

# PACIFIC GAS AND ELECTRIC COMPANY

PG&E + 77 BEALE STREET, 31ST FLOOR • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211

JOHN C. MORRISSEY  
VICE PRESIDENT AND GENERAL COUNSEL

MALCOLM H. FURBUSH  
ASSOCIATE GENERAL COUNSEL

CHARLES T. VAN DEUSEN  
PHILIP A. CRANE, JR.  
HENRY J. LAPLANTE  
RICHARD A. CLARKE

JOHN D. GIBSON  
ARTHUR L. HILLMAN, JR.  
ROBERT OHLBACH

CHARLES W. THISSELL  
ASSISTANT GENERAL COUNSEL

September 21, 1978

9/21/78

DILBERT L. HARRIS  
GLENN WEST, JR.  
DAN DRAVON LUSBOEK  
JACK F. FALLIN, JR.  
BERNARD J. DELLASANTA

EDWARD J. MCGANNEY  
DANIEL E. GIBSON  
JOSEPH I. KELLY  
HOWARD V. GDLUS  
JAMES C. LOSBOON

SENIOR COUNSEL

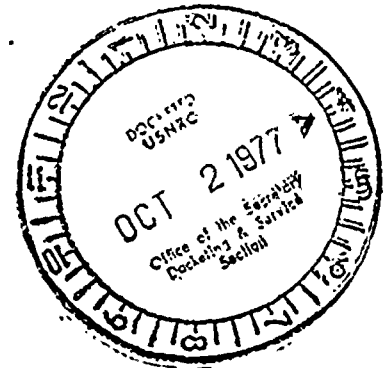
JOSHUA BARLEY  
ROBERT L. BORDON  
LEIGH B. CASSIOY  
BRIAN S. DENTON  
GARY P. ENCINAS  
DONALD ERIDSON  
DAVID C. GILBERT  
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JACK W. SHUGG  
SHIRLEY A. WOOD

J. PETER BAUMGARTNER  
STEVEN P. BURTE  
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WILLIAM H. EDWARDS  
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J. MICHAEL RIDENBACH  
VGR E. SAMPSON  
SUE ANN LEVIN SCHIFF  
DAVID J. WILLIAMS  
BRUCE R. WORTHINGTON

ATTORNEYS

Mr. John F. Stolz, Chief  
Light Water Reactors Branch No. 1  
Division of Project Management  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Re: Docket No. 50-275-OL  
Docket No. ~~50-323-OL~~  
Diablo Canyon Units 1 & 2



Dear Mr. Stolz:

Enclosed in support of our operating license application is information relative to the environmental qualification of equipment. This information was requested by the reviewers at an August 3, 1978 meeting in Bethesda.

Because portions of the information provided are Westinghouse proprietary, enclosed are 30 copies of the proprietary version and 30 copies of the non-proprietary version of the same information. Also enclosed are an application for Withholding Proprietary Information From Public Disclosure and supporting letters from Westinghouse.

Five copies of these reports have been sent directly to Mr. Dennis Allison.

Kindly acknowledge receipt of the above material on the enclosed copy of this letter and return it to me in the enclosed addressed envelope.

Very truly yours,

Philip A. Crane, Jr.

Enclosures  
CC w/encs.: Mr. Dennis Allison  
Service List w/non-proprietary enclosure

NON-PROPRIETARY VERSION

The following are the documents relative to the subject of Environmental Qualifications which were requested during the August 3, 1978 meeting in Bethesda.

1. Summary statement of "Temperature/% Error Curves" for transmitters and RTD's. Plots of data are included in Figures 1 thru 3 .
  2. FEP-005, Rev. A, dated June 17, 1976 "Facility Engineering Operating Procedure for Sensor Environmental Qualification Test Program in Trip and Severe Environment Test Facility." (Test No. U-1R, U-2R, U-3R)
  3. FEP-005, Rev A. dated June 17, 1976 "Facility Engineering Operating Procedure for Sensor Environmental Qualification Test Program in Trip and Severe Environment Test Facility." (Test No. Double Temperature Ramp U-1R, U-2R, U-3R)
  4. Sensor Qualification Program for Transmitter Item U-1.
  5. Sensor Qualification Program for Transmitter Item U-2.
  6. Sensor Qualification Program for Transmitter Item U-3.
  7. Sensor Qualification Program for RTD
  8. Sensor Qualification Program for RTD
  9. Sensor Qualification Program for RTD
  10. FEP-005, Rev. A, dated June 16, 1976 "Facility Engineering Operating Procedure for Sensor Environmental Qualification Test Program in Trip and Severe Environment Test Facility." (Test No. RTD's BB-1, BB-2, B-3, CC-1, CC-2, CC-3)
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3. FEP-005, Rev A. dated June 17, 1976 "Facility Engineering Operating Procedure for Sensor Environmental Qualification Test Program in Trip and Severe Environment Test Facility." (Test No. Double Temperature Ramp U-1R, U-2R, U-3R)
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5. Sensor Qualification Program for Transmitter Item U-2.
6. Sensor Qualification Program for Transmitter Item U-3.
7. Sensor Qualification Program for RTD
8. Sensor Qualification Program for RTD
9. Sensor Qualification Program for RTD
10. FEP-005, Rev. A, dated June 16, 1976 "Facility Engineering Operating Procedure for Sensor Environmental Qualification Test Program in Trip and Severe Environment Test Facility." (Test No. RTD's BB-1, BB-2, B-3, CC-1, CC-2, CC-3)

TEMPERATURE/% ERROR CURVES

Attached are graphs of the test of [ transmitters (Figure 1 & 2) and [ RTD's. (Figure 3) ]

] b,c

Data for instruments actually sensing autoclave conditions is very difficult to reduce and graph with any meaning. The [ instruments all exhibit the same response to the changes in autoclave pressure, but due to different locations will show an apparent error. ]

] b,c

The data was reduced from the most stable conditions observed and compared to the reference unit. It is obvious from the recorder charts that these units respond properly with little error. The [ RTD that shifted negative for a short period was apparently exposed to some condensation in the autoclave during that time period. ]

] b,c

FIG 1

b, c  
T(°F)

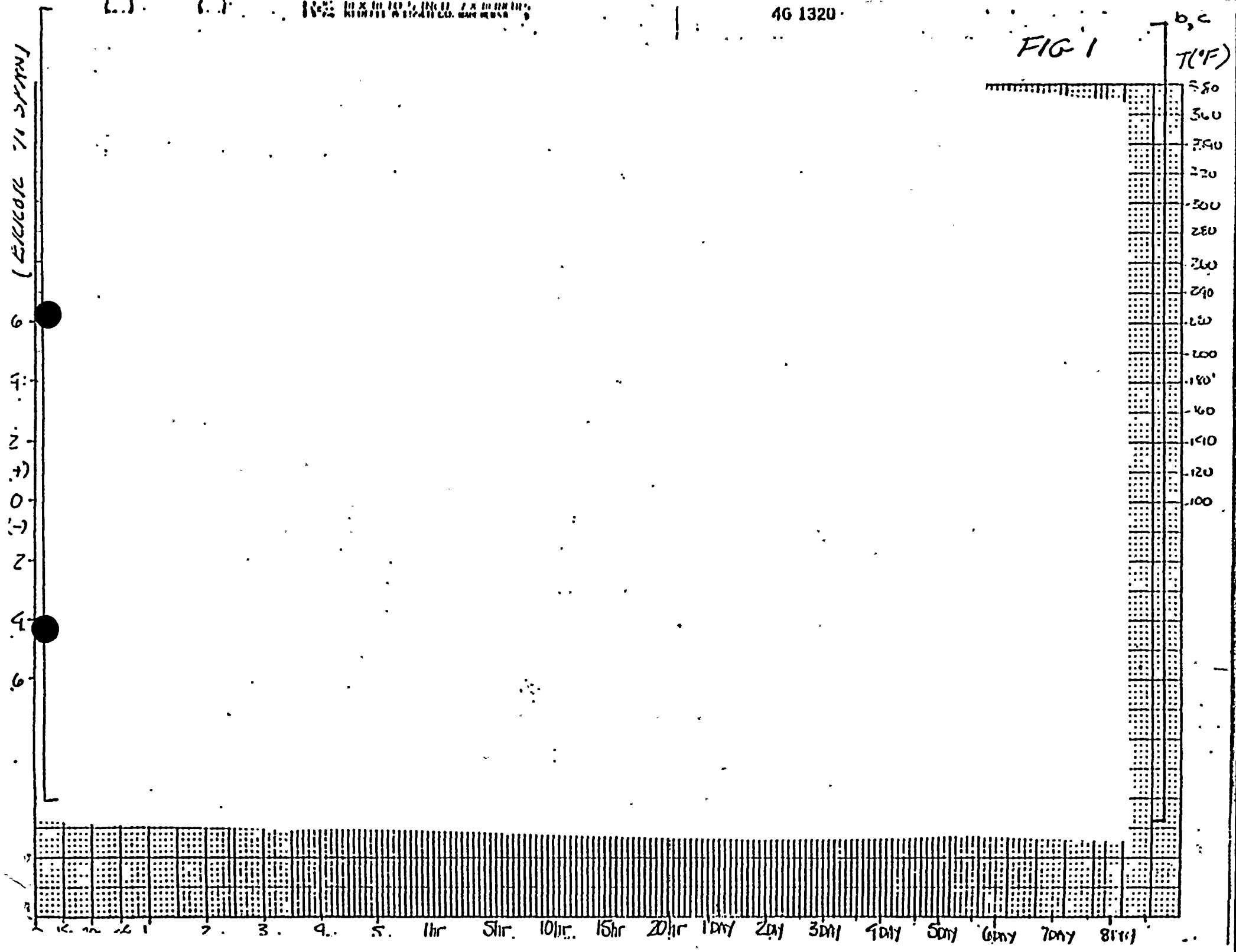


FIG 2

b,c

DOUBLE TEMPERATURE KAMP  
(DATA FROM TI KICORFER)

1-U-1R	}	PRESSURE UNITS
2-U-2R		
3-U-3R		

TEST DATE 05-25-77

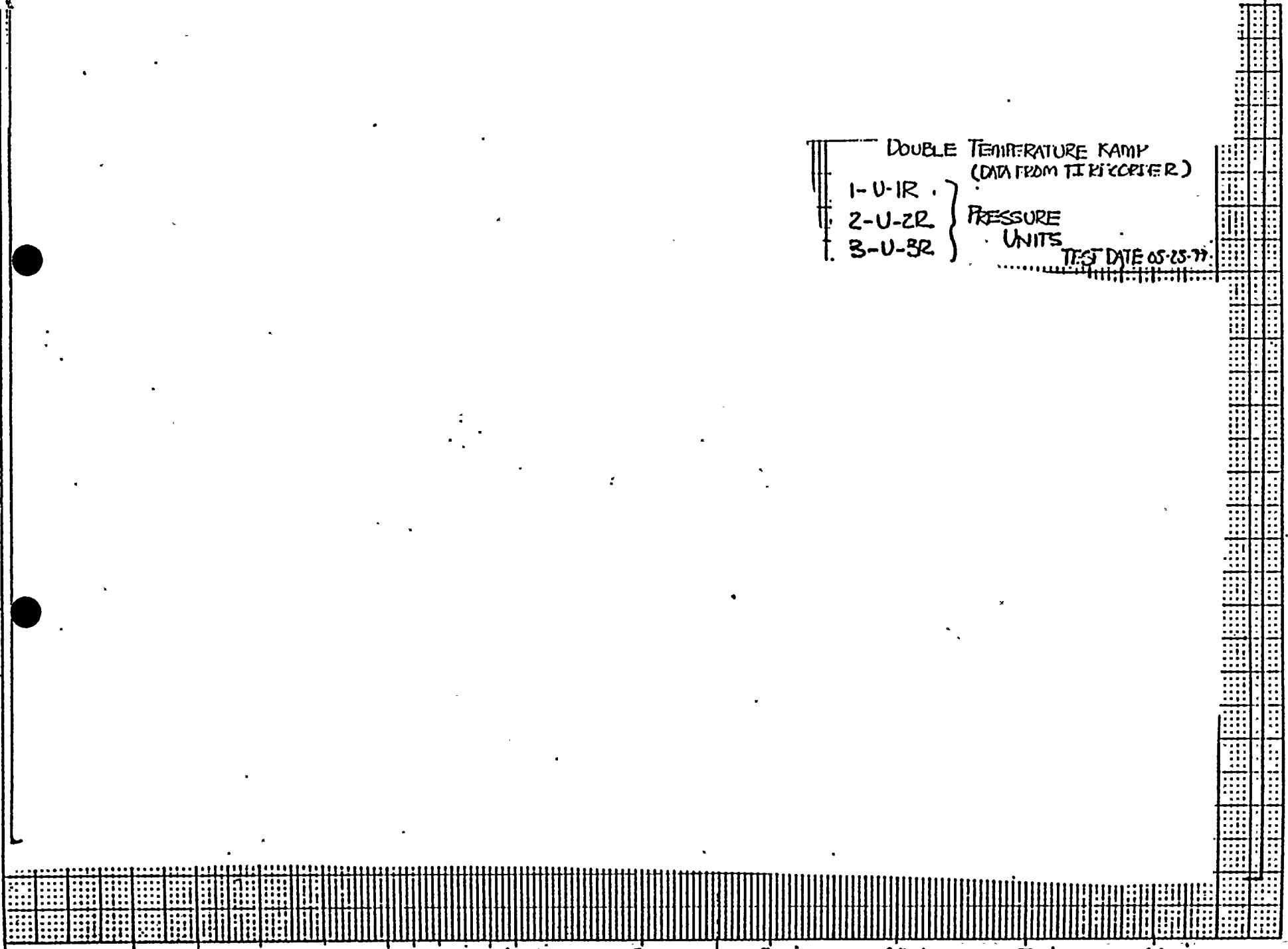
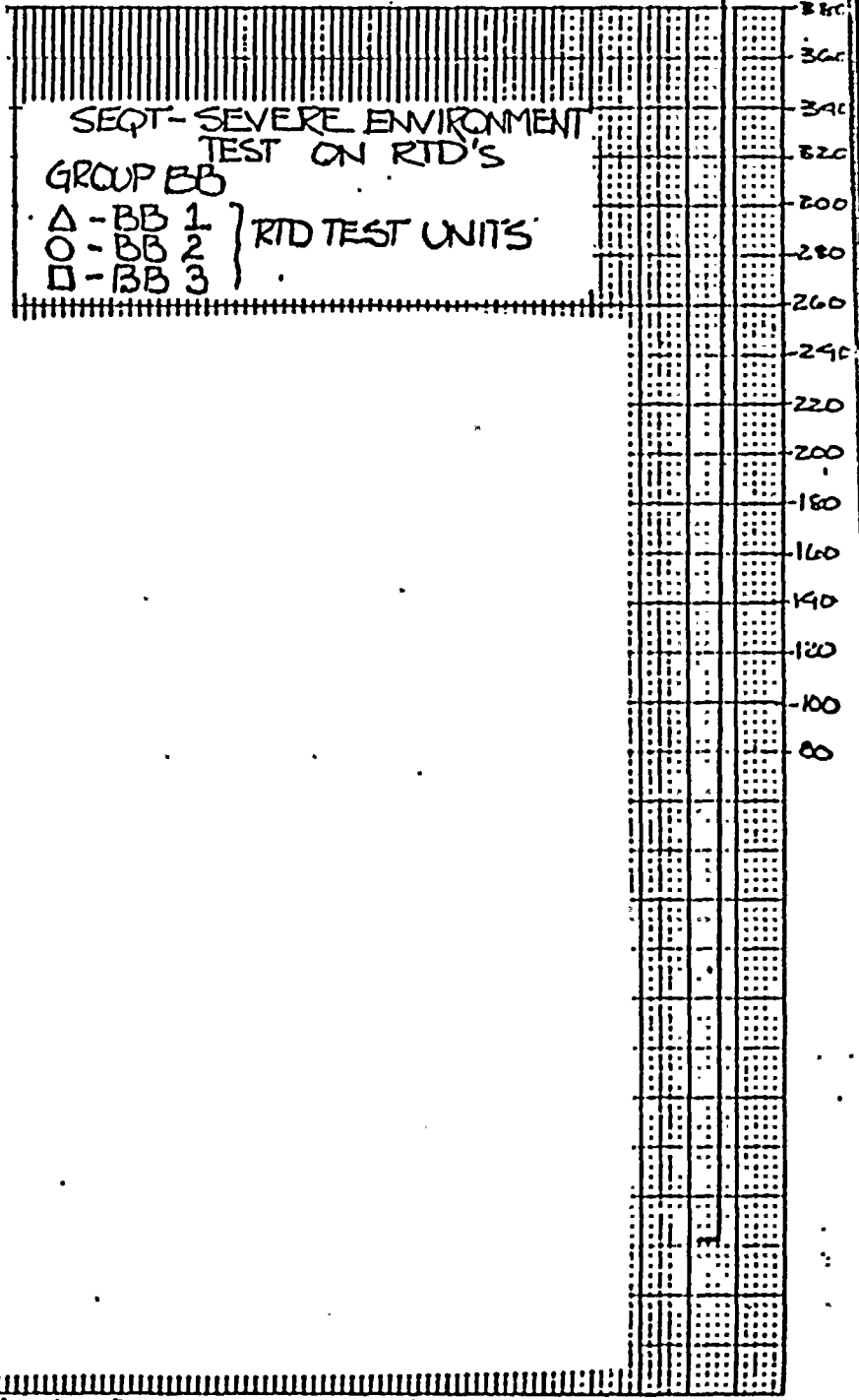


FIG 3 b,c

σ (ERROR 2.5σ)



0 2 4 6 8 10 12 14 16 18 20 22 (DAY) 2 3 4 5 6 7 8

TEMPERATURE

#2.

Facility Engineering Operating Procedure  
for  
Sensor Environmental Qualification Test Program  
in  
Trip & Severe Environment Test Facility

REVISION A  
PREPARED BY:

*M. F. McGuire*

M. F. McGuire, Engineer  
Facility Engineering

APPROVED BY:

*H. J. Fix*

H. J. Fix, Manager  
Facility Engineering

This copy is approved for use on Test No. V-1R, U-2R, U-3R

Approval:

*M. F. McGuire*

--- (Signature)

The contents of this Test Procedure (containing 16 pages) is held to be proprietary by Westinghouse in accordance with criteria "b and c" of CAW-78-65.



# 3

Facility Engineering Operating Procedure  
for  
Sensor Environmental Qualification Test Program  
in  
Trip & Severe Environment Test Facility

REVISION A  
PREPARED BY:

*M. F. McGuire*

M. F. McGuire, Engineer  
Facility Engineering

APPROVED BY:

*H. J. Fix*

H. J. Fix, Manager  
Facility Engineering

This copy is approved for use on Test No. DOUBLE TEMP. RAMP U-1R,  
U-2R, U-

Approval: *M. F. McGuire*

(Signature)

The contents of this Test Procedure (containing 17 pages) is held to  
be proprietary by Westinghouse in accordance with criteria "b" and "c"  
of CAW-78-65.

U-1

#4

ROUTE CARD COVER SHEET

THE ATTACHED ROUTE CARD IS APPROVED FOR USE FOR

DESCRIPTION \_\_\_\_\_  
MODEL \_\_\_\_\_  
RANGE \_\_\_\_\_  
SERIAL NO. \_\_\_\_\_

b, c

FOR PROGRAM TRACKING AND DATA GATHERING FOR THE  
SENSOR ENVIRONMENTAL QUALIFICATION PROGRAM.

PREPARED BY: D. E. MILLER  
SR. QC ENGINEER

APPROVED BY: A. E. Ellis  
A. E. Ellis  
Process Control Systems III

H. J. Fix  
H. J. Fix, Manager  
Facilities Engineering

The contents of this Test Procedure (containing 14 pages) is held to be proprietary by Westinghouse in accordance with criteria "b" and "c" of CAW-78-65

<

U-2

#5

ROUTE CARD COVER SHEET

THE ATTACHED ROUTE CARD IS APPROVED FOR USE FOR

DESCRIPTION  
MODEL \_\_\_\_\_  
RANGE \_\_\_\_\_  
SERIAL NO. \_\_\_\_\_

b,c

~~FOR PROGRAM TRACKING AND DATA GATHERING FOR THE~~  
SENSOR ENVIRONMENTAL QUALIFICATION PROGRAM.

PREPARED BY: D. E. MILLER  
SR. QC. ENGINEER

APPROVED BY: A. E. Ellis  
A. E. Ellis  
Process Control Systems III

H. J. Fix  
H. J. Fix, Manager  
Facilities Engineering

The contents of this Test Procedure (containing 14 pages) is held to be  
proprietary to Westinghouse in accordance with criteria "b" and "c"  
of CAW-78-65.

U-3

#6

ROUTE CARD COVER SHEET

THE ATTACHED ROUTE CARD IS APPROVED FOR USE FOR

DESCRIPTION \_\_\_\_\_

MODEL \_\_\_\_\_

RANGE \_\_\_\_\_

SERIAL NO. \_\_\_\_\_

b,c

FOR PROGRAM TRACKING AND DATA GATHERING FOR THE  
SENSOR ENVIRONMENTAL QUALIFICATION PROGRAM.

PREPARED BY:

D. E. MILLER  
SR. QC ENGINEER

APPROVED BY:



A. E. Ellis  
Process Control Systems III



H. J. Fix, Manager  
Facilities Engineering

The contents of this Test Procedure (containing 14 pages) is held to be proprietary by Westinghouse in accordance with criteria "b" and "c" of CAW-78-65.

ROUTE CARD COVER SHEET

THE ATTACHED ROUTE CARD IS APPROVED FOR USE FOR

DESCRIPTION \_\_\_\_\_

MODEL \_\_\_\_\_

RANGE \_\_\_\_\_

SERIAL NO. \_\_\_\_\_

PROGRAM TRACKING AND DATA GATHERING FOR THE RTD PROGRAM

] b, c  
] b, c

PREPARED BY: D. E. Miller  
D. E. Miller  
QC Engineer

M. J. Slafka 11/3/77  
M. J. Slafka, Engineer  
Facility Engineering

APPROVED BY: A. E. Ellis  
A. E. Ellis  
Process & Control Board Group

L. R. Katz 11/3/77  
L. R. Katz, Manager  
Facility Engineering

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ROUTE CARD COVER SHEET

THE ATTACHED ROUTE CARD IS APPROVED FOR USE FOR

DESCRIPTION \_\_\_\_\_

MODEL \_\_\_\_\_

RANGE \_\_\_\_\_

SERIAL NO: \_\_\_\_\_

] b,c

] b,c

PROGRAM TRACKING AND DATA GATHERING FOR THE RTD PROGRAM

PREPARED BY: *D. E. Miller*  
D. E. Miller  
QC Engineer

*M. J. Slafka 11/3/77*  
M. J. Slafka, Engineer  
Facility Engineering.

APPROVED BY: *A. E. Ellis*  
A. E. Ellis  
Process & Control Board Group

*L. R. Katz 11/3/77*  
L. R. Katz, Manager  
Facility Engineering

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#9

ROUTE CARD COVER SHEET

THE ATTACHED ROUTE CARD IS APPROVED FOR USE FOR

DESCRIPTION \_\_\_\_\_

MODEL \_\_\_\_\_

RANGE \_\_\_\_\_

SERIAL NO.: \_\_\_\_\_

} b,c

} b,c

PROGRAM TRACKING AND DATA GATHERING FOR THE RTD PROGRAM

PREPARED BY: D. E. Miller  
D. E. Miller  
QC Engineer

M. J. Slafka 11/3/77  
M. J. Slafka, Engineer  
Facility Engineering

APPROVED BY: A. E. Ellis  
A. E. Ellis  
Process & Control Board Group

L. R. Katz 11/3/77  
L. R. Katz, Manager  
Facility Engineering

The contents of this Test Procedure (containing 4 pages) is held to be proprietary by Westinghouse in accordance with criteria "b" and "c" of CAW-78-65.

#10

Facility Engineering Operating Procedure  
for  
Sensor Environmental Qualification Test Program  
in  
Trip & Severe Environment Test Facility

REVISION A  
PREPARED BY:

*M. F. McGuire*

M. F. McGuire, Engineer  
Facility Engineering

APPROVED BY:

*H. J. Fix*

H. J. Fix, Manager  
Facility Engineering

This copy is approved for use on Test No:

*FTD'S*  
*BB-1, BB-2, BB-3, CC-1, CC-2, CC-3*

Approval:

*M. F. McGuire*

(Signature)

The contents of this Test Procedure (containing 26 pages) is held to be proprietary by Westinghouse in accordance with criteria "b" and "c" of CAW-7B-65.