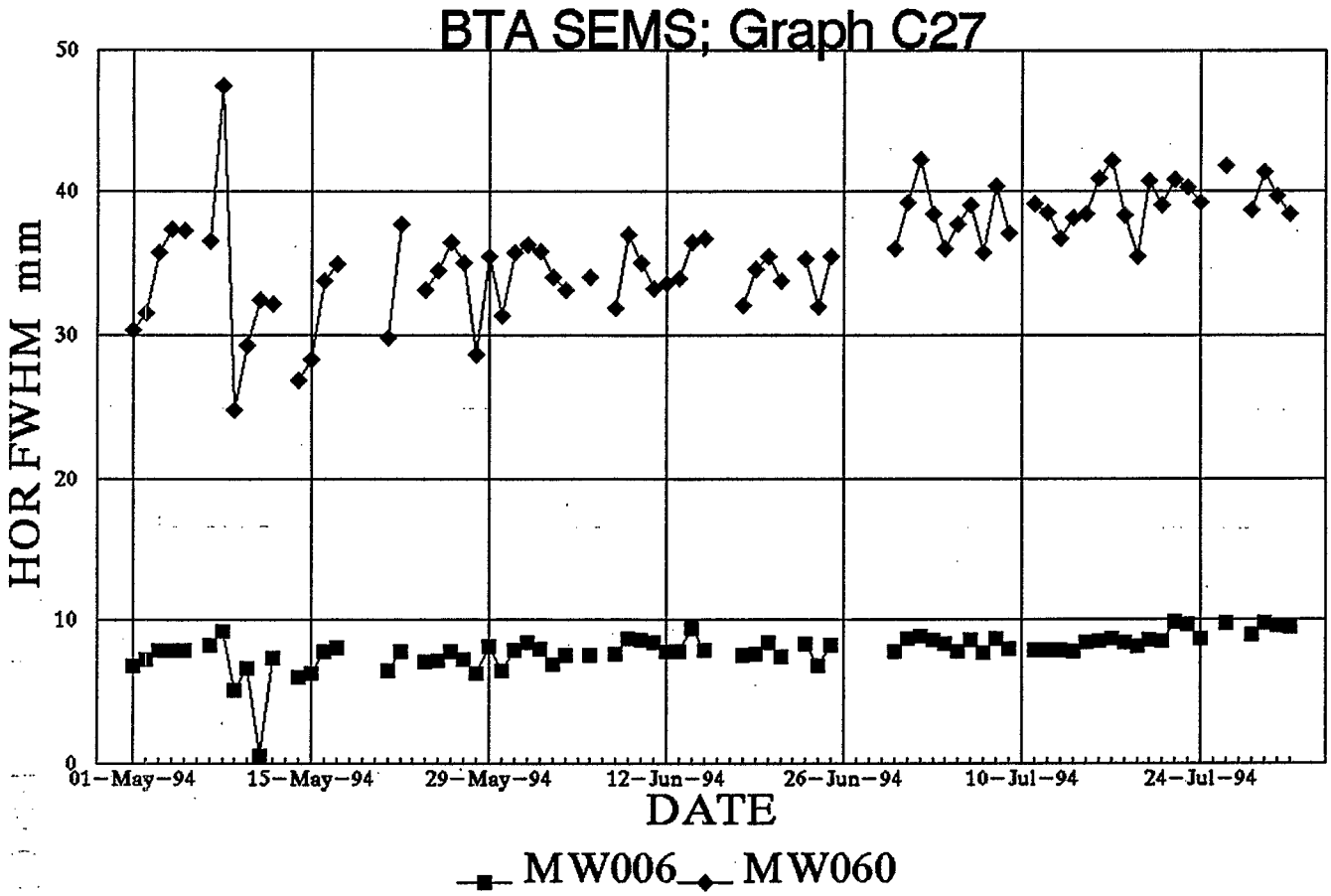
10-Jul-94
24-Jul-94
DATE
MW125
MW166


BTA SEMS; Graph C27
HOR FWHM mm
50
40
30
20
10
0
01-May-94
15-May-94
29-May-94
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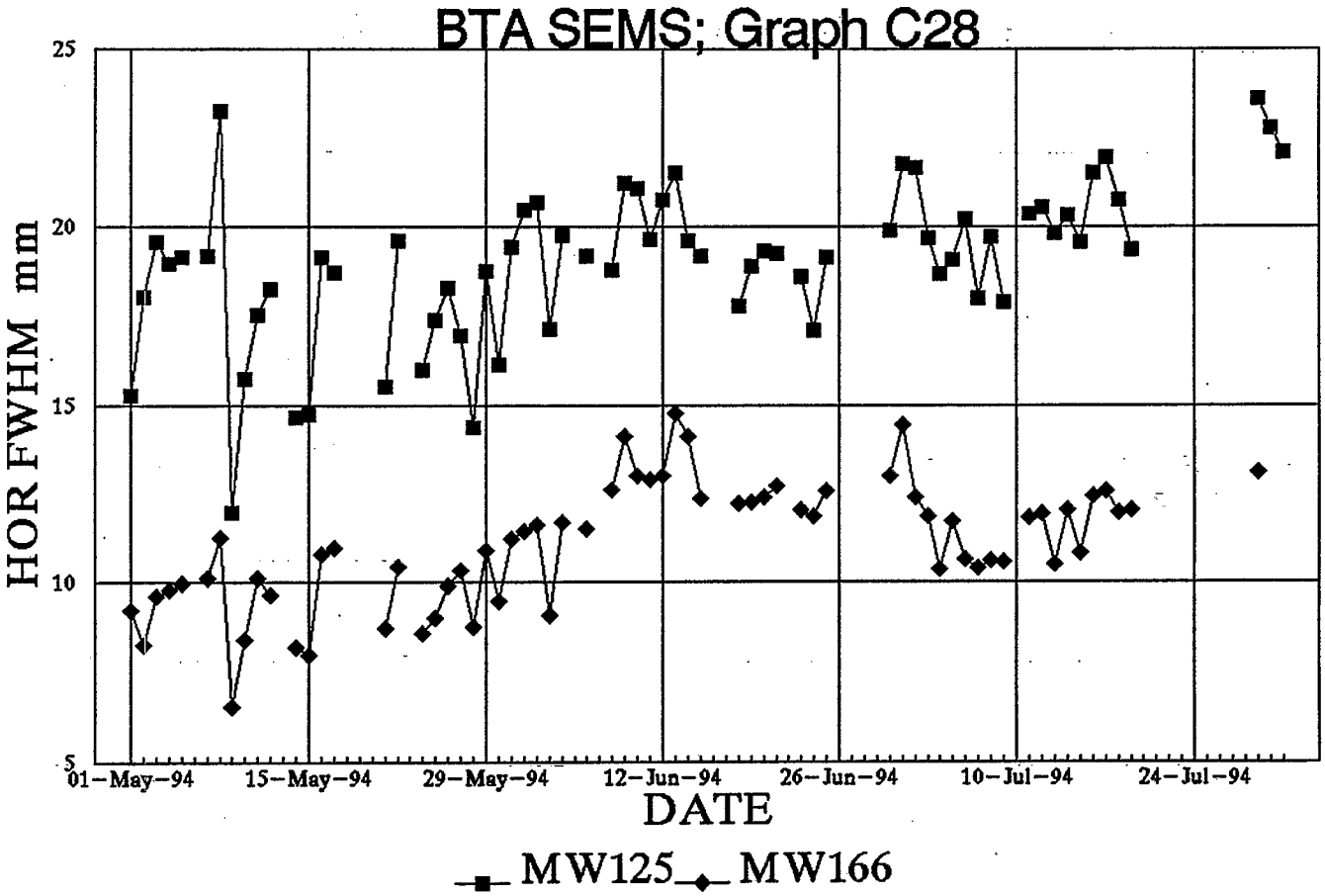
10-Jul-94
24-Jul-94
DATE
MW006
MW060


BTA SEMS; Graph C28
HOR FWHM mm
25
20
15
10
5
01-May-94
15-May-94
29-May-94
12-Jun-94
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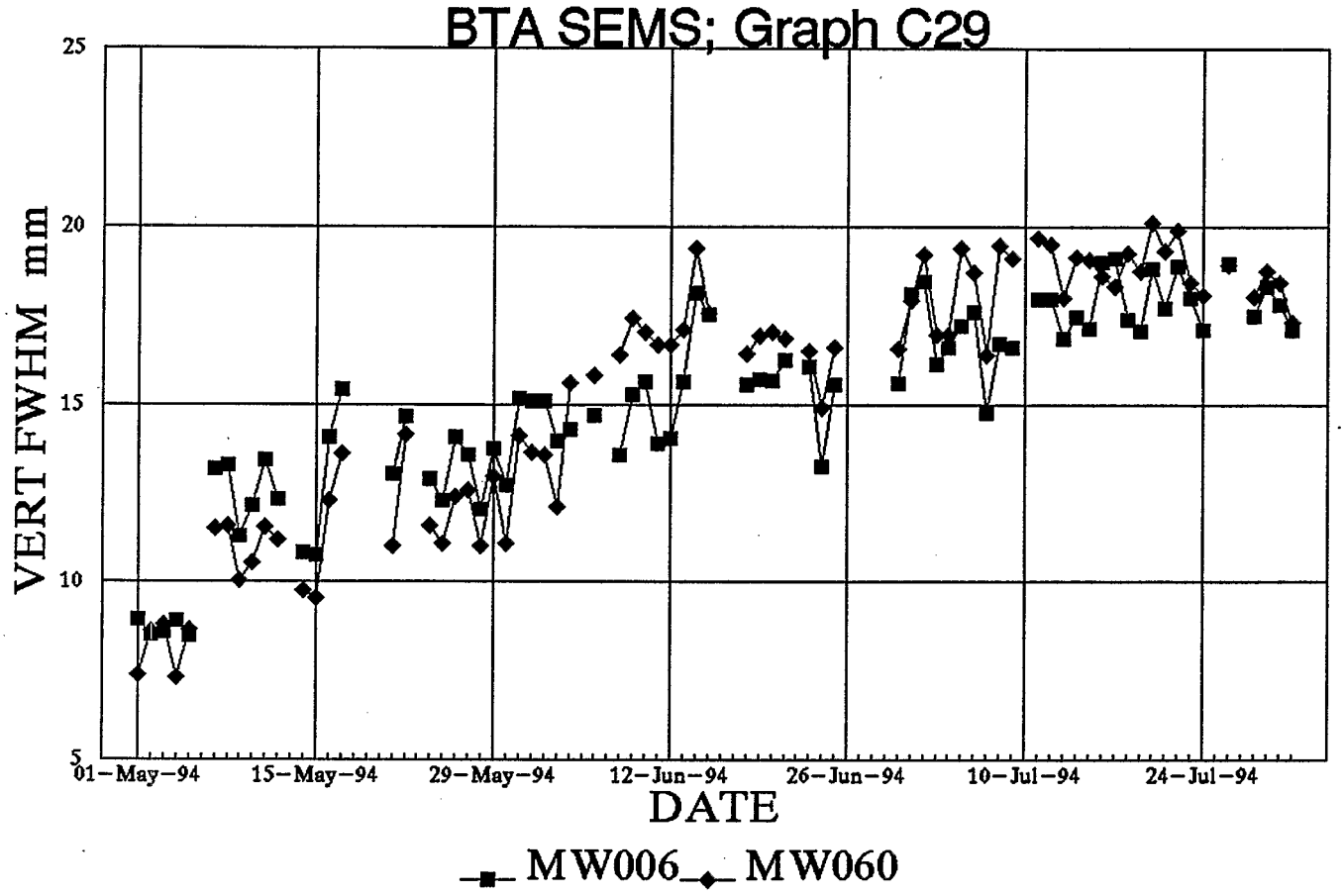
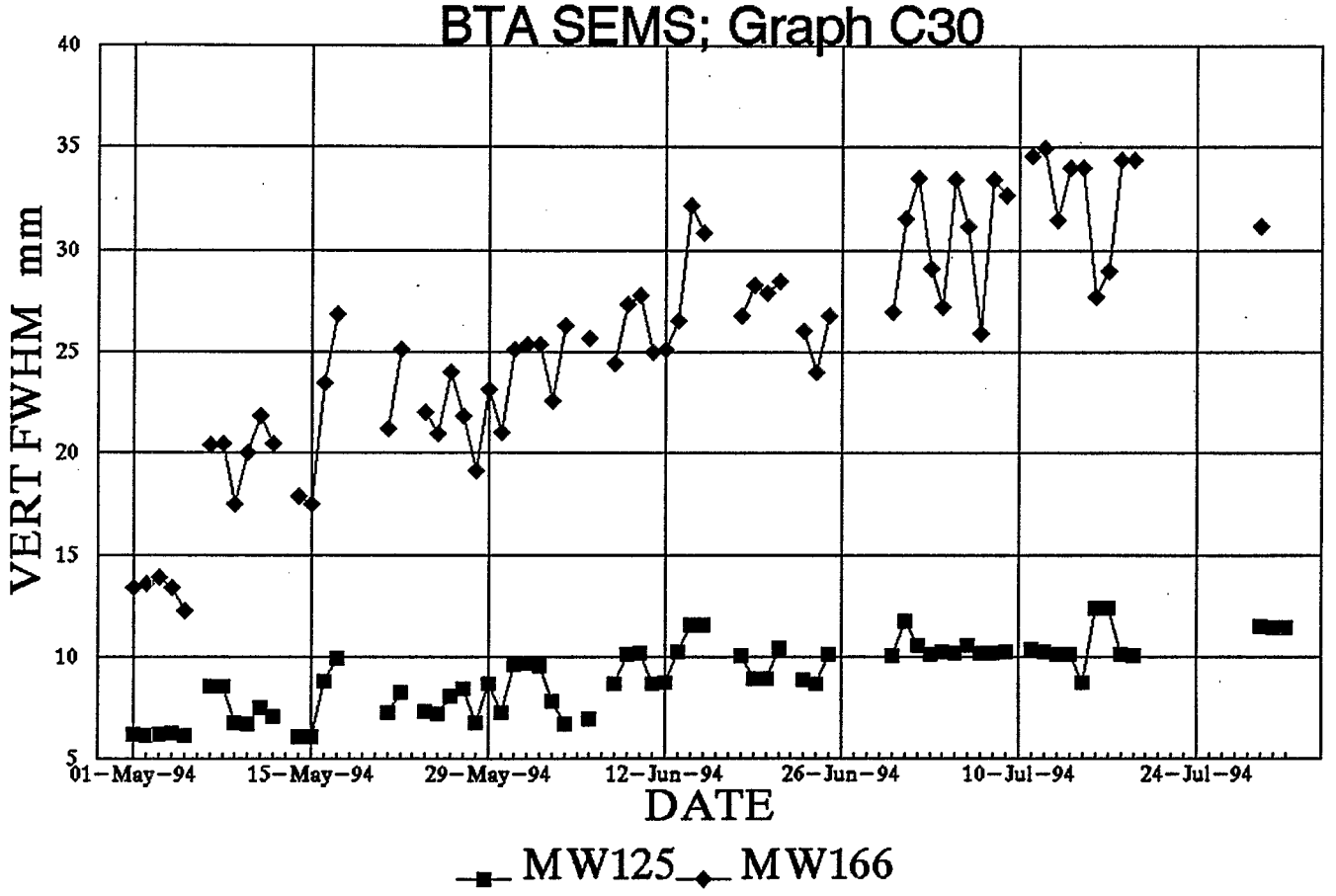
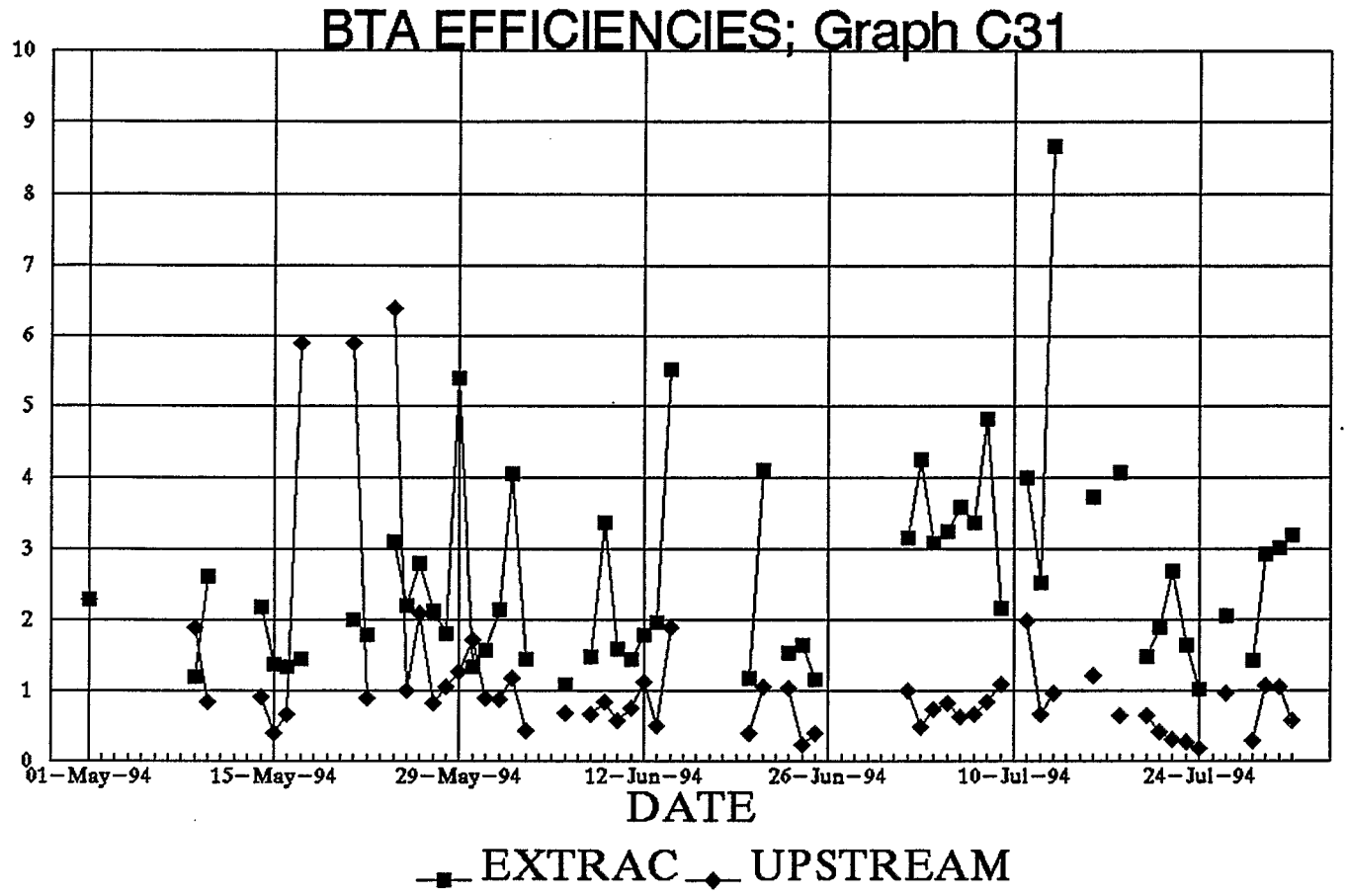
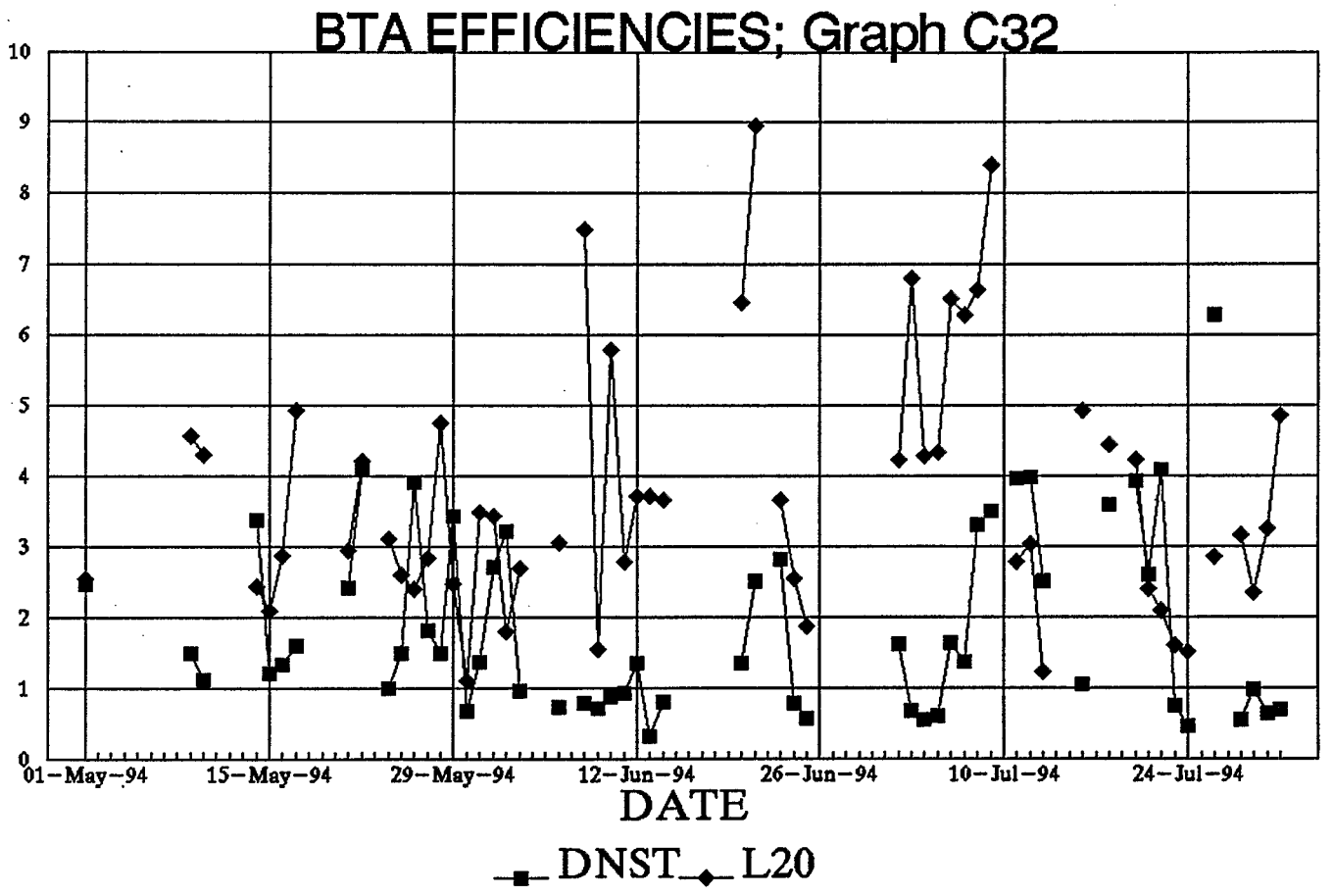
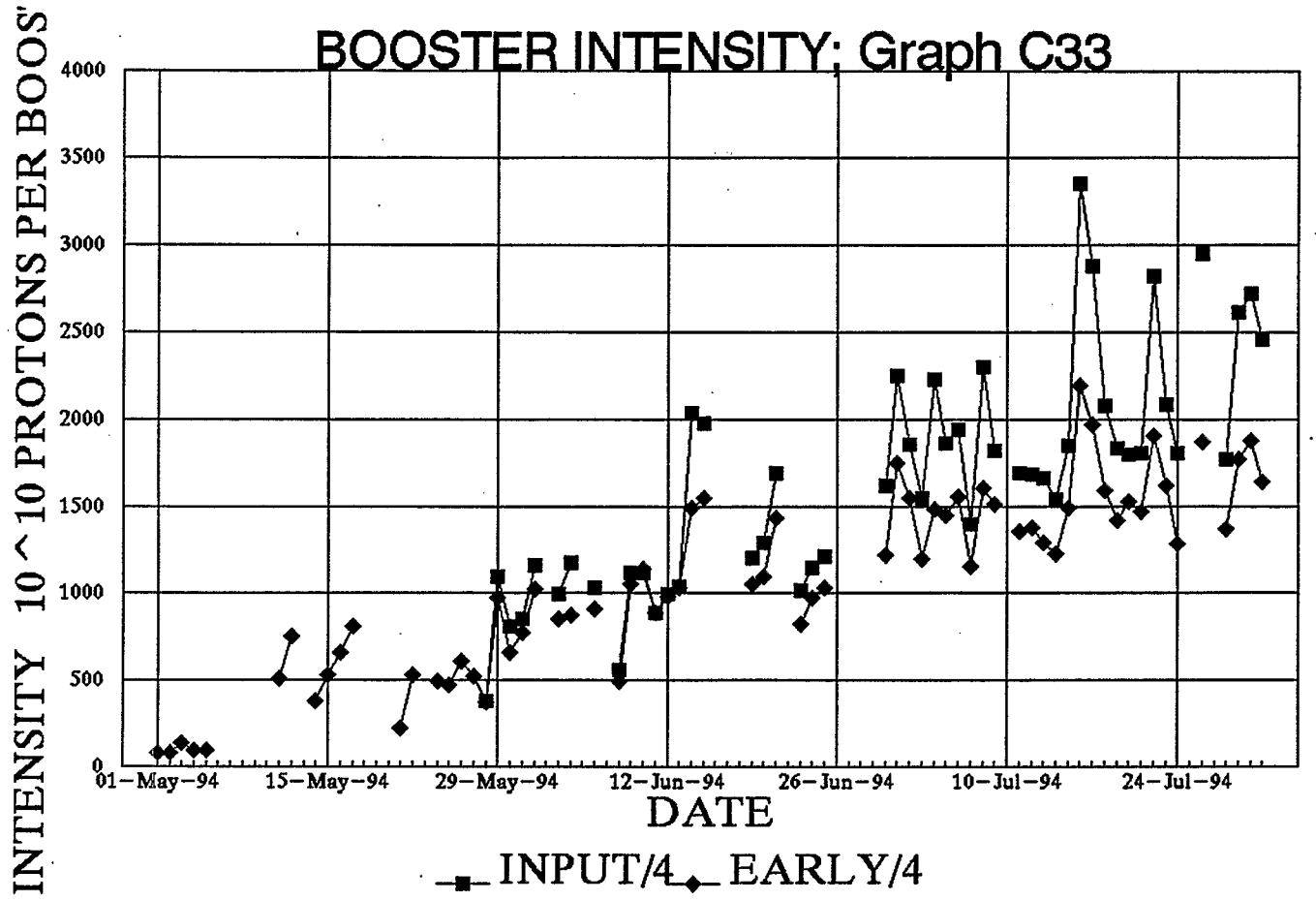
10-Jul-94
24-Jul-94
DATE
MW125
MW166

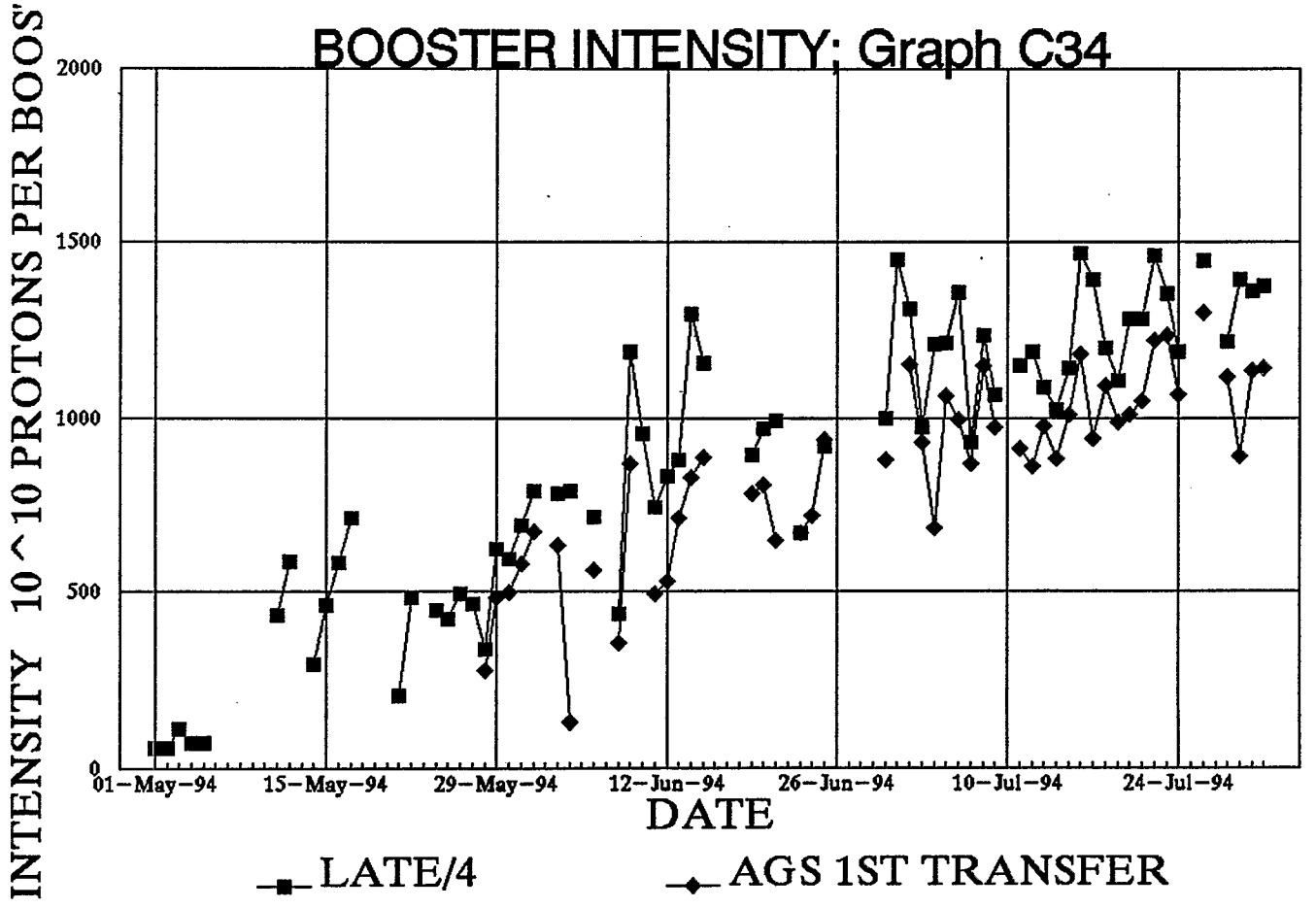

BTA SEMS; Graph C29
VERT FWHM mm
25
20
15
10
5
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
MW006
MW060

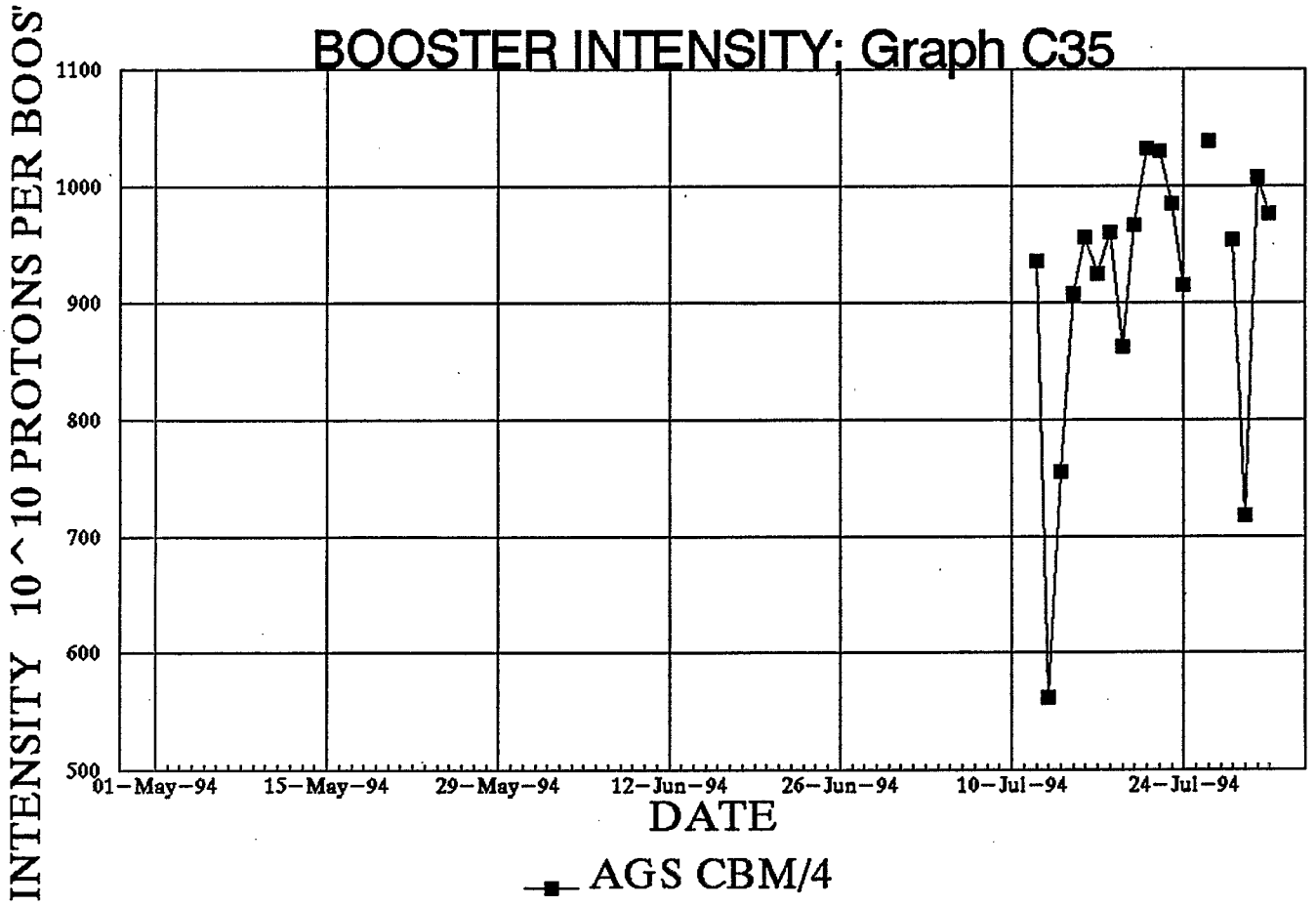

BTA SEMS; Graph C30
VERT FWHM mm
40
35
30
25
20
15
10
5
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
MW125
MW166

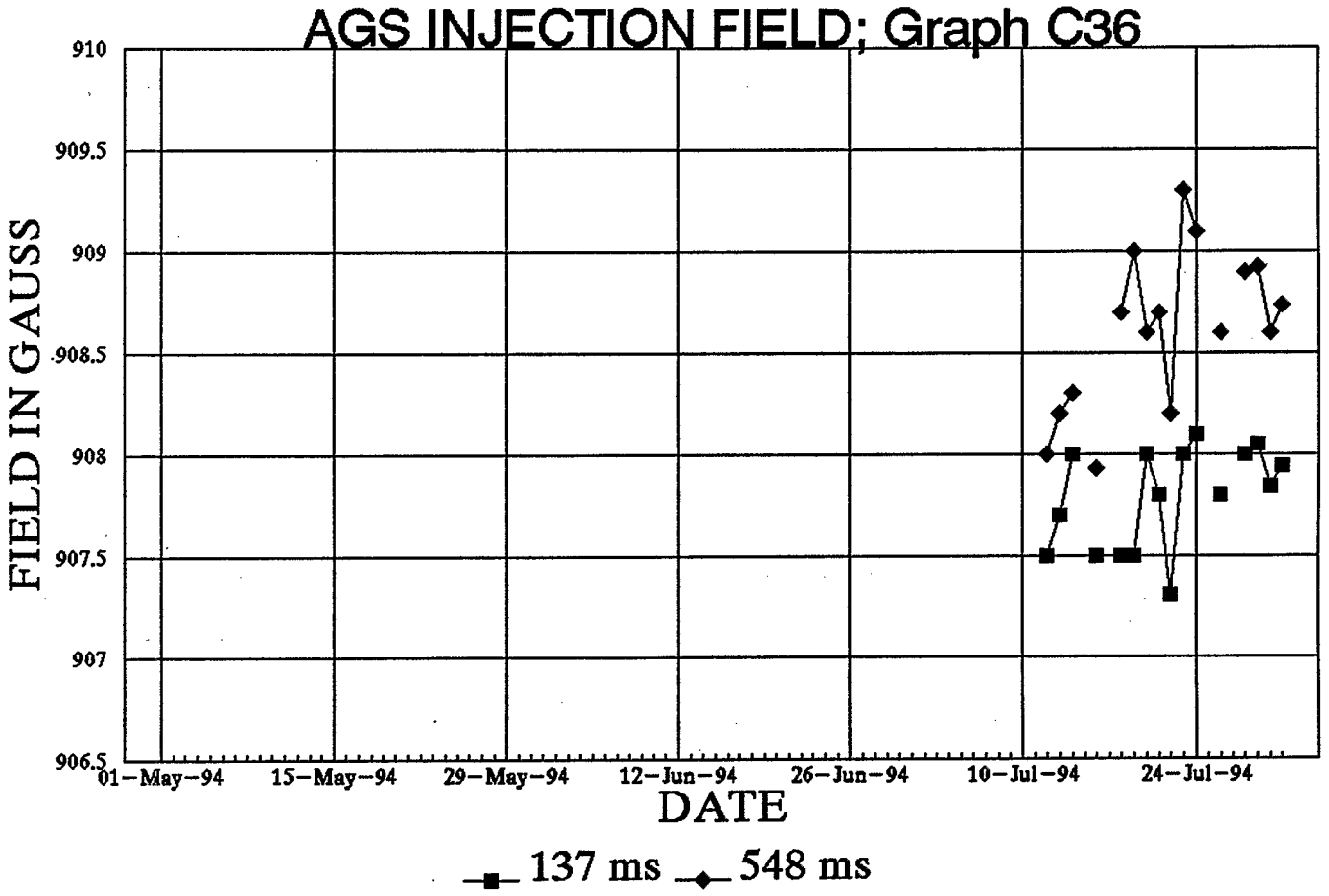

BTA EFFICIENCIES; Graph C31
10
9
8
7
6
5
4
3
2
1
0
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
EXTRAC
UPSTREAM


BTA EFFICIENCIES; Graph C32
10
9
8
7
6
5
4
3
2
1
0
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
DNST
L20


BOOSTER INTENSITY; Graph C33
INTENSITY 10^10 PROTONS PER BOOS'
4000
3500
3000
2500
2000
1500
1000
500
0
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
INPUT/4
EARLY/4


BOOSTER INTENSITY; Graph C34
INTENSITY 10^10 PROTONS PER BOOS'
2000
1500
1000
500
0
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
LATE/4
AGS 1ST TRANSFER


BOOSTER INTENSITY; Graph C35
INTENSITY 10 ^ 10 PROTONS PER BOOS'
1100
1000
900
800
700
600
500
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
AGS CBM/4


AGS INJECTION FIELD; Graph C36
FIELD IN GAUSS
910
909.5
909
908.5
908
907.5
907
906.5
01-May-94
15-May-94
29-May-94
12-Jun-94
26-Jun-94
10-Jul-94
24-Jul-94
DATE
137 ms
548 ms