ILLINOIS POWER COMPANY
CLINTON POWER STATION

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Scope of Revision:

LIST OF EFFECTIVE TCFs

TCF NUMBER	EFF. DATE	EXP. DATE	TCF NUMBER	EFF. DATE	EXP. DATE

LIST OF EFFECTIVE ACNs

PREPARER _____ GROUP SUPERVISOR _____
DEPARTMENT HEAD _____ ASST. PWR. PLT. MNGR. _____

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1.0 INTRODUCTION

Based on the Clinton Power Station (CPS) BWR-6 and Mark III containment designs, the following plant specific, symptomatic emergency procedure guidelines (EPG's) have been developed from the generic Emergency Procedure Guidelines, Rev. 3J:

a) RPV Control Guideline
b) Containment Control Guideline
c) Secondary Containment/Radioactivity Release Control Guideline
d) Combustible Gas Control Guideline

The RPV Control Guideline maintains adequate core cooling, shuts down the reactor, stabilizes and controls RPV pressure, and cools down the RPV to cold shutdown conditions. The major subsections and associated entry conditions of this guideline are:

	Section	Entry Conditions
1.	LEVEL CONTROL	a) Low RPV water level b) High drywell pressure c) A condition which requires MSIV isolation d) High RPV pressure e) Reactivity Control entry conditions
2.	REACTIVITY CONTROL	A condition exists which requires a reactor scram and any of the following: a) High reactor power b) Reactor power cannot be determined c) More than one control rod not fully inserted
3.	PRESSURE CONTROL	Upon entry to LEVEL CONTROL
4.	COOLDOWN	a) As directed by LEVEL CONTROL, CONTAINMENT CONTROL REACTIVITY CONTROL, or SECONDARY CONTAINMENT/RADIOACTIVITY RELEASE CONTROL b) Required cooldown cannot be accomplished by normal plant operating procedures.

The Containment Control Guideline maintains primary containment integrity and protects equipment in the primary containment. This guideline is entered on the following conditions:

a) High suppression pool temperature
b) High drywell temperature
c) High drywell pressure
d) High/Low suppression pool level
e) High containment temperature

The Secondary Containment/Radioactivity Release Control Guideline protects equipment in the secondary containment, limits radioactivity release to the secondary containment, maintains secondary containment integrity, and limits radioactivity release outside the primary and secondary containments. This guideline is entered on the following conditions:

a) High secondary containment area temperature
b) High secondary containment area radiation level
c) High secondary containment area water level
d) Low secondary containment differential pressure
e) High offsite radioactivity release rate
f) High secondary Containment HVAC exhaust radiation level
g) High secondary containment HVAC cooler differential temperature

The Combustible Gas Control Guideline controls hydrogen concentrations within acceptable limits, maintains primary containment integrity and protects equipment in the primary containment. This guideline is entered on the following conditions:

(later)

Appendix A, CPS Calculational Procedure Results, provides the following plant specific information referenced in the CPS EPG's:

a) Heat Capacity Temperature Limit
b) Suppression Pool Load Limit
c) Containment Spray Initiation Pressure Limit
d) Primary Containment Design Pressure
e) Primary Containment Pressure Limit
f) Pressure Suppression Pressure
g) RPV Saturation Pressure
h) Boron Injection Initiation Temperature
i) Maximum Core Uncovery Time Limit
j) Minimum Alternate RPV Flooding Pressure

The generic emergency procedure guidelines were written to address all plant designs (GE-BWR 1 through 6, Mark I, II, III containments) in that they address all major systems and modes of operation, which may be used to respond to an emergency. Because CPS does not have all of the systems addressed in the generic guidelines, CPS plant specific guidelines were prepared by deleting statements which are not applicable, substituting equivalent systems where appropriate, and reorganizing steps such that emergency off normal procedures could more easily be prepared from the guidelines. Identification and explanation of changes/modifications are contained in Appendix B, CPS Emergency Procedure Guidelines Technical Basis.

At various points within these guidelines, limits are specified beyond which certain actions are required. While conservative, these limits are derived from engineering analyses utilizing best-estimate (as opposed to licensing) models. Consequently, these limits are not as conservative as the limits specified in a plant's Technical Specifications. This is not to imply that operation beyond the Technical Specifications is recommended in an emergency. Rather, such operation may be required under certain degraded conditions in order to safely mitigate the consequences of those degraded conditions. The limits specified in the guidelines establish the boundaries within which continued safe operation of the plant can be assured. Therefore, conformance with the guidelines does not ensure strict conformance with a plant's Technical Specifications or other licensing bases.

The entry conditions for these emergency procedure guidelines are symptomatic of both emergencies and events which may degrade into emergencies. The guidelines specify actions appropriate for both. Therefore, entry into procedures developed from these guidelines is not conclusive that an emergency has occurred.

At various points throughout these guidelines precautions are noted by "CAUTION #". The number (#) refers to a numbered caution contained in the Operator Precaution section.

Abbreviations used in the Guidelines are summarized in Table 1.

TABLE 1

ADS	Automatic Depressurization System
APRM	Average Power Range Monitor
BAF	Bottom of Active Fuel
CGCS	Combustible Gas Control System
CRD	Control Rod Drive
ECCS	Emergency Core Cooling System
EOP	Emergency Operating Procedure
FP	Fire Protection
FPC&C	Fuel Pool Cooling & Cleanup
HCU	Hydraulic Control Unit (for control rod drives)
HPCS	High Pressure Core Spray
HVAC	Heating, Ventilation and Air Conditioning
LPCI	Low Pressure Coolant Injection
LPCS	Low Pressure Core Spray
MSIV	Main Steamline Isolation Valve
MSL	Main Steam Line
NPSH	Net Positive Suction Head
RCIC	Reactor Core Isolation Cooling
RCIS	Rod Control and Information System
RFPT	Reactor Feed Pump Turbine
RHR	Residual Heat Removal
RPC	Rod Pattern Control
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel
RWCU	Reactor Water Cleanup
SGTS	Standby Gas Treatment System
SLC	Standby Liquid Control
SPMS	Suppression Pool Makeup System
SRV	Safety Relief Valve
TAF	Top of Active Fuel
VF	Fuel Building Ventilation
VR	Containment Building Ventilation

2.0 OPERATOR PRECAUTIONS

2.1 General Cautions

This section lists "cautions" which are generally applicable at all times.

CAUTION #1

Monitor the general state of the plant. If an entry condition for an emergency operating procedure occurs, enter that procedure. When it is determined that an emergency no longer exists, enter the applicable off-normal or integrated plant operating procedures.

CAUTION #2

Monitor parameters from multiple indications.

CAUTION #3

If a safety function initiates automatically, assume a true initiating event has occurred unless otherwise confirmed by at least two independent indications.

CAUTION #4

Whenever RHR is in the LPCI mode, inject through the heat exchangers as soon as possible.

CAUTION #5

Suppression pool bulk temperature, drywell bulk temperature, and containment bulk temperature instrumentation should be used in the performance of this procedure, unless otherwise specified.

CAUTION #6

Whenever Drywell/Containment Temperature exceeds the temperature in the table (below) and the instrument reads below the indicated level in the table, the actual RPV water level may be anywhere below the elevation of the lower instrument tap.

Instrument	Drywell/Containment Temperature (°F)	Indicated Water Level (in)
Shutdown Range	Any	65.93
Upset Range	232	72.67
Wide Range	545	-160
Narrow Range	545	0
Fuel Zone	545	-150

CAUTION #7

Both during and following boron injection into the RPV, do not drain from the RPV to control/restore RPV water level or to control RPV pressure. Allow level to drop by boil off only.

CAUTION #8

Be alert for possible cavitation for pumps taking suction from the suppression pool.

CAUTION #9

If signals of high suppression pool water level (19 ft. 5.5 in.) or low RCIC storage tank level (2200 gal.) occur, confirm automatic transfer of or manually transfer HPCS and RCIC suction from the RCIC storage tank to the suppression pool.

CAUTION #10

Do not secure or place an ECCS in Manual override unless, by at least two independent indications, (1) misoperation in Automatic mode is confirmed, (2) adequate core cooling is assured, or (3) specifically directed to do so by this procedure. If an ECCS is placed in Manual override, it will not initiate automatically. Make frequent checks of the initiating or controlling parameter. When manual override is no longer required, restore the system to standby mode, if possible.

CAUTION #11

When RPV water level is being controlled within a specified range, if a high drywell pressure ECCS initiation signal occurs or exists while depressurizing, prevent injection from those LPCS and LPCI pumps not required to assure adequate core cooling prior to reaching their maximum injection pressures. When the high drywell pressure ECCS initiation signal clears, restore LPCS and LPCI to Standby mode.

2.2 Specific Cautions

This section lists "Cautions" which are applicable at one or more specific points within the guidelines.

CAUTION #12

Utilize depressurization systems in an order which will minimize radioactive release to the environment.

CAUTION #13

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

CAUTION #14

IF RCIC is available for injection.

THEN Do not depressurize the RPV below 50 psig unless motor driven pumps, sufficient to maintain RPV water level, are running and available for injection.

CAUTION #15

Operate SRV's in a sequence which results in uniform suppression pool heating.

CAUTION #16

Bypassing RPV low water level MSIV isolation interlocks may be required to accomplish this step.

CAUTION #17

Cooldown rates above 100°F/hr may be required to conserve RPV water inventory, protect primary containment integrity, or limit radioactive release to the environment.

CAUTION #18

IF Continuous LPCI operation of any RHR pump is required to assure adequate core cooling

THEN Do not divert that pump from LPCI mode.

CAUTION #19

Deleted

CAUTION #20

Defeating RCIS/RPC interlocks may be required to accomplish this step.

CAUTION #21

Elevated suppression chamber pressure may trip the RCIC turbine on high exhaust pressure.

CAUTION #22

Defeating isolation interlocks may be required to accomplish this step.

CAUTION #23

Deleted

CAUTION #24

Bypassing high drywell pressure and low RPV water level secondary containment HVAC isolation interlocks may be required to accomplish this step.

CAUTION #25

A rapid increase in injection into the RPV may induce a large power excursion and result in substantial core damage.

CAUTION #26

Large reactor power oscillations may be observed while executing this step.

CAUTION #27

Only use SGTS and Drywell Purge if the area being evacuated is below 212°F.

CAUTION #28

IF Boron injection is required

THEN Do not commence emergency RPV depressurization until injection into the RPV is terminated and prevented as required by contingencies #7 or #8.

3.0 RPV CONTROL GUIDELINE

Purpose

The purpose of this guideline is to:

a) Maintain adequate core cooling
b) Shut down the reactor
c) Stabilize and Control RPV pressure
d) Cooldown the RPV to cold shutdown conditions (200°F)

To accomplish this, the following subsections have been developed:

a) LEVEL CONTROL RC/L
b) REACTIVITY CONTROL RC/Q
c) PRESSURE CONTROL RC/P
d) COOLDOWN RC/CD

3.1 LEVEL CONTROL RC/L

Purpose

The purpose of this guideline is to maintain adequate core cooling.

NOTE

RC/P, PRESSURE CONTROL, should be entered whenever the LEVEL CONTROL entry conditions are reached.

Entry Conditions

a) RPV water level below level 3 (low level scram setpoint)
b) Drywell pressure above 2 psig (high drywell pressure scram setpoint)
c) RPV pressure above 1064.7 psig (high RPV pressure scram setpoint)
d) A condition which requires MSIV isolation
e) A condition exists which requires a reactor scram and any of the following exist:

Reactor Power 3% (APRM downscale trip)

OR

Reactor Power cannot be determined

OR

More than one control rod not fully inserted

Operator Actions

NOTE

Perform Reactor Scram and Automatic Isolation off normal procedures concurrently with the emergency off-normal procedure generated from this guideline.

RC/L-1 Place mode switch in SHUTDOWN.

RC/L-2 Confirm initiation of all appropriate automatic actions:

a) Reactor Scram
b) ECCS initiation
c) Emergency Diesel Generator operation
d) Containment Isolation
e) SGTS initiation

Initiate any of these which should have initiated but did not.

NOTE

IF At any time Boron Injection is required

THEN Enter Contingency #7, ALTERNATE LEVEL CONTROL.

NOTE

IF At any time RPV water level cannot be determined

OR

RPV flooding is required

THEN Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION and Contingency #6 RPV FLOODING.

RC/L-3 Restore and maintain RPV water level between level 3 (low level scram setpoint) and level 8 high level trip setpoint) with one or more of the following systems:

a) Condensate/Feedwater (0-1783 psig, RPV pressure range for system operation
b) RCIC (50-1293 psig)
c) HPCS (0-1355 psig)
d) CRD (0-1900 psig)
e) LPCS (0-445 psig)
f) RHR (0-283 psig)

RC/L-4 IF RPV water level cannot be restored and maintained above level 3

THEN Maintain RPV water level above TAF (-162 in.).

RC/L-5 IF RPV water level can be maintained above TAF (-162 in.)

AND

ADS timer has initiated

THEN Prevent automatic RPV depressurization by resetting the ADS timer.

RC/L-6 IF RPV water level cannot be maintained above TAF (-162 in.).

THEN Enter Contingency #1, LEVEL RESTORATION.

RC/L-7 Proceed to cold shutdown. Enter COOLDOWN RC/CD.

3.2 PRESSURE CONTROL RC/P

Purpose

The purpose of this guideline is to stabilize and control RPV pressure.

Entry Conditions

This guideline should be entered anytime RC/L, LEVEL CONTROL is entered.

Operator Actions

Caution #13

NOTE

IF Emergency RPV Depressurization is anticipated

AND

Boron injection is not required

THEN Rapidly depressurize the RPV with the main turbine bypass valves.

NOTE

IF Emergency RPV Depressurization is required

THEN Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION.

NOTE

IF Steam Cooling is required

THEN Enter Contingency #3, STEAM COOLING

RC/P-1

IF Any SRV's are cycling

THEN Manually open SRV's to reduce RPV pressure to 960 psig (pressure at which all turbine bypass valves are fully open).

Caution #18

RC/P-2

IF Any SRV's are open or cycling

THEN Operate available suppression pool cooling.

Caution #16

RC/P-3

IF Boron Injection is required

AND

Main Condenser is available

AND

There has been no indication of gross fuel failure or steam line break

THEN Open MSIV's and re-establish the main condenser as a heat sink.

Caution #14

RC/P-4

Control RPV pressure below 1103 psig (lowest SRV lifting pressure) (1033 psig if Low Low Setpoint Logic has initiated) with one or more of the following systems:

a) Main turbine bypass valves
b) RCIC
c) RFPT's
d) MSL Drains
e) RWCU (Blowdown Mode, Recirc Mode)
f) RHR (Steam Condensing Mode)

Caution #15

NOTE

IF IA supply to SRV's is unavailable

THEN Place SRV control switches in OFF.

g) SRV's, providing suppression pool water level is above 6 ft (elevation of top of SRV discharge device)

3.3 REACTIVITY CONTROL RC/Q

Purpose

The purpose of this guideline is to:

a) Ensure sufficient negative reactivity in core to shutdown the reactor
b) Insert control rods which fail to insert on a reactor scram.

Entry Conditions

A condition exists which requires a reactor scram and any of the following exist:

a) Reactor Power _ 3% (APRM downscale trip)

OR

b) Reactor Power cannot be determined

OR

c) More than one control rod position not fully inserted.

Operator Actions

NOTE

Perform Reactor Scram off normal procedure concurrently with this procedure.

RC/Q-1 Place the Reactor Mode switch in SHUTDOWN and insert a Manual Scram.

RC/Q-2 IF The main turbine is on-line

AND

MSIV's are open

THEN Runback recirc flow to minimum.

RC/Q-3 IF Reactor power is above 3% (APRM downscale trip)

OR

Reactor power cannot be determined

THEN Trip the recirculation pumps.

NOTE

Execute steps RC/Q-4 and RC/Q-5 concurrently.

RC/Q-4 IF Reactor cannot be shutdown before suppression pool temperature reaches the Boron Injection Initiation Temperature

THEN Boron Injection is required, enter Contingency #7, LEVEL/POWER CONTROL

AND

perform the following:

RC/Q-4.1 Initiate both trains of SLC.

RC/Q-4.2 Prevent automatic initiation of ADS.

RC/Q-4.3 Verify RWCU system isolation or manually isolate.

RC/Q-4.4 IF Boron cannot be injected with SLC

THEN Inject boron into the RPV using the RCIC storage tank.

RC/Q-4.5 IF Boron concentration in the RPV is sufficient for cold shutdown (660 ppm)

OR

Reactor can be maintained shutdown with control rods

OR

SLC tank level reaches the cold shutdown Boron Tank Level (0 gallons) (If injecting with SLC pumps)

THEN Terminate boron injection.

RC/Q-4.6 IF Injection of SLC tank was not sufficient to shutdown the reactor

THEN Providing the containment is accessible, refill the SLC tank

AND

Continue at step RC/Q-4.1

RC/Q-4.7 WHEN Boron injection or control rods have shutdown the reactor

THEN Enter RC/CD cooldown

RC/Q-5 Insert control rods as follows:

NOTE

WHEN All control rods are in (later) (maximum subcritical banked withdrawal position)

THEN Enter RC/CD, COOLDOWN

RC/Q-5.1 Reset reactor scram

RC/Q-5.2 IF Reactor scram can be reset

THEN Enter Contingency #9, ALTERNATE CONTROL ROD INSERTION, and attempt to insert control rods with the following methods:

a) Manual scram (step C9-1)
b) Deenergizing RPS scram solenoids (step C9-2)
c) Individual rod scram (step C9-3)
d) Manual control rod insertion (step C9-4)
e) Venting CRD withdraw lines (step C9-5)

RC/Q-5.3 IF Reactor scram cannot be reset

THEN Enter Contingency #9, ALTERNATE CONTROL ROD INSERTION, and attempt to insert control rods with the following methods:

a) Deenergizing RPS scram solenoids (step 9-2)
b) Manual Control rod insertion without ROS logic reset (step C9-6)
c) Venting CRD withdraw lines (step C9-5)

RC/Q-5.4 WHEN Available methods for inserting control rods have been exhausted

AND

RPV cooldown is required

AND

It is determined the reactor cannot be maintained in a shutdown condition

THEN Continue at step RC/Q-4.1

RC/Q-5.5 IF It is determined the reactor can be maintained in a shutdown condition

THEN Enter RC/CD, COOLDOWN

3.4 COOLDOWN RC/CD

Purpose

The purpose of this guideline is to cooldown the RPV to cold shutdown conditions.

Entry Conditions

a) Required cooldown cannot be accomplished using normal plant shutdown/cooldown procedures.

b) As directed by:

a. Level Control
b. Reactivity Control
c. Containment Control
d. Secondary Containment/Radioactivity Release Control

Operator Actions

CAUTION

IF While executing this procedure the reactor is not shutdown

THEN Stop the cooldown and reenter REACTIVITY CONTROL RC/Q, PRESSURE CONTROL RC/P, and LEVEL CONTROL RC/L.

RC/CD-1 WHEN The reactor can be maintained shutdown with control rods

OR

Boron concentration in the RPV is sufficient for cold shutdown (660 ppm)

OR

If injecting with SLC pumps, SLC tank level reaches the Cold Shutdown Boron Tank Level, (0 gallons).

THEN Continue at step RC/CD-2.

RC/CD-2 Cooldown and Depressurize

Caution #14, #17

NOTE

IF Plant cooldown can be accomplished using normal cooldown procedures

THEN Enter those procedures

RC/CD-2.1 Depressurize the RPV and maintain cooldown rate less than 100°F/hr with one or more of the following systems:

a. Main Turbine Bypass Valves
b. RCIC
c. RHR Steam Condensing

NOTE

IF Instrument air becomes unavailable

THEN Depressurize with sustained SRV operation.

Caution #15

d. SRV's, providing suppression pool water level is above 6 ft. (elevation of top of SRV discharge device)
e. MSL Drains
f. RWCU (Blowdown or recirculation mode)

Caution #18

RC/CD-2.2 WHEN RHR shutdown cooling interlocks clear

THEN Initiate Shutdown Cooling mode of RHR.

RC/CD-2.3 IF Shutdown Cooling mode of RHR cannot be established and further cooldown is required.

THEN Continue cooldown with one or more of the following systems.

a. Main Turbine Bypass Valve
b. RCIC
c. RHR Steam Cooling

NOTE

IF IA supply to SRV's is unavailable

THEN Control cooldown with sustained SRV operation.

Caution #15

d. SRV's, providing suppression pool water level is above 6 ft. (elevation of top of SRV discharge device)
e. MSL Drains
f. RWCU (Blowdown or recirculation mode)

RC/CD-2.4 IF RPV cooldown is required but cannot be accomplished

AND

The reactor can be maintained shutdown with control rods

THEN Enter Contingency #5, ALTERNATE SHUTDOWN COOLING.

RC/CD-2.5 Proceed to cold shutdown in accordance with normal procedures for cooldown to cold shutdown conditions.

4.0 CONTAINMENT CONTROL GUIDELINE

Purpose

The purpose of this guideline is to:

a) Maintain primary containment integrity.
b) Protect equipment in the primary containment.

Entry Conditions

a) Suppression pool temperature above 95°F (most limiting suppression pool temperature LCO). Sections SP/T, PC/P

b) Drywell temperature above 150°F (Drywell temperature LCO or maximum normal operating temperature, whichever is higher). Sections DW/T, PC/P

c) Suppression pool level below 18 ft. 11 in. (minimum suppression pool water level LCO). Sections SP/LL, PC/P

d) Suppression pool level above 19 ft. 5 in. (maximum suppression pool water level LCO). Sections SP/HL, PC/P

e) Containment Temperature above 122°F (Containment temperature LCO). Sections CN/T, PC/P

f) Drywell pressure above 2 psig (high drywell pressure scram setpoint). Sections DW/T, PC/P

Operator Actions

SP/T Suppression Pool Temperature Control

SP/T-1 Close all SRV's not required to be open.

IF Any SRV cannot be closed within 2 minutes (technical specification time interval)

OR

Any SRV cannot be closed and suppression pool temperature reaches 105°F (technical specification temp limit with a stuck open SRV).

THEN Place mode switch in SHUTDOWN.

Caution #18

SP/T-2 Place RHR in Suppression Pool Cooling mode.

SP/T-3

BEFORE Suppression pool temperature reaches 110°F (Boron Injection Initiation Temperature or suppression pool temperatures LCO requiring mode switch in shutdown, whichever is lower).

THEN Place the mode switch in SHUTDOWN.

NOTE

The pressure control methods of step RC/P-4 may be used to accomplish this step.

Caution #8, #13, #14

SP/T-4

IF Suppression pool temperature cannot be maintained below the Heat Capacity Temperature Limit

THEN Maintain RPV pressure below the limit.

AND

If suppression pool level is below 19 ft. 5 in., (maximum suppression pool water level LCO) initiate SPMS.

SP/T-5

IF Suppression pool temperature and RPV pressure cannot be restored and maintained below the Heat Capacity Temperature Limit

THEN Emergency RPV Depressurization is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and execute it concurrently with this procedure.

SP/T-6

IF Suppression pool temperature reaches 185°F

THEN Initiate SPMS.

DW/T Drywell Temperature and Pressure Control

Caution #6

DW/T-1 IF Drywell pressure reaches 2 psig

THEN Confirm initiation of all appropriate automatic actions:

a. Reactor Scram
b. ECCS initiation
c. Emergency Diesel Generator Operation
d. Containment Isolation
e. SGTS initiation

Initiate any of these which should have initiated but did not.

DW/T-2 IF A high drywell pressure of 2 psig was due to loss of drywell cooling

THEN Start a CGCS compressor to reduce drywell pressure below 2 psig (High drywell pressure scram setpoint).

DW/T-3 Operate available Drywell Cooling.

NOTE

Perform steps DW/T-4 and DW/T-5 concurrently.

DW/T-4 IF Drywell temperature reaches the RPV saturation temperature

THEN RPV Flooding is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and Contingency #6, RPV FLOODING, and execute them concurrently with this procedure.

DW/T-5 IF Drywell temperature cannot be maintained below 330°F (Drywell design temperature).

THEN Emergency RPV Depressurization is required, enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and execute it concurrently with this procedure.

SP/LL Suppression Pool Low Level

SP/LL-1 Maintain Suppression Pool water level between 18 ft. 11 in. (Minimum suppression pool water level LCO) and 19 ft. 5 in. (maximum suppression pool water level LCO)

NOTE

Suppression pool level may be augmented by SPMS for performance of step SP/LL-2.

Caution #8

SP/LL-2 IF Suppression pool water level cannot be maintained above 18 ft. 11 in. (Minimum suppression pool water level LCO)

THEN Maintain suppression pool water level high enough to maintain suppression pool temperature below the Heat Capacity Temperature Limit.

SP/LL-3 IF Suppression pool water level reaches 15 ft. 1 in. (Minimum suppression pool water level for which complete condensation of vent flow is assured).

THEN Emergency RPV depressurization is required, enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and execute it concurrently with this procedure.

SP/HL Suppression Pool High Level

NOTE

IF Suppression pool makeup system was initiated for suppression pool temperature control

THEN Maintain suppression pool level below 21 ft. 4 in. (maximum suppression pool water level LCO plus suppression pool water level increase which results from SPMS operation).

SP/HL-1 Maintain suppression pool water level between 18 ft. 11 in. (minimum suppression pool water level LCO) and 19 ft. 5 in. (maximum suppression pool LCO)

SP-HL-2

IF Signals of high suppression pool water level

OR

Low RCIC storage tank level occur

THEN Confirm transfer of HPCS and RCIC suctions to the suppression pool.

NOTE

As water level in the containment increases, deenergize equipment to minimize damage to the equipment.

SP/HL-3

IF Suppression pool water level cannot be maintained below 19 ft. 5 in. (maximum suppression pool water level LCO) (21 ft. 4 in. if SPMS was initiated for suppression pool temperature control).

OR

SPMS has been initiated to maintain suppression pool temperature below 185°F (containment design temperature).

THEN Maintain suppression pool water level below the Suppression Pool Load Limit.

Caution #13, #14

SP/HL-4

IF Suppression pool water level cannot be maintained below the Suppression Pool Load Limit.

THEN Maintain RPV pressure below the limit.

SP/HL-5

IF Suppression pool water level and RPV pressure cannot be maintained below the Suppression Pool Load Limit

AND

Adequate core cooling is assured

THEN Terminate injection into the RPV from sources external to the primary containment except from boron injection and CRD systems.

SP/HL-6	IF	Suppression pool water level and RPV pressure cannot be maintained below the Suppression Pool Load Limit.
	THEN	Emergency RPV depressurization is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and perform it concurrently with this procedure.
SP/HL-7	WHEN	Primary containment water level reaches 68.5 ft. (Maximum Primary Containment water level limit)
	THEN	Terminate injection into the RPV from sources external to the primary containment irrespective of whether adequate core cooling is assured.

CN/T Containment Temperature Control

Caution #6, #27

CN/T-1 Operate available containment cooling.

Caution #18

NOTE

WHEN Containment Pressure decreases to 0 psig (Mark III containment spray termination pressure for plant without external vacuum breakers)

THEN Terminate containment spray

CN/T-2 BEFORE Containment temperature reaches 185°F (Containment design temperature) but only if containment pressure is above the Mark III Containment Spray Initiation Pressure Limit

THEN Initiate containment spray

CN/T-3 IF Containment temperature cannot be maintained below 185°F (Containment design temperature)

THEN Emergency RPV Depressurization is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and execute it concurrently with this procedure.

CN/T-4 IF Containment temperature reaches the RPV Saturation Temperature

THEN RPV Flooding is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and Contingency #6, RPV FLOODING, and execute them concurrently with this procedure.

PC/P **Primary Containment Pressure Control**

Caution #21

PC/P-1 Operate the following systems as required:

a. Containment Building HVAC

Caution #27

b. SGTS
c. Containment/Drywell Purge

PC/P-2 IF LPCI is required to assure adequate core cooling

OR

Containment Spray Initiation Pressure Limit is exceeded.

THEN Prevent automatic containment spray initiation.

NOTE

IF Containment Pressure decreases to 0 psig (Mark III containment spray termination pressure for plants without external vacuum breakers)

THEN Terminate containment spray

Caution #8, #18

PC/P-3 BEFORE Primary containment reaches the Pressure Suppression Pressure, but only if Containment pressure is above the Containment Spray Initiation Pressure Limit

THEN Initiate containment spray

PC/P-4 IF Containment pressure cannot be maintained below the Pressure Suppression Pressure

THEN Emergency RPV depressurization is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and execute it concurrently with this section.

PC/P-5

IF Containment pressure cannot be maintained below the Primary Containment Design Pressure

THEN RPV Flooding is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and Contingency #6, RPV FLOODING, and execute them concurrently with this procedure.

NOTE

IF Containment Pressure decreases to 0 psig (Mark III containment spray termination pressure for plants without external vacuum breakers)

THEN Terminate containment spray

PC/P-6

IF Containment pressure cannot be maintained below the Primary Containment Pressure Limit

THEN Initiate containment spray, irrespective of whether adequate core cooling is assured, to maintain pressure below the Primary Containment Pressure Limit.

Caution #22

PC/P-7

IF Containment pressure exceeds the Primary Containment Pressure Limit

THEN Vent the containment to reduce and maintain pressure below the Primary Containment Pressure Limit with the following systems:

a. SGTS
b. Containment/Drywell Purge

5.0 SECONDARY CONTAINMENT/RADIOACTIVITY RELEASE CONTROL GUIDELINE

Purpose

The purpose of this guideline is to:

a) Protect equipment in the secondary containment.

b) Limit radioactivity release to the secondary containment.

c) Maintain secondary containment integrity.

d) Limit radioactivity release outside of the primary and secondary containments.

Entry Conditions

Section SC, Secondary Containment Control, should be entered if any of the following conditions are reached:

a) Secondary containment differential pressure at or above 0 inches of water.

b) Any secondary containment area temperature at or above alarm setpoint.

c) Any secondary containment HVAC cooler differential temperature at or above alarm setpoint.

d) Fuel Building Exhaust Vent Plenum radiation level at or above alarm setpoint.

e) Any secondary containment area radiation level at or above its alarm setpoint.

f) Any secondary containment floor drain sump water level at or above high high alarm setpoint.

Section RR, Radioactivity Release Control, should be entered if offsite radioactivity release rate requires an Alert.

Operator Actions

SC — Secondary Containment Control

SC-1 — Verify all appropriate automatic actions have occurred and manually perform any that have not:

a. VF isolation

Caution #27

b. SGTS initiation
c. VF supply fan trip

Caution #24

SC-2 — IF At any time VF isolates

AND

SGTS cannot be started

AND

VF exhaust radiation level is below the isolation setpoint

THEN Restart the VF system

SC-3 — Operate available area coolers and available secondary containment HVAC

SC-4

IF Any area temperature is at or above its alarm point

OR

Any radiation level exceeds its alarm point

OR

Any floor drain sump level cannot be restored and maintained below its alarm point

THEN Isolate all systems discharging into the area except:

a. systems required to shutdown the reactor
b. systems required to assure adequate core cooling
c. systems required to suppress a working fire

AND

Establish or verify that Secondary Containment has been established.

SC-5

IF A primary system is discharging into an area

THEN Before any area temperature, any area radiation level, or area water level reaches its maximum safe operating level:

a. Place the Mode switch in SHUTDOWN.
b. Perform Reactor Scram off normal procedure concurrently with this procedure.
c. Proceed to cold shutdown. Perform COOLDOWN RC/CD concurrently with this procedure.

SC-6

IF A primary system is discharging into an area

AND

either:

a. Area temperature exceeds its maximum safe operating level in more than one area

OR

b. Area radiation level exceeds its maximum safe operating level in more than one area

OR

c. Area water level exceeds its maximum safe operating level in more than one area

THEN Emergency RPV Depressurization is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and execute it concurrently with this procedure.

RR Radioactivity Release Control

RR-1 Isolate all primary systems that are discharging into areas outside the primary and secondary containments except:

a. systems required to assure adequate core cooling

b. systems required to shutdown the reactor

RR-2 IF Offsite radioactivity release rate approaches or exceeds the release rate which requires a General Emergency.

AND

A primary system is discharging outside the primary and secondary containment

THEN Emergency RPV Depressurization is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION, and execute it concurrently with this procedure.

6.0 COMBUSTIBLE GAS CONTROL GUIDELINE

(later)

7.0 CONTINGENCIES

7.1 Contingency #1 LEVEL RESTORATION

C1-1 Line up for injection and start pumps in 2 or more of the following primary injection systems:

a. Condensate/Feedwater
b. HPCS
c. LPCS
d. RHR (LPCI Mode)

C1-2 IF Less than 2 primary injection systems can be lined up

THEN Commence lining up as many of the following alternate injection systems as possible:

a. ECCS water leg pumps
b. SLC Test Tank
c. FPC&C
d. RHR Service Water injection
e. FP
f. SLC Storage Tank

NOTE

IF While executing the remaining steps of Contingency #1, RPV water level drops below Level 1 (ADS initiation setpoint)

THEN Prevent automatic initiation of ADS

NOTE

IF While executing the remaining steps of Contingency #1:

RPV water level trend reverses

OR

RPV pressure changes region

THEN Return to step C1-3.

C1-3 Monitor RPV pressure and water level. Continue in this guideline at the step indicated in Table 1.

TABLE 1

	High (1) 445 psig	Intermediate 50 to 445 psig	Low (2) 50 psig
Increasing	RC/L-3	C1-4	C1-5
Decreasing/ Stable	C1-6		C1-7

(1) RPV pressure at which maximum LPCS discharge head is reached
(2) RCIC low pressure isolation setpoint

C1-4 RPV Water Level Increasing, RPV Pressure Intermediate

C1-4.1 IF HPCS, RCIC and RFP 1C are not available

AND

RPV pressure is increasing

THEN Emergency RPV Depressurization is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION.

C1-4.2 WHEN RPV water level reaches level 3 (low level scram setpoint)

THEN Continue at step RC/L-3.

C1-5 RPV Water Level Increasing, RPV Pressure Low

C1-5.1 IF RPV pressure is increasing

THEN Emergency RPV Depressurization is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION.

C1-5.2 WHEN RPV water level reaches level 3 (low level scram setpoint)

THEN Continue at step RC/L-3.

C1-6 RPV Water Level Decreasing/Stable, RPV Pressure High or Intermediate

C1-6.1 IF HPCS, RCIC and RFP 1C are not operating

THEN Start/restart HPCS, RCIC, and RFP 1C.

C1-6.2 IF No primary injection systems are lined up for injection with pumps running

THEN Start pumps in alternate injection systems which are lined up for injection.

C1-6.3 IF RPV water level drops to TAF (-162 in.)

AND

No system, primary injection system, or alternate injection system is lined up for injection with at least one pump running.

THEN Steam cooling is required. Enter Contingency #3, STEAM COOLING.

C1-6.4 IF RPV water level drops to TAF (-162 in.)

THEN Emergency RPV Depressurization is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION.

C1-7 RPV Water Level Decreasing/Stable, RPV Pressure Low

C1-7.1 Start pumps in alternate injection systems which are lined up for injection.

C1-7.2 IF RPV pressure is increasing

THEN Emergency RPV Depressurization is required. Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION.

C1-7.3 WHEN RPV water level drops to TAF (-162 in.)

THEN Enter Contingency #4, CORE COOLING WITHOUT LEVEL RESTORATION.

7.2 Contingency #2, EMERGENCY RPV DEPRESSURIZATION

Caution #28

C2-1 IF Contingency #2 is entered from the Containment Control Guideline or Secondary Containment/Radioactivity Release Control Guideline

AND

A reactor scram has not been initiated

THEN Place mode switch in SHUTDOWN.

AND

Perform Reactor Scram off normal procedure concurrently with the remainder of this procedure.

Caution #8, #13, #14

C2-2 IF Suppression pool water level is above 6 ft (elevation of top of SRV discharge device.)

THEN Open all ADS valves.

IF Any ADS valve cannot be opened

THEN Open other SRV's until 7 valves are open.

C2-3 IF Any SRV's are open

THEN Start SGTS

AND

Shutdown VR

C2-4 Caution #22

IF Less than 3 SRV's (minimum number of SRV's required for emergency depressurization) can be opened

THEN Rapidly depressurize the RPV using one or more of the following systems:

Caution #12

a. Main Condenser
b. RHR (Steam Condensing Mode)
c. Reactor Feed Pump Turbines
d. MSL Drains
e. RCIC Steam Line
f. RPV Head Vent

C2-5 IF RPV flooding is required

THEN Enter Contingency #6, RPV FLOODING.

C2-6 IF Contingency #2 was entered from Containment Control Guideline, Secondary Containment/Radioactivity Release Control Guideline, or Contingency #7

THEN Enter RC/CD, COOLDOWN.

C2-7 Otherwise, continue at step C1-3 and enter RC/CD, COOLDOWN.

7.3 Contingency #3, STEAM COOLING

NOTE

IF While executing Contingency #3, Emergency RPV Depressurization is required

OR

Any primary or alternate injection system is lined up for injection with at least one pump running

THEN Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION.

C3-1 WHEN RPV water level drops to -270 in. (Minimum zero - Injection RPV Water Level)

OR

RPV water level cannot be determined

THEN Open one SRV.

C3-2 WHEN RPV pressure drops to 700 psig (Minimum Single SRV Steam Cooling Pressure)

THEN Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION.

7.4 Contingency #4, CORE COOLING WITHOUT LEVEL RESTORATION

Caution #13

C4-1 Open all ADS valves.

IF Any ADS valve cannot be opened

THEN Open other SRV's until 7 (number of SRV's dedicated to ADS) valves are open.

C4-2 Operate HPCS and LPCS systems with suction from the suppression pool.

C4-3 WHEN HPCS or LPCS is operating with suction from suppression pool

AND

RPV pressure is below 119 psig (RPV pressure for rated LPCS flow).

THEN Terminate injection into the RPV from sources external to the primary containment.

C4-4 WHEN RPV water level is restored to TAF (-162 in.).

THEN Continue at step RC/L-3.

7.5 Contingency #5, ALTERNATE SHUTDOWN COOLING

C5-1 Initiate suppression pool cooling.

C5-2 Close the following valves:

a. MSIV's
b. MSL Drains
c. RCIC Steam Line Isolation Valve
d. RPV Head Vent

C5-3 Open 3 (minimum number of SRV's required for Alternate Shutdown Cooling) SRV's.

C5-4 Slowly raise RPV water level to establish a flow path through the open SRV's back to the suppression pool.

C5-5 WHEN RPV water level reaches 104 in. (level of MSL penetrations into RPV)

THEN Limit the number of systems injecting into the RPV to one of the following with full flow:

a. RHR A, B, or C (LPCI mode)
b. LPCS

C5-6 IF RPV pressure does not stabilize at least 13.8 psig (Minimum Alternate Shutdown Cooling RPV pressure)

THEN Start an additional LPCI or LPCS pump.

C5-7 IF RPV pressure does not stabilize below 36.8 psig with a LCPI pump or 130.0 psig with LPCS (Maximum Alternate Shutdown Cooling RPV pressure)

THEN Open another SRV.

C5-8 IF The cooldown rate exceeds 100°F/hr (maximum RPV cooldown rate LCO)

THEN Reduce LPCS or LPCI injection into the RPV until the cooldown rate decreases below 100°F/hr (maximum RPV cooldown rate LCO).

C5-9	Control suppression pool temperature to maintain RPV water temperature above 70°F (head tensioning limit).
C5-10	Proceed to cold shutdown in accordance with normal shutdown/cooldown procedures.

7.6 Contingency #6, RPV FLOODING

NOTE

IF Reactor cannot be maintained shutdown with control rods

THEN Enter Contingency #8, ALTERNATE RPV FLOODING

AND

Do not enter this section until directed to do so by Contingency #8.

C6-1 IF At least 3 SRV's are open

OR

HPCS pump is available for injection

OR

RFP 1C is available for injection

THEN Close the following valves:

a. MSIV's
b. MSL Drain Valves
c. RCIC Steam Supply Isolation Valves

C6-2 IF RPV water level can be determined

THEN Continue at step C6-9.

C6-3 Commence and increase injection into the RPV with the following systems until

at least 3 SRV's are open

AND

RPV pressure is not decreasing and is at least 68 psig (Minimum RPV Flooding Pressure):

a. HPCS
b. RFP 1C/Condensate/Condensate Booster Pumps
c. LPCS
d. RHR
e. CRD
f. ECCS Water Leg pumps
g. FPCC
h. SLC Test Tank
i. RHR Service Water Injection
j. FP
k. SLC (Storage Tank)

C6-4 Maintain at least 3 SRV's open and RPV pressure at least 68 psig (Minimum RPV Flooding pressure) but as low as practicable by throttling injection.

C6-5 Continue injecting water into the RPV until Containment and Drywell temperatures are below 212°F and RPV water level instrumentation is available.

C6-6 IF It can be determined that the RPV is filled

OR

RPV pressure is at least 68 psig (Minimum RPV Flooding Pressure)

THEN Terminate all injection into the RPV and reduce RPV water level.

C6-7 IF RPV water level indication is not restored within the Maximum Core Uncovery Time Limit after commencing termination of injection into the RPV

THEN Return to step C6-3.

C6-8 IF RPV water level can be determined

THEN Continue at step C6-10.

C6-9 Commence and increase injection into the RPV with the following systems until RPV water level is increasing:

a. HPCS
b. RFP 1C/Condensate/Condensate Booster Pumps
c. LPCS
d. RHR
e. CRD
f. ECCS Water Leg Pumps
g. FPCC
h. SLC (Test Tank)
i. RHR Service Water Injection
j. FP
k. SLC (Storage Tank)

C6-10 WHEN Containment Pressure can be maintained below the Primary Containment Design Pressure

THEN Enter RC/L, LEVEL CONTROL

AND

Enter RC/CD, COOLDOWN.

7.7 Contingency #7 LEVEL/POWER CONTROL

NOTE

IF While performing Contingency #7, RPV water level cannot be determined

OR

RPV Flooding is required

THEN Enter Contingency #8, ALTERNATE RPV FLOODING

AND

Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION

NOTE

IF While executing Contingency #7, Emergency RPV Depressurization is required

THEN Continue at step C7-4.

Caution #26

C7-1

IF Reactor power is above 3% (APRM downscale trip) or cannot be determined

AND

Suppression pool temperature is above the Boron Injection Initiation Temperature

AND

Either a SRV is open (or opens) or drywell pressure is above 2 psig (high drywell pressure scram setpoint)

THEN Lower RPV water level by terminating and preventing all injection into the RPV except from boron injection systems and CRD until either:

Reactor power drops below 3% (APRM downscale trip)

OR

RPV water level reaches (later) (Flow stagnation water level)

OR

All SRV's remain closed and drywell pressure remains below 2 psig (high drywell pressure scram setpoint)

NOTE

IF While executing the remaining steps of Contingency #7:

Reactor Power is above 3% (APRM downscale trip) or cannot be determined

AND

RPV water level is above TAF (-162 in.)

AND

Suppression pool temperature is above the Boron Injection Initiation Temperature

AND

Either a SRV is open (or opens) or drywell pressure is above 2 psig (high drywell pressure scram setpoint)

THEN Return to step C7-1

Caution #25

C7-2 Maintain RPV water level either:

If RPV water level was deliberately lowered in step C7-1, at the level to which it was lowered

OR

If RPV water level was not deliberately lowered in step C7-1, between level 3 (low level scram setpoint) and level 8 (high level trip setpoint)

with the following systems:

a) Condensate/Feedwater (0-1783 psig, RPV pressure range for system operation)
b) RCIC (50-1293 psig)
c) CRD (0-1900 psig)
d) RHR with injection thru shutdown cooling return line (0-283 psig)
e) HPCS (0-1355 psig)
f) LPCS (0-445 psig)
g) RHR (LPCI mode) (0-283 psig)

C7-3 IF RPV water level cannot be so maintained

THEN Maintain RPV water level above TAF(-162 in.)

C7-4 IF RPV water level cannot be maintained above TAF(-162 in.)

OR

Emergency RPV Depressurization is required

THEN Enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION

AND

Perform the following:

C7-4.1 Terminate and prevent all injection into the RPV except from boron injection systems and CRD until RPV pressure is below the Minimum Alternate RPV Flooding Pressure.

IF Less than 2 SRV's (minimum number of SRV's for which the Minimum Alternate RPV Flooding Pressure is below the lowest SRV lifting pressure) can be opened

THEN Continue in this procedure.

Caution #25

C7-4.2 Commence and slowly increase injection into the RPV with the following systems to restore and maintain RPV water level above TAF(-162 in.):

a) Condensate/Feedwater
b) RCIC
c) CRD
d) RHR with injection thru shutdown cooling return line
e) HPCS
f) LPCS
g) RHR (LPCI mode)

C7-4.3 IF RPV water level cannot be restored and maintained above TAF(-162 in.)

THEN Commence and slowly increase injection into the RPV with the following systems to restore and maintain RPV water level above TAF:

a) ECCS water leg pump
b) FPCC
c) RHR Service Water Injection
d) FP

NOTE

IF While executing the following step reactor power commences and continues to increase

THEN Return to step C7-1.

C7-5 WHEN The reactor can be maintained shutdown with control rods

OR

Boron concentration in the RPV is sufficient for hot shutdown 355ppm (Hot Shutdown Boron Weight)

OR

If injecting with SLC pumps, SLC tank level reaches Hot Shutdown Boron Weight tank level (2150 gallons)

THEN Restore and maintain RPV Water Level between level 3 (low level scram setpoint) and level 8 (high level trip setpoint)

C7-6 IF RPV water level cannot be restored and maintained above level 3 (low level scram setpoint)

THEN Maintain RPV water level above TAF(-162 in.)

C7-7 IF RPV water level cannot be maintained above TAF(-162 in.)

THEN Emergency RPV depressurization is required, enter Contingency #2, EMERGENCY RPV DEPRESSURIZATION and return to step C7-4.

C7-8 Enter RC/CD Cooldown

7.8 Contingency #8, ALTERNATE RPV FLOODING

C8-1 IF At least 3 SRV's can be opened

OR

HPCS pump is available for injection

OR

RFP 1C is available for injection

THEN Close the following valves:

a. MSIV's
b. MSL Drain Valves
c. RCIC Steam Supply Isolation Valves

C8-2 Terminate and prevent all injection into the RPV, except from boron injection systems and CRD

C8-3 WHEN RPV pressure is below the Minimum Alternate RPV Flooding Pressure

OR

Less than 2 SRV's (minimum number of SRV's for which the Minimum Alternate RPV Flooding Pressure is below the lowest SRV lifting pressure) can be opened

THEN Continue in this procedure.

NOTE

IF While executing the remaining steps of Contingency #8, RPV water level can be determined

AND

RPV flooding is not required

THEN Enter Contingency #7, LEVEL/POWER CONTROL, and enter RC/CD, COOLDOWN.

Caution #25

C8-4 Commence and slowly increase injection into the RPV with the following systems until:

at least 2 (minimum number of SRV's for which the minimum alternate RPV Flooding Pressure is below the lowest SRV lifting pressure) SRV's are open

AND

RPV pressure is above the Minimum Alternate RPV Flooding pressure

a. RFP 1C/Condensate
b. CRD
c. RHR (Injection thru Shutdown cooling return line)

C8-5 IF RPV pressure cannot be increased to above the Minimum Alternate RPV Flooding Pressure

OR

At least 2 (minimum number of SRV's for which the minimum alternate RPV Flooding Pressure is below the lowest SRV lifting pressure) SRV's are not open

THEN Commence and slowly increase injection into the RPV with the following systems until:

At least 2(minimum number of SRV's for which the minimum alternate RPV Flooding Pressure is below the lowest SRV lifting pressure) SRV's are open

AND

RPV pressure is above the Minimum Alternate RPV Flooding Pressure

a. HPCS
b. LPCS
c. RHR
d. ECCS Water Leg Pumps
e. FPCC
f. RHR Service Water Injection
g. FP

C8-6 Maintain at least 2 (minimum number of SRV's for which the minimum alternate RPV Flooding Pressure is below the lowest SRV lifting pressure) SRV's open and RPV pressure above the Minimum Alternate RPV Flooding Pressure, but as low as practicable, by throttling injection.

C8-7 WHEN Reactor can be maintained shutdown with control rods

OR

Reactor is shutdown and no boron has been injected into the RPV

THEN Enter Contingency #6, RPV FLOODING.

C9 Contingency #9, ALTERNATE CONTROL ROD INSERTION

NOTE

Enter Contingency #9 at the appropriate step as listed below:

C9-1 Manual Scram
C9-2 Deenergizing RPS Scram Solenoids
C9-3 Individual Rod Scram
C9-4 Manual Control Rod Insertion
C9-5 Venting CRD Withdraw Lines
C9-6 Manual Control Rod Insertion With RPS Logic Reset

C9-1 Manual Scram

C9-1.1 Reset Reactor Scram

C9-1.2 IF Scram Discharge Volume Vent and Drain valves are not open

OR

The Reactor Scram cannot be reset

THEN Continue at step RC/Q-5

C9-1.3 Insert a Manual Scram

C9-1.4 IF Control rods moved inward

THEN Return to step C9-1.1

C9-1.5 IF Control rods did not move inward

THEN Continue at step RC/Q-5

C9-2 Deenergizing RPS Scram Solenoid

C9-2.1 Open RPS scram solenoid breakers

C9-2.2 WHEN Control rods are not moving inward

THEN Close the RPS scram solenoid breakers

C9-2.3 Continue at step RC/Q-5

C9-3 Individual Rod Scram

NOTE

IF Containment is not accessible

THEN Continue at step RC/Q-5

C9-3.1 Open the Scram test switches for a control rod not fully inserted

C9-3.2 WHEN The control rod is not moving inward

THEN Return its scram test switches to NORMAL

C9-3.3 Repeat steps C9-3.1 and C9-3.2 for each rod not full in

C9-3.4 Continue at step RC/Q-5

C9-4 MANUAL CONTROL ROD INSERTION

Caution #20

C9-4.1 Rapidly insert control rods using normal insertion techniques

NOTE

IF Boron has been injected or injection is anticipated

THEN The maximum attainable drive differential pressure may be used

C9-4.2 IF Control rods will not insert at normal drive differential pressure (260 psid)

THEN Repeat step C9-4.1 using the maximum drive differential pressure (400 psid)

C9-4.3 WHEN Control rods can no longer be moved inward

THEN Continue at step RC/Q-5

C9-5 VENTING CRD WITHDRAW LINES

NOTE

IF Containment is not accessible

THEN Continue at step RC/Q-5

C9-5.1 Individually direct the effluent from the CRD Withdraw Riser Vent valve to the suppression pool for a rod not fully inserted.

C9-5.2 Close the associated HCU Withdraw Riser valve.

C9-5.3 Open the associated Withdraw Riser Vent valve.

C9-5.4 WHEN The control rod is not moving inward

THEN Close its CRD Withdraw Riser Vent valve

AND

Open its HCU Withdraw Riser valve

C9-5.5 Repeat steps C9-5.1 thru C9-5.4 on all rods not fully inserted

C9-5.6 WHEN All control rods are full in c cannot be moved

THEN Continue at step RC/Q-5

C9-6 MANUAL CONTROL ROD INSERTION WITHOUT RPS LOGIC RESET

C9-6.1 IF Containment is accessible

THEN Close the Charging Header Isolation valve

IF The Charging Header isolation valve cannot be closed

THEN Start a second CRD pump

AND

Throttle CRD Flow and Pressure control to maintain drive differential pressure as high as possible, but not above the normal drive differential pressure (260 psid)

Caution #20

C9-6.2 Rapidly insert control rods using normal insertion techniques

NOTE

IF Boron has been injected or injection is anticipated

THEN The maximum attainable drive differential pressure may be used

C9-6.3 IF Control rods will not insert at normal drive differential pressure (260 psid)

THEN Repeat step C9-6.2 using the maximum drive differential pressure (400 psid)

C9-6.4 IF The Charging Header isolation valve was closed

AND

The containment is accessible

THEN Open the Charging Header isolation valve

C9-6.5 Continue at step RC/Q-5

APPENDIX A

CPS CALCULATIONAL PROCEDURE RESULTS

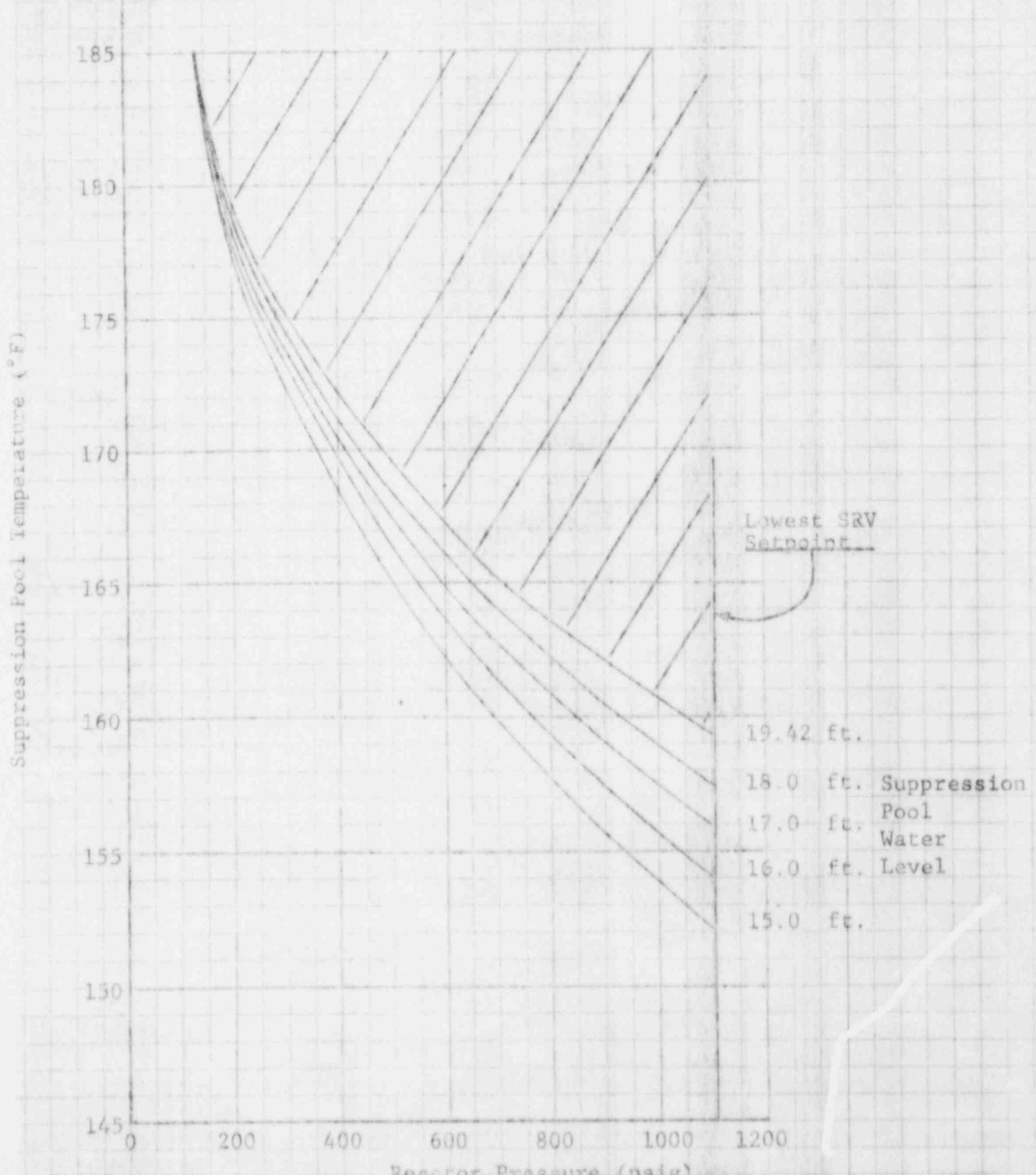
This appendix provides the following plant specific information referenced in the CPS EPG's which has not been included within the applicable guidelines:

a) Heat Capacity Temperature Limit
b) Suppression Pool Load Limit
c) Containment Spray Initiation Pressure Limit
d) Primary Containment Design Pressure
e) Primary Containment Pressure Limit
f) Pressure Suppression Pressure
g) RPV Saturation Temperature
h) Boron Injection Initiation Temperature (graph later)
i) Maximum Core Uncovery Time Limit
j) Minimum Alternate RPV Flooding Pressure

The calculational methods are described in the "BWR Emergency Procedure Guideline, Appendix C, Calculational Procedures," Revision 2 dated July 1, 1982. Any exceptions to these methods, along with assumptions and results, are described in Nuclear Safety and Licensing Department (NSLD) Calculation No. 3C10-1082-002, Revision 1, "Implementation of BWR Emergency Procedure Guidelines Into Specific Emergency Procedures."

APPENDIX A

Heat Capacity Temperature Limit



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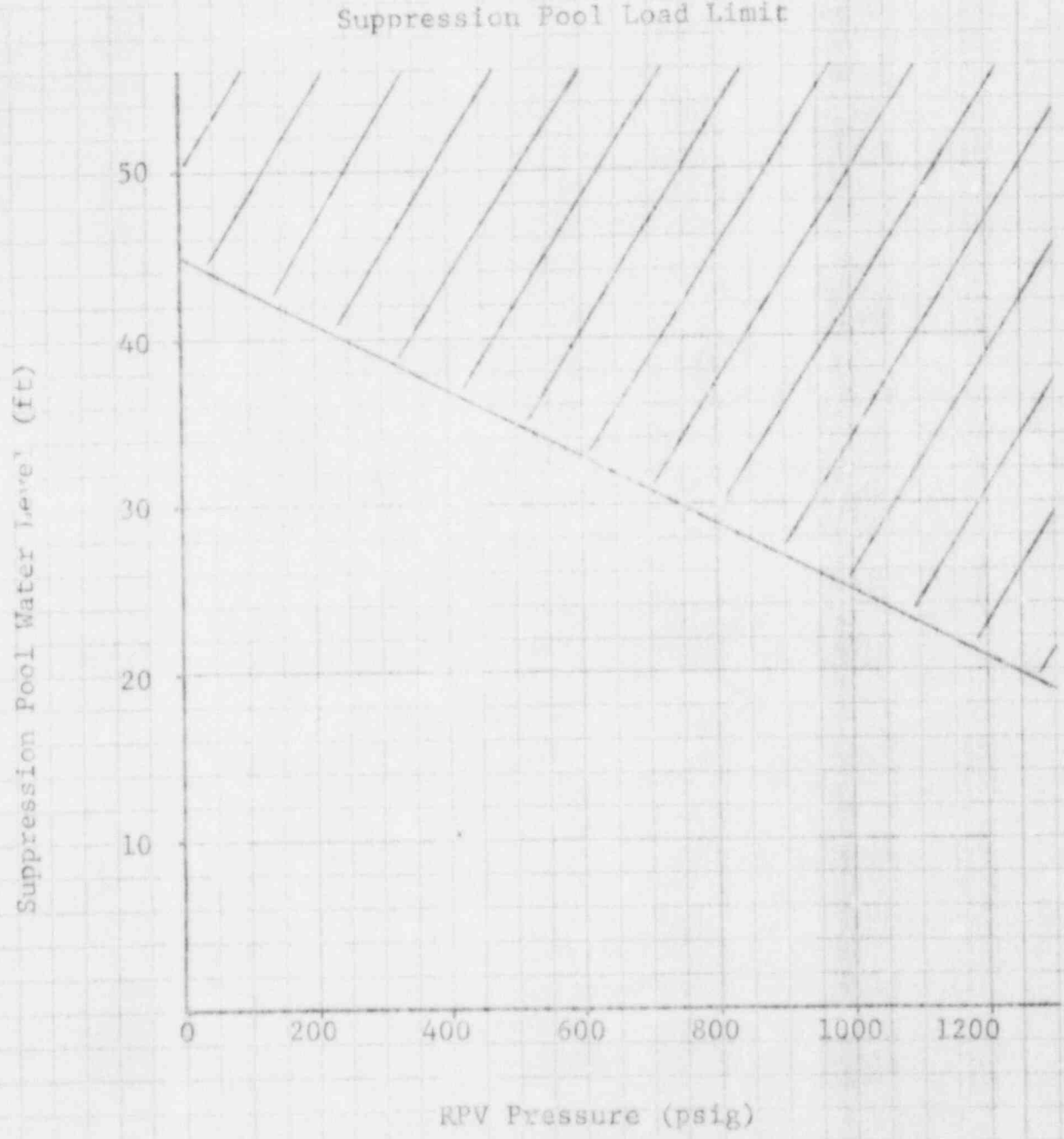
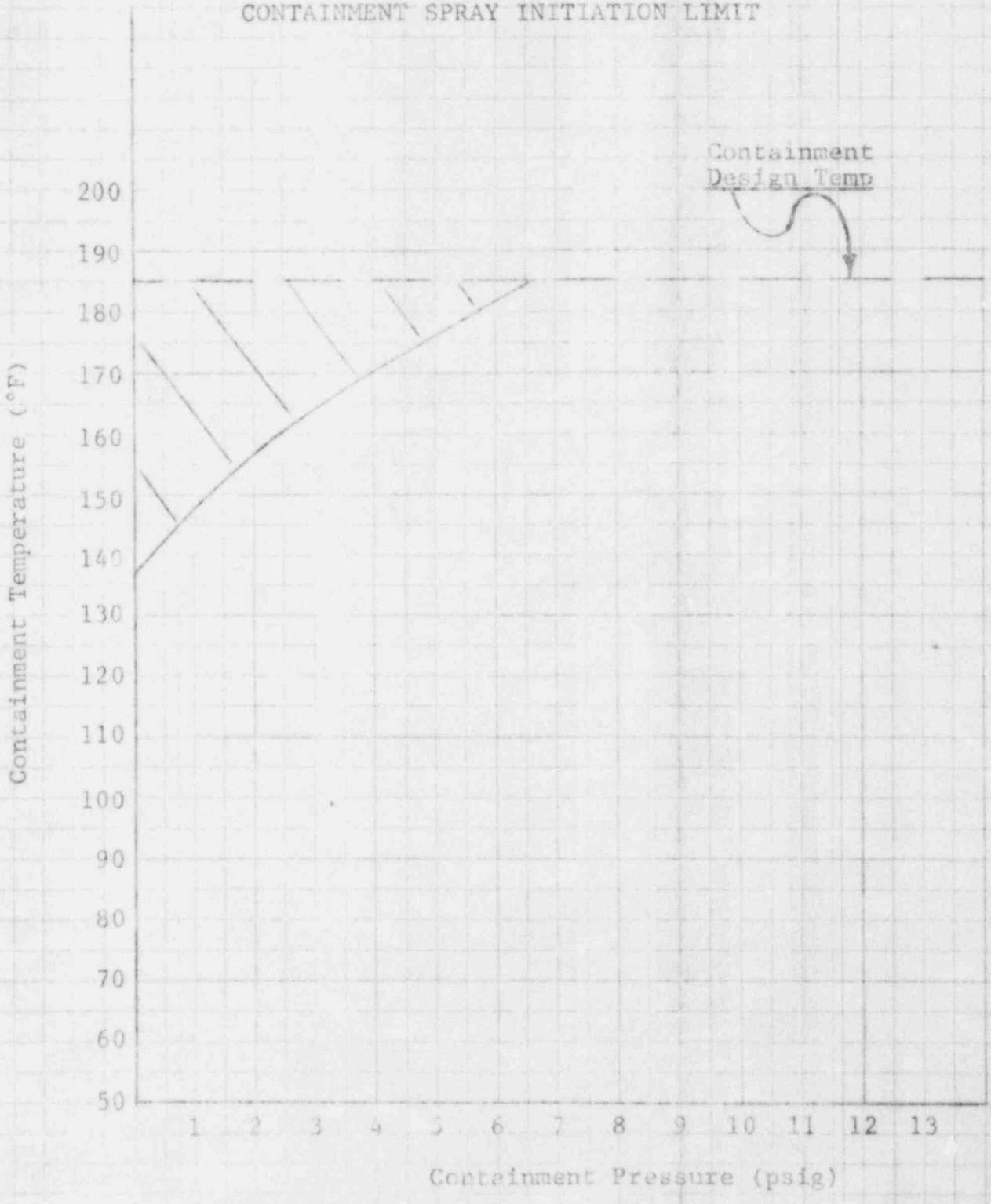
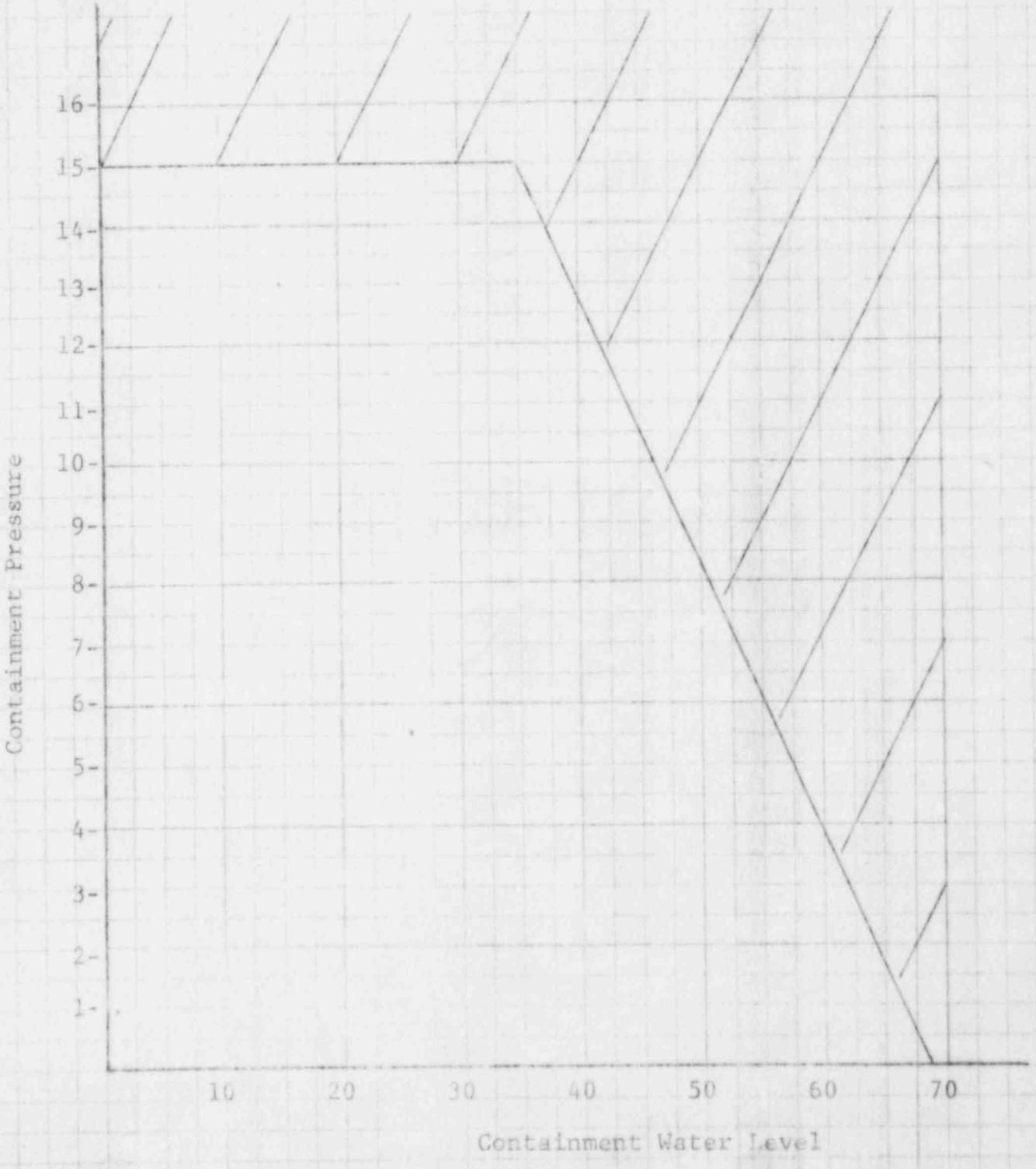

Suppression Pool Load Limit
Suppression Pool Water Level (ft)
50
40
30
20
10
0
200
400
600
800
1000
1200
RPV Pressure (psig)

APPENDIX A

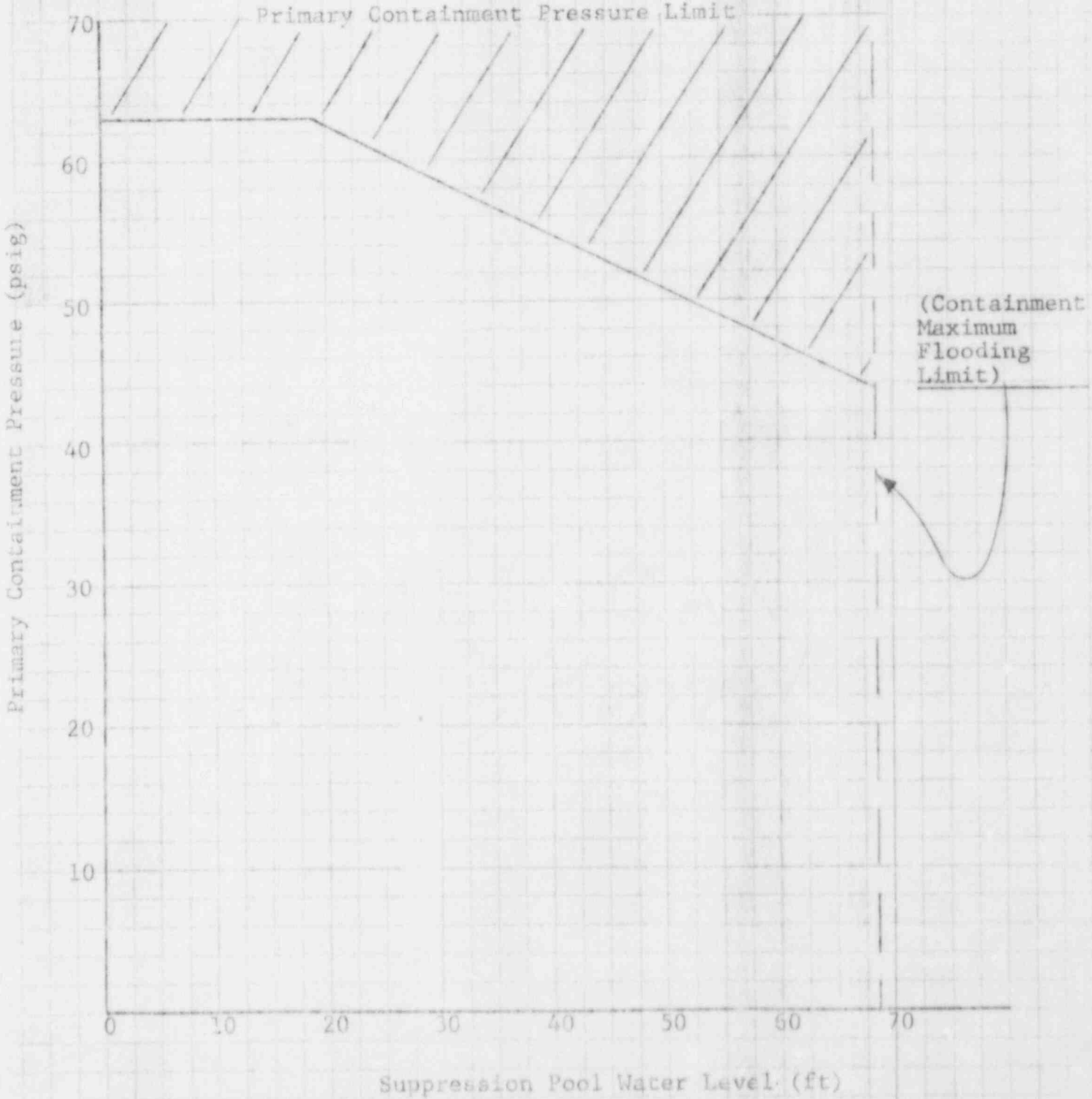

CONTAINMENT SPRAY INITIATION LIMIT
Containment Design Temp
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
Containment Temperature (°F)
1
2
3
4
5
6
7
8
9
10
11
12
13
Containment Pressure (psig)

APPENDIX A

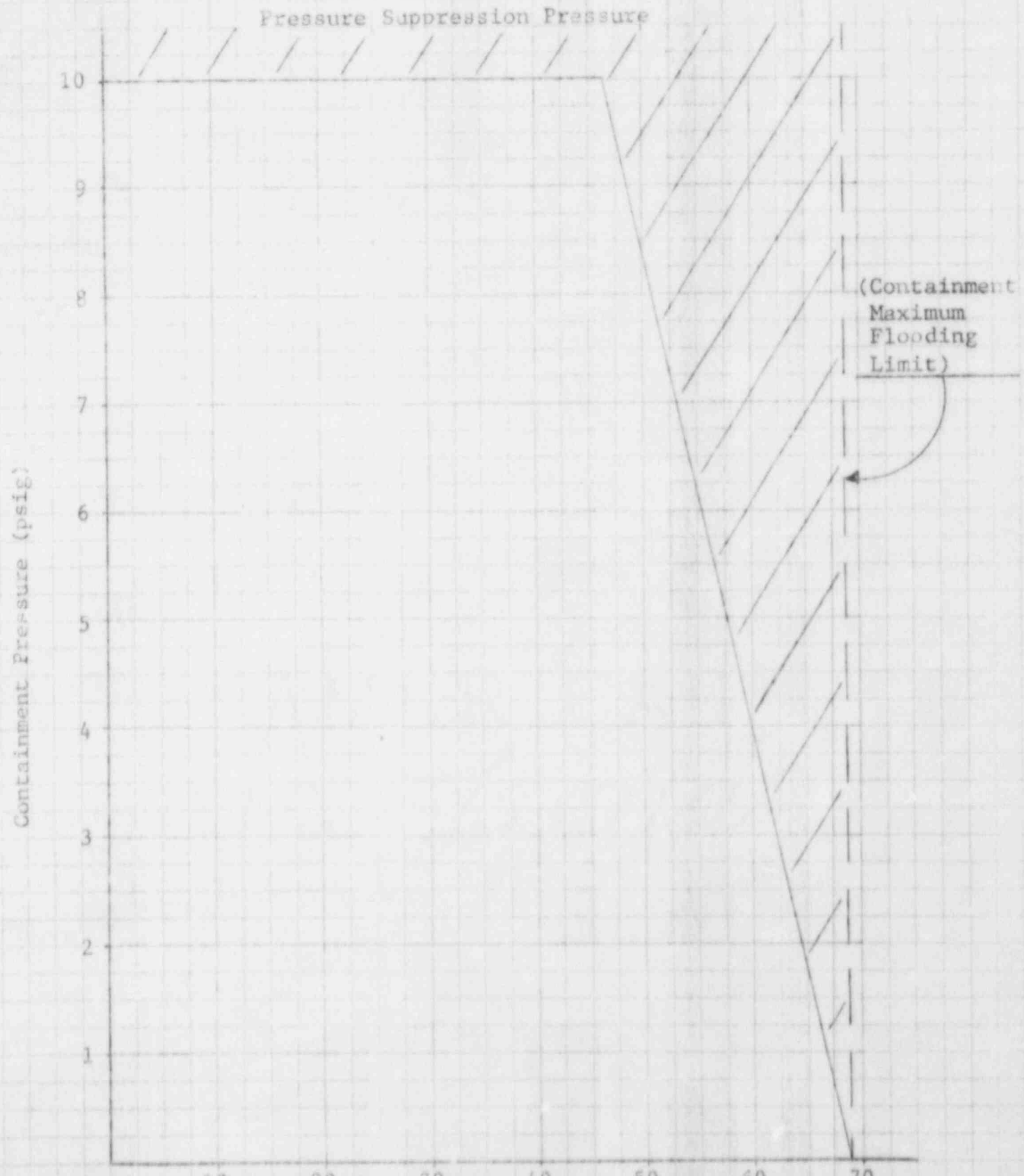
Primary Containment Design Pressure



APPENDIX A


Primary Containment Pressure Limit
(Containment Maximum Flooding Limit)
Primary Containment Pressure (psig)
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
Suppression Pool Water Level (ft)

APPENDIX A


Pressure Suppression Pressure
(Containment Maximum Flooding Limit)
Containment Pressure (psig)
10
9
8
7
6
5
4
3
2
1
10
20
30
40
50
60
70
Suppression Pool Water Level (ft)

APPENDIX B

GENERAL/SPECIFIC CAUTIONS BASIS

Caution #2 [Caution #2]

Generalized caution by stating "Monitor parameters...." vice ["Monitor RPV water level and pressure and primary containment temperature and pressure..."]. This increases the applicability of the caution to all parameters which can be monitored from multiple indications.

Caution #5 [Caution #5]

Reworded to reflect availability of bulk temperature instrumentation in the main control room.

Caution #6 [Caution #6]

Substituted plant-specific temperatures and indicated water levels.

None [Caution #7]

Deleted caution. CPS does not have heated reference legs.

Caution #7 [None]

Caution was added to prevent unnecessary draining from RPV following boron injection to conserve boron inventory. Initiation of boron supplies a sufficient boron concentration in the core for cold shutdown conditions. If any unnecessary draining occurs to control RPV water level or to control RPV pressure, a sufficient boron concentration can no longer be assured.

Caution #8 [Caution #8]

Specific NPSH requirements curves will not be implemented. Rather a general caution, addressing the possibility of cavitation for pumps taking suction from the suppression pool has been substituted. CPS ECCS pumps are designed to have adequate NPSH under the following condition:

a) Saturated conditions in suppression pool (212°F with atmospheric containment pressure)

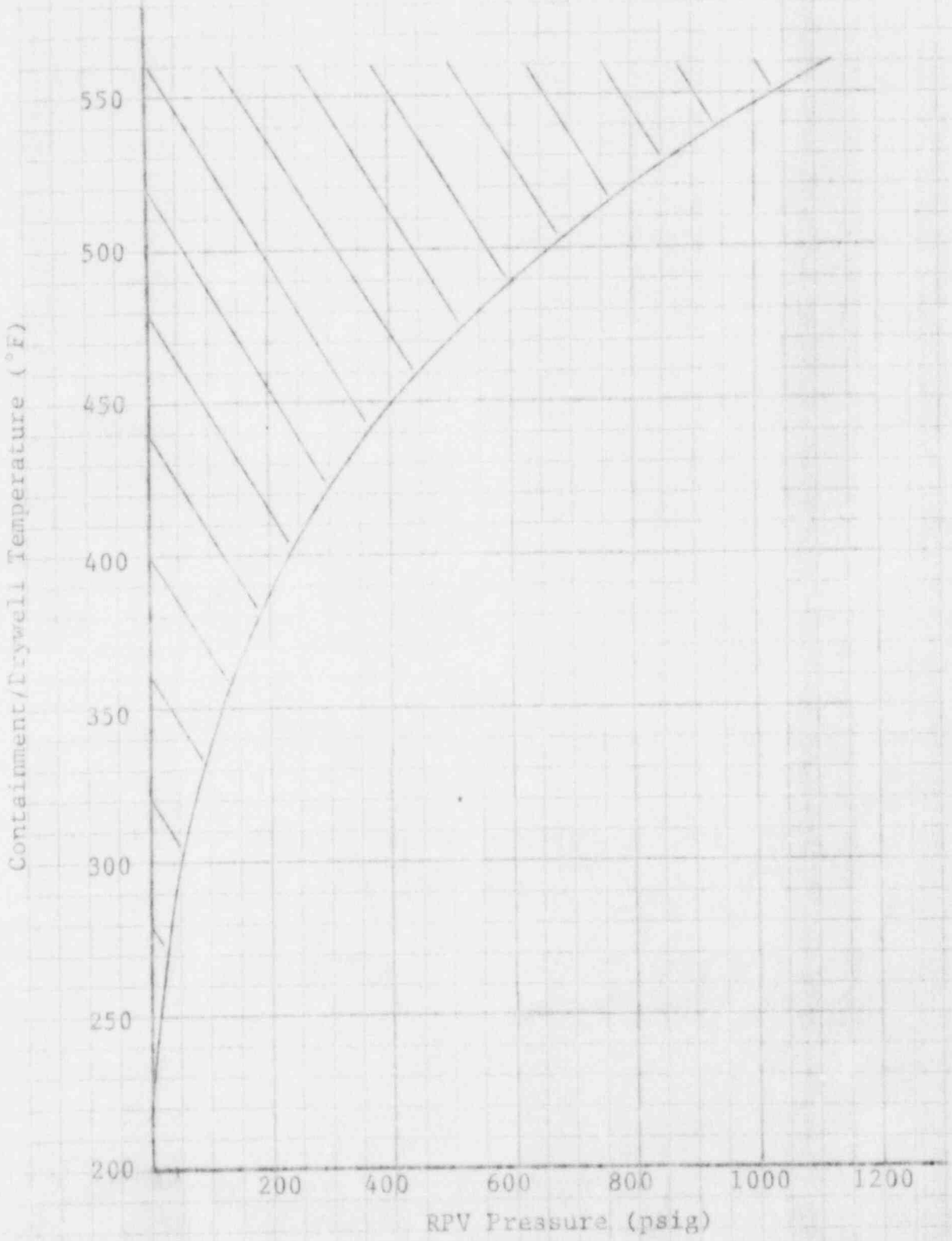
b) ECCS pumps at runout flow

c) Suction strainers 50% clogged

d) Suppression pool level 15.3 ft

APPENDIX A

RPV Saturation Temperature



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Boron Injection Initiation Temperature

(later)

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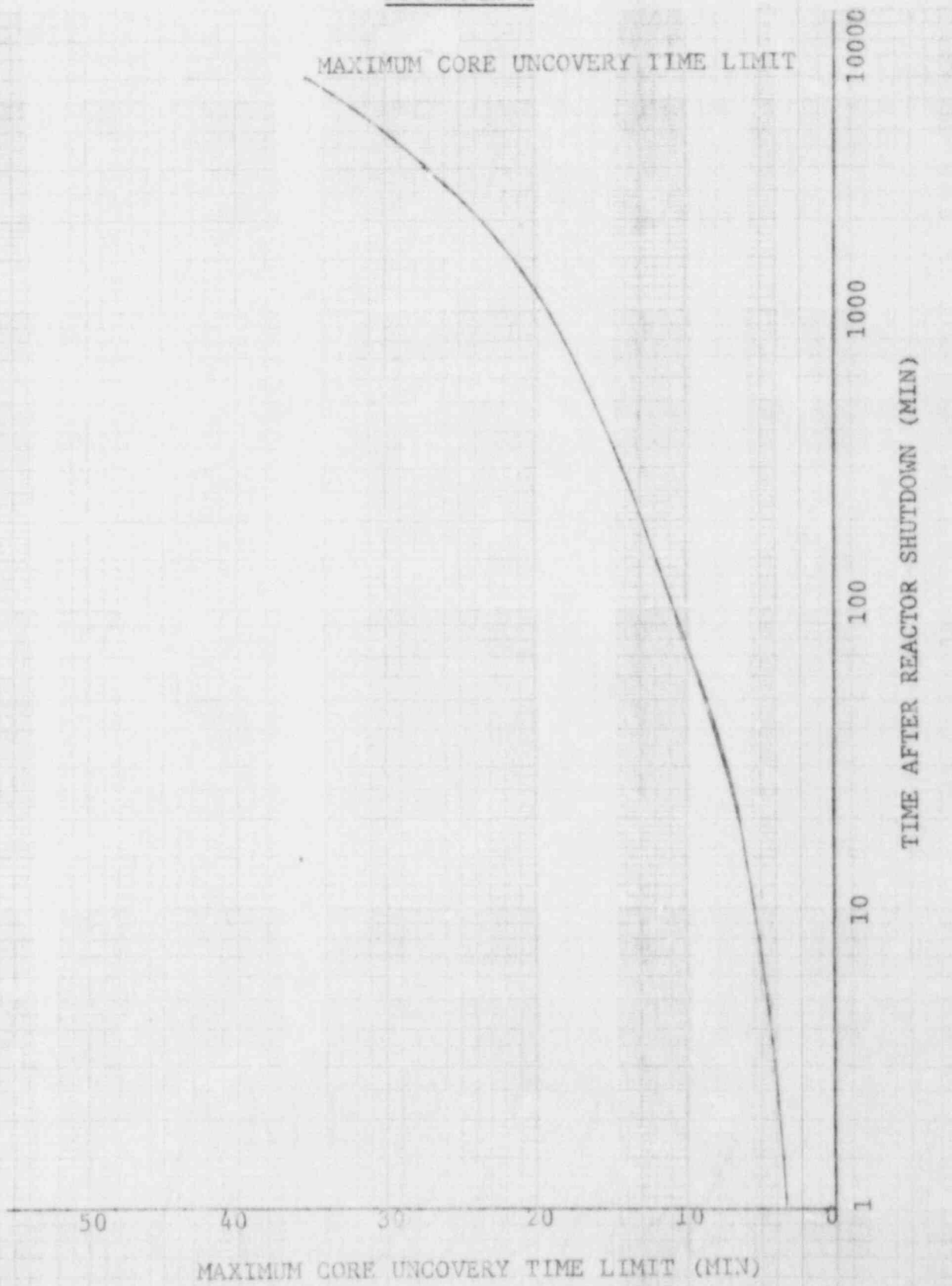
MAXIMUM CORE UNCOVERY TIME LIMIT
10000
1000
100
10
1
TIME AFTER REACTOR SHUTDOWN (MIN)
50
40
30
20
10
0
MAXIMUM CORE UNCOVERY TIME LIMIT (MIN)

APPENDIX A

Minimum Alternate RPV Flooding Pressure

Number of Open SRV's	Minimum Alternate RPV Flooding Pressure (psig)
10	90
9	105
8	115
7	140
6	160
5	195
4	250
3	340
2	515

APPENDIX B

CPS EMERGENCY PROCEDURE GUIDELINE TECHNICAL BASIS

This appendix identifies modifications incorporated into the CPS Emergency Procedure Guidelines (CPS EPG's) and appropriate explanations/technical basis for these changes. Unless otherwise noted herein, the basis for steps and actions in the CPS EPG's are the same as that for the corresponding steps in the generic EPG's and will not be discussed in this appendix.

The types of modifications include:

a) Deletion of steps/actions/statements not applicable to CPS and substitution of corresponding plant specific information

b) Modification and reorganization of steps/actions/statement such that emergency off normal procedures could more easily be prepared from the guidelines

c) Addition of steps/actions/statements covering CPS systems and capabilities not currently addressed in the generic EPG's.

Step numbers and other information from both the CPS EPG's and generic EPG's have been included in the appendix. To avoid confusion information relating to steps and other information in the generic EPG's have been inclosed in brackets "[]".

The following general modifications have been incorporated throughout the CPS EPG's and will not be discussed with each applicable step.

1. Wherever the generic EPG states ["Emergency RPV Depressurization is required"] the intent has been clarified by adding "Enter Contingency #2, Emergency RPV Depressurization:"
   Applicable steps:

   NOTE preceding RC/P-1, [box preceding RC/P-1]
   SP/T-5 [SP/T-4]
   DW/T-5 [DW/T-3]
   SP/LL-3 [SP/L-2]
   SP/HL-6 [SP/L-3.1]
   CN/T-3 [CN/T-3]
   PC/P-4 [PC/P-4]
   SC-5 [SC/T-5, SC/R-3, SC/L-3]
   RR-2 [RR-2]
   C1-4.1 [C1-5]
   C1-5.1 [C1-6]
   C1-6.4 [C1-7]
   C1-7.2 [C1-8]
   C7-4 [C7-2]
   C7-7 [C7-3]

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The generic EPG does not include this added statement since [box preceding step RC/P-1] directs entry into Contingency #2 if [Emergency Depressurization is required and less than 7 (number of SRV's dedicated to ADS) SRV's are open]. The added statement reduces the amount of memorization needed to execute the procedure by explicity stating the appropriate procedural section to enter, wherever Emergency RPV Depressurization is required. The additional statement could result in entering Contingency #2 when 7 SRV's are already open. In this case no action would be required, except verification that 7 SRV's are open. However, the appropriate exit point would still be applicable, RC/CD [PC/P-3], Contingency #6 [Contingency #6], or C1-3.

2. Wherever the generic EPG states ["RPV FLOODING IS REQUIRED"], the intent has been clarified by adding "Enter Contingency #2, Emergency RPV Depressurization, and Contingency #6, RPV Flooding."
   Applicable Steps:

   NOTE preceding RC/L-3 [box preceding RC/L-2]
   NOTE preceding RC/P-1 [box preceding RC/P-1]
   DW/T-4 [DW/T-2]
   CN/T-4 [CN/T-4]
   PC/P-5 [PC/P-5]
   NOTE preceding C7-1 [box preceding C7-1]

The generic EPG does not include this statement since the [box preceding step RC/P-1] directs entry into Contingency #2 or Contingency #6 as appropriate based on the number of SRV's open, if RPV Flooding is required. [Contingency #2], [Box preceding step C2-2], in turn directs entry into [Contingency #6] after RPV depressurization has been initiated. The added statement reduces the amount of memorization needed to execute the procedure by explicitly stating the appropriate procedural sections to enter, wherever RPV Flooding is required.

The added statement could result in entering Contingency #2 when 7 SRV's are already open. In this case, entering Contingency #2 is not a problem, since no action would be required, except verification that 7 SRV's are open. In addition step C2-4 would direct the appropriate exit point to Contingency #6.

Entering Contingency #6 prior to opening 7 SRV's is also not a problem since step C6-1 requires 3 SRV's open or a high pressure injection system available prior to commencing the RPV Flooding steps.

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3. Wherever the generic EPG states ["Emergency RPV Depressurization is required; enter (procedure developed from the RPV Control Guideline) at (Step RC-1)"] or ["RPV Flooding is required; ["enter (procedure developed from the RPV Control Guideline) at (Step RC-1"] the following portion of these statements was deleted:

   ["enter (procedure developed from the RPV Control Guideline) at (Step RC-1)"].

   Applicable Steps:

   DW/T-4 [DW/T-2]
   DW/T-5 [DW/T-3]
   CN/T-3 [CN/T-3]
   SP/LL-3 [SP/L-2]
   SP/HL-6 [SP/L-3.1]
   RR-2 [RR-2]

   The intent of the deleted statement is threefold:

   a) Ensure a reactor scram is initiated prior to commencing RPV depressurization or RPV Flooding. (This intent is met by the addition of step C2-1 to Contingency #2 See discussion of Step C2-1.)

   b) Ensure step [RC/P] is entered which directs entry into [Contingency #2, Emergency RPV Depressurization] or [Contingency #6, RPV Flooding]. (This intent is met by explicitly stating to enter Contingency #2 and/or Contingency #6 within the applicable steps. See discussion of general modification 1 & 2 above.)

   c) Control RPV water level per section [RC/L] during and following RPV depressurization. (This intent is met indirectly, in that RPV water level should be controlled by the method currently in use at the time RPV Depressurization is required. If RPV water level can no longer be controlled during or following RPV depressurization, the RC/L guideline would be entered when the appropriate entry condition is reached.)

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Therefore cavitation is not expected to occur. The ECCS pumps could possibly cavitate if local suppression pool temperatures are greater than bulk pool temperature due to SRV(s) adjacent to the pump suction being open. Therefore the operator must be alert for cavitation during periods of steam addition to the suppression pool. For this reason, the caution was written to alert the operator to possible cavitation, however no specific limits or actions are specified.

Caution #10 [Caution #10]

Caution was changed from a specific to general caution. Added the following criteria to end of first sentence: "or (3) specifically addressed to do so by this procedure." Substituted "Manual override" in place of ["Manual Mode"].

A general caution was utilized because the length of the caution makes it cumbersome in the procedure. This caution, as are all general cautions, will be implemented in the Discussion section of the applicable emergency off normal procedures. In addition a similar caution is included in the shutdown section of the applicable ECCS operating procedures. The significance of, and conditions required for, termination of ECCS injection has been implemented into the emergency procedure training program.

The additional third criteria is necessary since the first two criteria may not be applicable in all situations. For example, in step PC/P-6[PC-P-6], the operator is directed to initiate the Containment Spray Mode of RHR, irrespective of whether adequate core cooling is assured.

"Manual Override was substituted in place of ["Manual mode"] to avoid confusion between manual operation of the system, which does not necessarily override automatic operation, and manual override, which is caused by deliberate operation of the associated ECCS pump or injection isolation valve, following an automatic initiation signal.

Caution #11 [Caution #11]

Caution was changed from a specific to general caution.

A general caution was utilized since the length of the caution would make in cumbersome in the body of the procedure. This caution, as are all general cautions, will be implemented in the Discussion section of the applicable emergency off normal procedures.

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The wording "When RPV water level is being controlled within a specified range" was added to ensure actions to prevent automatic injection of low pressure ECCS systems are not taken unless RPV water level is under control. The significance of, and conditions required for, termination of ECCS injection has been implemented into the emergency procedure training program.

None [Caution #12]

Caution was deleted. The caution has been incorporated into the RCIC operating procedure, CPS NO. 3310.01, REACTOR CORE ISOLATION COOLING (RI), and will not be included in the emergency off normal procedures. Where operation of the RCIC system is directed in the CPS EPG's, the emergency off normal procedures provide reference to the applicable system operating procedure. Operation of the RCIC system and knowledge of its associated limitations and actions is within the operator's capability and has been included within the scope of operator training.

Caution #12 [None]

Applicable step: C2-3 [C2-1.3] The generic guideline statement ["use in order which will minimize radioactive release to the environment"] was incorporated as a caution to increase operator awareness of this concern, when prioritizing use of the alternate depressurization systems. Since plant conditions cannot be defined in advance, specific priorities cannot be preassigned based on release rate.

Caution #13 [Caution #13]

Substituted plant specific RPV cooldown rate LCO.

Caution #14 [Caution #14]

Added "If RCIC is available for injection" and substituted the plant specific RCIC low pressure isolation setpoint of 50 psig. The wording "If RCIC is available for injection" was added to prevent termination of depressurization at 50 psig if only low capacity injection systems are available. [Caution #14], under these conditions, would require terminating injection at 50 psig which is above the pressure at which some low pressure alternate injection systems are able to inject (ECCS water leg pumps) and would unnecessarily inhibit the injection rate of other alternate injection systems (FPCC, FP). Although these systems may not be sufficient to maintain RPV water level, they would be capable of injecting some water into the RPV. In addition, leaving the SRV's open would supply additional steam cooling until the number of, or capacity of, motor driven pumps was increased.

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The plant specific RCIC low pressure isolation setpoint was utilized here since CPS does not have a High Pressure Coolant Injection (HPCI) system.

Caution #15 [Caution #15]

Caution was reworded to delete reference to a specific SRV opening sequence, but to preserve the objective to distribute heat evenly in the suppression pool. A specific sequence was not implemented since the suppression pool temperature profile at the time the applicable step, RC/P-3 [RC/P-2], is entered cannot be defined in advance. The profile is dependent of previous automatic SRV operation, previous manual SRV operation (step RC/P-1 [RC/P-1]), previous/exiting suppression pool cooling operation, and other heat addition/removal effects on the suppression pool. The emergency off normal procedures generated from the CPS EPG's, reference the operating procedure for SRV operation, CPS NO. 3101.01, MAIN STEAM (MS, IS, ADS). This procedure provides guidance on SRV operation and includes a figure indicating SRV discharge device locations in the suppression pool. The caution, as now written, meets the intent of distributing heat evenly in the suppression pool and allows additional operator flexibility to operate SRV's consistent with existing suppression pool temperature distribution.

Caution #16 [Caution #16]

The portion of [Caution #16], ["ventilation system and "] was deleted. This part of the caution is applicable to plants where reopening the MSIV's mandates establishing steam tunnel cooling. This is not applicable for CPS.

Caution #17 [Caution #17]

Substituted plant specific RPV cooldown rate LCO.

Caution #19 [Caution #19]

Caution was deleted. The CPS SLC pumps do not have an automatic trip on low tank level. Step RC/Q-4.5 [RC/Q-4.2] directs termination of injection with SLC pumps (See discussion for step RC/Q-4.5).

Caution #23 [Caution #23]

Caution was deleted. CPS does not have a drywell spray system.

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Caution #27 [None]

Caution implemented to emphasize the restriction on operation of SGTS and drywell purge as addressed in [PC/P-1].
Applicable Steps: PC/P-1, CN/T

If the temperature in the space being evacuated is above 212°F, it is likely that steam is being admitted to the volume. Non-condensables evacuated through the SGTS (or drywell purge) system will gradually be replaced by steam until, eventually, very few non-condensables remain. If containment sprays were then actuated, the containment pressure would decrease rapidly, approaching saturation pressure for the spray temperature. Since this pressure is generally substantially below the negative containment design pressure, containment failure may result. Operation of SGTS and drywell purge is thus permitted only below 212°F. At lower temperatures, it is assumed that non-condensables removed by these systems will not be replaced by steam; sufficient non-condensables will therefore remain in the containment.

This caution is also applicable in section CN/T [CN/T]. Although SGTS and DW purge would not normally be used for containment temperature control, these systems may have been initiated by other steps in the CPS emergency procedure guidelines. This caution would remind the operator of this concern when performing actions to control containment temperature.

Caution #28 [None]

Caution was implemented to emphasize the restriction on commencing emergency RPV depressurization as addressed in step [C2-1].
Applicable step: C2-1

The basis for this caution is the same as basis for step [C2-1 portion prior to step C2-1.1]. Caution #28 rewords this portion of step [C2-1] to simplify use and to define sections which address termination of injection prior to commencing emergency RPV depressurization.

APPENDIX B

RPV CONTROL GUIDELINE BASIS

The RPV Control Guideline has been developed into 4 separate guidelines, each with its own applicable entry conditions:

RC/L Level Control [RC/L]
RC/P Pressure Control [RC/P steps RC/P-1 & 2]
RC/Q Reactivity Control [RC/Q]
RC/CD Cooldown [RC/P steps RC/P-3 thru PC/P-5]

RC/L Level Control Basis

The purpose of RC/L is consistent with the [RPV Control Guideline] however the purpose of ["Shutdown the reactor"] (applicable to RC/Q) and ["Cooldown RPV to cold shutdown conditions"] (applicable to RC/CD) have been deleted.

The entry conditions of RC/L are also consistent with the [RPV Control Guideline], however an additional entry condition has been added, " A condition exists which requires a reactor scram and more than one control rod not fully inserted." A discussion of this additional entry condition is included in RC/Q, Reactivity Control, Basis.

RC/L-1 [RC-1, RC/Q-1]

Step was reworded to ensure any automatic trip is immediately back up by a manual trip. [RC-1] was worded. ["If reactor scram has not been initiated, initiate reactor scram"], to avoid reinitiating a scram if the action had already been performed, which could conflict with steps to insert control rods in step [RC/Q-5]. Specifying "place the mode switch in shutdown" ensures a reactor scram is initiated and prevents an unnecessary and undesirable closure of MSIV's on low reactor pressure. This concern overrides any potential disturbance in the rod insertion method of section RC/Q-5. RC/Q-5 has been modified to minimize this type of problem. See discussion of step RC/Q-5.

The NOTE preceding step RC/L-1 ensures the Reactor Scram and Automatic Isolation off normal procedures are performed concurrently with the procedure generated from this guideline. Additional actions are specified in those procedures, not related to level control which should be performed.

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RC/L-2 [RC/L-1]

Reworded to state "all appropriate automatic actions" vice ["any of the following"] to clarify the need to confirm only those automatic actions which should have occurred based on existing initiating conditions. "Reactor scram" and "SGTS Initiation" have been added as automatic actions, needing to be confirmed. Both of which are initiated by entry conditions into this guideline.

The two NOTES following step RC/L-2 implement the [box following step RC/L-1]. "If at any time " was used vice ["If while executing the following step"] since entry into Contingencies #7, #2, and #6 under the specified conditions would be applicable anytime the remaining steps of RC/L or the contingency steps referenced by RC/L are performed.

RC/L-3 [RC/L-2]

Plant specific levels for low level scram setpoint and high level trip setpoint were inserted.

Cautions #9, #10 and #11 are all general cautions and were deleted from this step. General cautions are incorporated into the Discussion section of the applicable emergency off normal procedures. See Caution #10 and #11 basis for justification on implementation as general cautions.

Caution #12 was deleted. See discussion for "none [Caution #12]".

RPV pressure range for system operation valves were based on shutoff head pressure or minimum flow pressure from applicable pump technical manuals except as follows:

LPCS upper limit is based on injection opening pressure interlock which is less than the minimum flow pressure.

RCIC lower limit is based on the RCIC low steam pressure isolation setpoint.

RC/L-4 [RC/L-2, 2nd paragraph]

Entered plant specific values for low level scram setpoint and TAF.

RC/L-5 [RC/L-2, 3rd paragraph]

Entered plant specific value for TAF.

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RC/L-6 [RC/L-2, 4th paragraph]

Entered plant specific value for TAF.

None [RC/L-2, 5th paragraph]

Step was deleted. Entry into Contingency #5 is directed in step RC/CD-2.4 [RC/P-4, 3rd paragraph]. The reason for inclusion in the generic guideline is that the upper level limit in step RC/L-3 [RC/L-2] would no longer be applicable (Contingency #5 directs raising level to +104 in., level of MSL penetration into RPV, to establish a flow path through the open SRV back to the suppression pool). Rather than complicate the emergency off normal procedures, making their use more difficult under most situations, this step has been deleted. However, this situation has been included within the scope of operator training.

RC/L-7 [RC/L-3]

Referenced entry into RC/CD COOLDOWN. RC/CD has been implemented as a common exit point from all emergency off normal procedures, but would not necessarily be executed unless RPV cooldown was required. See RC/CD discussion.

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RC/P PRESSURE CONTROL BASIS

The purpose of this guideline, to stabilize and control RPV pressure, is consistent with the actions directed in this guideline although this purpose is not addressed in the generic RPV control guideline. This guideline implements step [RC/P-1] and [RC/P-2]. The remaining steps of [RC/P] have been incorporated into a separate guideline, RC/CD COOLDOWN.

The entry condition, "anytime RC/L LEVEL CONTROL is entered" is consistent with the generic guideline intent of entering [RC/P] concurrently with [RC/L] and [RC/Q]. Note that RC/L is always entered when RC/Q is entered.

RC/P-1 [RC/P-1]

Deleted ["initiate IC"]. CPS does not have an isolation condenser.

Inserted plant specific pressure at which all turbine bypass valves should be open.

The first two NOTES following "Operator Actions" implement the [box preceding step RC/P-1]. The statements in this box referencing RPV Flooding have been deleted. (See discussion of general modification #2 for appropriate entry into Contingency #6).

The NOTE immediately preceding step RC/P-1, referring to entry into Contingency #3 if steam cooling is required, implements the third paragraph of the [box following step RC/P-1]. Although this note is relocated, the intent of the NOTE, to ensure RC/P [RC/P] is not performed when steam cooling is required, is not changed.

The remaining portions of the [box following RC/P-1] were deleted. These actions, referring to maintaining RPV pressure below the Heat Capacity Temperature Limit and Suppression Pool Load Limit, are contained within the applicable containment control sections (SP/T-5 [SP/T-4], SP/HL-4 [SP/L-3.1]) and will not be repeated in the RC/P section. Inclusion would be redundant and make the RC/P section more difficult to use. (These steps and graphs would delay the operator getting to step RC/P-4 [RC/P-2] to establish pressure control).

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RC/P-2 [None]

Added step to operate suppression pool cooling whenever SRV's are open or cycling. Although the containment control guideline step SP/T-2 [SP/T-2] will initiate suppression pool cooling at 95°F, the containment control guideline may not have been entered at the time RC/P [RC/P] is entered. If SRV's are open or cycling, in order to prevent excessive suppression pool temperatures, the appropriate action is to initiate suppression pool cooling at the time heat addition has begun.

Caution #18 was included here, as is done throughout the generic and CPS EPG's where the operator is directed to use RHR pumps for purposes other than LPCI mode.

RC/P-3 [Box preceding RC/P-2]

Deleted ["IF while executing the following steps"]. In the generic EPG this action is applicable to steps [RC/P-2 thru RC/P-5]. In the CPS EPG's, steps [RC/P-3 thru RC/P-5] are incorporated into a separate guideline RC/CD COOLDOWN, therefore the deleted statement is unnecessary here.

RC/P-4 [RC/P-2]

Reworded step to include main turbine bypass valves with list of other pressure control systems vice first specifying use of main turbine bypass valves and then listing systems which may be used to augment RPV pressure control, as is done in the generic EPG. By including the Main Turbine bypass valves as the first system in the list, it is implied that it should be the priority system, if available. Prioritizing systems by appropriate listing is employed throughout the guideline (steps RC/L-3 [RC/L-3], C1-2 [C1-2], C2-3 [C2-1.3] etc) and will also be included within the scope of operator training. The intent of the step has not been changed.

Plant specific values for lowest SRV lifting pressure and elevation of top of SRV discharge device have been included.

IC and HPCI have been deleted from the list. CPS does not have these systems.

RFPT's and RHR (Steam Condensing Mode) have been included in the list in place of [other steam driven equipment].

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RC/Q REACTIVITY CONTROL BASIS

The purpose of RC/Q is consistent with the [RPV Control Guideline] with the following exceptions:

1) ["Maintain adequate core cooling"] (applicable to RC/L) and ["Cooldown the RPV to cold shutdown conditions"] (applicable to RC/CD) were deleted.

2) "Insert control rods which fail to insert on a reactor scram" was added. The procedure developed from this guideline will be used to insert control rods after a scram even if Reactor Power is below 3%. (See discussion for additional entry condition which follows.)

The following additional entry condition has been added: "More than one control rod not fully inserted". This allows the control rod insertion techniques of step RC/Q-5 [RC/Q-5] to be used, even though the other RC/Q entry conditions have not been reached. This entry condition is more conservative than the generic EPG entry conditions however entry is warranted since power levels less than 3% could still lead to suppression pool temperature problems and, if a cooldown were initiated, restart of the reactor could be possible.

Entry conditions on low RPV water level, hi RPV pressure, hi drywell pressure, and a condition which requires MSIV isolation have not been included. These entry conditions are applicable to level and pressure control problems and are not necessarily symptomatic of a reactivity control problem. If these entry conditions exist and control rods are inserted, the only steps of [RC/Q] which would be applicable are [RC/Q-1] and [RC/Q-2]. [RC/Q-1], in addition to being incorporated into RC/Q, has also been incorporated in step RC/L-1. [RC/Q-2] would not be necessary if a reactor scram has occurred and a reactivity control problem did not exist, however a recirc runback may have automatically occurred. This automatic action is verified in the Reactor Scram off normal procedure, CPS NO. 4100.01, REACTOR SCRAM.

RC/Q-1 [RC/Q-1]

This bracketed step has been retained. The brackets are included in the generic EPG for plants where placing the mode switch in shutdown may cause an MSIV closure under certain conditions. This is not applicable at CPS.

The verbage ["Confirm or"] was deleted. This statement is unnecessary since it is clear that the mode switch should be placed in shutdown unless it is already in that position.

RC/Q-2 [RC/Q-2]

The bracketed portion of [RC/Q-2] has been retained. Following MSIV closure, the turbine generator will remain on line until manually tripped or automatically tripped on reverse power. Although the turbine generator is "on-line" it is not supplied with steam and therefore the operator need not be concerned with preventing a turbine trip and may proceed directly to step RC/Q-3 [RC/Q-3].

RC/Q-3 [RC/Q-3]

Inserted plant specific value for APRM downscale trip.

RC/Q-4 [RC/Q-4]

Steps RC/Q-4, 4.1, 4.2 and 4.4 incorporate the actions of step [RC/Q-4]. [Caution #19] has been deleted from this step. See discussion for Caution #19.

RC/Q-4.3 [RC/Q-4.1]

The wording ["If boron is not being injected into the RPV by RWCU"] has been deleted. RWCU will not be used as an alternate boron injection system.

RC/Q-4.4 [RC/Q-4]

RCIC storage tank will be implemented as an alternate boron injection system. Procedure for utilizing the RCIC storage tank will be incorporated in CPS NO. 3314.01, STANDBY LIQUID CONTROL (SC).

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RC/Q-4.5 [RC/Q-4.2]

Three criteria are used for termination of boron injection:

1. "Boron concentration in the RPV is sufficient for cold shutdown (660 ppm)." This concentration is used as the basis for the [Cold Shutdown Boron Weight]. 660 ppm was obtained form General Electric Document 386HA822 "ATWS Performance Transient Data" Revision 0, BWR/6 - Generic Alternate #3 Data Sheet. This criteria can be used if injecting with SLC or any alternate boron injection system. Data from a post injection sample can be used to make this determination.

2. "Reactor can be maintained shutdown with control rods." To be shutdown with controls rods one of three criteria must be met:

   a) All control rods must be inserted into the core beyond the maximum subcritical banked withdrawal position (later)

   b) No more than 8 control rods are not fully inserted and rods out are at least 2 cells a part (based on technical specification criteria for inoperable rods, which ensures a sufficient shutdown margin)

   c) Nuclear Engineer has determined that existing rod positions will not result in critically in cold shutdown conditions.

   The control rod position criteria has been incorporated into this step to minimize unnecessary boron injection into the RPV if sufficient rod insertion has been attained to prevent criticality under cold shutdown conditions.

3. "SLC tank level reaches the Cold Shutdown Boron Tank Level (0 gallons.)" This level ensures a sufficient amount of boron has been injected, [Cold Shutdown Boron Weight], to shutdown the reactor. 0 gallons is a conservative value, since it assumes SLC storage tank was originally at the minimum boron concentration and minimum tank level prior to injection.

APPENDIX B

RC/Q-4.6 [None]

This step has been implemented to direct the operator to fill the SLC tank and reattempt to shutdown the reactor with boron injection. Refilling the SLC tank will only be attempted if the containment is accessible, since the SLC storage tank is located in the containment. It is not likely the containment would be accessible under these conditions however if SLC was initiated per step RC/Q-5.4, SRV's may never have been opened and suppression pool heatup may not have occurred. In this situation it could be possible to make a containment entry. To determine if injection of SLC tank was sufficient to shutdown the reactor a post boron injection sample may be used.

None [RC/Q-4.3]

Step was not implemented. The NOTE prior to step RC/Q-1 directs the operator to perform the reactor scram off normal procedure concurrently with the RC/Q procedure and therefore repeating this statement is not necessary in section RC/Q-4.

RC/Q-4.7 [None]

Added entry into RC/CD COOLDOWN when the reactor is shutdown with boron injection or control rods. RC/CD has been implemented as a common exit point from all emergency off normal procedures, but would not necessarily be executed unless RPV cooldown was required. See RC/CD discussion. The criteria discussed in step RC/Q-4.5 can also be used in this step to determine if the reactor is shutdown.

RC/Q-5 [RC/Q-5]

RC/Q-5 has been reformatted to allow the operator to choose the most appropriate rod insertion method and repeat any method, if RPS status changes (i.e. scram can or cannot be reset). [RC/Q-5] is difficult to follow, is not conducive to repeating control rod insertion methods, and directs the various rod insertion methods to be performed in a particular sequence. Since RC/Q could be entered if only a few rods are not fully inserted, the sequence specified in [RC/Q-5] may not be appropriate nor desirable.

APPENDIX B

RC/Q-5.1 [None]

After each method of control rod insertion is attempted, Contingency #9 directs the operator to return to step RC/Q-5 where two items are repeated.

1. RC/Q-5.1 directs the operator to reset the reactor scram. If RPS/Plant Status changes, which either allows or no longer allows the scram to be reset, the operator can then proceed to step RC/Q-5.2 or RC/Q-5.3 as appropriate.

2. The NOTE preceding step RC/Q-5.1 directs the operator to enter RC/CD COOLDOWN when all rods have been inserted below the Maximum Subcritical Banked Withdrawal Position.

RC/Q-5.2 [RC/Q-5.1, RC/Q-5.3, RC/Q-5.4, RC/Q-5.6]

This step includes the rod insertion techniques of [RC/Q-5] which may be performed if the reactor scram is reset. The operator is directed to enter Contingency #9, Alternate Control Rod Insertion, at the appropriate step for each method. The specific steps to perform these actions are discussed in Contingency #9.

RC/Q-5.3 [RC/Q-5.1, RC/Q-5.2, RC/Q-5.5, RC/Q-5.6]

This step includes the rod insertion techniques of [RC/Q-5] which may be performed if the reactor scram is not reset. The operator is directed to enter Contingency #9, Alternate Control Rod Insertion, at the appropriate step for each method. The specific steps to perform these actions discussed in Contingency #9.

RC/Q-5.4 [None]

Step was added to initiate boron injection if cooldown is required and control rod insertion methods have been unsuccessful in inserting control rods sufficiently to maintain the reactor shutdown. Although suppression pool temperature has not reached the Boron Injection Initiation Temperature, if a cooldown is required, the operator is directed to enter RC/Q-4.1 to initiate SLC (or other boron injection methods). This action is more conservative than the generic EPG, however it is preferable if RPV cooldown is specifically required to ensure continued safe operation of the plant and not just to satisfy administrative requirements.

APPENDIX B

RC/Q-5.5 [None]

Step added to direct the operator to enter RC/CD, COOLDOWN, when it is determined the reactor can be maintained in a shutdown condition. The criteria discussed in step RC/Q-4.5 can be used in this step to determine if the reactor can be shutdown with control rods. RC/CD has been implemented as a common exit point from all emergency off normal procedures. See RC/CD discussion.

APPENDIX B

RC/CD COOLDOWN BASIS

The purpose of this guideline is consistent with the purpose of the generic EPG pertaining to the actions specified in steps [RC/P-3] thru [RC/P-5].

This guideline is used as a common exit point from the CPS EPG's. Although entry into this guideline is directed by the other guidelines, it is not necessarily implied that RPV cooldown is required or desirable. If it is determined that cooldown is not necessary and will not be performed, RC/CD should be exited as per Caution #1 [Caution #1].

The additional entry condition, "Required cooldown cannot accomplished using normal plant shutdown/cooldown procedures" allows usage of the alternate cooldown methods to accomplish a required cooldown.

RC/CD-1 [RC/P-3]

This step defines the criteria necessary to allow RPV cooldown to commence. This criteria has been modified from the criteria of step [RC/P-3] but is consistent with the criteria discussed in step RC/Q-4.5 with regard to rod position and boron injection. The third criteria specified in step [RC/P-3], ["The reactor is shutdown and no boron has been injected into the RPV"], has been deleted. This criteria could result in an undesirable restart of the reactor. Step RC/Q-5.4 addresses this situation in that if a RPV cooldown is required and the reactor is not shutdown with control rods, then the operator is directed to enter RC/Q-4.1 to initiate SLC. This action is more conservative than the generic EPG approach of allowing the cooldown to commence when the shutdown margin is unknown.

The caution preceding RC/CD-1 implements, the [box preceding RC/P-3]. Although cooldown will not commence until the shutdown criteria, discussed above, is met, it is still possible that criticality could be achieved. (ex. If cooldown was commenced based on the criteria of SLC tank level, the required amount of boron may not have reached the RPV). If criticality is achieved, the operator is directed to re-enter RC/L, RC/P & RC/Q. All three sections were directed to be re-entered (generic EPG directs re-entry into only [RC/P-2]) since RC/CD is used as a common exit point from both RC/L and RC/Q. Inclusion of RC/L and RC/Q in this caution ensures RPV water level is stabilized and controlled, rod insertion attempts are continued, and the need for additional boron injection is evaluated.

APPENDIX B

RC/CD-2 [None]

Section developed to implement steps [RC/P-3] thru [RC/P-5] as discussed below.

RC/CD-2.1 [RC/P-3]

Incorporated plant specific list of systems, which could be used to assist in cooldown.

The NOTE preceding step RC/CD-2.1 was implemented to allow use of normal cooldown procedures, if plant conditions permit. Entry into RC/CD does not necessarily imply that normal cooldown procedures cannot be used and therefore, if the conditions of step RC/CD-1 have been satisfy, RPV cooldown can be commenced using RC/CD-2 or normal cooldown procedures.

RC/CD-2.3 [RC/P-4 2nd paragraph]

Added plant specific list of systems which could be used to continue cooldown.

RC/CD-2.4 [Box preceding RC/P-5]

Changed second criteria for entering Contingency #5 from ["all control rods are inserted beyond position 06"] to "the reactor can be maintained shutdown with control rods." The "shutdown with control rods" criteria discussed under step RC/Q-4.5 is also applicable here. The intent of ensuring the reactor is shutdown with control rods prior to entering Contingency #5 is not changed. If boron injection was required, the cooling method employed in Contingency #5 (using LPCI/LPCS to establish a flowpath from the RPV to suppression pool, via SRV"s, and back to the RPV) would remove the boron from the RPV.

APPENDIX B

CONTAINMENT CONTROL GUIDELINE BASIS

Entry into this guideline has been changed such that only specific sections of the procedure are entered, depending on the entry condition reached. Appropriate entry points are specified with each entry condition. Since all containment parameters are interrelated, the generic guideline enters all sections regardless of the specific entry condition with the objective of coordinating control of containment parameters. However, this is not necessary since with two exceptions, there are no actions in any section that would be applicable unless the related parameter entry condition had been reached. The first exception is PC/P, Containment Pressure Control, however this section is directed to be entered with each entry condition. The second exception is step SP/T-1 [SP/T-1], which directs closure of SRV's not required to be open. If a SRV is stuck open or leaking, high suppression pool temperature should be the first containment control parameter reached. In addition an event orientated off-normal procedure CPS NO. 4009.01, INADVERTENT OPENING SAFETY/RELIEF VALVE, would be initiated. The remaining steps of each section only cover actions required if the entry condition for that particular section had been reached or exceeded.

The primary containment hydrogen concentration entry condition has been deleted. The [PC/H] section will be incorporated into a separate guideline, the Combustible Gas Control Guideline. This guideline and a corresponding emergency off normal procedure will be implemented at CPS following final development of a generic EPG on Hydrogen Control.

The drywell temperature entry condition is based on the drywell temperature LCO, which is above the expected maximum normal operating temperature in the drywell.

None [First box under OPERATOR ACTIONS]

Deleted. Per previous discussion, the various sections of the containment control guideline will only be entered based on the entry condition reached. Applicable entry points have been included in the entry conditions sections.

SUPPRESSION POOL TEMPERATURE CONTROL SP/T

SP/T-1 [SP/T-1]

Wording has been changed from ["SORVs"] (stuck open relief valves) to "SRV's not required to be open." The intent of terminating unnecessary steam discharge, through an open SRV, to the suppression pool has not changed, however the scope was expanded to include SRV's which may have been manually opened. This will trigger the operator to reevaluate the need for utilizing SRV's. If SRV's were manually opened to control RPV pressure per RC/P [RC/P], additional pressure control methods per step RC/P-3 [RC/P-2] could be employed.

APPENDIX B

The second part of [SP/T-1] was also modified to:

1) Include plant specific time interval required by technical specifications

2) Include plant specific suppression pool temperature limit applicable when a SRV is stuck open, required by technical specifications

3) Substituted "Place mode switch in shutdown" in place of ["scram the reactor"] to implement action required by technical specifications for a stuck open relief valve.

SP/T-2 [SP/T-2]

Deleted ["When suppression pool temperature exceeds 95°F (most limiting suppression pool temp LCO)"]. CPS EPG directs entry into the SP/T section only when this setpoint, 95°F (most limiting suppression pool temperature LCO), is reached and therefore the deleted verbage is redundant and unnecessary. See Containment Control entry condition discussion.

Substituted "Place RHR is suppression pool cooling mode" in place of ["operate available suppression pool cooling"]. The suppression pool cooling mode of RHR is the only suppression pool cooling method available.

SP/T-3 [SP/T-3]

Added additional suppression pool temperature criteria for initiating a reactor scram, which is based on the technical specification requiring the mode switch be placed in shutdown when suppression pool temperature reaches 110°F. The wording has also been changed from ["scram the reactor"] to "Place the mode switch in shutdown" to meet this same requirement.

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SP/T-4 [SP/T-4]

Added additional action to dump the upper containment pool to the suppression pool to assist in suppression pool temperature control. This is done to avoid an unnecessary emergency RPV depressurization, which would be required by step SP/T-5 [SP/T-4, 2nd paragraph] if unable to control suppression pool temperature and pressure below the Heat Capacity Temperature Limit. This action is only allowed if suppression pool level is below 19 ft. 5 in. (maximum suppression pool water level LCO). This ensures the suppression pool load limit curve will not be exceeded (which would require emergency RPV depressurization per step SP/HL-6 [SP/L-3.1]) and suppression pool water will not flow over the weir wall into the drywell. (A suppression water level increase of 23 in. from upper pool dump, will result in a maximum suppression pool level of 21 ft. 4 in. Top of weir wall is 23 ft. 9 in.)

The portion of [SP/T-4] directing entry into [RPV Control Guideline at step RC-1] has been deleted and replaced by the NOTE preceding steps SP/T-4, allowing the use of the pressure control methods in RC/P [RC/P]. It is not necessary to enter section [RC/L] or[RC/Q] which would be required if step [RC/-1] was entered since no level or reactivity control problems currently exist.

SP/T-6 [None]

Step added to dump the upper containment pools to the suppression pool regardless of suppression pool level to attempt to maintain temperature below 185°F (suppression pool temp limit based on containment structural design criteria). Suppression pool level concerns, addressed in step SP/T-4 discussion, are not applicable here since at this temperature, emergency RPV depressurization would have previously been initiated by step SP/T-5 [SP/T-4] and therefore the suppression pool load limit curve would no longer be applicable. In addition, if this action results in overflowing the weir wall into the drywell, the concerns of exceeding the containment structural design criteria outweigh any negative aspects of flooding the drywell.

APPENDIX B

DRYWELL TEMPERATURE AND PRESSURE CONTROL DW/T

DW/T-1 [None]

Step added to ensure appropriate automatic actions are confirmed if a high drywell pressure scram/isolation setpoint is reached. This is redundant to similar verifications required by RC/L-2 [RC/L-1] of the RPV control guideline, which would also be entered if drywell pressure reaches the scram setpoint, however the importance of verification of proper system automatic response justifies the repetition.

DW/T-2 [None]

This step was added to allow use of a CGCS compressor to reduce drywell pressure below the scram/isolating setpoint, if the cause of the condition has been identified as a loss of drywell cooling. At this pressure, all normal means of cooling and reducing drywell pressure would be isolated. Without utilizing a CGCS compressor, drywell pressure could not be reduced until the RPV had been sufficiently cooled down.

CGCS is not directed to be used until after the drywell pressure scram/isolation setpoint is reached, to ensure the automatic actions associated with a LOCA condition, which may exist, are not overridden. Also when drywell pressure is less than 2 psig, the normal cooling and ventilation methods should be available.

DW/T-3 [DW/T-1]

Deleted ["When drywell temperature exceeds 135°F (drywell temperature LCO or maximum normal operating temperature, whichever is higher"]. CPS EPG directs entry into DW/T if drywell temperature has reached this setpoint, 150°F (drywell temperature LCO), or drywell pressure reaches 2 psig (high drywell pressure scram setpoint). Therefore the deleted verbage is redundant and unnecessary (if entered on drywell temperature) or there will not be any available drywell cooling (if entered on high drywell pressure) due to existing isolations as discussed in step DW/T-2.

DW/T-5 [DW/T-3]

Deleted first paragraph of step [DW/T-3] directing initiation of drywell sprays. CPS does not have a drywell spray system.

Deleted ["maximum temperature at which ADS qualified or"] and based the drywell temperature at which emergency RPV depressurization is required on "drywell design temperature" Drywell design temperature (330°F) is lower than the ADS qualification temperature (340°F).

APPENDIX B

SUPPRESSION POOL LOW LEVEL SP/LL

To simplify implementation and use of the emergency procedures, step [SP/L, Monitor and control suppression pool water level] has been separated into two sections, SP/LL (Suppression Pool Low Level) and SP/HL (Suppression Pool High Level).

SP/LL-1 [SP/L-1]

This step incorporates the first paragraph of step [SP/L-1].

Deleted ["Refer to sampling procedure prior to discharging water"] and Caution #9 [Caution #9] which are not applicable during low suppression pool level conditions.

Deleted ["Suppression pool makeup may be augmented by SPMS"]. This action is utilized in step SP/LL-2. (See discussion of SP/LL-2). Since the upper containment pool dump valves cannot be throttled, SPMS is not an effective method to maintain suppression pool level within the normal band.

Caution #8 [Caution #8] has not been implemented here, but rather with step SP/LL-2 since the possibility of cavitation of pumps taking suction from the suppression pool should not occur at normal suppression pool levels. See discussion of Caution #8.

None [SP/L-1]

The second paragraph of step [SP/L-1] has been implemented in the SP/HL section and will not be included in the SP/LL section. If SPMS has been initiated, the normal suppression pool level limits would still be applicable unless suppression pool reached 19 ft. 5 in. (entry condition for SP/HL).

SP/LL-2 [SP/L-2]

Reworded step to "Maintain suppression pool water level high enough to maintain suppression pool temperature below the Heat Capacity Temperature Limit" and deleted reference to [Heat Capacity Level Limit]. CPS has combined the [Heat Capacity Temperature Limit] and the [Heat Capacity Level Limit] curves into a single Heat Capacity Temperature Limit (HCTL) graph. This eliminates the Human Factor's concern with applying a correction factor obtained from one graph to a second graph. This would be both time consuming and could lead to errors induced due to interpolation. The intent of reducing the HCTL due to low levels (low heat capacity capability) in the suppression pool is still met.

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The NOTE preceding step SP/LL-2 allows usage of SPMS to maintain suppression pool level and temperature below the HCTL. This is consistent with the action specified in step SP/T-4 which directs SPMS initiation to stay below the HCTL if suppression pool level is below 19 ft. 5 in.

SP/LL-3 [SP/LL-2]

Incorporates last paragraph of step [SP/LL-2]. Changed setpoint to 15'1" (Minimum suppression pool water level for which complete condensation of vent flow is assured) and deleted reference to [Heat Capacity Level Limit]. The intent of this generic EPG step is met by both SP/LL-3 and SP/T-5.

SP/T-5 initiates emergency RPV depressurization when the HCTL curve is exceeded. The HCTL graph incorporates both the [Heat Capacity Level Limit] and [Heat Capacity Temperature Limit], as discussed in step SP/LL-2 and is based on the maximum suppression pool temperature (corrected for lower than normal levels) from which an RPV blowdown may be completed without exceeding either the suppression pool design temperature or SRV discharge device stability levels.

SP/LL-3 initiates emergency RPV depressurization at a suppression pool level where there is no longer sufficient water to condense discharged steam through the vents. (2 feet above the top of the upper row of horizontal vents.)

SUPPRESSION POOL HIGH LEVEL SP/HL

Step SP/HL incorporates the portions of [SP/L] applicable when suppression pool level is above 19'5" (maximum suppression pool water level LCO).

SP/HL-1 [SP/L-1]

Incorporates first paragraph of step [SP/L-1]. Deleted ["Refer to sampling procedure prior to discharging water"]. The operating procedure for transferring water from the suppression pool to condensate storage tank, CPS NO. 3318.01, SUPPRESSION POOL CLEANUP/TRANSFER (SF), addresses sampling requirements prior to initiating the transfer and reference here is therefore unnecessary. The intent of sampling prior to discharging water to ensure radioactivity is not released to the environment is still met.

Deleted ["Suppression pool makeup system may be augmented by SPMS"] and Caution #8 [Caution #8] which are applicable to low suppression pool level conditions.

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The NOTE preceding step SP/HL-1 incorporates the second paragraph of step [SP/L-1]. Changed basis for upper limit to 21 ft. 4 in. (maximum suppression pool water level LCO plus suppression pool level increase which results from SPMS operation). This is consistent with the criteria for initiating SPMS to assist in suppression pool temperature control (step SP/T-4). The NOTE specifies the new upper limit is applicable if SPMS was initiated for suppression pool temperature control. If SPMS initiated automatically (setpoint = 17 ft. 5 in.) the level would increase to 19 ft. 4 in. (23 in. increase) and therefore the normal upper limit of 19 ft. 5 in. would still be applicable.

SP/HL-2 [Caution #9]

Incorporated [Caution #9] as a step. Verification of automatic actions are implemented as steps throughout the CPS EPG's.

SP/HL-3 [SP/L-3, SP/L-3.1]

Added additional criteria, "Suppression pool dump system has been initiated to maintain suppression pool temperature below 185°F (Suppression pool design temperature)" for changing the suppression pool level requirements. If SPMS initiation was necessary to control suppression pool temperature below 185°F, it is not prudent to drain the suppression pool to maintain level within the limits of step SP/HL-1 (or the NOTE preceding step SP/HL-1). In this condition emergency RPV depressurization has been previously initiated (step SP/T-5 [SP/T-4]) and therefore high suppression pool level effects on drywell pressure during an RPV blowdown into the drywell are no longer of concern.

The last three paragraphs of step [SP/L-3.1] have been incorporated by SP/HL-4 thru SP/HL-6.

The [Box preceding step SP/L-3.1] directing performance of [SP/L-3.1] and [SP/L-3.2] concurrently has been deleted. Step [SP/L-3.1] addresses steps related to the Suppression Pool Load Limit, which at all RPV pressures is less than the level limit of step [SP/L-3.2] SP/HL-7, (Maximum Primary Containment Water Level Limit) 68.5 ft.

APPENDIX B

SP/HL-7 [SP/L-3.2]

Deleted first paragraph of [SP/L-3.2]. This action is redundant to step SP/HL-5 [SP/L-3.1] which also directs termination of injection into the RPV from sources external to the primary containment except from boron injection systems and CRD.

Deleted paragraphs numbered 1 & 2 of step [SP/L-3.2] which direct operation of drywell sprays. CPS does not have a drywell spray system.

SP/HL-7 incorporates paragraph number 3 of [SP/L-3.2]. The plant specific maximum primary containment water level limit (68.5 ft) has been incorporated.

CONTAINMENT TEMPERATURE CONTROL CN/T

CN/T-1 [CN/T-1]

Deleted ["When containment temperature excess 90°F (containment temperature LCO)"]. CPS EPG directs entry into the CN/T section only when this setpoint, 122°F (containment temperature LCO), is reached and therefore the deleted statement is redundant and unnecessary. See Containment Control entry condition discussion.

Caution #27 was added to ensure the operator is aware that, during elevated containment temperatures, SGTS and drywell purge should not be used to purge the containment. Although operation of these system is not specifically addressed in the CN/T section, they may have been initiated in other areas of the CPS EPG's (ex. step C2-3). If the temperature in the containment is above 212°F, it is likely that steam is being admitted to this area. Non-condensables evacuated through SGTS (or drywell purge) will gradually be replaced by steam until eventually, very few non-condensables remain. If containment sprays were then actuated, the containment pressure would decrease rapidly and possibly below the negative containment design pressure, Containment failure may result. Operation of SGTS and drywell purge is thus permitted only below 212°F. At lower temperatures, it is assumed that non-condensables removed by these systems will not be replaced by steam; sufficient non-condensables will therefore remain in the containment to satisfy the Containment Spray Initiation Pressure Limit.

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CN/T-2 [CN/T-2]

Added plant specific containment design temperatures.

Changed ["initiate suppression pool sprays"] to "Initiate containment spray" to reflect appropriate plant nomenclature.

CN/T-3 [CN/T-3]

Added plant specific containment design temperature.

CN/T-4 [CN/T-4]

Deleted ["near the cold reference leg instrument vertical runs"]. The instrument available for use in this step is the Containment bulk temperature indication. CPS does not have temperature instrumentation near the reference legs in the containment.

PRIMARY CONTAINMENT PRESSURE CONTROL PC/P

Throughout PC/P "containment" has been substituted in place of ["suppression chambers"] to reflect appropriate plant nomenclature.

PC/P-1 [PC/P-1]

Substituted "Containment Building HVAC" in place of ["Containment pressure control systems"].

Deleted statements referring to using containment pressure control system, SBGT, and drywell purge operating procedures. Reference to operating procedures will not be included in the CPS EPG's, however reference to specific operating procedures will be implemented in the emergency off normal procedures generated from these guidelines, wherever operation of a system is addressed.

PC/P-2 [None]

Step was added to prevent automatic initiation of containment spray, if the Containment Spray Initiation Pressure Limit is exceeded or the RHR pumps are needed in the LPCI mode to assure adequate core cooling. Preventing containment spray under these conditions in consistent with the requirements for manual containment spray initiation, as addressed in step PC/P-3 [PC/P-2] and Caution #18 [Caution #18].

Preventing automatic containment spray initiation is accomplished by resetting the containment spray initiation timer.

APPENDIX B

PC/P-3 [PC/P-2]

Deleted reference to ["Suppression Chamber Spray Initiation Pressure"]. This calculation is applicable to plants with Mark I containments.

Deleted reference to ["elevation of suppression pool spray nozzles"] CPS containment spray nozzles are located near the top of the containment dome, well above the Maximum Containment Water Level Limit and therefore there is no restriction on initiating containment spray based on suppression pool level.

The NOTE preceding step PC/P-3 incorporates the [box preceding step PC/P-2]. The statement ["If while executing the following steps, suppression pool sprays have been initiated"] has been deleted. This NOTE has been included with each step in PC/P which addresses initiation of containment spray, PC/P-3 and PC-P-6.

None [PC/P-3]

Step was deleted. CPS does not have a drywell spray system.

PC/P-6 [PC/P-6]

Deleted reference to ["elevation of suppression pool spray nozzles"]. CPS containment spray nozzles are located near the top of the containment dome, well above the Maximum Containment Water Level Limit and therefore, there is no restriction on initiating containment spray based on suppression pool level.

Deleted third paragraph of [PC/P-6] referring to initiation of drywell sprays. CPS does not have a drywell spray system.

Added "to maintain pressure below the Primary Containment Pressure Limit" to clarify the intent that containment spray need only be used, as necessary, to stay below the limit. This allows the RHR pump to be shifted back to LPCI mode, once containment pressure has been reduced sufficiently, if needed to assure added core cooling.

The NOTE preceding step PC/P-6 was added to implement the [box preceding step PC/P-2]. See discussion of same NOTE in step PC/P-3.

PC/P-7 [PC/P-7]

Deleted ["in accordance with procedure for containment venting"] and added list of systems which could be used to vent the containment. Specific procedure references will be included in the emergency off normal procedure generated from this guideline.

APPENDIX B

SECONDARY CONTAINMENT/RADIOACTIVITY RELEASE CONTROL GUIDELINES BASIS

This guideline contains two major sections, each will its own appropriate entry conditions. The Secondary Containment Control (SC) section implements the applicable portions of the [Secondary Containment Control Guideline] and the Radioactivity Release Control (RR) section implements the [Radioactivity Release Control Guideline].

The SC entry conditions have been modified as follows:

1. "Alarm setpoint" has been substituted in place of ["the maximum normal operating value"] for each applicable entry condition. The intent of the entry condition is not changed.

2. Substituted "Fuel Building Exhaust Vent Plenum" in place of ["HVAC exhaust"] to reflect existing ventilation radiation monitoring.

3. Deleted ["An area water level above the maximum normal operating water level."]. The floor drain sump water level at or above the high high alarm setpoint is the maximum normal operating water level for the sump and associated area water level. Therefore "Any secondary containment floor drain sump water level at or above high high alarm setpoint" is the only necessary water level entry condition.

SC SECONDARY CONTAINMENT CONTROL

The SC section has been reformatted, combining the [SC/T, SC/R and SC/L] sections. Combining simplifies the procedure, since the actions directed by each of these sections are essentially the same and are directed to be performed concurrently by the [box preceding SC/T].

SC-1 [First box under Operator Actions]

Implemented as a verification of automatic actions to be consistent with the format of the emergency off normal procedures and CPS EPG's.

Added "VF supply fan trip" which occurs on high secondary containment differential pressure (+.125 inches of water).

Caution #27 was added which implements ["only when the space being evacuated is below 212°F"]. See discussion of Caution #27.

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SC-2 [Second box under Operator Actions]

Substituted "If at any time" in place of ["If while executing the following steps"] to clarify the intent of the step which is applicable throughout the guideline.

None [Box preceding SC/T]

Deleted. Combining [SC/T, SC/R and SC/L] has alleviated the need for this statement.

SC-3 [SC/T-1, SC/T-2]

The portion of step [SC/T-2] referring to secondary containment HVAC isolation was deleted. Step SC-2 directs appropriate action under these conditions.

SC-4 [SC/T-3, SC/R-1, SC/L-1]

Substituted "alarm point"/"high high alarm point" in place of ["maximum normal operating temperature/radiation level/water level"]. This change is consistent with the entry condition modifications.

The first paragraph of [SC/L-1] was deleted. Operation of available sump pumps is verified or manually performed as part of the annunciator procedure, which would be performed if a high high sump alarm was received.

SC-5 [SC/T-4, SC/R-2, SC/L-2]

The actions "Place the mode switch in shutdown", "Perform Reactor Scram off normal procedure", and "Perform COOLDOWN RC/CD" have been substituted in place of ["enter procedure developed from the RPV Control Guideline at step RC-1 and execute it currently with this procedures"]. Entering the [RPV Control Guideline] is not necessary if RPV level, RPV Pressure, or reactivity control problems/entry conditions do not exist. The actions specified represent the only actions of the [RPV Control Guideline] which would be applicable under these conditions.

The maximum safe operating temperatures, radiation levels and water levels have not yet been determined.

SC-6 [SC/T-5, SC/R-3, SC/L-3]

The maximum safe operating temperatures, radiation levels and water levels have not yet been determined.

APPENDIX B

COMBUSTIBLE GAS CONTROL GUIDELINE BASIS

(later)

APPENDIX B

CONTINGENCY #1 LEVEL RESTORATION

None [Box preceding step C1-1]

Deleted. This box duplicates the directions given in the [box following step RC/L-1]. See discussion of step RC/L-2 [RC/L-1] for implementation method of the [box following step RC/L-1].

None [C1-1]

Deleted. CPS does not have an isolation condenser.

C1-1 [C1-2]

This step incorporates the first paragraph of [C1-2]. Substituted "primary injection systems" in place of ["injection subsystems"]. For clarity the terms "primary injection systems" and "alternate injection systems" have been substituted in place of ["injection subsystems"] and ["alternate injection subsystems"] throughout contingency #1.

C1-2 [C1-2]

This step incorporates the second paragraph of [C1-2].

Added plant specific list of alternate injection systems.

C1-3 [C1-3]

Incorporated plant specific value for maximum LPCS discharge head and RCIC low pressure isolation setpoint. Reference to HPCI was deleted. CPS does not have a HPCI system. "Maximum LPLS discharge head" was used in place of ["LPCS shutoff head"]. Maximum LPCS discharge pressure corresponds to the injection pressure of the LPCS pump at the minimum flow setpoint of 875 gpm. This is the maximum operational discharge pressure and is lower than shutoff head pressure. This is consistent with the generic EPG intent of basing the upper limit of the intermediate pressure range on the operating range of the low pressure injection systems.

Substituted "RC/L-3" in place of ["C1-4"] in the table under high pressure and increasing RPV level conditions. Step [C1-4] directs entry into [RC/L] and therefore direct entry to RC/L from the table simplifies the procedure. Entry to RC/L-3 [RC/L-2] was specified since the actions of steps RC/L-1 [RC-1] and RC/L-2 [RC/L-1] would have already been executed upon initial entry into RC/L.

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"Decreasing/Stable" has been substituted in place of ["Decreasing"] in the table. Entering steps C1-6 [C1-7] and C1-7 [C1-8] when RPV is stable is conservative in that these steps take actions assuming RPV level is decreasing (i.e. steps directing additional injection systems to be utilized, which is necessary when RPV water level is stable to restore level.) The generic EPG does not address the RPV level stable condition.

The two NOTES preceding step C1-3 implement the [box following step C1-3]. Substituted "If while executing the remaining steps of Contingency #1" in place of ["If while executing the following steps"] to clarify the intended applicability of these directions. Substituted plant specific ADS initiated setpoint to first NOTE.

None [C1-4]

Step was deleted. See discussion in step C1-3 [C1-3].

C1-4.1 [C1-5]

Incorporates first paragraph of [C1-5]. Adds HPCS and RFP 1C (high pressure motor driven pumps) and deleted HPCI (CPS does not have a HPCI system). If steam driven or high pressure, motor driven pumps are unavailable, low pressure, motor driven pumps must be restoring level. Any increase in RPV pressure under these conditions will decrease the injection flow rate and threaten low pressure system availability. It is therefore necessary to depressurize the RPV to maximize injection flow and preserve low pressure systems as a makeup source. [C1-5] does not include the high pressure, motor driven pumps in this step since, if pressure is increasing, the injection flow rate of these pumps would also be reduced. However increasing pressure may not necessarily result in a change in the increasing water level trend. If this trend does change or pressure changes regions step C1-3 [C1-3] would be re-entered, as directed by the NOTE preceding step C1-3 [box following step C1-3].

The statement ["When RPV pressure is decreasing, enter procedure developed from the RPV Control Guideline at step RC/L"] has been deleted. Step C2-7 of contingency #2 directs entry to step C1-3 [C1-3] following emergency RPV depressurization. If RPV water level is still increasing, step C1-4 [C1-5] or C1-5 [C1-6] would be entered which would direct entry into RC/L-3 when appropriate. The intent of the deleted statement is therefore preserved.

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C1-4.2 [C1-5]

Incorporates the second and third paragraph of [C1-5]. To simplify the procedure, RC/L-3 will not be entered until RPV water level has been restored to level 3, regardless of which systems are injecting or the RPV pressure trend. By remaining in Contingency #1 until RPV water level reaches level 3, if plant conditions change which result in a change in RPV water level trend, C1-3 will be re-entered and the appropriate section/actions can be initiated more quickly. Throughout Contingency #1, similar wording changes have been made to delay re-entry into RC/L until RPV water level has been restored.

C1-5.1 [C1-6]

Incorporates first paragraph of [C1-6]. The statement ["when RPV pressure is decreasing, enter procedure developed from the RPV Control Guideline as step RC/L"] has been deleted. Step C2-7 of contingency #2 directs entry to step C1-3 [C1-3] following emergency RPV depressurization. If RPV water level is still increasing, step C1-5 [C1-6] would be re-entered, which would direct entry into RC/L-3 when appropriate.

C1-5.2 [C1-6]

Incorporates second paragraph of [C1-6]. Step was modified to enter RC/L-3 [RC/L] only after RPV water level has been restored to level 3. See discussion of similar change to step C1-4.2.

C1-6.1 [C1-7]

Incorporates first paragraph of [C1-7]. Deleted reference to HPCI system. CPS does not have a HPCI system.

Added reference to HPCS and RPF 1C. Both are primary injection systems from which injection may have been terminated in the course of the transient due to high RPV water level. This is consistent with the intent of [C1-7] to restart steam driven equipment, which may have previously isolated on low pressure. This step ensures the operator attempts to use all available systems to reverse the level trend.

C1-6.3 [C1-7]

Incorporates third paragraph of [C1-7]. Substituted plant specific value for top of active fuel.

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Clarified the intent of the step by adding "Enter Contingency #3, STEAM COOLING". The generic EPG does not include this statement since the third paragraph of the [box following step RC/P-1] directs entry into Contingency #3 if steam cooling is required. The added statement reduces the amount of memorization needed to execute the procedure by explicitly stating the appropriate procedural section to enter.

Deleted ["When any system, injection subsystem or alternate injection subsystem in lined up with at least one pump running, return to step C1-3"]. This statement is unnecessary since Contingency #3, first NOTE [box following step C3-1], directs entry into Contingency #2 under the same conditions. Contingency #2, step C2-7, in turn directs entry into step C1-3 following RPV depressurization.

C1-6.4 [C1-7]

Incorporates fourth paragraph of [C1-7]. Substituted plant specific value for top of active fuel.

Deleted ["When RPV water level is increasing or RPV pressure drops below 100 psig (HPCI or RCIC low pressure isolation setpoint, whichever is higher) return to step C1-3"]. Step C2-7 of contingency #2 directs entry to step C1-3 [C1-3] following emergency RPV depressurization. The intent of the deleted statement is therefore preserved.

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C1-7.1 [C1-8]

Incorporates first paragraph of [C1-8]. Deleted bracketed portion of step. HPCS and LPCS have already been tried and have been unsuccessful in restoring RPV water level or changing the level trend. (Steps RC/L-3, C1-1.) Therefore regardless of whether either system is operating, it is appropriate to commence injecting with alternate injection systems.

C1-7.3 [box following C1-8]

Substituted plant specific value for top of active fuel.

CONTINGENCY #2 EMERGENCY RPV DEPRESSURIZATION

Caution #28 [C2-1]

Portion of step [C2-1] preceding step [C2-1.1] has been incorporated as a caution. See discussion of Caution #28.

None [C2-1.1]

Step was deleted. CPS does not have an isolation condenser.

C2-1 [None]

This step was added to ensure a reactor scram has been initiated prior to commencing RPV depressurization. See discussion of general modification #3.

C2-2 [C2-1.2]

Added plant specific SRV discharge device elevation and number of SRV's dedicated to ADS.

Added Caution #8 prior to this step. This caution has been included here since the steam addition to the suppression pool through open SRV's could result in cavitation. See discussion of Caution #8.

C2-3 [None]

Step was added to minimize potential of radioactive release to the environment by anticipating high airborne radioactivity in the containment following SRV operation. This ensures containment air exhaust is filtered by SGTS prior to release.

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C2-4 [C2-1.3]

Added plant specific minimum number of SRV's required for emergency RPV depressurization.

Deleted ["and RPV pressure is at least 50 psig (minimum SRV re-opening pressure) above suppression chamber pressure"]. CPS has direct - acting electromatic SRV's which can be opened at any RPV pressure.

Substituted "Caution #12" in place of ["(use in order which will minimize radioactive release to the environment)"]. See discussion of Caution #12.

Added "Reactor Feed Pump Turbines" in place of ["other steam drive equipment"].

Deleted ["HPCI steam line"] and ["IC tube side vent]. CPS does not have these systems.

C2-5, C2-6, C2-7 [C2-2]

The exit point from Contingency #2 is dependent on the guideline from which it was entered and the reason RPV depressurization was performed. If RPV flooding is required, step C2-5 [box preceding step C2-2] defines the appropriate exit point, Contingency #6.

If Contingency #2 was entered from the Containment Control guideline, Secondary Containment/Radioactivity Release Control guideline, or Contingency #7, step C2-6 [C2-2] directs entry into RC/CD [RC/P-3].

If Contingency #2 was entered from contingency #1 or #3, step C2-7 directs entry into both RC/CD [RC/P-3] and contingency #1 at step C1-3. See discussion of steps C1-4.1 [C1-5], C1-5.1 [C1-6] C1-6.3 [C1-7], and C1-6.4 [C1-7] for reasons to re-enter step C1-3.

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CONTINGENCY #3 STEAM COOLING

None [C3-1]

Deleted reference to IC, CPS does not have an isolation condenser.

C3-1 [C3-1]

Substituted plant specific value for Minimum Zero-Injection RPV Water Level.

C3-2 [C3-1]

Substituted plant specific value for Minimum Single SRV Steam Cooling Pressure.

CONTINGENCY #4 CORE COOLING WITHOUT LEVEL RESTORATION

C4-1 [C4-1]

Substituted plant specific number of SRV's dedicated to ADS.

C4-3 [C4-2]

Incorporates second paragraph of [C4-2]. Substituted plant specific RPV pressure for rated LPCS flow. Deleted reference to RPV pressure for rated HPCS flow (200 psig) which is higher than the pressure for rated LPCS flow.

C4-4 [C4-3]

Substituted plant specific value for top of active fuel.

Directed continuation at step RC/L-3 [RC/L-2] in place of RC/L. The actions of steps RC/L-1 [RC-1] and RC/L-2 [RC/L-1] have already been executed upon initial entry into RC/L and repeating these steps is unnecessary.

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CAUTION #5 ALTERNATE SHUTDOWN COOLING

C5-2 [C5-2]

Deleted brackets and included "RPV Head Vent" in list of valves to be closed. The RPV Heat Vent discharges to the drywell sump and therefore cannot be used to establish a return flow path to the suppression pool for alternate shutdown cooling. Therefore isolation of this line is appropriate.

C5-3 [C5-3]

Substituted plant specific minimum number of SRV's required for alternate shutdown cooling.

Substituted "Open" in place of ["Place the control switch in the open position"]. The generic EPG was worded as such for plants whose SRV's would not open until RPV pressure was increased above Minimum SRV Reopening Pressure. CPS has direct-acting, electromatic relief valves that can be opened regardless of RPV pressure.

C5-5 [C5-5, C5-6]

Added "When RPV water level reaches 104" (level of MSL penetrations into RPV)". This defines the level at which a return path to the suppression pool has been established through the open SRV's and is consistent with the intent of [C5-4, C5-5].

Wording was changed to "limit the number of systems injecting into the RPV to one of the following with full flow: ....." in place of ["start one LPCS or LPCI pump"] and ["increase LPCS or LPCI injection into the RPV to maximum"]. The new wording more clearly defines the intent of the step. Operation of one LPCI or LPCS pump provides sufficient motive force for coolant recirculation during alternate shutdown cooling.

The wording of step [C5-5] ["with suction from the suppression pool"] was deleted. LPCS and RHR (LPCI mode) always take suction from the suppression pool, therefore the statement in unnecessary.

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C5-6 [C5-6.1]

Substituted plant specific Minimum Alternate Shutdown Cooling RPV Pressure.

Deleted ["above containment pressure"]. RPV pressure is measured using differential pressure detectors which sense containment pressure on the low pressure side. Therefore, RPV pressure indication is always displaying differential pressure between the RPV and containment.

C5-7 [C5-6.2]

Substituted plant specific values for Maximum Alternate Shutdown Cooling RPV Pressure.

C5-8 [C5-6.3]

Substituted plant specific maximum RPV cooldown rate LCO.

Deleted ["or RPV pressure decreases to within 50 psig (Minimum SRV Re-opening Pressure) of suppression champer pressure, whichever occurs first"]. CPS has direct-acting, electromatic relief valves that can be opened regardless of RPV pressure. Therefore the Minimum SRV Re-opening pressure equals zero.

C5-9 [C5-7]

Substituted the plant specific head tensioning limit and deleted reference to RPV NDTT, which is a smaller value.

CONTINGENCY #6 RPV FLOODING

[Contingency #6] has been separated into two separate contingencies, contingency #6 RPV Flooding and Contingency #8 Alternate RPV Flooding. Contingency #6 covers RPV Flooding when the reactor can be shutdown with control rods (Refer to discussion of step RC/Q-4.5 for criteria to be shutdown with control rods).

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C6-1 [C6-1]

Substituted plant specific Minimum Number of SRV's required for Emergency Depressurization.

Changed wording from ["SRV's can be opened"] to "SRV's are open. The generic EPG was worded ["can be opened"] since some plants have SRV's which cannot be opened until RPV pressure is above the minimum SRV reopening pressure. CPS has direct-acting electromatic SRV's which can be opened regardless of existing RPV pressure.

Deleted ["IC"] and ["HPCI"] from list of valves to be closed. CPS does not have a IC or HPCI system.

Deleted ["RHR steam condensing isolation valves"] since closure of RCIC steam supply Isolation Valves isolates the associated RHR steam condensing lines.

The NOTE preceding step C6-1 ensures contingency #6 is only entered if the reactor can be shutdown with control rods.

C6-2 [None]

Step implemented to direct entry into appropriate RPV Flooding section when RPV water level can be determined. This allows deletion of ["If RPV water level cannot be determined"] in steps C6-3 [C6-3] and C6-8 [C6-5], since steps C6-3 thru C6-8 would only be entered if RPV water level could not be determined.

C6-3 [C6-3.1]

Substituted plant specific minimum number of SRV's required for emergency depressurization and minimum RPV flooding pressure.

Deleted ["above suppression chamber pressure"] RPV pressure is measured using differential pressure detectors which sense containment pressure on the low pressure side. Therefore, RPV pressure indication is always displaying differential pressure between the RPV and containment.

Added plant specific list of injection systems, which do not require steam pressure for operation.

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C6-4 [C6-3.2]

Substituted plant specific minimum number of SRV's required for emergency depressurization and minimum RPV flooding pressure.

Deleted ["above suppression chamber pressure"]. See discussion of step C6-3.

C6-5 [C6-5.1]

Substituted "Containment and drywell temperatures" in place of ["temperature near the cold reference leg instrument vertical runs"] to reflect available plant instrumentation.

C6-6 [C6-5.2]

Substitute plant specific Minimum RPV Flooding Pressure.

Deleted ["above suppression chamber pressure"]. See discussion of step C6-3.

The [box preceding step C6 5.2] has been incorporated by step C6-8.

C6-9 [C6-4]

Deleted ["If RPV water level can be determined"]. Step C6-9 is only entered as directed by C6-2 if RPV water level can be determined. Therefore the deleted verbage is unnecessary.

Substituted plant specific list of injection systems which do not require steam pressure for operation.

C6-10 [C6-6]

Substituted "Containment" in place of "[suppression chamber"] to reflect appropriate plant nomenclature.

Substituted "Enter RC/CD COOLDOWN" in place of [RC/P-4]. [RC/P-4] has been incorporated as part of RC/CD.

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CONTINGENCY #7 LEVEL/POWER CONTROL

C7-1 [C7-1]

Substituted plant specific value for APRM downscale trip and high drywell pressure scram setpoint. Substituted "(later)" for plant specific Flow Stagnation Water Level. This level has not yet been determined.

The first NOTE In contingency #7 incorporates the [box preceding step C7-1] "If while performing contingency #7" was substituted in place of ["If while executing the following steps"] to clarify the applicability of the NOTE. "Contingency #8, ALTERNATE RPV FLOODING" was substituted for ["procedure developed from contingency #6]. Contingency #8 incorporates those portions of [Contingency #6] which are applicable when the reactor cannot be shutdown with control rods (steps [C6-1, C6-2]). The intent of the NOTE has not been changed.

The NOTE immediately preceding step C7-1 incorporates the first [box following step C7-1]. "If while performing contingency #7" was substituted in place of ["If while executing the following steps"] to clarify the applicability of the NOTE. The intent has not been changed.

C7-2 [C7-2]

Substituted plant specific low level scram setpoint and high level trip setpoint.

Cautions #9, #10, and #11, which are all general cautions, were deleted from this step. General cautions are incorporated into the Discussion section of the applicable emergency off normal procedures.

Substituted plant specific values for ["RPV pressure range for system operation"]. See discussion of step RC/L-3 for basis used to determine values.

The NOTE preceding steps C7-2 incorporates the [box preceding step C7-2]. Substituted plant specific values for APRM downscale trip and high drywell pressure scram setpoint. Substituted "(later)" for plant specific Flow Stagnation Water Level, which has not yet been determined.

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Added "RHR with injection thru shutdown cooling return line" to list of injection systems. Inclusion of this method here is consistent with the generic EPG intent, where the injection system preferred for control of RPV water level subsequent to boron injection are those which inject outside the shroud.

HPCS, LPCS and RHR (LPCI mode) have also been added to the list of injection systems. Although these systems inject inside the shroud, their usage as a backup to the outside the shroud injection systems may be necessary to control RPV water level and avoid an unnecessary RPV depressurization which would eventually be required by step C7-4 [C7-2]. These added systems have been placed at the bottom of the list, keeping the list in an order of preferred usage.

C7-3 [C7-2]

Substituted plant specific value for TAF.

C7-4 [C7-2]

Substituted plant specific value for TAF.

C7-4.1 [C7-2.1]

Substituted plant specific ["minimum number of SRV's for which the Minimum Alternate RPV Flooding Pressure is below the lowest SRV lifting pressure"].

C7-4.2 [C7-2.2]

Substitute plant specific value for TAF.

Added RHR with injection thru shutdown cooling return line, HPCS, LPCS, and RHR (LPCI mode) to list of injection systems. Inclusion of these systems here ensures consistency with the list of systems utilized in step C7-2 prior to RPV depressurization. Appropriate system priority has been retained by listing those systems, which inject outside the shroud first.

C7-4.3 [C7-2.2]

Substituted plant specific value for TAF. Substituted plant specific list of backup injection systems to be utilized if the systems listed in step C7-4.2 failed to control RPV water level.

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C7-5 [C7-3]

Substituted plant specific values for low level scram setpoint and high level trip setpoint.

Modified criteria required to restore RPV water level. The criteria is consistent with that employed in step RC/Q-4.5 [RC/Q-4.2] except the boron concentration and tank level were based on that necessary to achieve hot shutdown. The required boron concentration, 355 ppm, was obtained form General Electric Report NEDE-24222, assessment of BWR Mitigation of ATWS, Volume 1, May 1979. The SLC tank level of 2150 gallons is conservative since it assumes the SLC storage tank was at the minimum boron concentration and minimum tank level prior to injection.

C7-6 [C7-3]

Substituted plant specific values for low level scram setpoint and TAF.

C7-7 [C7-3]

Substituted plant specific value for TAF.

C7-8 [C7-4]

Referenced entry into RC/CD, COOLDOWN. RC/CD has been implemented as a common exit point from all emergency off normal procedures, but would not necessarily be executed unless RPV cooldown was required. See RC/CD discussion.

The [box preceding step C7-4] was deleted. Entry into Contingency #5 is directed in step RC/CD-2.4 [RC/P-4, 3rd paragraph]. Therefore reference here is redundant and unnecessary.

CONTINGENCY #8 ALTERNATE RPV FLOODING

Contingency #8 has been developed to incorporate those portions of [Contingency #6] applicable when the reactor cannot be shutdown with control rods, steps [C6-1, C6-2]. Entry into contingency #8 is directed by contingency #6 and contingency #7.

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C8-1 [C6-1]

Substituted plant specific Minimum Number of SRV's required for Emergency Depressurization.

Changed wording form ["SRV's can be opened"] to "SRV's are open." The generic EPG was worded ["can be opened"] since some plants have SRV's which cannot be opened until RPV pressure is above the minimum SRV reopening pressure. CPS has direct-acting electromatic SRV's which can be opened regardless of existing RPV pressure.

Deleted ["IC"] and ["HPCI"] from list of valves to be closed. CPS does not have a IC or HPCI system.

Deleted ["RHR steam condensing isolation valves"] since closure of RCIC Steam Supply Isolation Valves isolates the associated RHR steam condensing lines.

None [C6-2]

Deleted ["If any control rod is not inserted beyond position 06 (maximum subcritical banked withdrawal position)"]. This contingency is only entered under these conditions and therefore the statement is unnecessary.

C8-2 [C6-2.1]

This step implements the portion of step [C6-2.1] to terminate and prevent injection.

C8-3 [C6-2.1]

This step defines the conditions under which this procedure can be continued. Although reformatted, this criteria is consistent with that given in step [C6-2.1].

C8-4 [C6-2.2]

Substituted plant specific number of SRV's for which the Minimum Alternate RPV Flooding Pressure is below the lowest SRV lifting pressure. This substitution has also been done in steps C8-5 [C6-2.2] and C8-6 [C6-2.3].

Added "RHR (Injection thru shutdown cooling return line)" to list of injection systems. Inclusion of this method here is consistent with the generic EPG intent of prioritizing systems which inject outside the shroud and are capable of operating without steam.

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C8-5 [C6-2.2]

Substituted plant specific list of backup injection systems to be used if the systems addressed in step C8-4 [C6-2.2] were not sufficient to flood the RPV.

C8-7 [C6-2.4]

Substituted "Reactor can be maintained shutdown with control rods" in place of ["all control rods are inserted beyond position 06 (maximum subcritical banked position)"]. The three criteria discussed in step RC/Q-4.5 apply here. The intent to ensure the reactor can be shutdown before proceeding to the normal methods of RPV flooding (contingency #6) is still met. If either of the two specified conditions are satisfied, reactivity addition is no longer of concern and the operator may proceed in contingency #6. If efforts to insert withdrawn control rods prove successful, there is no longer any concern of criticality. Similarly, if flooding is successfully completed and the reactor remains subcritical without boron injection, even if all control rods are not fully inserted, it may be assumed the potential for criticality has passed.

Substituted "Enter contingency #6 RPV Flooding" in place of ["continue in this procedure"]. Contingency #6 incorporates step [C6-1] and the remaining portions of [Contingency #6] following step [C6-2.4].

CONTINGENCY #9 ALTERNATE CONTROL ROD INSERTION

This contingency outlines the methods which may be used to insert control rods remaining fully or partially withdrawn following reactor scram. These steps incorporate the methods outlined in step [RC/Q-5] with the exception of step [RC/Q-5.1], portion pertaining to venting the scram air header. This step is not practical at CPS since entry into the containment would be required to accomplish this action. If failure to vent air pressure from the scram pilot/scram valves was the cause for rods failing to insert on a scram, most if not all rods would be failed and high reactor power and resultant SRV operation is likely, making the containment inaccessible.

The NOTE preceding step C9-1 directs entry into the appropriate contingency step. Steps RC/Q-5.2 and RC/Q-5.3, which direct entry into contingency #9, define the applicable steps which should be performed.

As each method is attempted and completed, or if it is determined that the method cannot be used or is not effective in inserting control rods, the operator is directed to return to RC/Q-5 where another insertion method can be selected.

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C9-1 [RC/Q-5.2, RC/Q-5.3]

This section incorporates the generic EPG actions to insert control rods by repetitive manual scrams. This method cannot be performed unless the scram can be reset and would not be effective if the scram discharge volume (SDV) cannot be drained. Therefore step C9-1.2 returns the operator to RC/Q-5 under these conditions.

C9-2 [RC/Q-5.1]

This section incorporates the generic EPG actions to insert control rods by manually deenergizing the RPS scram solenoids. Step C9-2.1 substitutes the use of RPS scram solenoids breakers, which is a simpler method to deenergize the solenoids, in place of ["fuses which de-energize RPS scram solenoids"].

C9-3 [RC/Q-5.4]

This section incorporates the generic EPG actions to insert control rods by individually scraming control rods using the scram test switches on the associated HCU"s. The NOTE preceding step C9-3.1 directs re-entry into RC/Q-5 if the containment, the location of the HCU's, is not accessible.

C9-4 [RC/Q-5.6]

This section incorporates the generic EPG actions to insert control rods manually. Step C9-4.2 and the NOTE preceding C9-4.2 were added to address manual control rod insertion at elevated control rod drive differential pressures. Raising drive differential pressure could free a stuck rod, which could not be moved at lower/normal drive differential pressures. The maximum attainable drive differential pressure is allowed if boron has been injected or injection is anticipated since potential damage to CRD mechanism seals is secondary to the adverse affects of boron injection into the RPV.

C9-5 [RC/Q-5.6]

This section incorporates the generic EPG actions to insert control rods by venting the CRD withdraw lines (over-piston area) to atmospheric pressure. The NOTE preceding step C9-5.1 directs re-entry into RC/Q-5 if the containment, the location of CRD withdrawal lines and vents, in not accessible.

The effluent from the CRD Withdraw Riser Vent valves is directed to the suppression pool rather than a ["contained radwaste drain"]. This minimizes delays in establishing the vent path and thus allow control rods to be inserted more rapidly.

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Step C9-5.2 addresses closing the associated Withdraw Riser valve prior to opening the associated Withdraw Riser Vent valve. This precludes attempting to vent all CRD withdrawal lines simultaneously through the single vent line. Without closing this valve, it may not be possible to obtain a sufficient differential pressure to move any control rods.

C9-6 [RC/Q-5.2]

This section incorporates the generic EPG actions to insert control rods manually under conditions where the scram cannot be reset. The method to insert control rods using normal and elevated drive differential pressures is essentially the same as the method employed in step C9-4 RC/Q-5.6 however additional actions are needed to assist in raising drive differential pressure when the reactor scram cannot be reset.

Step C9-6.1 [RC/Q-5.2, steps 1 and 2] directs closing the charging Header Isolation valve if the containment is accessible (this valve is located in the containment). If this valve cannot be closed, starting a second CRD pump is directed. Step [RC/Q-5.2, step 1] directs starting all CRD pumps prior to closing the Charging Header Isolation valve. However, since this is unnecessary when this valve can be closed, starting a second CRD pump is directed only if the Charging Header Isolation valve cannot be closed. Step [RC/Q-5.2, step 1] directs entry into step [RC/Q-5.6.1] if no CRD pump can be started. This statement is unnecessary since the operator would not choose this control rod insertion method in step RC/Q-5.3 without CRD pumps available.