Submitted: _____ SP Number 29.Ø23.Ø3

Approved: _____ Revision 3
(Plant Manager)

Effective Date 1-7-83

# CONTAINMENT CONTROL EMERGENCY PROCEDURE

MC-1

## 1.0 PURPOSE

The purpose of this procedure is to control primary containment temperatures, pressure and level.

## 2.0 ENTRY CONDITIONS

Enter the paragraphs of this procedure as required by the entry condition. The paragraphs can and should be performed concurrently with each other as the entry conditions dictate and concurrently with the procedure from which it was entered.

2.1 The entry conditions for this procedure are any of the following:

| | | Paragraph |
|---|---|---|
| 2.1.1 Suppression Pool Temperature | Above 90°F | 3.1 |
| 2.1.2 Drywell Temperature | Above 135°F | 3.2 |
| 2.1.3 Drywell Pressure | Above 1.69 psig | 3.3 |
| 2.1 4 Suppression Pool Level | Above +6" | 3.4 |
| 2.1.5 Suppression Pool Level | Below -6" | 3.4 |

2.2 Notify the Watch Engineer to classify the event per SP69.ØlØ.Ø1 and initiate the Emergency Plan as required.

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INFORMATION COPY

3.1 MONITOR and CONTROL suppression pool temperature by performing the following:

| | | |
|---|---|---|
| _____ | 3.1.1 Attempt to close any open SRV which is not required to be open by cycling the valve switch | 3.1.1 Ref to SP 23.116.Ø1 (Main and Auxiliary Steam) |
| _____ | 3.1.2 IF the open SRV is stuck open,<br><br>THEN scram the reactor | 3.1.2 Ref SP 29.Ø1Ø.Ø1 (Emergency Shutdown) |

CAUTION

If continuous LPCI is required to assure adequate core cooling, do not divert RHR pumps from the LPCI mode.

| | | |
|---|---|---|
| _____ | 3.1.3 IF suppression pool temperature exceeds 9Ø°F,<br><br>THEN operate available suppression pool cooling | 3.1.3 Ref SP 23.121.Ø1 (Residual Heat Removal (RHR) System) |
| _____ | 3.1.4 IF suppression pool temperature reaches 110°F,<br><br>THEN scram the reactor | 3.1.4 Ref SP 29.Ø1Ø.Ø1 (Emergency Shutdown) |

CAUTION

Cooldown rates above 100°F/hr may be required to accomplish steps 3.1.5 and 3.1.6.

CAUTION

Do not depressurize the RPV below 110 psig unless motor driven pumps sufficient to maintain RPV water level are running and the systems are available for injection.

CAUTION

Refer to Fig. 7, 8, or 9 for NPSH requirements for pumps taking a suction from the suppression pool.

3.1.5 IF suppression pool temperature cannot be maintained below the heat capacity temperature limit of Figure 1

THEN maintain RPV pressure below the heat capacity temperature limit of Figure 1.

3.1.6 IF suppression pool temperature

AND

RPV pressure cannot be restored

OR

maintained below the heat capacity temperature limit (Fig 1)

THEN open all ADS valves.

AND

Proceed to SP 29.Ø23.Ø5 (Rapid RPV Depressurization)

3.2 MONITOR and CONTROL drywell temperature by performing the following:

Dry Well Temp. >135°F

3.2.1 IF drywell temperature exceeds 135°F,

THEN operate all available drywell cooling.

CAUTION

If continuous LPCI operation is required to assure adequate core cooling, do not divert RHR pumps from the LPCI mode.

CAUTION

Whenever the temperature indicated on L-993 and L-994 exceeds the temperature in the table, the actual RPV water level may be anywhere below the elevation of the lower instrument tap when the instrument reads below the indicated level in the table.

| Temperature | Indicated Level | Instrument |
|---|---|---|
| Any | +235 in. | Shutdown Range (Ø to 4ØØ in.) |
| Any | -15Ø in. | Fuel Zone A (-15Ø to +5Ø in.) |
| Any | -15Ø in. | Fuel Zone B (-15Ø to +5Ø in.) |
| 12Ø°F | +18Ø in. | Upset Range (Ø to 18Ø in.) |
| 371°F | -142 in. | Wide Range A (-15Ø to +6Ø in.) |
| 395°F | 8 in. | Narrow Range A (Ø to 6Ø in.) |
| >6ØØ°F | -15Ø in. | Wide Range B (-15Ø to +6Ø in.) |
| >6ØØ°F | -Ø in. | Narrow Range B (Ø to 6Ø in.) |

<3

3.2.2 IF drywell temperature approaches 296°F,

THEN shutdown the Reactor Recirculation Pumps

AND

Shutdown the Drywell Fans

AND

Initiate drywell sprays

CAUTION

Do not depressurize the RPV below 110 psig unless motor driven pumps sufficient to maintain RPV water level are running and the systems are available for injection.

CAUTION

Cooldown rates above 100°F/hr may be required to accomplish step 3.2.3.

CAUTION

Refer to Fig. 7, 8, or 9 for NPSH requirements for pumps taking a suction from the suppression pool.

3.2.3 IF drywell temperature near the cold reference leg temperature instruments reaches the RPV saturation limit (Fig. 2)

OR

cannot be maintained below 296°F,

THEN open all ADS valves

AND

Proceed to SP 29.Ø23.Ø5 (Rapid RPV Depressurization)

3.2.3 NOTE
Drywell cold reference leg temperature instruments are L-993 and L-994

Containment
Press. >1.69 psig

3.3 MONITOR and CONTROL primary containment pressure by performing the following:

| CAUTION |
| --- |
| ELEVATED SUPPRESSION CHAMBER PRESSURE MAY TRIP THE RCIC TURBINE ON HIGH EXHAUST PRESSURE, 25 psig |

| | | |
| --- | --- | --- |
| 3.3.1 | Operate the post loca hydrogen recombination system | 3.3.1 Refer to SP23.402.01 (Primary Containment Post Loca Hydrogen Recombination) |
| 3.3.2 | Operate the MSIV Leakage Control System if necessary | 3.3.2 Refer to SP 23.406.01 (MSIV Leakage Control System) |
| 3.3.3 | Sample and analyze primary containment atmosphere to ensure environmental release limits are met. | |
| 3.3.4 | IF dry well temperature is below 212°F<br>AND<br>Release limits are met THEN vent the primary containment | 3.3.4 Vent the primary containment through 1T48*MOV-031B and 1T48*MOV-035B to the Post LOCA Hydrogen Recombination System Primary Containment Atmospehric Purge Filter FLT 008 |

| CAUTION |
| --- |
| If continuous LPCI operation is required to assure adequate core cooling, do not divert RHR pumps from the LPCI mode. |

3.3.5 INITIATE suppression pool sprays

BEFORE

the suppression chamber pressure reaches the suppression pool spray limit (Fig 3)

3.3.6 If suppression chamber pressure reaches the pressure suppression limit (Fig 4)

Then SHUTDOWN the Reactor Recirculation pumps

AND

Shutdown the drywell fans

AND

Initiate drywell sprays as necessary to maintain suppression chamber pressure below the pressure suppression limit.

CAUTION

Do not depressurize the RPV below 11Ø psig unless motor driven pumps sufficient to maintain RPV water level are running and the systems are available for injection.

CAUTION

Refer to Fig. 7, 8, or 9 for NPSH requirements for pumps taking a suction from the suppression pool.

CAUTION

Cooldown rates greater than 1ØØ°F/hr may be required to accomplish Step 3.3.7.

3.3.7 IF suppression chamber pressure cannot be maintained below the pressure suppression limit (Fig 4),

THEN open all ADS valves.

AND

Proceed to SP 29.Ø23.Ø5 (Rapid RPV Depressurization)

Supp Pool Level
> +6" or < -6"

3.4 MONITOR and CONTROL suppression pool water level by performing the following:

3.4.1 Maintain suppression pool water level between +6 and -6"

3.4.2 IF suppression pool water level is BELOW -6"

THEN initiate suppression pool makeup

3.4.2 Refer to SP23.202.01 (HPCI System) pr SP23.119.01 (RCIC System)

CAUTION

Do not depressurize the RPV below 110 psig unless motor driven pumps sufficient to maintain RPV water level are running and the systems are available for injection.

CAUTION

Cooldown rates above 100°F/hr may be required to accomplish steps 3.4.3, 3.4.8, and 3.4.9.

CAUTION

Refer to Fig. 7, 8, or 9 for NPSH requirements for pumps taking a suction from the suppression pool.

3.4.3 IF suppression pool level cannot be maintained above the heat capacity level limit (Fig 5)

THEN open all ADS valves

AND

Proceed to SP 29.Ø23.Ø5 (Rapid RPV Depressurization)

3.4.4 IF signals of high suppression pool water level (+6).

OR

Low condensate storage tank water level (3'4") occur,

THEN confirm automatic transfer of/or manually transfer HPCI and RCIC suction from the condensate tank to the suppression pool.

3.4.5 IF the suppression pool water level can not be maintained below +6".

AND

adequate core cooling is assured,

THEN terminate injection into the reactor vessel from sources external to the primary containment.

3.4.6 Notify Radiochemistry to Sample and analyze suppression pool water to ensure suppression pool discharge limits are met.

| | | |
|---|---|---|
| _____ | 3.4.7 IF suppression pool water level is above +6"<br><br>AND<br><br>discharge limits are met<br><br>THEN lower suppression pool level. | 3.4.7 Refer to SP 23.7Ø8.Ø1 (Fuel Pool Cleanup) |
| _____ | 3.4.8 IF suppression pool water level cannot be maintained below the suppression pool load limit,<br><br>THEN maintain RPV pressure below the load limit of Figure 6. | |
| _____ | 3.4.9 IF suppression pool water level and RPV pressure cannot be restored or maintained below the suppression pool load limit,<br><br>THEN open all ADS valves<br><br>AND<br><br>Proceed to SP 29.Ø23.Ø5 (Rapid RPV Depressurization) | |
| _____ | 3.4.10 IF primary containment water level reaches elevation, 65 Ft<br><br>THEN terminate injection into the RPV from sources external to the primary containment irrespective of whether adequate core cooling is assured. | |

## 4.0 REFERENCES

4.1 SP 23.116.Ø1 Main Auxiliary Steam

4.2 SP 23.121.Ø1 Residual Heat Removal (RHR) System

4.3 SP 29.Ø1Ø.Ø1 Emergency Shutdown

4.4 SP 29.Ø23.Ø5 Rapid RPV Depressurization

4.5 SP 23.4Ø2.Ø1 Primary Containment Post LOCA Hydrogen Recombination

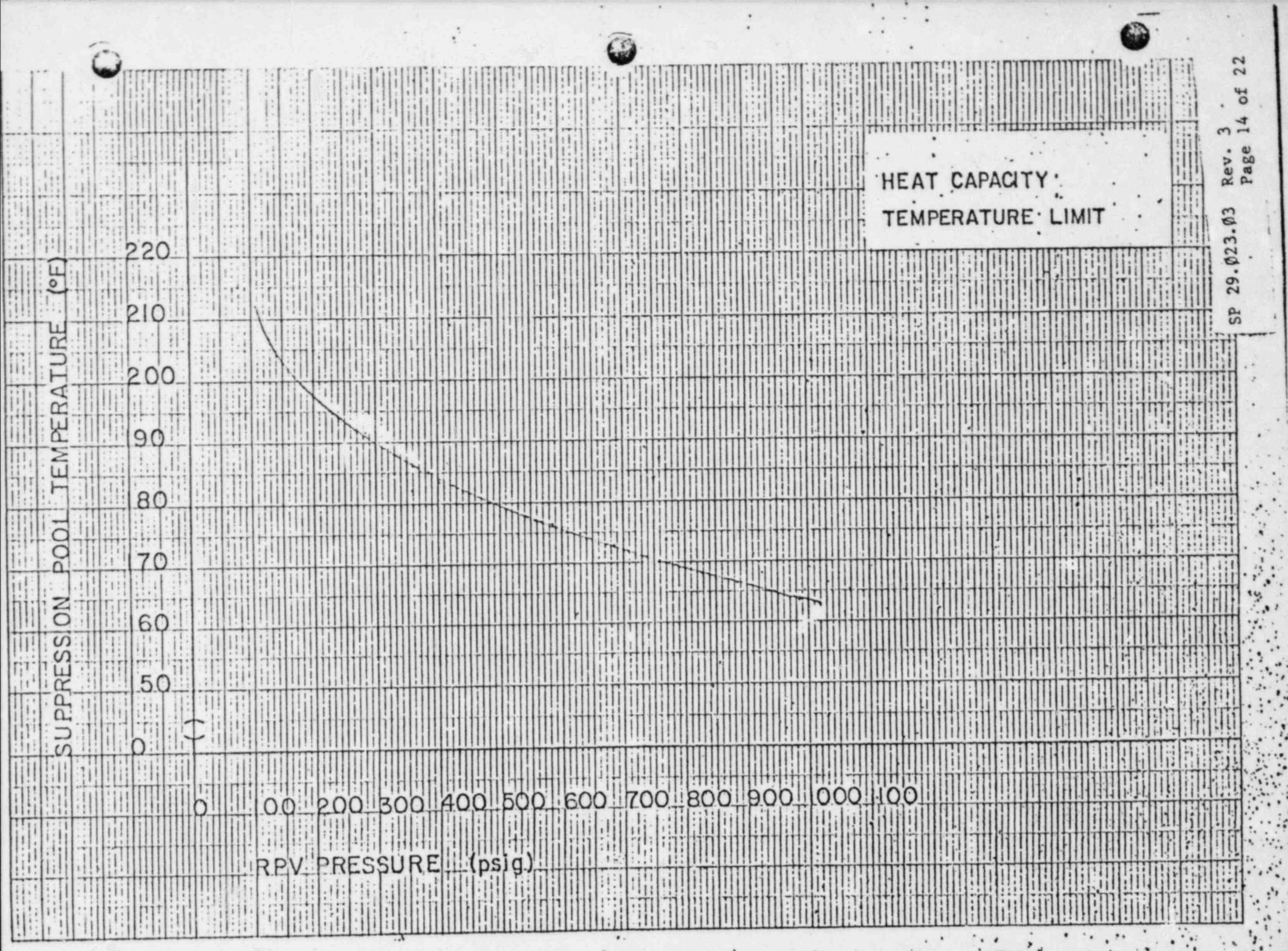

HEAT CAPACITY
TEMPERATURE LIMIT
SUPPRESSION POOL TEMPERATURE (°F)
220
210
200
90
80
70
60
50
0
( )
0
00
200
300
400
500
600
700
800
900
000
100
RPV PRESSURE (psig)

FIG 1

RPV PRESSURE LIMIT
TEMPERATURE (°F) NEAR COLD REFERENCE LEG
550
500
450
400
350
300
250
200
0
00
200
300
400
500
600
700
800
900
1000
RPV PRESSURE (psig)

FIG 2

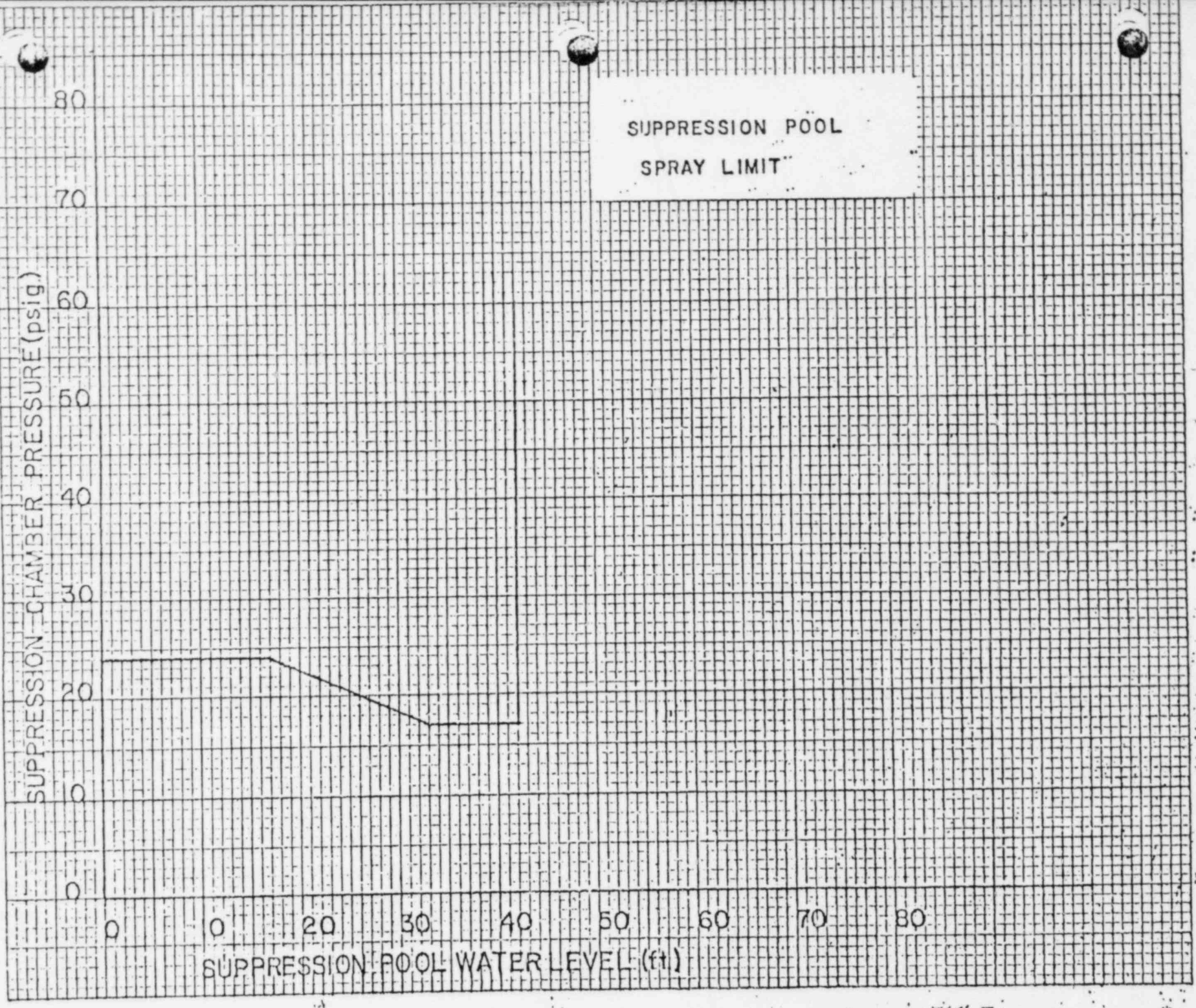



FIG 3;
SP 29.023.03

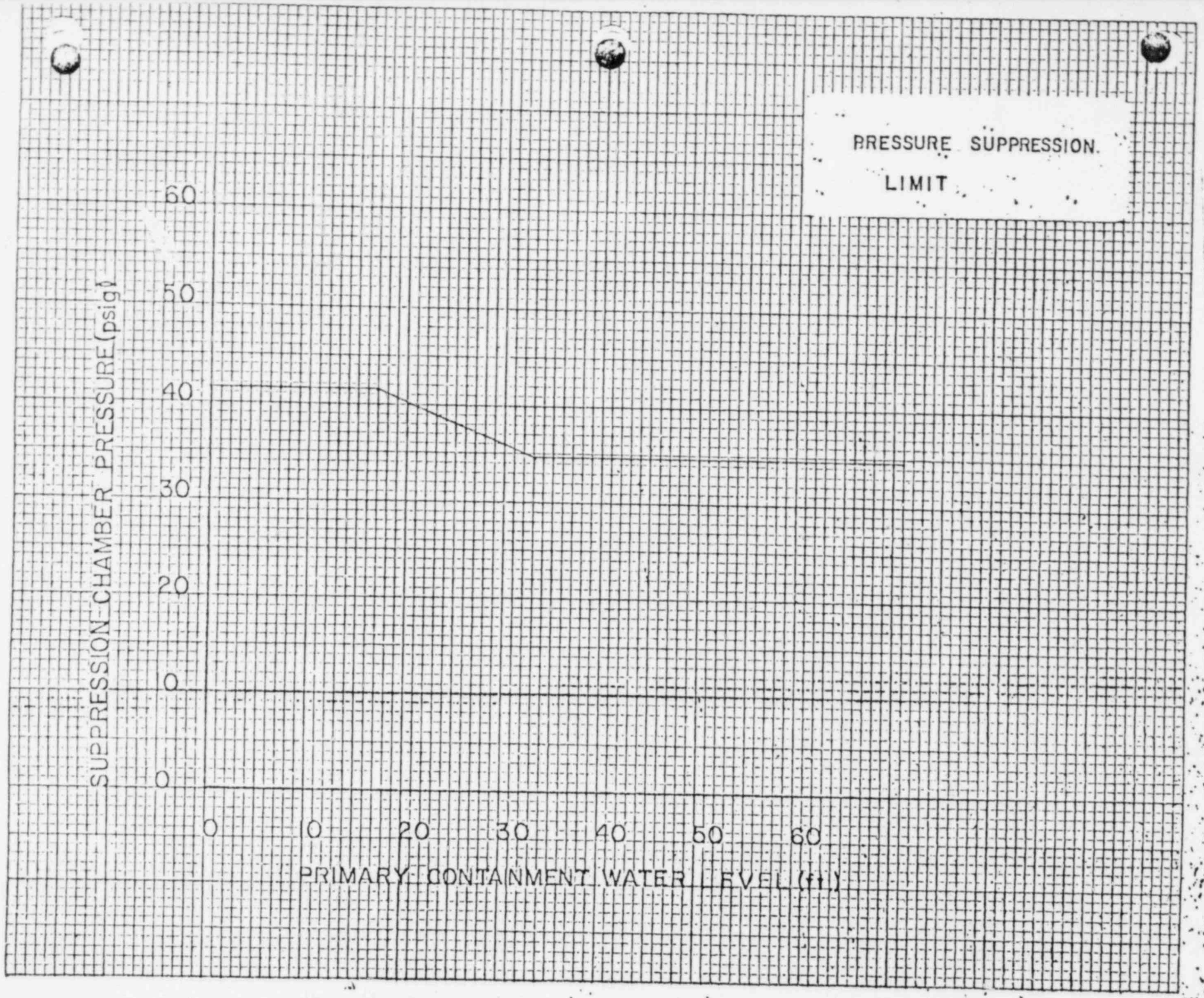
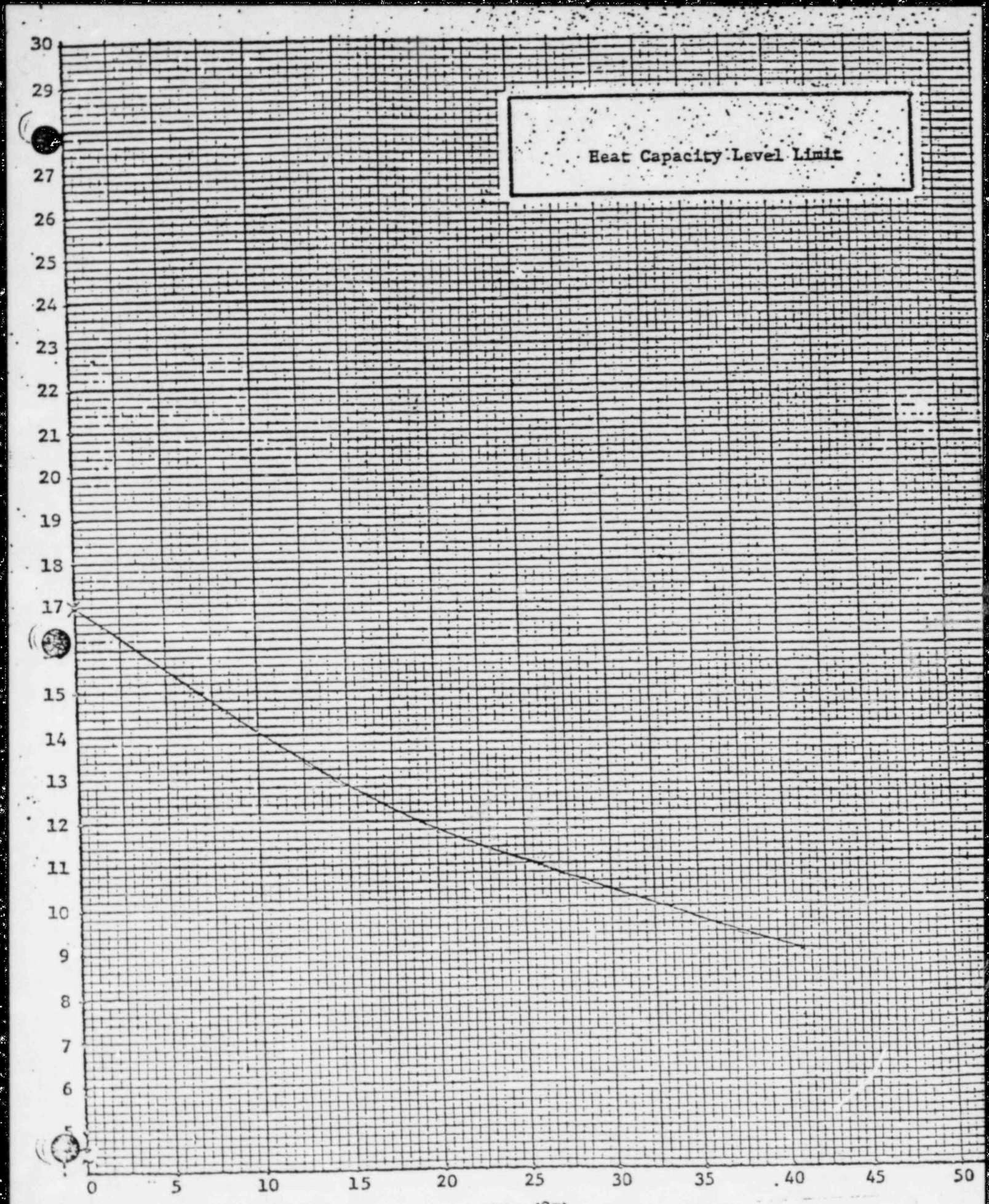



FIG 4
SP 29.023.03


Heat Capacity Level Limit
30
29
27
26
25
24
23
22
21
20
19
18
17
15
14
13
12
11
10
9
8
7
6
0
5
10
15
20
25
30
35
40
45
50
$\Delta T_{HC}$ (°F)

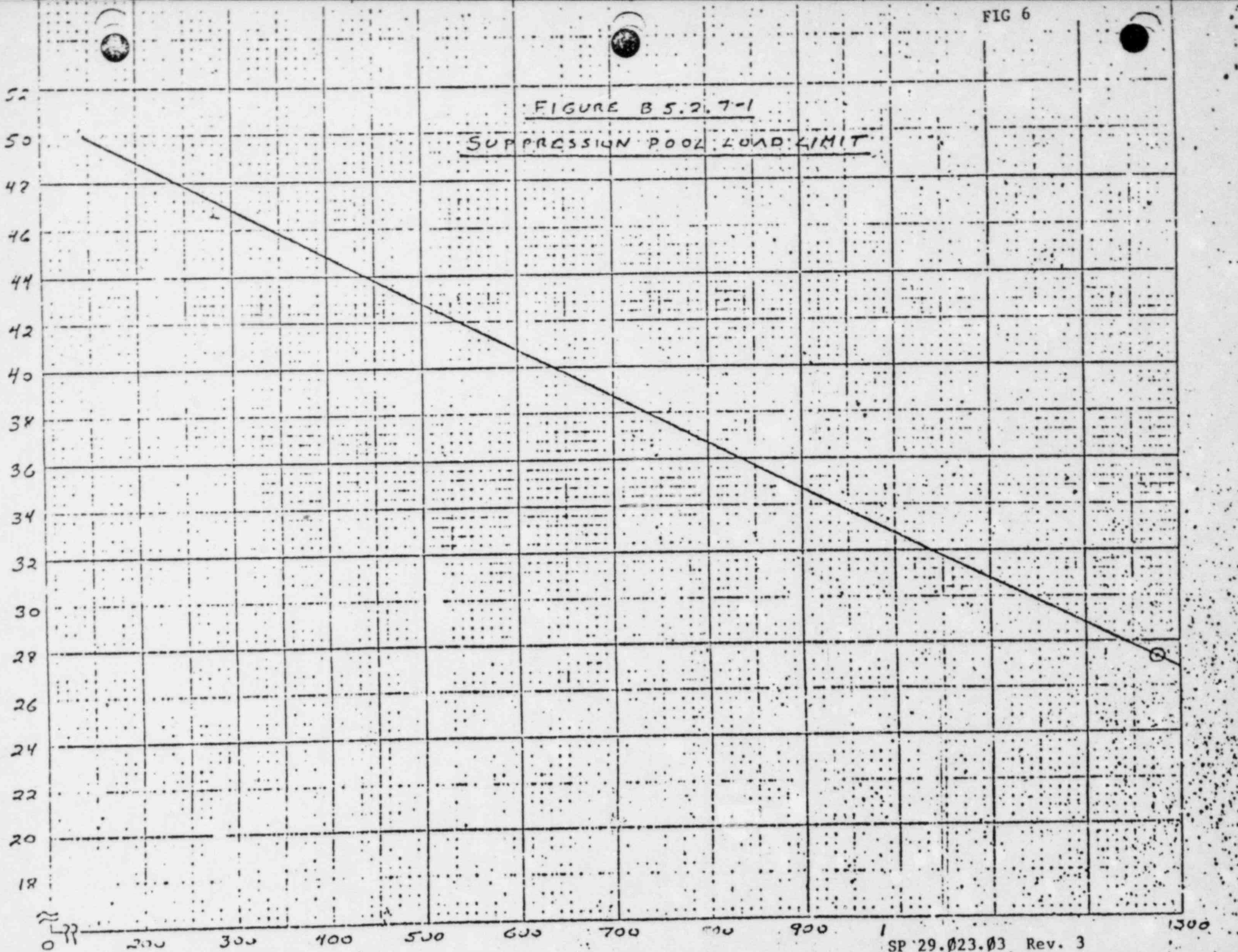


FIGURE B 5.2.7-1
SUPPRESSION POOL LOAD LIMIT
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
0
200
300
400
500
600
700
800
900
1
1200
DRY PRESSURE (psig)

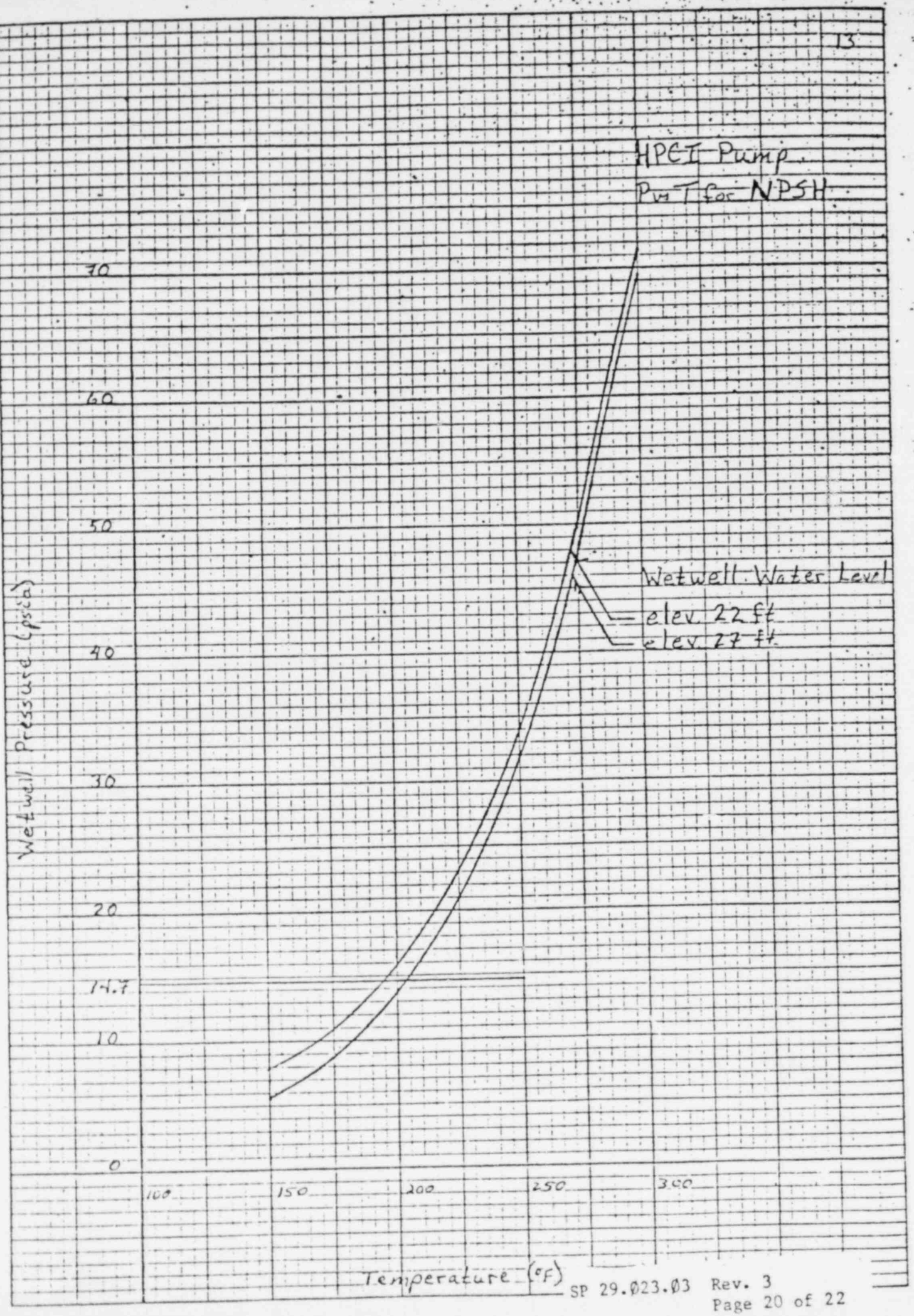
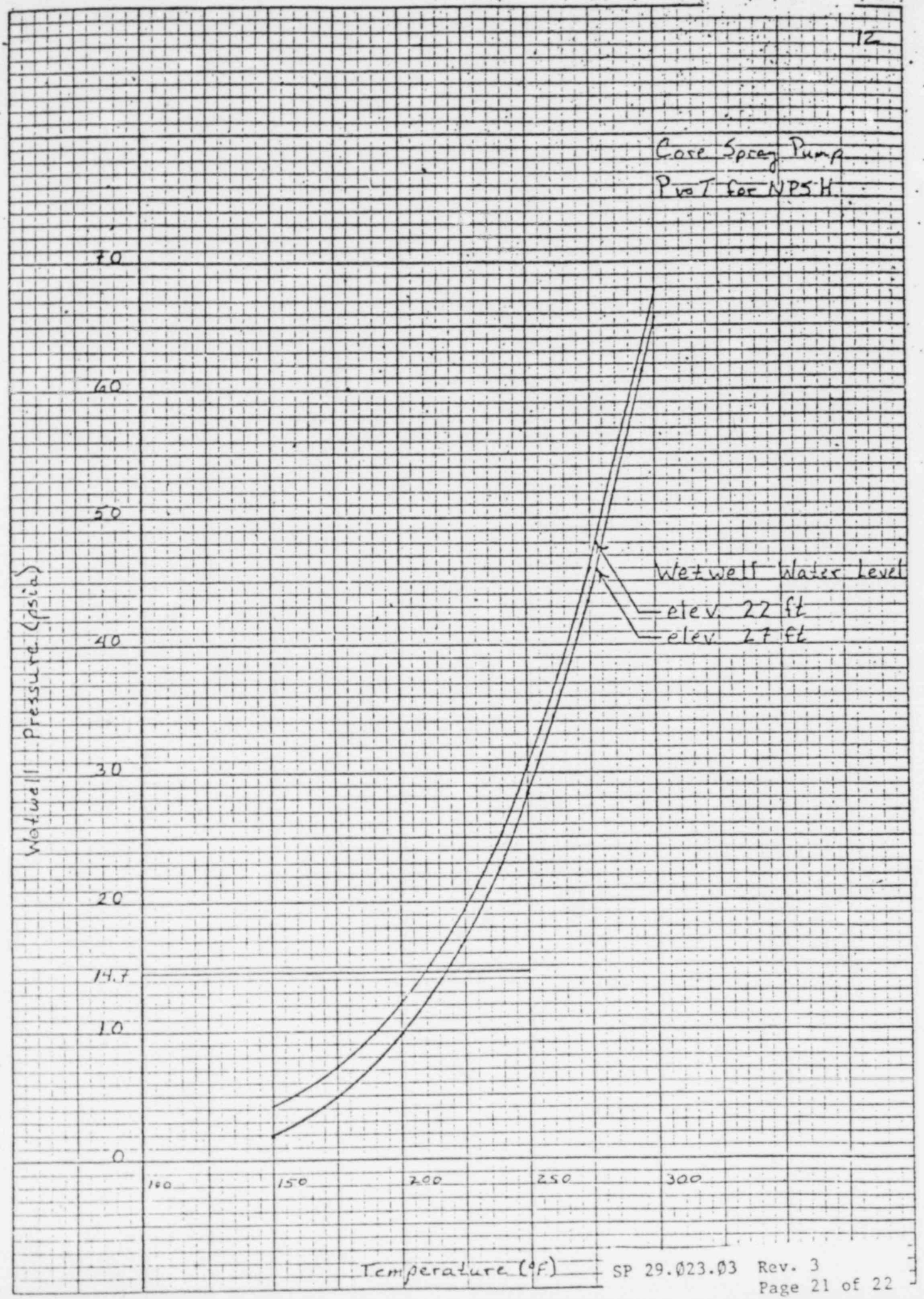
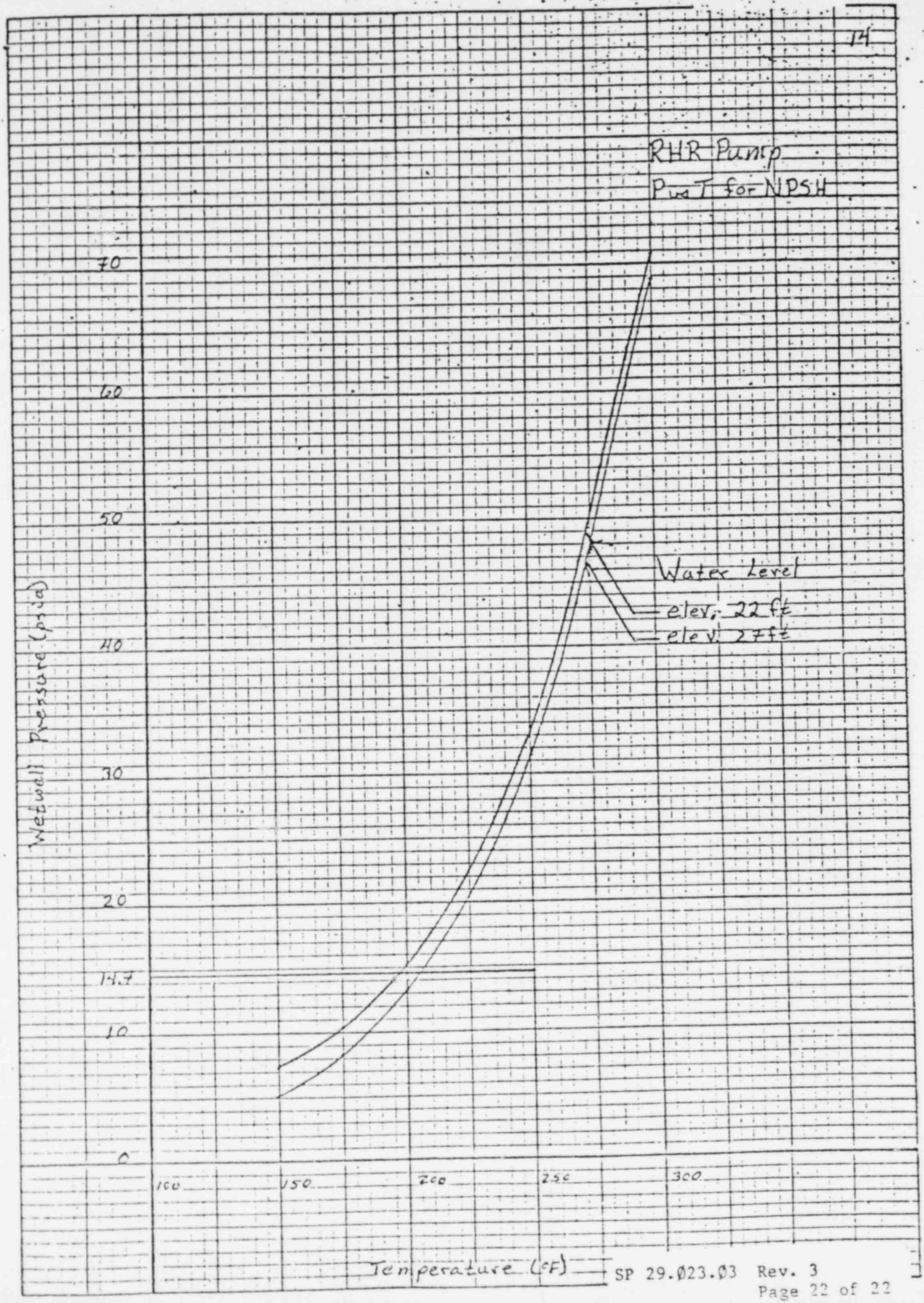


FIG. 8




Core Spray Pump
PvsT for NPSH
Wetwell Water Level
elev. 22 ft
elev. 27 ft
Wetwell Pressure (psia)
70
60
50
40
30
20
14.7
10
0
100
150
200
250
300
Temperature (°F)


RHR Pump
Pvs T for NPSH
Water Level
elev. 22 ft
elev. 27 ft
Wetwell Pressure (psia)
70
60
50
40
30
20
14.7
10
0
100
150
200
250
300
Temperature (°F)

## CERTIFICATE OF SERVICE

In the Matter of
LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station, Unit 1)
Docket No. 50-322 (OL)

I hereby certify that copies of the attached letter from Donald P. Irwin to the members of the Atomic Safety and Licensing Board dated January 7, 1983 and entitled ICC: SC3/SOC 8, were served this date upon the following by first-class mail, postage prepaid.

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