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RECIP.NAME RECIPIENT AFFILIATION
VARGA,S.A. Operating Reactors Branch 1

SUBJECT: Forwards info requested in NRC 850304 ltr re SPDS parameter selection.Info addresses requirements of Generic Ltr 82-33 & safety functions identified in NUREG-0737,Suppl 1.Revised schedule for SPDS implementation submitted.

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L-85-190

Office of Nuclear Reactor Regulation
Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Varga:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
SPDS Implementation Plan and
Parameter Selection Report
Request for Additional Information
NRC TAC Nos. 51293 and 51294

Attached is the information regarding Safety Parameter Display System (SPDS) parameter selection that you requested in your March 4, 1985 letter.

The order confirming our commitments on emergency response capability dated February 23, 1984 requires implementation of the SPDS by May 31, 1985 for Unit 3 and December 31, 1985 for Unit 4. Those dates were based on refueling outage schedules provided by FPL in response to Generic Letter 82-33. Subsequent to issuance of the order, the dates for the refueling outages were changed. SPDS installation will still be completed prior to startup for Unit 3 cycle 10 (mid-June 1985) and Unit 4 cycle 11 (March 1986). Operator training and resolution of hardware/software problems will be completed after unit startup, as stated in FPL letter L-83-421 dated July 25, 1983. These schedule changes have been discussed with Turkey Point NRC Project Manager and the Office of Inspection and Enforcement, Region II.

Should you have any questions or comments regarding this submittal or the schedule for implementation, please feel free to contact us.

Very truly yours,

J. W. Williams, Jr.
Group Vice President
Nuclear Energy

JWW/TCG/eab

cc: Dr. J. Nelson Grace, Region II
Harold F. Reis, Esquire

Attachment

A003
1/1

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION ON THE TURKEY POINT SPDS

By Reference 1, the NRC staff provided a Safety Evaluation (SE) of the Turkey Point Safety Parameter Display System (SPDS) against the requirements of Generic Letter 82-33. In the staff's SE, the areas of variable selection and variable validation require additional information from FPL. These areas are addressed below.

I. Variable Selection

The SE on the Turkey Point SPDS identified seven (7) variables missing in the PTP SPDS that the staff deems necessary to properly address the five (5) critical safety functions identified in Supplement 1 to NUREG-0737. Each of these variables is individually discussed below:

1. Containment Isolation

Containment isolation is an important parameter for use in making a rapid assessment of "containment conditions". At Turkey Point, a Containment Isolation Signal (CIS) is initiated by either a Safety Injection Actuation Signal (SIAS), high containment pressure or manually. It should be noted that SIAS is also initiated on high containment pressure. Therefore, while specific indication of a CIS is not provided on the SPDS high level displays, indication is provided of a CIS by the SIAS message in all cases except when Containment Isolation is manually initiated. In this case the operator already knows that a CIS was initiated.

Verification that all known process pathways through containment have been secured is not provided by SPDS. The containment isolation function at Turkey Point meets NRC requirements such that occurrence of a design basis accident in conjunction with a single failure will not prevent the containment isolation function from being performed. Since containment isolation is single failure proof, additional indication is not considered necessary for SPDS.

2. Containment Hydrogen Concentration

Containment hydrogen concentration is a parameter used in the emergency guidelines to monitor combustible gas control and to indicate a compromise of the "containment conditions" safety function. While this parameter is not included on the SPDS high level displays, it can be called up on the SPDS cathode-ray tube (CRT) by the dedicated function key pad located near the control board. A sample of this display is provided by Figure 1. Because this parameter was not part of our original SPDS variable list, it will not be available on the same schedule as SPDS. Containment H_2 Concentration will be available on the same schedule as the Safety Assessment System (SAS).

3. Steam Generator (or Steam Line) Radiation

In the staff's SE, it was identified that FPL had not shown how the SPDS monitors secondary system radiation when the steam generators and/or their steam lines are isolated. This is of concern when attempting to identify which steam generator is faulted during a Steam Generator Tube Rupture (SGTR) event. Identification of the fault SG (after Main Steam Isolation) is performed using one or more of the following methods (Reference 2):

(i) An unexpected rise in one steam generator water level occurs with auxiliary feedwater reduced or stopped.

(ii) High radiation from any one steam line to an auxiliary feedwater pump (AFWP) is identified using a hand held G.M. detector at the AFWP steam inlet Motor Operated Value (MOV).

(iii) Take a laboratory sample of the liquid from each of the steam generators.

Of these three methods, only the first can be performed in the control room. A rise in S.G. water level can be monitored on the SPDS high level display.

4. Hot Leg Temperature

Hot leg temperature is an indicator used in the Emergency Response guidelines (ERGs) to determine the viability of natural circulation as a mode of heat removal. Core Exit Thermocouple (CET) indication is used on the Turkey Point SPDS instead of hot leg temperature as an indication of RCS temperature leaving the core. For a natural circulation event, the CET value would be essentially identical to the hot leg value. In addition, the CETs provide valuable indication of inadequate core cooling events where the core may be uncovered.

Further, hot leg temperature can be displayed on the SPDS CRT by using the dedicated function key pad located near the control board. A sample of this display is provided by Figure 2. Because this parameter was not part of our original SPDS parameter list, it will not be available on the same schedule as SPDS. Hot leg temperature will be provided to SPDS on the same schedule as SAS.

5. Stack Radiation Monitor

The stack radiation monitor, in conjunction with other radiation monitors, provides for assessment of radiation status to accomplish the "Radioactivity Control" Critical Safety Function. While stack radiation is not part of the SPDS high level displays, it can be shown on the SPDS CRT by use of the dedicated function key pad located near the control board. A sample of this display is provided by Figure 1. Because this parameter was not part of our original SPDS parameter list, it will not be available on the same schedule as SPDS. Stack Radiation will be provided to SPDS on the same schedule as SAS.

6. Containment Sump Level

Containment sump level is one of three inputs to the containment environment target on the Turkey Point SPDS. Should any of these parameters go out of their allowable range, the containment environment target will turn red. The operator may then display each of the inputs for this target (including sump level) by use of the dedicated function keyboard located near the control board. A sample of this additional display is shown by Figure 3.

7. Containment Pressure

Like containment sump level described above, containment pressure is an input parameter to the containment environment target. Should containment pressure exceed set limits, the containment environment target will turn red. Precise information on containment pressure may then be shown on the SPDS through use of the dedicated SPDS key pad located near the control board. A sample of the display available for containment pressure is shown by Figure 3.

FPL concludes that the SPDS at Turkey Point provides sufficient information to meet the five Critical Safety Functions required by Supplement 1 to NUREG-0737. While some of the parameters identified in the staff's SE are not explicitly shown on the SPDS high level displays, they can be recalled through use of a dedicated function key pad located near the control board (see Figure 4). However, since Containment H_2 concentration, hot leg temperature and stack radiation were not part of the original SPDS parameter list, they will not be functional on the same schedule as SPDS. These additional parameters will be available on the same schedule as the Safety Assessment System (SAS).

II. Variable Validation

The staff's SE identified that the area of variable validation of SPDS variables relative to the Critical Safety Functions has not been addressed in any of FPL's submittals on SPDS.

The parameters used to support SPDS were selected from SAS generic guidelines, operations personnel, members of Quadrex (the vendor), and FPL personnel. Guidance documents used in selecting the SPDS variables included R.G1.97, NUREG-0696, Westinghouse EPG's and AIF guidelines. FPL believes that the SPDS at Turkey Point meets all the staff's recommendations for variable selection for this system.

III. Conclusions

FPL has shown that the information supplied by Turkey Point's SPDS satisfies the information requirements of the five Critical Safety Functions identified by Generic Letter 82-33. Based on this information, FPL believes all the requirements of NUREG-0737 Supplement 1 have been met.

IV. References

1. NRC letter dated March 4, 1985 from Steven A. Varga (NRC) to J. W. Williams, Jr. (FPL).

2. Turkey Point Units 3 and 4 Emergency Operating Procedure 20003 "Steam Generator Tube Rupture".

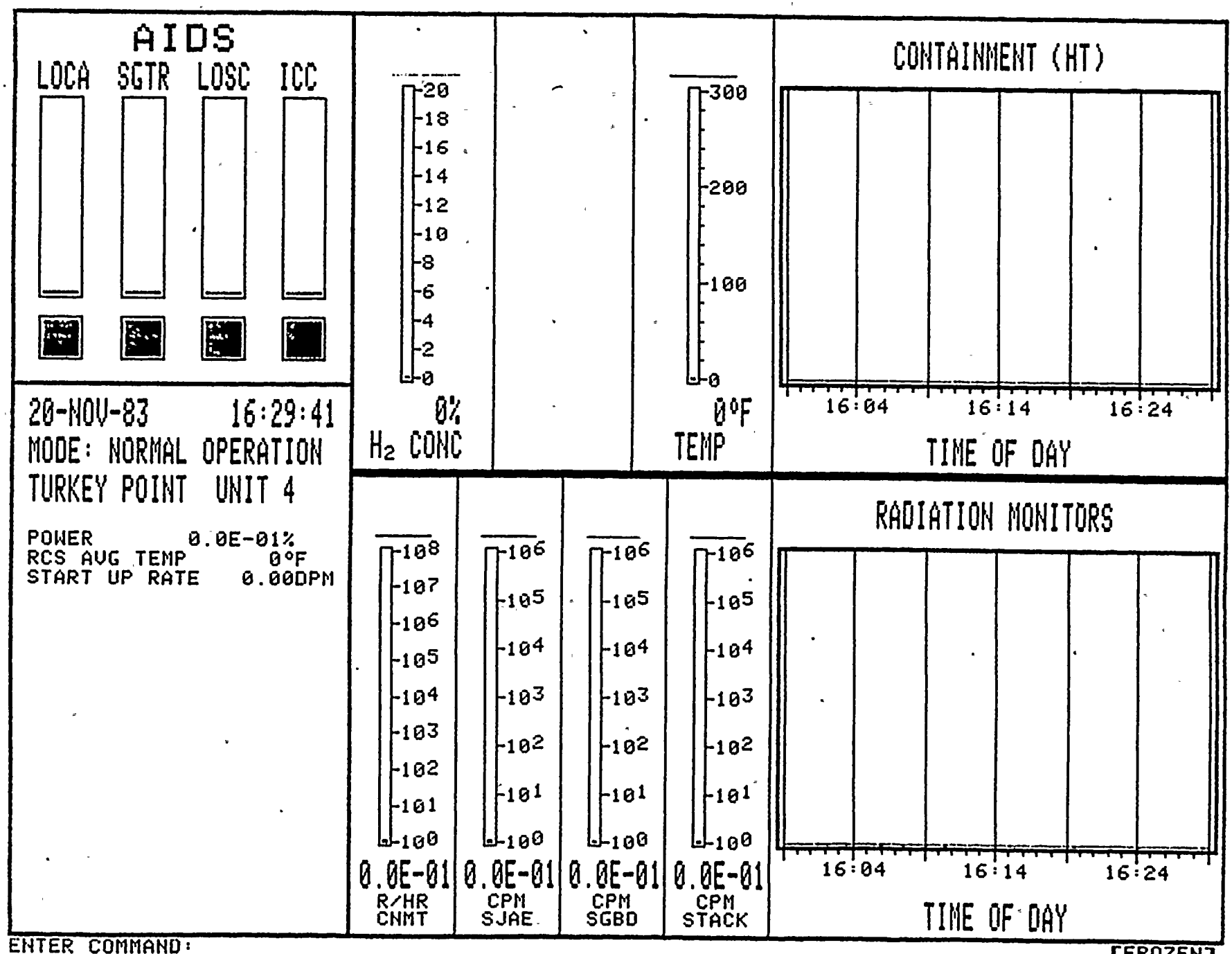
AIDS
LOCA
SGTR
LOSC
ICC
20-NOV-83 16:29:41
MODE: NORMAL OPERATION
TURKEY POINT UNIT 4
POWER 0.0E-01%
RCS AVG TEMP 0°F
START UP RATE 0.00DPM
20
18
16
14
12
10
8
6
4
2
0
0%
H2 CONC
300
200
100
0
0°F
TEMP
CONTAINMENT (HT)
16:04
16:14
16:24
TIME OF DAY
108
107
106
105
104
103
102
101
100
0.0E-01
R/HR
CNMT
106
105
104
103
102
101
100
0.0E-01
CPM
SJAE
106
105
104
103
102
101
100
0.0E-01
CPM
SGBD
106
105
104
103
102
101
100
0.0E-01
CPM
STACK
RADIATION MONITORS
16:04
16:14
16:24
TIME OF DAY
ENTER COMMAND:
SAVING IMAGE
[FROZEN]
CPU BHD

FIGURE 1

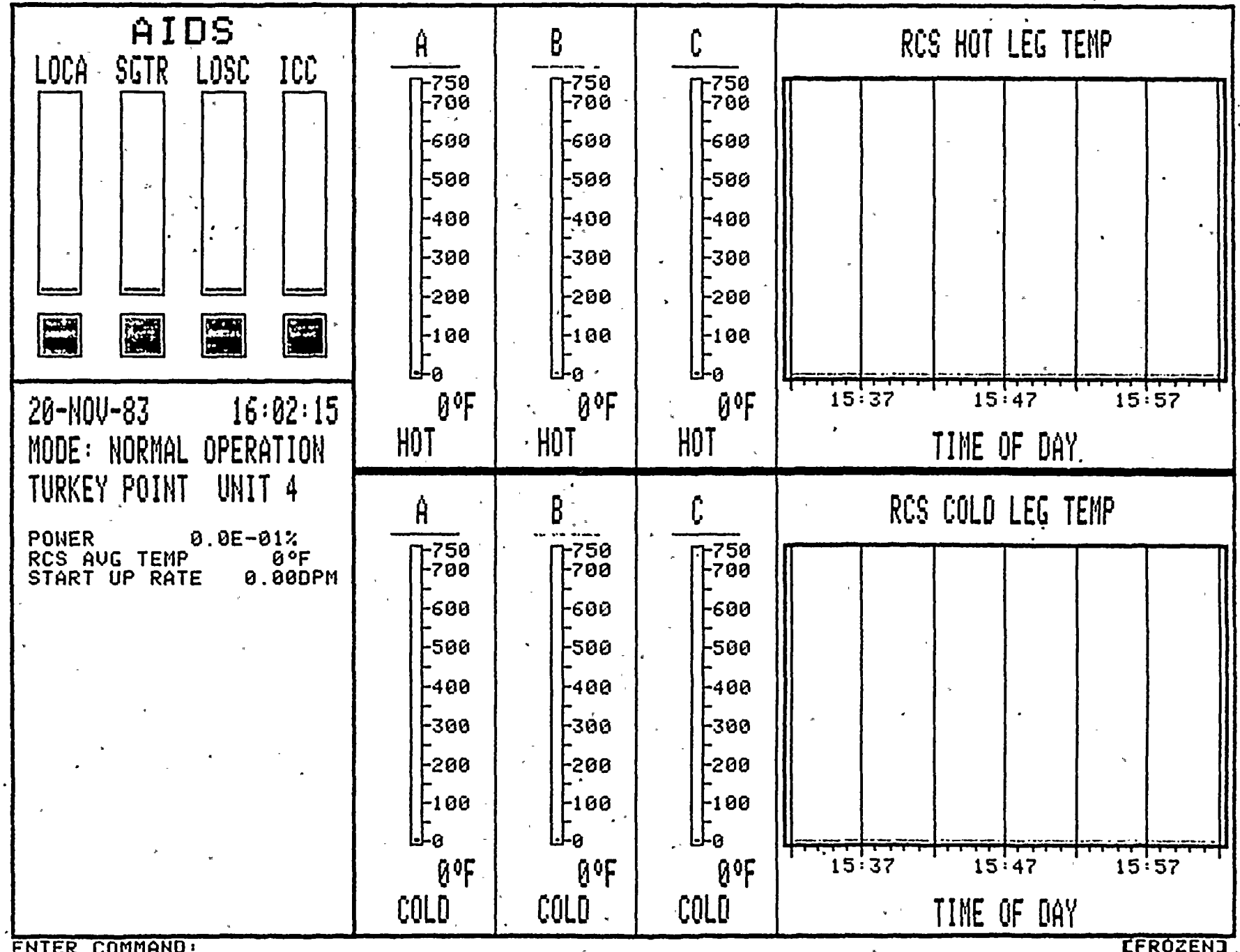
AIDS
LOCA
SGTR
LOSC
ICC
20-NOV-83 16:02:15
MODE: NORMAL OPERATION
TURKEY POINT UNIT 4
POWER 0.0E-01%
RCS AVG TEMP 0°F
START UP RATE 0.00DPM
A
B
C
750
700
600
500
400
300
200
100
0
0°F
HOT
RCS HOT LEG TEMP
15:37
15:47
15:57
TIME OF DAY
COLD
RCS COLD LEG TEMP
TIME OF DAY
ENTER COMMAND:
SAVING IMAGE
[FROZEN]
CPU BAD
NEW ALARM

FIGURE 2

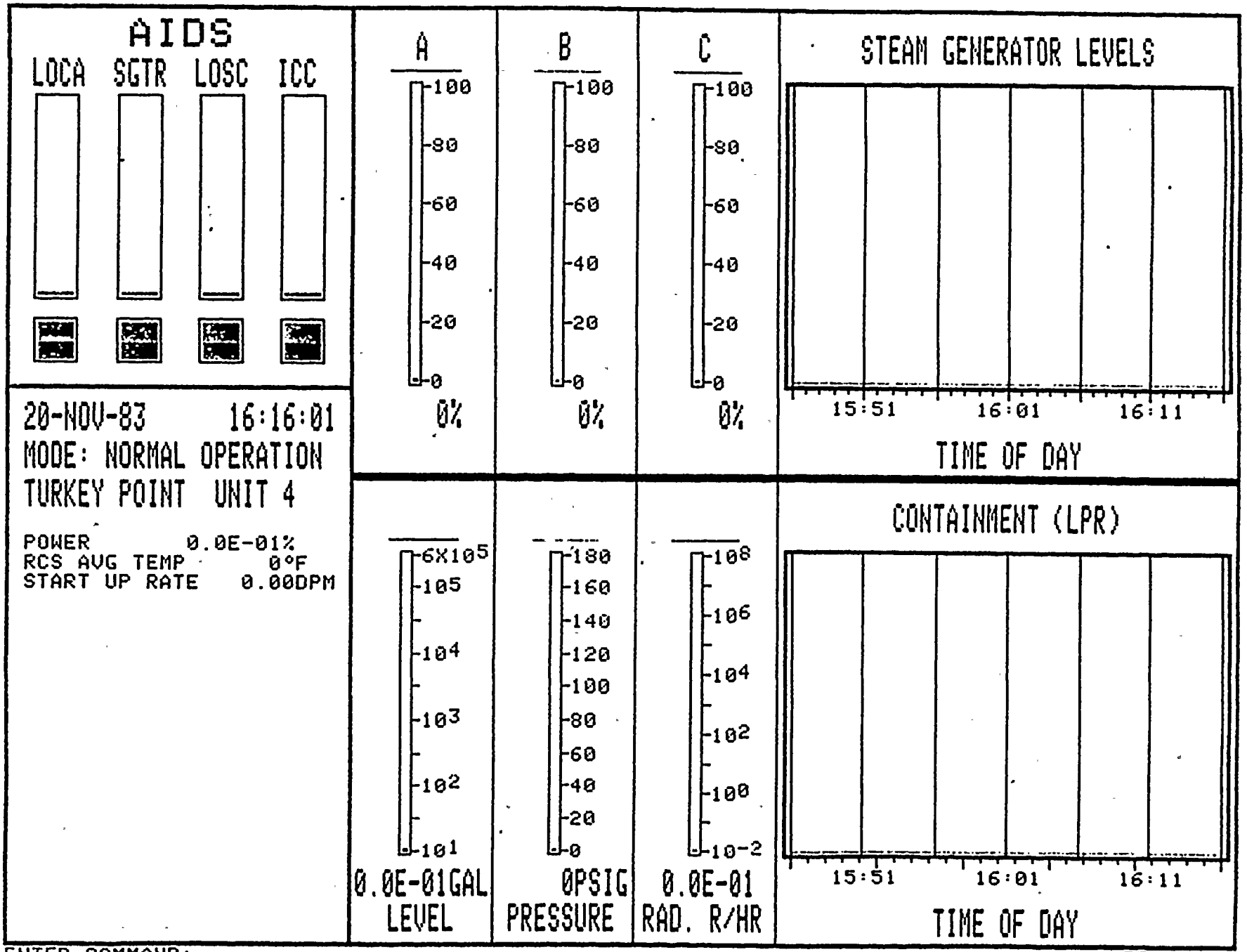
AIDS
LOCA
SGTR
LOSC
ICC
20-NOV-83 16:16:01
MODE: NORMAL OPERATION
TURKEY POINT UNIT 4
POWER 0.0E-01%
RCS AVG TEMP 0°F
START UP RATE 0.00DPM
A
B
C
100
80
60
40
20
0
0%
0%
0%
STEAM GENERATOR LEVELS
15:51
16:01
16:11
TIME OF DAY
6X10^5
10^5
10^4
10^3
10^2
10^1
180
160
140
120
100
80
60
40
20
0
10^8
10^6
10^4
10^2
10^0
10^-2
0.0E-01GAL
LEVEL
0PSIG
PRESSURE
0.0E-01
RAD. R/HR
CONTAINMENT (LPR)
15:51
16:01
16:11
TIME OF DAY
ENTER COMMAND:
SAVING IMAGE
[FROZEN]
CPU BAD

FIGURE 3

FIGURE 4

SPDS CRT FUNCTION KEYPAD