EXELON NUCLEAR
LIMERICK GENERATING STATION
EVENT PROCEDURES

# E-5 GRID EMERGENCY

## 1.0 ENTRY CONDITIONS (CM-1)

1.1 Notification from the PECo Transmission System Operator (TSO) **OR** Generation Dispatch that any PJM action levels have been exceeded. See OP-AA-108-107-1001 "Station Response To Grid Capacity Conditions" for definitions.

1.2 Notification from the PECo Transmission System Operator (TSO) **OR** Generation Dispatch that PJM has issued a Voltage Reduction Alert. (E-5 entry is **not** required for other alerts and warnings).

1.3 Notification from the PECo Transmission System Operator (TSO) **OR** Nuclear Duty Officer (NDO) of voltage limit violations for the 230 kV system (<226 kV)
**AND/OR** 525 kV system (<500 kV)
**AND/OR** 69 kV system (<67.5 kV) (only if connected as 3rd Off-site source)

**NOTE**

The following terms may be used by the TSO or NDO, these are all equivalent to PJM not being able to predict the LGS post trip contingency voltage: - The PJM Energy Management System (EMS) is not functioning
- The PJM State Estimator is not functioning
- The PJM Security Analysis is not functioning
- The PJM Network Application is not functioning
- The TSO Energy Control System (ECS) is not functioning

1.4 Notification from PECo Transmission System Operator (TSO) **OR** Nuclear Duty Officer (NDO) that LGS post trip contingency percentage voltage drop is predicted in excess of the limiting value
**OR** that LGS post trip contingency voltage cannot be predicted.

1.5 Notification from PECo Transmission System Operator (TSO)
**OR** Nuclear Duty Officer (NDO) that inadequate transmission facility trip contingency voltage is predicted,
**OR** that contingency voltage cannot be predicted.

1.6 As directed by E-10, "Loss of Number 10 Transformer Feed".

1.7 As directed by E-20, "Loss of Number 20 Transformer Feed".

## 2.0 INITIAL ACTIONS

NONE

## 3.0 FOLLOW UP ACTIONS

**NOTE**

1. Conditional **IF**...**THEN** steps that are **not** applicable **AND** steps to be skipped per direction of the **IF**...**THEN** step shall be marked N/A **ND** initialed. [ ]

2. LGS is required to comply with TSO generation requests except when equipment, nuclear restrictions, **OR** personnel safety are concerned. [ ]

3. WC-AA-101 "Online Work Control Process" **AND** WC-AA-104 "Integrated Risk Management" can be referenced for protocol with the TSO concerning Work Management System Outage windows, as required. [ ]

3.1 **IF** this procedure is being entered due to inadequate transmission facility trip contingency voltage issue being predicted, **OR** that contingency voltage cannot be predicted for a transmission facility trip (Entry condition 1.5 above), **THEN GO TO** Attachment 1, "Inadequate Contingency Voltage", Otherwise, **CONTINUE** with the following steps. _____

3.2 **PERFORM** crew briefing on

3.2.1 E-10, Loss of Number 10 Transformer Feed _____

3.2.2 E-20, Loss of Number 20 Transformer Feed _____

3.2.3 E-10/20, Loss of Offsite Power _____

**NOTE**

SCADA process computer points for the 230 kV
**AND** 525 kV lines are V403
**AND** H414 respectively. [ ]

3.3 **COMPLY** with TSO request for VAR generation
**OR** immediately **NOTIFY** the TSO of inability to provide the requested VARs. _____

3.4 **MAINTAIN** generator parameters within limits of the "Generator Capability Curve"
**OR** Table in Attachment 2
**AND** S32.3.A, Main Generator Inspection During Heavy Grid Load. _____

3.5 **NOTIFY** the TSO of conditions that will require shutdown of any operating Limerick Unit. _____

3.6 **STOP**, as appropriate, any activities (e.g., maintenance, testing, troubleshooting, etc.) that may:

- Adversely affect electrical generation.
- Adversely affect the transmission system
- Adversely affect the plant in the event of a station blackout. _____

3.7 **REFER** to WC-AA-101 Attachment titled "High Risk Evolution Determination."
**AND**, **IF** determined appropriate,
**THEN** **ACTIVATE** the Loss of Offsite Power (LOOP) HRE trigger in PARAGON. _____

3.7.1 **NOTIFY** Work Week Manager
**AND** OPCAT of results and for the need to re-evaluate current and future work for new risk. _____

3.8 **NOTIFY** Facilities of need to shed lighting, air conditioning
**AND** unnecessary load(s). _____

3.9 **ENSURE** only one 13 k V Bus Fast Transfer Selector Switch per unit is selected to fast transfer to the 10 bus. _____

3.10 **ENSURE** only one 13 k V Bus Fast Transfer Selector Switch per unit is selected to fast transfer to the 20 bus. _____

3.11 **VERIFY** load tap changers for the offsite source transformers are in service in "AUTO" as verified by counter movement within the last 7 days per equipment operator rounds in the computer rounds program.

- 10 Station Aux Transformer _____
- 101 Safeguard Transformer 0A-X103 _____
- 20 Regulating Transformer _____
- 201 Safeguard Transformer 0B-X103 _____

**NOTE**

1. Normally the TSO will contact the NDO during periods of grid instability. The NDO may approve Exelon paying for off-cost generation to increase transmission system voltage
   **OR** decrease the LGS post trip contingency percentage voltage drop. [ ]
2. The NDO
   **OR** TSO will notify LGS at limits more conservative than the limits for Tech Spec operability for the off site sources. [ ]
3. **IF** the TSO contacts LGS directly then the following step will ensure that the NDO is contacted to evaluate off-cost generation. [ ]

3.12 **IF** notified directly by the TSO that either transmission system (230 KV or 525 KV or 69 kV system (if connected as a third offsite source) voltage may drop below required minimum,
**OR** that the LGS post trip contingency percentage voltage drop may be in excess of the limiting value,
**THEN CONTACT** the NDO to evaluate the need to have the grid operator provide additional generation to increase transmission system stability._____

Person Contacted _____ Time _____

**NOTE**

1. The Process Computer SCADA points may be used to monitor transmission system voltages for trend information. [ ]

2. Transmission system voltages for operability determinations must use the voltages supplied by the TSO. [ ]

3. SCADA process computer points for the 230 kV
**AND** 525 kV lines are V403
**AND** H414 respectively. [ ]

4. The minimum voltage for 230 kV System operability is 225 kV, the minimum voltage for normal operations per the TSO Transmission System Operator voltage schedule Is 226 kV. The minimum voltage for 500 kV System operability is 498 kV, the minimum voltage for normal operations per the TSO voltage schedule is 500 kV
Operation below the voltage schedule limit requires concurrence from the TSO. [ ]

3.13 **IF** notified by the NDO
**OR** TSO of any of the following:
- potential low grid voltages
- actual low grid voltages
- inadequate post trip contingency percentage voltage drop

**THEN INITIATE** once per hour contact with the TSO to determine transmission system (230 KV or 525 KV or 69 kV when connected as a third Offsite source) voltages **AND** the LGS post trip contingency percentage voltage drop. _____

3.13.1 **IF** any voltages drop below the following minimum values,
**THEN DECLARE** the offsite source inoperable
**AND TAKE** the action per Tech Spec 3.8.1. _____

| SOURCE | TRANSMISSION SYSTEM | MINIMUM VOLTAGE |
|---|---|---|
| 10 Bus | 230 kV System | 225 kV |
| 20 Bus | 500 kV System | 498 kV |
| | 230 kV System | 225 kV |
| 6680 Line | 69 kV system | 67.5 kV (when connected as 3rd offsite source) |

**NOTE**

1. **IF** operating near the post trip contingency voltage limits, **THEN** bus alignments that may cause an off site source to become inoperable by entering a different alignment should be avoided. [ ]
2. For bus alignment combinations not covered in Steps 3.13.2 **AND** 3.13.3 (i.e. 6 or 7, 4 kV buses aligned to the source) use the column for 8 buses. [ ]
3. Steps 3.13.2 **AND** 3.13.3 evaluate Post Trip Contingency Voltage Drop for each off site source. [ ]
4. PJM will provide post trip contingency voltage drop in percent. [ ]

3.13.2 **IF** the LGS post trip contingency percentage voltage drop for the 10 BUS is predicted by the TSO to exceed the limits in the following table, **THEN PERFORM** the following:

1. **DECLARE** the offsite source inoperable. _____
2. **TAKE** the action per Tech Spec 3.8.1. _____
3. **GO TO** Attachment 1 **AND** review recommended actions regarding in progress **OR** planned work. _____

**Table 1**

**POST TRIP CONTINGENCY VOLTAGE DROP**

| | | Both Units Operating (generators connected to grid) | | One Unit Shutdown/ One Unit Operating | | |
|---|---|---|---|---|---|---|
| **SOURCE** | **TRANSMISSION SYSTEM** | 8 buses aligned to source | 4 or less safety buses aligned | 8 buses aligned to source | 5 buses aligned to source | 4 or less safety buses aligned |
| 10 Bus | 230 kV System | 3.6 % | 5.0 % | 3.6 % (with hardening actions per Att. 3) | 4.5 % | 4.0 % |
| 6680 Line | 69 kV System (when connected & loaded) | 2.9 %* | ** | 2.9 %* | ** | 4.1 %* (with hardening actions per Att. 3) |

* 8A/8B Tap changers must be positioned per S91.0.B

** Percent voltage drop for 69 kV system is currently not analyzed, contact Engineering to determine limiting values if 69 kV system must be connected in this alignment.

3.13.3 **IF** the LGS post trip contingency percentage voltage drop for the 20 BUS is predicted by the TSO to exceed the limits in the following table,
**THEN PERFORM** the following:

1. **DECLARE** the offsite source inoperable. _____

2. **TAKE** the action per Tech Spec 3.8.1. _____

3. **GO TO** Attachment 1
**AND** review recommended actions regarding in progress
**OR** planned work. _____

**Table 2**

**POST TRIP CONTINGENCY VOLTAGE DROP**

| | | Both Units Operating (generators connected to grid) | | One Unit Shutdown/ One Unit Operating | | |
|---|---|---|---|---|---|---|
| **SOURCE** | **TRANSMISSION SYSTEM** | 8 buses aligned to source | 4 or less safety buses aligned | 8 buses aligned to source | 5 buses aligned to source | 4 or less safety buses aligned |
| 20 Bus | 500 kV System OR 230 kV System | 2.5 % | 5.0 % | 2.5 % (with hardening actions per Att. 4) | 3.0 % | 4.0 % |
| 6680 Line | 69 kV System (when connected & loaded) | 2.9 %* | ** | 2.9 %* | ** | 3.8 %* |

* 8A/8B Tap changers must be positioned per S91.0.B
** Percent voltage drop for 69 kV system is currently not analyzed, contact Engineering to determine limiting values if 69 kV system must be connected in this alignment.

3.14 **IF** either off-site source is inoperable
**THEN PERFORM** Section 4.3 of ST-6-092-365-0, Inoperable Unit 1 Safeguard Power Supply Actions For Both Units,
**AND** Section 4.3 of ST-6-092-366-0, Inoperable Unit 2 Safeguard Power Supply Actions For Both Units. _____

**UNIT 1 ONLY**

**LIMERICK GENERATING STATION**
**PRE-FIRE PLAN**

**FIRE AREA/ZONE:** F-D-311A (Fire Area 79)

**DESCRIPTION:** D11 DIESEL GENERATOR AND FUEL OIL-LUBE OIL TANK ROOM, ROOMS 311A AND 312A (EL 217)

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**SUGGESTED ACCESS/EGRESS:**
Primary Access: See attached pre-fire plan layout sketch
Secondary Access: See attached pre-fire plan layout sketch

If south side access to the diesel generator is required then,

1. Immediately contact security to open the delay fence gate **and** the diesel generator south side vital door.
2. If security cannot respond then remove a security master key ring from the ***"Shift Managers Key cabinet"*** and deliver the keyring to the Fire Brigade.
    a. Open the delay fence with key E49A.
    b. Open the vital door with the security master key.

**HAZARDS IN AREA:**

- Combustibles: The fire severity classification is MODERATE. This area contains cable insulation, lube oil, fuel oil, Rubatex/Armaflex.
- Physical Hazards: Open floor gratings, overhead obstructions near fan intake.
- Explosives: None.
- Electrical: Control board, motor control center, DC distribution panel.
- Mechanical: supply and return shutoff valves, exhaust fans, air compressor oil transfer pump.
- Chemical: Combustibles when involved in a fire condition may give off toxic products of combustion.
- Radiological: None.
- Construction: Interior Walls – 3hr fire rated TRM walls required for safe shutdown.

**UNIT 1 ONLY**

**LIMERICK GENERATING STATION**
**PRE-FIRE PLAN**

**FIRE AREA/ZONE:** F-D-311A (Fire Area 79)

**DESCRIPTION:** D11 DIESEL GENERATOR AND FUEL OIL-LUBE OIL TANK ROOM, ROOMS 311A AND 312A (EL 217)

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**PLANT SYSTEMS REQUIRING MANAGEMENT:**

**NOTE** -The following step will be performed as directed by Shift Supervision.

De-energize
**OR** isolate equipment based on fire scene reports.

| COMPONENT | EQUIPMENT NUMBER | EQUIPMENT ISOLATION (LOCATION) |
|---|---|---|
| Motor Control Center | D114-D-G | D114-33 (602-R12-313) |
| DC Distribution Panel | 1PPA2 | 1FA-1PPA2 (436-A8-239) |
| DC Power Shutdown to Panel 1AC514 | 1AC514 | 1PPA2-6 (311A-DG-217) |
| Fuel Oil Transfer Pump | 1AP514 | D114-D-G-17 (311A-DG-217) |
| Engine Driven Fuel Pump | 1AP537 | 1AG501 (311A-DG-217) |
| DC Motor Driven Fuel Pump | 1AP538 | 1PPA2 (311A-DG-217) |
| Fuel Oil Tank Supply to DG | 1AT528 | 20-1158A (312A-DG-217)<br>20-1160A (312A-DG-217) |
| Lube Oil Makeup Tank Supply to DG | 1AT565 | 20-1130A (312A-DG-217) |
| Air Exhaust Fans | 1AV512<br>1EV512 | D114-D-G-13 (311A-DG-217)<br>D114-D-G-14 (311A-DG-217) |
| Starting Air Compressor | 1A1K513<br>1A2K513 | D114-D-G-03 (311A-DG-217)<br>D114-D-G-04 (311A-DG-217) |

Vital Heat Sensitive Components That Need To Be Kept Cool:

N/A

**LIMERICK GENERATING STATION**
**PRE-FIRE PLAN**

**FIRE AREA/ZONE:** F-D-311A (Fire Area 79)

**DESCRIPTION:** D11 DIESEL GENERATOR AND FUEL OIL-LUBE OIL TANK ROOM, ROOMS 311A AND 312A (EL 217)

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## FIRE EQUIPMENT:

- Hose Reels/Standpipe: See pre-fire plan layout sketch.
- Portable Extinguishers: See pre-fire plan layout sketch.
- Sprinkler Systems: Automatic Pre-action Sprinkler System (PR-31),
  - OS&Y Valve 22-1073 (Pipe Tunnel 202-R15-198)
  - Air Supply Valve 22-1139 (Pipe Tunnel 202-R15-198).
- $CO_2$ or Halon Systems: None.
- Extra Equipment:
  - Hose Cart House 1 (South of Radwaste Bldg.)
  - Hose Cart House 5 (South of Aux. Boiler)
  - Portable 30 gal. Foam Unit - Hose Cart House 1
  - Fire Hydrant 7 – adjacent to Hose Cart House 1
  - Fire Hydrant 8 – south of Diesel Generator Enclosure
  - 350lb Wheeled ANSUL Extinguisher – Hose Cart House 5

## SUGGESTED FIRE ATTACK:

The ultimate decision for the fire attack is at the Fire Brigade Leader/Incident Commander's discretion.

If south side access to the diesel generator is required then,

1. Immediately contact security to open the delay fence gate **and** the diesel generator south side vital door.
2. If security cannot respond then remove a security master key ring from the "***Shift Managers Key cabinet***" and deliver the keyring to the Fire Brigade.
   a. Open the delay fence with key E49A.
   b. Open the vital door with the security master key.

## VENTILATION EQUIPMENT:

| | | |
|---|---|---|
| Diesel Generator | (35,000 cfm ea.) | 1AV512 |
| Air Exhaust Fans | | 1EV512 |

## SMOKE MANAGEMENT:

Per the discretion of the fire brigade leader.

## COMMUNICATIONS:

- Portable Radios

**LIMERICK GENERATING STATION**
**PRE-FIRE PLAN**

**FIRE AREA/ZONE:** F-D-311A (Fire Area 79)

**DESCRIPTION:** D11 DIESEL GENERATOR AND FUEL OIL-LUBE OIL TANK ROOM, ROOMS 311A AND 312A (EL 217)

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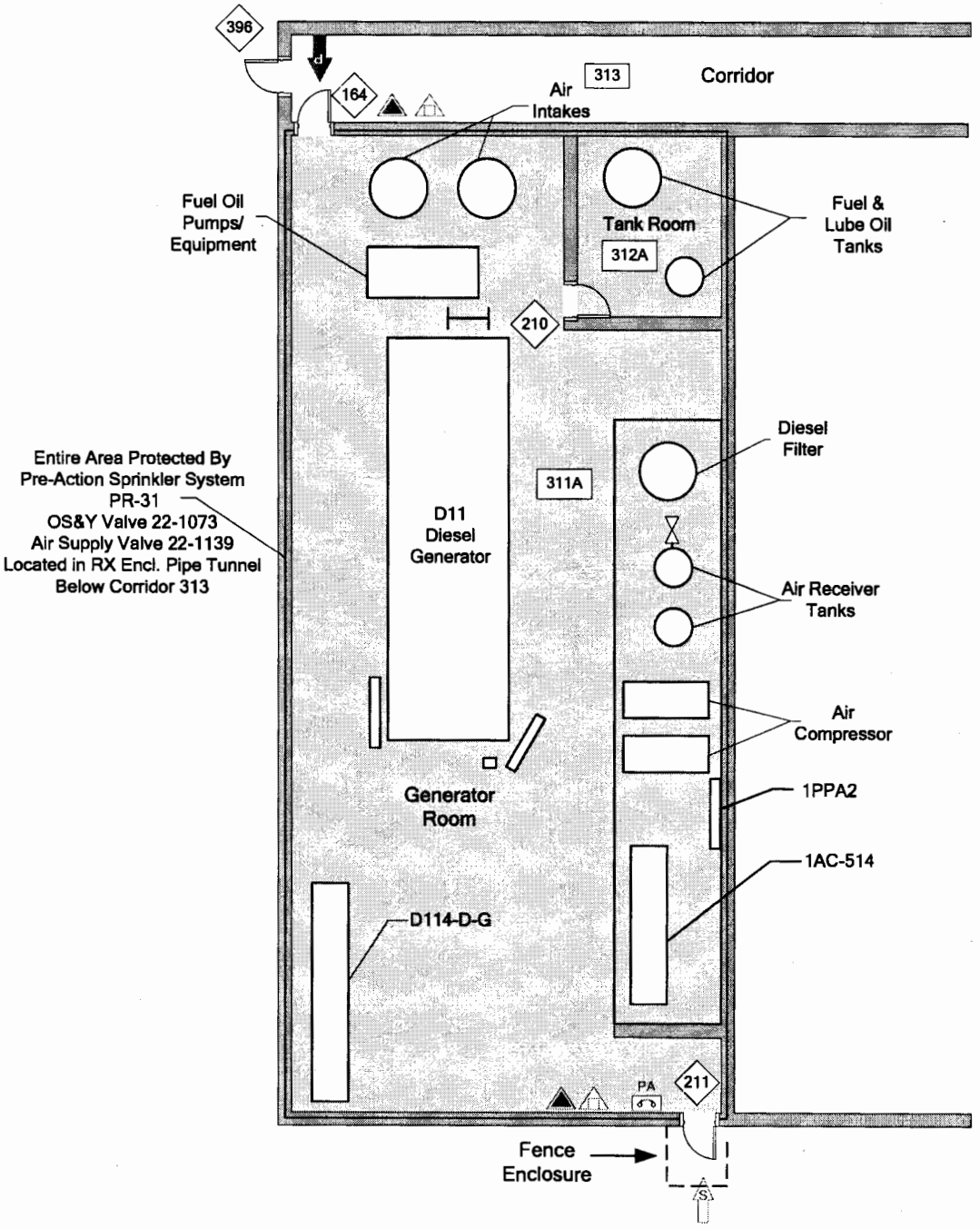
**RADIOACTIVE RELEASE CONSIDERATIONS:**

Radiation release to any unrestricted area due the direct effects of fire suppression activities (but not involving fuel damage) shall be as low as reasonably achievable and shall not exceed 10CFR Part 20 limits.

**SPECIAL PRECAUTIONS:**

**Caution:** IF diesel generator operation is **NOT** required, THEN shutdown diesel generator per S92.2.N to prevent equipment damage.

# LIMERICK GENERATING STATION
# PRE-FIRE PLAN




| Limerick Pre-Fire Plan Layout |
|---|
| D11 Diesel Generator El. 217'-0" Unit 1 Diesel Generator Room & Fuel Oil & Lube Oil Tank Room |
| Fire Area/Fire Zone: F-D-311A (FA 79) |

**LIMERICK GENERATING STATION**
**PRE-FIRE PLAN**

| EXELON LIMERICK Pre-Fire Plan Legend | | | | | | | |
|---|---|---|---|---|---|---|---|
| Symbol | Description | Symbol | Description | Symbol | Description | Symbol | Description |
| Firefighting Equipment | | Portable Fire Extinguishers | | Miscellaneous Symbols | | Water Based Systems | |
| | CO2 Hose Reel | | Water Extinguisher | P | Primary Access | | Siamese Connection |
| | Water Hose Reel | | $CO_2$ Extinguisher | S | Secondary Access | | Suppression Isolation Valve |
| | Foam Hose Reel | | ABC Dry Chemical Extinguisher | PA | PA | Fire Panels | |
| | Dry Chemical Hose Reel | | BC Dry Chemical Extinguisher | Phone | Telephone | FACP | Fire Alarm Control Panel |
| | Fire Hydrant | | Halon or Clean Agent Extinguisher | | Flammable Storage Locker | | |
| | | | | | FA/FZ Designation | | |
| | | | | | Suppression Manual Station | | |
| | | | | | Door Number | | |
| | | | | | Room Number | | |

# * * UNIT 1 ONLY * *

ATTACHMENT 1
Page 5 of 7

AREAS/INSTRUMENTATION AFFECTED BY HIGH TEMPERATURE
( < MRT **OR** > MIL: usable)
( > MRT **AND** < MIL: **not** usable)

| ELEVATION - 283' | | | | |
|---|---|---|---|---|
| **AREA** | **INSTRUMENT NUMBER (location)** | **MRT** | **MIL** | **ATTACHMENT** |
| 11 Rm. 510 & 522 Isol. Vlv. Compt. ****NOTE 1**** | XR-42-1R623A (WR,10C601) | 153°F | - 124" | 5 |
| | LI-42-1R606C (NR,10C603) | 298°F | + 4" | |
| | LR-42-1R615 (FZ,10C601) | 116°F | - 301" | |
| | LR-42-1R608 (UR,10C603) | **IF** run temperature is < 350 °F (D/W & Rx Enclosure.) **AND** indicated level is > 45 inches, **THEN** indication is usable. | | |
| | LI-42-1R605 (SR,10C602) | **IF** run temperature is < 350 °F (D/W & Rx Enclosure.) **AND** indicated level is > 50 inches, **THEN** indication is usable. | | |

| ELEVATION - 283' | | | | |
|---|---|---|---|---|
| **AREA** | **INSTRUMENT NUMBER (location)** | **MRT** | **MIL** | **ATTACHMENT** |
| 15 Rm. 501 | LI-42-1R604 (WR,10C603) | 174 °F | - 123" | 5 |
| | LI-42-1R606A (NR,10C603) | 294°F | + 4" | |

NOTE 1: RWCU may discharge into this room. The following temperature elements which indicate on 10C609 & 10C611 (Aux Equip Room) indicate Room 510/522 temperatures: TE-44-1N016AA / TE-44-1N016DD

| | |
|---|---|
| SQR | YES |
| RESP MGR. | YES |



# LIMERICK GENERATING STATION
# OPERATIONAL CONTINGENCY GUIDELINES

## PURPOSE

This guideline provides considerations for alternate strategies to address plant conditions during a severe accident not specifically addressed in Event-driven operating procedures, related to: **(CM-1, CM-2)**

- Plant conditions that represent a challenge to the Spent Fuel Pool
- Plant conditions affecting the ability to maintain reactor cooling
- Plant conditions involving large fires or explosions
- Use of fire-water for radiological release scrubbing
- Use of cooling tower basin water for core cooling, fuel pool cooling or firefighting through a back-feed of the site fire-water header from either unit's cooling tower basin.
- Offsite Assistance Considerations

## ADDITIONAL ACTIONS

The table of contents for this document provides a summary of areas that may require alternate strategies and a listing of the procedurally directed actions. The referenced attachments provide a list of potential alternate strategies and the actions to implement these strategies if necessary.

Alternate strategies, not part of existing procedures are required to be performed under the provisions of 10CFR 50.54(x) and/or 10CFR 50.54(y) as required. Alternate strategies cannot subvert strategies contained in TRIP/SAMP procedures; otherwise, the alternate strategy must be implemented under the provisions of 10CFR 50.54(x).

NRC Order 12-049, FLEX required the licensees to develop additional proceduralized actions following the Fukushima accident. These strategies as well as the B.5.b strategies have been integrated with the Trips and SAMP procedures. This document remains as a road map to the strategies, but the attachments that provided implementation actions have been broken out as T-300 series procedures and integrated with the FLEX strategies.

Figure 1 shows the relationship of the Limerick TRIP and SAMP procedures, which

provide the primary strategies to address significant transients and severe accidents. Other procedures referenced in this guideline can be alternatives and the alternate methods section provides guidance to other possible success paths. Normal procedurally directed actions should be exhausted prior to pursuing suggested alternate strategies.

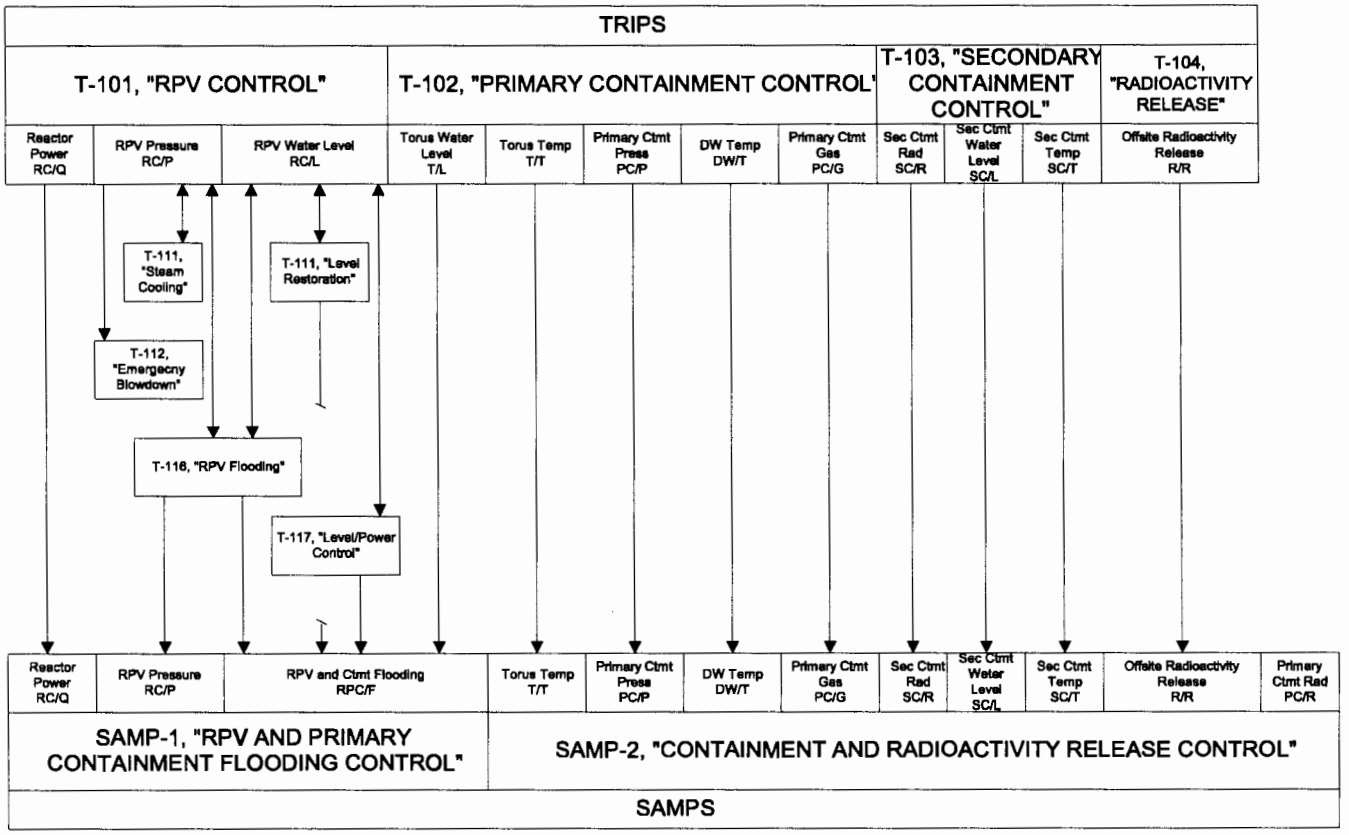



Figure 1

The guidance contained in the alternate strategies (T-300 series procedures) listed in this document for reference only. The T-300 procedures provide the steps that need to be taken to implement a strategy. The ERO Technical staff should review strategies against current plant conditions to ensure that use of the strategy is appropriate for plant conditions.

All tools, fittings, adapters and equipment needed to implement the strategies contained in this document are staged in the following locations:

B.5.b hose trailer (Hazmat building)
Diesel driven pump (00-P973) (Hazmat building)
Circ Water Pump House Chlorination Room
Refuel floor Unit 1 south wall near west stairs
Refuel floor Unit 2 south wall near east stairs

Toolboxes and cabinets are secured with a frangible lock (CAT-198 key).

Additional equipment, designated as Flex Equipment have been procured and are staged in the FLEX Pump Storage Building near the Spray Pond Pumphouse:

Hose Trailer #2 - Flex Emergency Equipment
Diesel driven FLEX pump (00-P974)
Diesel driven FLEX pump (00-P975)

All toolboxes and cabinets are secured with a frangible lock (CAT-198 key).

The additional equipment can be used to mitigate conditions on the second unit if required or in the event of primary B.5.b equipment failure.

Additional FLEX equipment that is on site and available for use is listed in Section 13.0.

Besides the duty keyrings carried by operators, a complete duplicate set of building and truck keys is located in the Operations Floor Supervisors locked keybox.

## TABLE OF CONTENTS

## 1.0 SPENT FUEL POOL COOLING & MAKEUP

1.1 Primary Procedure Guidance

1.1.1 S53.3.A – "Direct Makeup to Fuel Storage Pool", using Condensate Transfer as a Source of Make-up Water"

1.1.2 S51.8.M – "RHR System Back-up to Fuel Pool Cooling to Support Outage Operations " - use in OPCON 5 only

1.1.3 ON–125 – "Loss of Fuel Pool Cooling", directs use of:

Cooling

- RHR via S51.8.G
- RECW to FPCC Htx per S13.7.A
  **AND** ESW to back-up RECW Htx per S11.8.A
- Cross connection of fuel pools via S53.0.C

Makeup

- S53.3.A - Demin water to skimmer surge tank
- High Pressure decontamination pump via S53.8.B
- ESW – direct addition from ESW
- RHRSW – via cross connection to RHR and installation of RHR to fuel pool cooling spool piece.

1.1.4 T-103, Secondary Containment Control – now includes a leg for spent Fuel Pool level control

1.2 Alternate Strategies

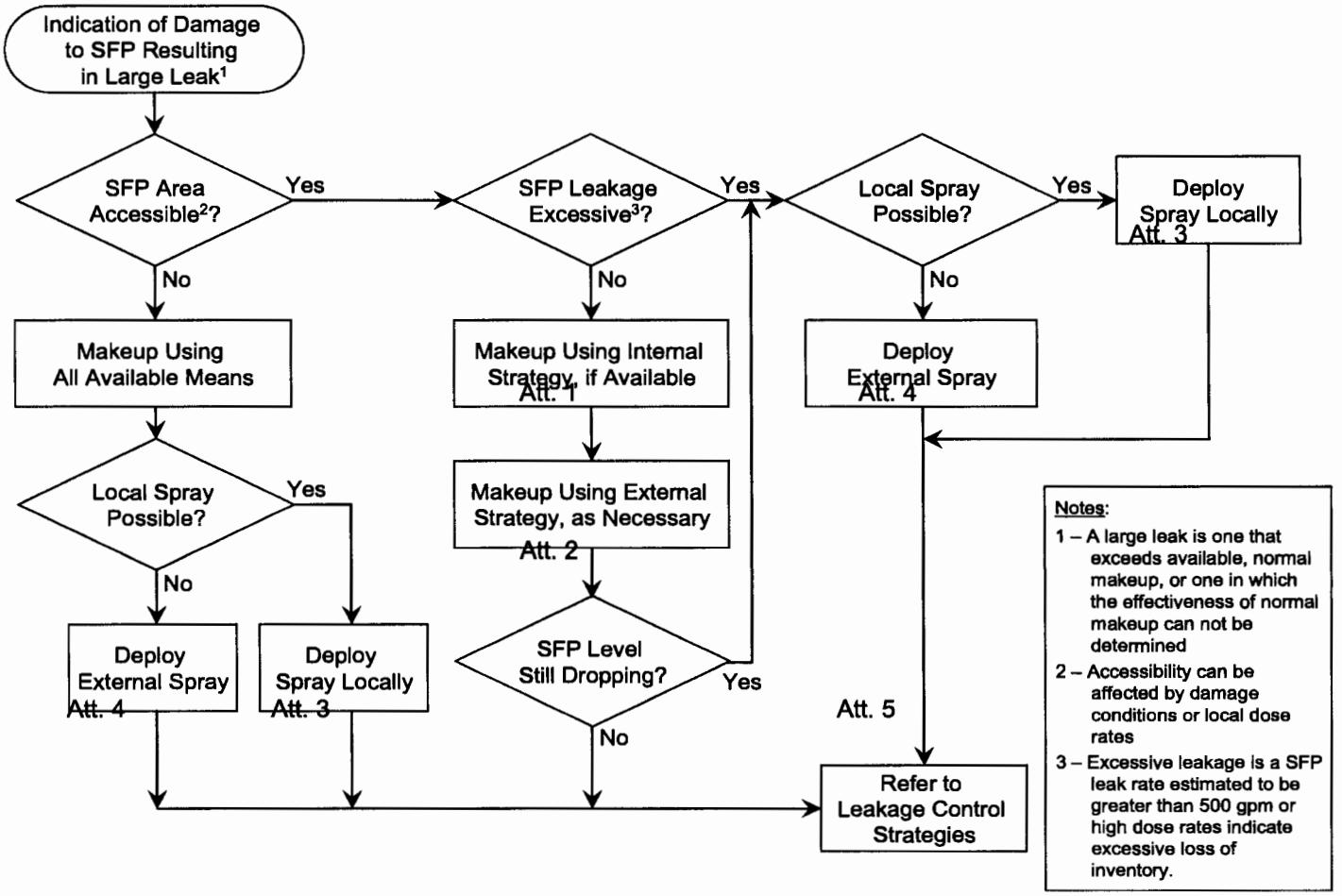
**NOTE**

1. The attached flow chart can be used to help determine if internal, external makeup or spray mode is appropriate to cool the spent fuel pool.
2. **IF** fuel pool level cannot be maintained above top of spent fuel, using makeup strategies, **THEN** use spray strategies.
3. Rising fuel floor dose rates while making up to fuel pool, may indicate fuel pool level not being maintained, consider changing the strategy to cooling spray.

1.2.1 Consider performing procedure T-321 for a 500 gpm direct make-up to the spent fuel pool using fire hoses from the fire standpipes located on the fuel

floor.

## Generalized Decision Process for SFP Makeup vs. Spray




1.2.2 Consider performing procedure T-323 for a 500 gpm external make-up to the spent fuel pool using a portable diesel driven pump and fire hose run up the Reactor Enclosure stairs.

1.2.3 Consider performing procedure T-324 for a 250 gpm cooling spray to the spent fuel pool using a portable diesel driven pump and fire hose run up the Reactor Enclosure stairs to oscillating spray nozzles on the fuel floor. This strategy should be considered when make-up strategies are not successful in keeping the spent fuel pool flooded due to the leak size. The water spray over the entire spent fuel pool provides more uniform cooling.

1.2.4 Depending on spent fuel pool configuration and the time since shutdown of recently discharged fuel, the external fuel pool spray strategy may be required within either 2 hours or 5 hours of the determination of external make-up to the spent fuel pool is required. LGS has committed to discharging fuel directly into a dispersed fuel pattern and normally will have 5 hours to implement an external spray strategy per Attachment 3. If less than 295 days have passed since reactor shutdown then external spray is required within 2 hours of the determination that external spray to the spent fuel pool is required. The Shift Manager maintains the current fuel pool status to determine if the fuel pool spray is required in 2 hours or 5 hours.

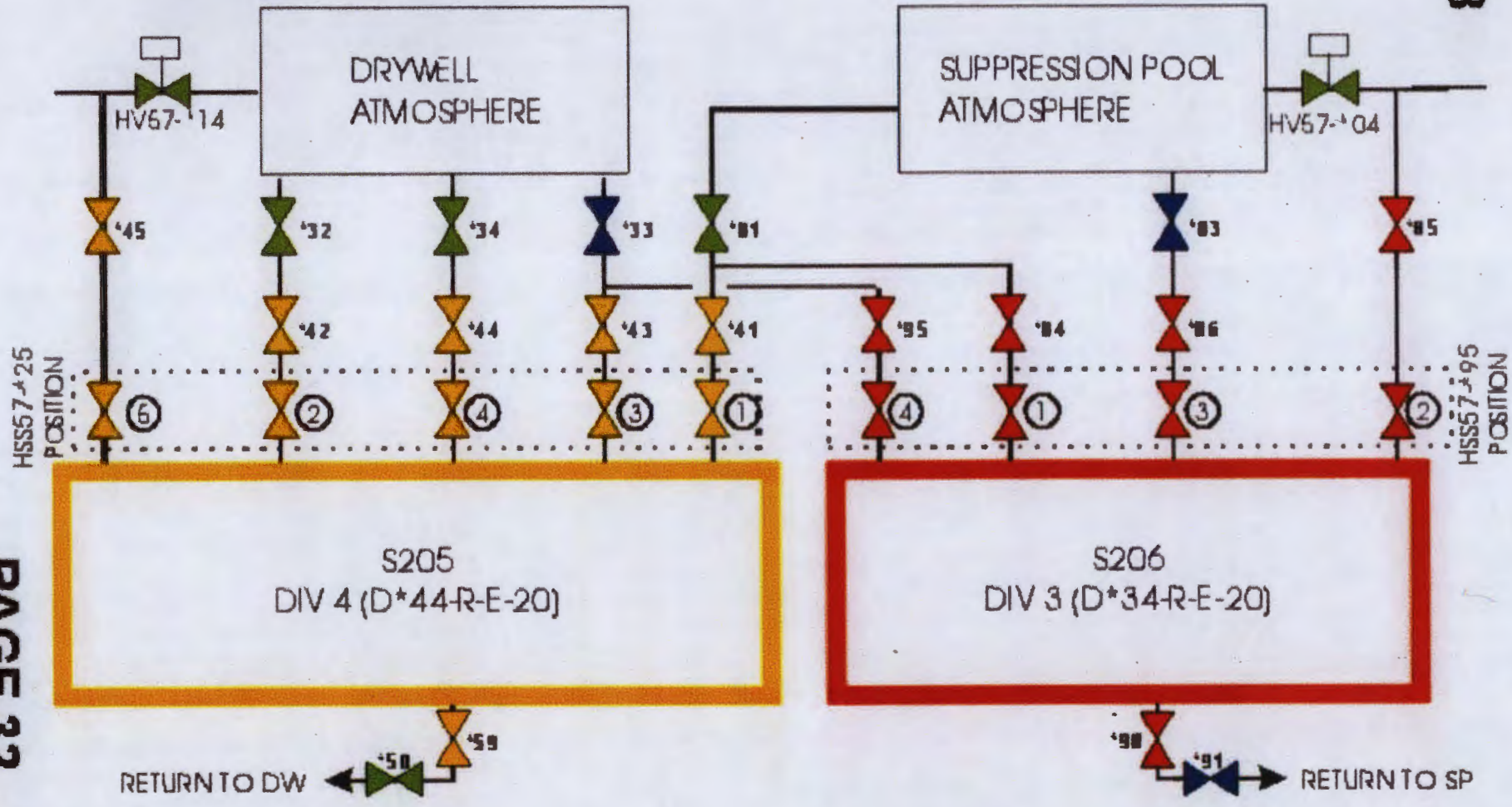
1.2.5 Consider performing procedure T-326 to create an external cooling spray if the refuel floor building superstructure is not intact. This strategy uses water pumped from a ladder fire truck or the portable pump to spray water onto the fuel floor to provide make-up and/or spray cooling.

1.2.6 Attachment 1 describes stocked materials if there is a leak from the spent fuel pool. Leak control strategies could include both plugging from the refuel floor (i.e. slide a plate down along the SFP wall) and external plugging from areas below the fuel pool.

1.2.7 If spent fuel pools are cross-connected, with gates to equipment pit removed, makeup water sources from the undamaged unit may be directed to the damaged spent fuel pool. This could include installation of the RHR to fuel pool cooling spool piece to use the unaffected units RHR system in fuel pool cooling assist mode, with flow to the cross-connected fuel pool through the equipment pit cattle chute.

1.2.8 RHR in fuel pool cooling assist mode may be a viable makeup method if the spool piece can be installed between the fuel pool cooling piping and the RHR system (piping located in fuel pool cooling htx room on el 283').

# $H_2O_2$ ANALYZER PATHS

INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.7.5 The accident monitoring instrumentation channels shown in Table 3.3.7.5-1 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3.7.5-1.

ACTION:

With the number of OPERABLE monitoring instrumentation channels less than required by the Minimum Channels Operable requirement, take the ACTION required by Table 3.3.7.5-1.

SURVEILLANCE REQUIREMENTS

4.3.7.5 Each of the above required accident monitoring instrumentation channels shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.7.5-1.

Table 3.3.7.5-1 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

TABLE NOTATIONS

ACTION STATEMENTS

ACTION 80 -

With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels OPERABLE requirements of Table 3.3.7.5-1, restore at least one of the inoperable channel(s) to OPERABLE status within 30 days. OTHERWISE, submit a Corrective Action Program (CAP) document within the following 24 hours outlining proposed restorative actions and an alternate monitoring method.

ACTION 82 -

With the number of OPERABLE monitoring instrumentation channels less than required by the Minimum Channels Operable requirement in Table 3.3.7.5-1, initiate the preplanned alternate monitoring method within 72 hours.

AND

Restore the inoperable channel to OPERABLE status within 7 days, OTHERWISE, submit a Corrective Action Program (CAP) document within the following 24 hours to evaluate and capture the cause and resolution of the condition.

ACTION 83 –

a. With the number of OPERABLE accident monitoring instrumentation channels less than the Required Number of Channels shown in Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

b. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels OPERABLE requirements of Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours

## 3/4.3.6 CONTROL ROD BLOCK INSTRUMENTATION

### LIMITING CONDITION FOR OPERATION

3.3.6. The control rod block instrumentation channels shown in Table 3.3.6-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.6-2.

APPLICABILITY: As shown in Table 3.3.6-1.

ACTION:

a. With a control rod block instrumentation channel trip setpoint** less conservative than the value shown in the Allowable Values column of Table 3.3.6-2, declare the channel inoperable until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

b. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, take the ACTION required by Table 3.3.6-1.

### SURVEILLANCE REQUIREMENTS

4.3.6 Each of the above required control rod block trip systems and instrumentation channels shall be demonstrated OPERABLE* by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION operations for the OPERATIONAL CONDITIONS shown in Table 4.3.6-1 and at the frequencies specified in the Surveillance Frequency Control Program unless otherwise noted in Table 4.3.6-1.

*A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the trip system in the tripped condition, provided at least one other operable channel in the same trip system is monitoring that parameter.

**The APRM Simulated Thermal Power - Upscale Functional Unit need not be declared inoperable upon entering single reactor recirculation loop operation provided that the flow-biased setpoints are adjusted within 6 hours per Specification 3.4.1.1.

TABLE 3.3.6-1 (Continued)

CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION

ACTION STATEMENTS

| ACTION 60 - Declare the affected RBM channel inoperable and take the ACTION required by Specification 3.1.4.3.

ACTION 61 - With the number of OPERABLE Channels:

a. One less than required by the Minimum OPERABLE Channels per Trip Function requirement, restore the inoperable channel to OPERABLE status within 12 hours or place the inoperable channel in the tripped condition.

b. Two or more less than required by the Minimum OPERABLE Channels per Trip Function requirement, place at least one inoperable channel in the tripped condition within one hour.

ACTION 62 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, place the inoperable channel in the tripped condition within 12 hours.

ACTION 63 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, initiate a rod block.

NOTES

*

**

***

(a)

(b)

(c)

(d)

(e)

| (f) DELETED

PLANT SYSTEMS

3/4.7.6 FIRE SUPPRESSION SYSTEMS

FIRE SUPPRESSION WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6.1 The fire suppression water system shall be OPERABLE with:

a. Two OPERABLE fire suppression pumps, one electric motor driven and one diesel engine driven, each with a capacity of 2500 gpm, with their discharge aligned to the fire suppression header,

b. Separate fire water supplies, each with a minimum contained volume of 311,000 gallons, and

c. An OPERABLE flow path capable of taking suction from the Unit 1 Cooling Tower Basin and the Unit 2 Cooling Tower Basin and transferring the water through distribution piping with OPERABLE sectionalizing control or isolation valves to the yard hydrant curb valves, the last valve ahead of the water flow alarm device on each wet pipe sprinkler system and the last valve ahead of the deluge valve on each deluge, spray, or pre-action sprinkler system and the last valve ahead of the fire hose stations required to be OPERABLE per Specifications 3.7.6.2, 3.7.6.5, and 3.7.6.6.

APPLICABILITY: At all times.

ACTION:

a. With one pump and/or one water supply inoperable, restore the inoperable equipment to OPERABLE status within 7 days or provide an alternate backup pump or supply. The provisions of Specification 3.0.3 are not applicable.

b. With the fire suppression water system otherwise inoperable, establish a backup fire suppression water system within 24 hours.

SURVEILLANCE REQUIREMENTS

4.7.6.1.1 The fire suppression water system shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying the minimum contained water supply volume.

b. At least once per 31 days by starting the electric motor-driven fire suppression pump and operating it for at least 15 minutes under flow conditions.

c. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path is in its correct position.

3/4 7.6 FIRE SUPPRESSION SYSTEMS (Continued)

Action a states that "With one fire pump and/or one water supply inoperable, restore the inoperable equipment to operable status within 7 days or provide an alternate pump or supply. The provisions of TRM Section 3.0.3 are not applicable." With the Diesel Driven Fire Pump (00-P511) or the Motor Driven Fire Pump (00-P512) or one of the cooling tower water supplies inoperable Action a is met by placing the Backup Diesel Driven Fire Pump (10-P402) and its water supply (10-T402) in service within 7 days.

Should the backup fire system be unavailable, then another alternate pump or supply would need to be provided in order to meet the requirements of Action a. Failure to do so within 7 days would impose no further TRM action because the requirements of 3.0.3 are not applicable to Action a. However, a CR would be required for non-compliance with TRM Action a.

If the backup fire system is placed in service to comply with Action a and it subsequently becomes inoperable, then the backup fire system must be returned or an alternate pump and supply must be placed in service within 7 days or a CR would be required for non-compliance with TRM Action a. The loss of the backup fire system, while in Action a does not make the fire suppression water system "otherwise inoperable" as referred to in Action b which states "With the fire suppression water system otherwise inoperable establish a backup fire suppression water system within 24 hours." However, compliance with Action a is no longer being met. In this case, compliance with Action a should be achieved within 7 days. Again, failure to comply would not require additional actions even if the 7 day allowance were to be exceeded because the requirements of 3.0.3 are not applicable. A CR would be required as addressed above.

Action b states that "With the fire suppression water system otherwise inoperable establish a backup fire suppression water system within 24 hours." Action a defines the requirements when one primary pump and/or one primary water supply is inoperable. Action b defines the requirements when the fire suppression water system is "otherwise inoperable." "Otherwise inoperable" is therefore a condition other than one pump and/or one water supply which necessitates the following definition. "Otherwise inoperable" is a condition where two primary pumps (00P511 & 00P512) and/or two water supplies are inoperable. The provisions of TRM Section 3.0.3 do apply to Action b, therefore, if the primary fire suppression water system is unable to provide any water for fire suppression then a backup fire system must be put in service within 24 hours or both units would be required to commence shutdown in accordance with the requirements of 3.0.3.

The following chart summarizes and addresses all the various combinations of fire pump and water supply inoperability with the corresponding TRM requirements. If while in Action a the backup fire system fails, then within 7 days it must be restored or an alternate put in service or a CR must be generated. Do not enter Action b unless none of the primary means can supply water.

## 3.4.9 REFUELING OPERATIONS

### 3/4.9.1 REACTOR MODE SWITCH

LIMITING CONDITION FOR OPERATION

3.9.1 The reactor mode switch shall be OPERABLE and locked in the Shutdown or Refuel position. When the reactor mode switch is locked in the Refuel position:

a. The Refuel position one-rod-out interlock shall be OPERABLE.

b. The following Refuel position interlocks shall be OPERABLE:

1. All rods in.

2. Refuel Platform (over-core) position.

3. Refuel Platform hoists fuel-loaded.

4. Service Platform hoist fuel-loaded (with Service Platform installed).

APPLICABILITY: OPERATIONAL CONDITION 5* **, OPERATIONAL CONDITIONS 3 AND 4 when the reactor mode switch is in the Refuel position.

ACTION:

a. With the reactor mode switch not locked in the Shutdown or Refuel position as specified, suspend CORE ALTERATIONS and lock the reactor mode switch in the Shutdown or Refuel position.

b. With the one-rod-out interlock inoperable, verify all control rods are fully inserted and disable withdraw capabilities of all control rods ***, or lock the reactor mode switch in the Shutdown position.

c. With any of the above required Refuel Platform Refuel position interlocks inoperable, take one of the ACTIONS listed below, or suspend CORE ALTERATIONS.

1. Verify control rods are fully inserted and disable withdraw capabilities of all control rods***, or

2. Verify Refuel Platform is not over-core (limit switches not reached) and disable Refuel Platform travel over-core, or

3. Verify that no Refuel Platform hoist is loaded and disable all Refuel Platform hoists from picking up (grappling) a load.

d. With the Service Platform installed over the vessel and any of the above required Service Platform Refuel position interlocks inoperable, take one of the ACTIONS listed below, or suspend CORE ALTERATIONS.

1. Verify all control rods are fully inserted and disable withdraw capabilities of all control rods***, or

2. Verify Service Platform hoist is not loaded and disable Service Platform hoist from picking up (grappling) a load.

---

* See Special Test Exceptions 3.10.1 and 3.10.3.

** The reactor shall be maintained in OPERATIONAL CONDITION 5 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

*** Except control rods removed per Specification 3.9.10.1 or 3.9.10.2.

# CORE OFFLOAD
# **UNIT 1 ONLY **

Initials/ Date/ Time

## 3.5 CORE OFFLOAD

3.5.1 IF core is to be shuffled,
THEN **ENTER** N/A for Sections **3.5, 3.6, 3.7, 3.8,**
AND **GO TO** Section **3.9** ___/ ___/ ___

3.5.2 **INFORM** Rad Pro Drywell Control Point approximately 2 hours prior to start of core component handling.



___/ ___/ ___
Rad Pro Control Contacted

3.5.3 **PERFORM** the following to ensure plant conditions acceptable for entry into OPCON 5 by:

**NOTE**

The following step may require taking readings **not** normally performed on this particular shift (once per 24 hour readings).

* 1. **INFORM** operators performing daily surveillance test ST-6-107-591-1, Daily Surveillance Log/OPCONS 4, 5, to include core alteration required readings to assure continued TS compliance. ___/ ___/ ___

* 2. IF **not** done in last seven days,
THEN **PERFORM** ST-6-107-594-1, Weekly Surveillance Log, for Spent Fuel Storage Pool Level.

Date Performed _____ ___/ ___/ ___

3. **ENSURE** RPIS extender Cards installed prior to performance of ST-6-097-630-1, "CORE ALTERATION TESTING FOR OFFLOADING, SHUFFLING AND RELOADING THE CORE" ___/ ___/ ___

# CORE OFFLOAD
# **UNIT 1 ONLY **

Initials/ Date/ Time

**NOTE**

ST-6-097-630-1, Core Alteration Testing For Offloading, Shuffling And Reloading The Core, is performed at least once every 31 days to ensure platform, hoist **AND** one rod out interlock operability at all times during core alterations.

* 4. **PERFORM** ST-6-097-630-1, Core Alteration Testing For Offloading, Shuffling And Reloading The Core, just prior to actual core alterations. ____/ ___/ ___

**NOTE**

Attachment 5 may be referenced for a listing of Tech Specs that may be impacted.

5. **REVIEW** the following items for impact on safety related/TS equipment require for entry into OPCON 5:

- LCO log ____/ ___/ ___
- TCCP log ____/ ___/ ___
- Clearances (PIMS Search =4.R..1 OPTION 22) ____/ ___/ ___
- Annunciators/status lights ____/ ___/ ___
- TRTs ____/ ___/ ___
- Equipment Status Tag List ____/ ___/ ___
- Locked Valve Log ____/ ___/ ___
- Special Procedures in progress ____/ ___/ ___
- Barrier Breach Book ____/ ___/ ___
- PARAGON or ORAM assessment of OPCON change ____/ ___/ ___

6. **REVIEW** Equipment Status. ____/ ___/ ___

7. **WALKDOWN** MCR panels. ____/ ___/ ___

_____ _____ ____/____
Shift Manager Control Room Supervisor Date / Time

# CORE OFFLOAD
# **UNIT 1 ONLY **

Initials/ Date/ Time

3.5.4 **PERFORM** the following to avoid in-core instrumentation vibration after fuel assembly removal:

1. **THROTTLE** Shutdown Cooling flow using HV-C-51-1F048A (B), 1A(B) RHR Htx Shell Side Bypass Vlv (HEAT EXCH BYPASS)
**AND** HV-C-51-103A(B), 1A(B) RHR Htx Outlet Bypass Vlv (POS), to achieve 5600 to 6000 GPM in accordance with the RHR Shutdown Cooling/ADHR lineup currently in-service: ____/ ___/ ___

   - S51.8.B, Shutdown Cooling/Reactor Coolant Circulation Operation Startup And Shutdown
   - S51.8.H, Use Of Dedicated LPCI Pumps For Shutdown Cooling/Reactor Coolant Circulation Operation (Startup And Shutdown)
   - S51.8.L, RHR Alternate Decay Heat Removal Startup And Shutdown

2. **HANG** Operator Aids in accordance with OP-AA-115-101, Operator Aid Postings, by RHR flow indication FI-51-1R603A, RHR Loop A Flow
**AND** FI-51-1R603B, RHR Loop B Flow, on panel 10C601 stating the following:

   "Maintain system flow between 5600 to 6000 GPM to avoid in-core instrumentation vibration per GP-6.1." ____/ ___/ ___

# CORE OFFLOAD
# **UNIT 1 ONLY **

Initials/ Date/ Time

**NOTE**

The cavity work platform is partially submerged in the reactor cavity.
**WHEN** personnel are working in the cavity work platform,
**THEN** coolant temperature should be maintained at the lower end of the temperature band, if possible.

**CAUTION**

Reactor Coolant temperature must be maintained greater than 68°F to ensure Shutdown Margin.

3. **OBSERVE** Reactor Coolant temperature
**AND ADJUST** flow through heat exchanger as necessary to maintain coolant temperature between 75 to 85°F in accordance with the RHR Shutdown Cooling/ADHR lineup currently in-service: ____/ ___/ ___

   - S51.8.B, Shutdown Cooling/Reactor Coolant Circulation Operation Startup And Shutdown
   - S51.8.H, Use Of Dedicated LPCI Pumps For Shutdown Cooling/Reactor Coolant Circulation Operation (Startup And Shutdown)
   - S51.8.L, RHR Alternate Decay Heat Removal Startup And Shutdown

**NOTE**

Reactor water level may now be controlled by S53.4.D, Reactor Cavity Level Control With RWCU Unavailable During Refuel Operations. In this mode, Radwaste (Equipment Drain Collection Tank/Equipment Drain Surge Tank) must be capable of receiving water to be drained from skimmer surge tanks to control Reactor Cavity level.

3.5.5 **CONTACT** Fuel Handling Director to ensure underwater lighting has been installed
**AND** visibility is acceptable in Reactor Cavity/Spent Fuel Pool to handle core components.

_____ ____/ ___/ ___
Person Contacted

# CORE OFFLOAD
# **UNIT 1 ONLY **

Initials/ Date/ Time

**NOTE**

FH-105 prerequisites include a verification of water level at **OR** above the weir gate bolts to ensure adequate coverage above the grapple. The Fuel Handling Director should be informed of any activities expected to lower water level to allow for re-verification, as necessary.

3.5.6 **CONTACT** Fuel Handling Director
**AND ENSURE** prerequisites of FH-105, Core Component Movement - Core Transfers, are complete.

_____ ____/ ___/ ___
Person Contacted

3.5.7 **CONTACT** Fuel Handling Director
**AND VERIFY** that Drywell access control has been established to support core alterations.

_____ ____/ ___/ ___
Person Contacted

3.5.8 **PLACE** an Operator Aid in accordance with OP-AA-115-101, Operator Aid Postings, on panel 10C603 by SRMs stating the following: ____/ ___/ ___

"REQUIRED TO PERFORM CORE ALTERATIONS:
- AUDIBLE SRM alarm in the MCR (TS 3.9.2)
- CONTINUOUS Visual SRM indication in the MCR (TS 3.9.2)
- CONTINUOUS communications between the RF Floor and MCR (TS 3.9.5)
- Two operable SRMs INSERTED to the normal operating level (TS 3.9.2)
- One operable SRM IN THE QUADRANT of core alterations (TS 3.9.2)
- One operable SRM IN ADJACENT QUADRANT to core alterations (TS 3.9.2)

Continuously observe the SRMs during core alterations **AND** immediately notify the Fuel Handling Director **AND** Shift Supervision to suspend component movement **IF** any SRM count rate has doubled between CCTAS steps."

3.5.9 **IF** SRM count rate exceeds two doublings, **THEN ENTER** ON-120, Fuel Handling Problems, immediately. ____/ ___/ ___

# CORE OFFLOAD
# **UNIT 1 ONLY **

Initials/ Date/ Time

3.5.10 **IF** SRM count rate stabilizes at a value of less than 2 doublings
**AND** no SRM spiking
**OR** indication of SRM inoperability exists
**THEN** component movement may resume.

This does **not** apply to first, second, third,
**OR** fourth fuel bundles placed adjacent to an SRM
at the start of a core reload. ____/ ___/ ___

**CAUTION**

Per TS 6.2.2.d, core alterations must be observed
**AND** directly supervised by an SLO/Limited SLO with **no** other concurrent responsibilities.

3.5.11 **WHEN** all preparations for core alterations are complete,
**THEN NOTIFY** Fuel Handling Director to begin Core
Alterations per Core Component Transfer Authorization Sheets
(CCTAS) issued by the Reactor Engineer.

_____ ____/ ___/ ___
Person Contacted

**NOTE**

1. Tech Spec 3.9.1.c specifies actions which may be taken in lieu of suspending core alterations if the Refuel Platform Refuel position interlocks become inoperable. The following step implements Tech Spec Action 3.9.1.c.1.

2. **IF** required to perform Attachment 10 more than one time,
**THEN** additional copies of Attachment 10 may be made
**AND** attached to this procedure.

*

1. **IF** the Refuel Platform interlocks become inoperable
**AND** there is **no** requirement to maintain control rod
withdraw capability
**THEN PERFORM** Attachment 10. ____/ ___/ ___

2. **WHEN** the rod block is **no** longer required,
**THEN COMPLETE** Attachment 10. ____/ ___/ ___

# CORE OFFLOAD
# **UNIT 1 ONLY **

Initials/ Date/ Time

3.5.12 **IF** control rods are to be removed from core for replacement **OR** drive maintenance work during Core Offload,
**THEN OBTAIN** permission from Plant Manager prior to blocking CRD System. (Ref. 4.7) ____/ ___/ ___

* 3.5.13 **IF** control rods are to be removed per TS 3.9.10.1 **OR** 3.9.10.2,
**THEN PERFORM** ST-6-107-632-1, One Rod Out Interlock Verification Testing
**AND** applicable Sections of ST-6-107-360-1, Verification Of Tech Spec Compliance Prior To Removal Of Single/Multiple Control Rod Drives In OPCON 4 Or 5, within 4 hours of control rod removal. ____/ ___/ ___

1. **PERFORM** this surveillance as required until all control rods are reinstalled
**AND** inserted into core.

**NOTE**

TS 3.9.2.d permits control rod withdrawal in OPCON 5 with the RPS shorting links installed for control rods removed per TSs 3.9.10.1
**OR** 3.9.10.2.

*

2. **PERFORM** ST-6-107-632-1, One Rod Out Interlock Verification Testing, to test one rod out interlock following control blade/mechanism replacement. ____/ ___/ ___

# ** UNIT 1 ONLY **

Initials/ Date/ Time

ATTACHMENT 10
Page 1 of 1

## CONTROL ROD WITHDRAWAL BLOCK

**1.0** **VERIFY** control rods in fueled cells are fully inserted. ____/ ___/ ___

**2.0** **PERFORM** one of the following to insert a control rod withdrawal block as follows:
**AND MARK** the action **not** performed N/A.

- **PLACE** Scram Discharge Volume High Level Bypass Keylock Switch on panel 10C603 in "BYPASS" (Preferred) ____/ ___/ ___

**OR**

- IF conditions permit,
  THEN **PLACE** an unbypassed IRM mode switch out of 'OPERATE' ____/ ___/ ___

**3.0** **MAKE** a PLCO entry in OPS Logs. ____/ ___/ ___

**4.0** **WHEN** the rod block is **no** longer required,
**THEN PERFORM** the following as appropriate
**AND MARK** the action **not** performed N/A.

- **PLACE** Scram Discharge Volume High Level Bypass Keylock Switch on panel 10C603 in "NORMAL" ____/ ___/ ___

**OR**

- **PLACE** the unbypassed IRM mode switch in step **2.0** to 'OPERATE' ____/ ___/ ___

**5.0** **ENSURE** PLCO entry is closed in Ops Logs. ____/ ___/ ___

# ** UNIT 1 ONLY **

ATTACHMENT 11
Page 1 of 1
FUEL MOVEMENT & CORE ALTERATION CHECK LIST

**NOTE**

1. All of the check list conditions are not required for Core Alterations. Some of the listed conditions only prevent movement of irradiated fuel or movement of irradiated fuel in the RPV.
2. This check list is only an aid. Reference Tech Specs for making any operating decisions.
3. Moving a blade in a de-fueled cell is not a core alteration.

- ❑ 2 operable SRMs inserted to the normal operating level (TS 3.9.2)
- ❑ One operable SRM in the quadrant of core alterations (TS 3.9.2)
- ❑ One operable SRM in a quadrant adjacent to core alterations (TS 3.9.2)
- ❑ **CONTINUOUS** Communications between the Refuel Floor and the MCR (TS 3.9.5)
- ❑ **CONTINUOUS** visual SRM indication in the MCR (TS 3.9.2)
- ❑ **AUDIBLE** SRM alarm in the MCR (TS 3.9.2)
- ❑ 22 feet of water over RPV flange (TS 3.9.8)
- ❑ One SDC system operable and in operation or Tech Spec actions met (TS 3.9.11)
- ❑ Two Standby Gas Treatment System operable or Tech Spec actions met (TS 3.6.5.3)
- ❑ Two CREFAS system and instrumentation operable or actions met (3.7.2 & 3.3.7.1)
- ❑ At least one offsite source and two Diesel Generators operable (TS 3.8.1.2)
- ❑ At least 2 AC divisions energized (TS 3.8.3.2)
- ❑ At least 2 DC divisions and battery charges operable (TS 3.8.2.2)
- ❑ Mode switch **LOCKED** in the Shutdown or Refuel position (TS 3.9.1)
- ❑ Refuel platform interlocks operable or Tech Spec actions met (TS 3.9.1)
- ❑ Adequate Shutdown margin has been demonstrated (3.9.2 & 3.1.1)
- ❑ Reactor subcritical for at least 24 hours (3.9.4)
- ❑ Refueling Platform Operability (3.9.6)
- ❑ Refueling floor secondary containment is operable and high rad isolation logic is not bypassed (Only applicable to handling recently irradiated fuel **AND** OPDRVs) (TS 3.6.5.1.2 & 3.6.5.2.2)
- ❑ All control rods inserted with the following exceptions (TS 3.9.3):
  - One control may be withdrawn under control of the one rod out interlock
  - Control rods removed per Tech Spec 3.9.10.1 or 3.9.10.2
- ❑ At least 2 ECCS system operable unless cavity flooded, fuel pool gates are removed and water level maintained per Tech Spec 3.9.8 and 3.9.9 (TS 3.5.2)
- ❑ Risk impacts of moving fuel considered (i.e. OPDRVs **AND** SBGT availability)