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**PROGRESS ENERGY
CRYSTAL RIVER UNIT 3
PLANT OPERATING MANUAL**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE
EM-225F
LONG TERM EMERGENCY FEEDWATER MANAGEMENT**

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1.0 PURPOSE

The purpose of this procedure is to provide guidance to the TSC Accident Assessment Team (AAT) to ensure Emergency Feedwater (EFW) or Auxiliary Feedwater (AFW) remains available when OTSG heat transfer is required to remove core decay heat.

These guidelines are applicable if EFW or AFW is operating for extended periods of time and normal surveillance testing is not in progress.

2.0 REFERENCES

2.1 DEVELOPMENTAL REFERENCES

2.1.1 PC 99-1710

2.1.2 M 99-0027 Rev. 6, CR-3 Emergency Feedwater System Hydraulic Design Verification Analysis

2.1.3 NRC Letter to FPC, 3N0899-05, dated 8/11/99, NRC Safety Evaluation Related to Amendment 182

2.1.4 Engineering Calculation E 91-0026 Revision 4

2.1.5 PC 99-3329

2.1.6 FPC Letter to NRC, 3F1198-01, dated 11/24/98

3.0 PERSONNEL INDOCTRINATION

3.1 DEFINITIONS

None

3.2 RESPONSIBILITIES

3.2.1 TSC ACCIDENT ASSESSMENT TEAM (AAT)

- Monitor EFT-2 temperature and provide recommendations to resolve high temperatures if approached.
- Provide recommendations for alternate feedwater sources and feedwater flow paths during long term EFW or AFW operation.
- Ensure EFW or AFW is maintained until OTSG heat transfer is no longer required.

3.2.2 EMERGENCY COORDINATOR (EC)

- Review and approve all recommendations provided by the Accident Assessment Team prior to implementation by the Control Room staff.

3.2.3 TSC ACCIDENT ASSESSMENT TEAM (AAT)

- Monitor EFT-2 temperature and provide recommendations to resolve high temperatures if approached.
- Provide recommendations for alternate feedwater sources and feedwater flow paths during long term EFW or AFW operation.
- Ensure EFW or AFW is maintained until OTSG heat transfer is no longer required.

3.2.4 EMERGENCY REPAIR TEAM (ERT)

- Install support equipment for transferring the contents of EFT-2 to either FST-1A or CDT-1 due to elevated temperatures in EFT-2.

3.2.5 OPERATIONS (OPS)

- Coordinate with the Control Room and provide alternate alignments for EFW or AFW systems and support systems.

3.3 LIMITS AND PRECAUTIONS

- 3.3.1 Ensure adequate load margin is available on EDGs prior to starting ES powered component. Refer to EOP-13, Rule 5, EDG Control.
- 3.3.2 EFT-2 tank temperature is only available on a local gauge (EF-28-TI) inside the tank building. Hazardous conditions may exist due to nitrogen gas leakage. If a loss of off-site power has occurred, ventilation and lighting will not be available in the enclosure.
- 3.3.3 EFT-2 temperature increases faster as level decreases.
- 3.3.4 EFW or AFW pump discharge TEMP of $> 150^{\circ}\text{F}$ can challenge NPSH limits, equipment qualifications, and RB penetration stresses. EFT-2 TEMP is limited to $< 139^{\circ}\text{F}$ to prevent exceeding these limits.
- 3.3.5 All actions recommended to the Control Room as a result of this procedure must be pre-approved by the Emergency Coordinator.
- 3.3.6 Inadequate NPSH could occur if EFP-3 is placed in STOP and allowed to run at reduced speed if EFT-2 is isolated. Stop EFP-3 by placing control switch in Pull To Lock.
- 3.3.7 FW-336-TI (95 IB on the RB wall across from EFP-2) can be used to monitor EFW discharge temperature only if flow to the OTSGs exists.
- 3.3.8 Use hand-held contact thermometers to monitor temperatures locally at EFW/AFW pumps if other instrumentation is not available and pump discharge temps are desired.
- 3.3.9 Following a steam generator overfill event ensure the main steam lines and the EFP-2 steam supply header are properly drained prior to starting EFP-2.
- 3.3.10 When operating EFP-1 or EFP-2 with the pump suction aligned solely to CDT-1 or FST-1A/1B maintain EFV-142 in the full open position to ensure adequate NPSH to the EFPs.

4.0 INSTRUCTIONS

4.1 GENERAL GUIDELINES

NOTE

Closing NGV-243 early will ensure EFT-2 and CDT-1/FST-1A levels will draw down together.

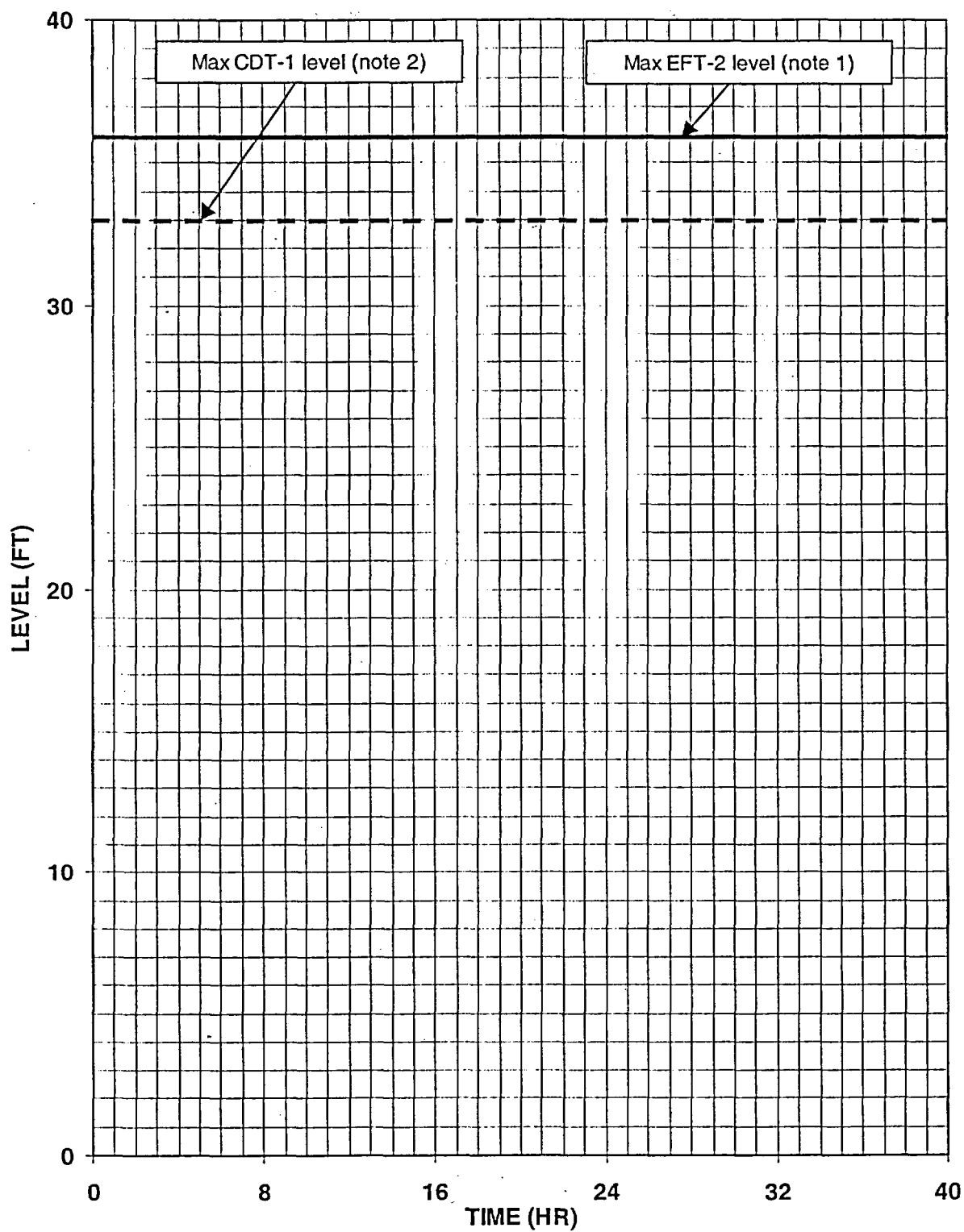
- 4.1.1 IF EFW is operating,
THEN NOTIFY the TSC Repair Coordinator that an available operator and re-entry team are needed to isolate the nitrogen supply to EFT-2 by closing NGV-243 "N2 TO EFT-2" (119 ft TB by FWHE-2B).
- 4.1.2 IF EFW OR AFW is operating,
THEN START plotting EFT-2 and CDT-1 level and temperatures on Enclosure 1 in this procedure.
- 4.1.3 REVIEW EFW Management Plan, Enclosure 2, in this procedure, and PERFORM appropriate actions if required.

NOTE

EFT-2 temperature limit of 139°F can be challenged within 8 hours under extreme conditions.

- 4.1.4 IF at any time, any EFW pump is running AND EFT-2 level is < 20 ft,
THEN REFER to Enclosure 3 in this procedure for guidance.
- 4.1.5 IF at any time, FWP-7 is running AND CDT-1 level is < 20 ft,
THEN REFER to Enclosure 3 in this procedure for guidance.
- 4.1.6 IF at any time, EFT-2 TEMP is $\geq 110^{\circ}\text{F}$,
THEN NOTIFY the TSC Repair Coordinator to install EFT-2 temporary transfer hose per Enclosure 4 in this procedure.
- 4.1.7 IF at any time, EFT-2 TEMP reaches 130°F ,
THEN REFER to Enclosure 5 in this procedure for guidance.
- 4.1.8 IF EFT-2 will be cross-tied to CDT-1,
THEN NOTIFY Chemistry to consider Amerzine addition to CDT-1.

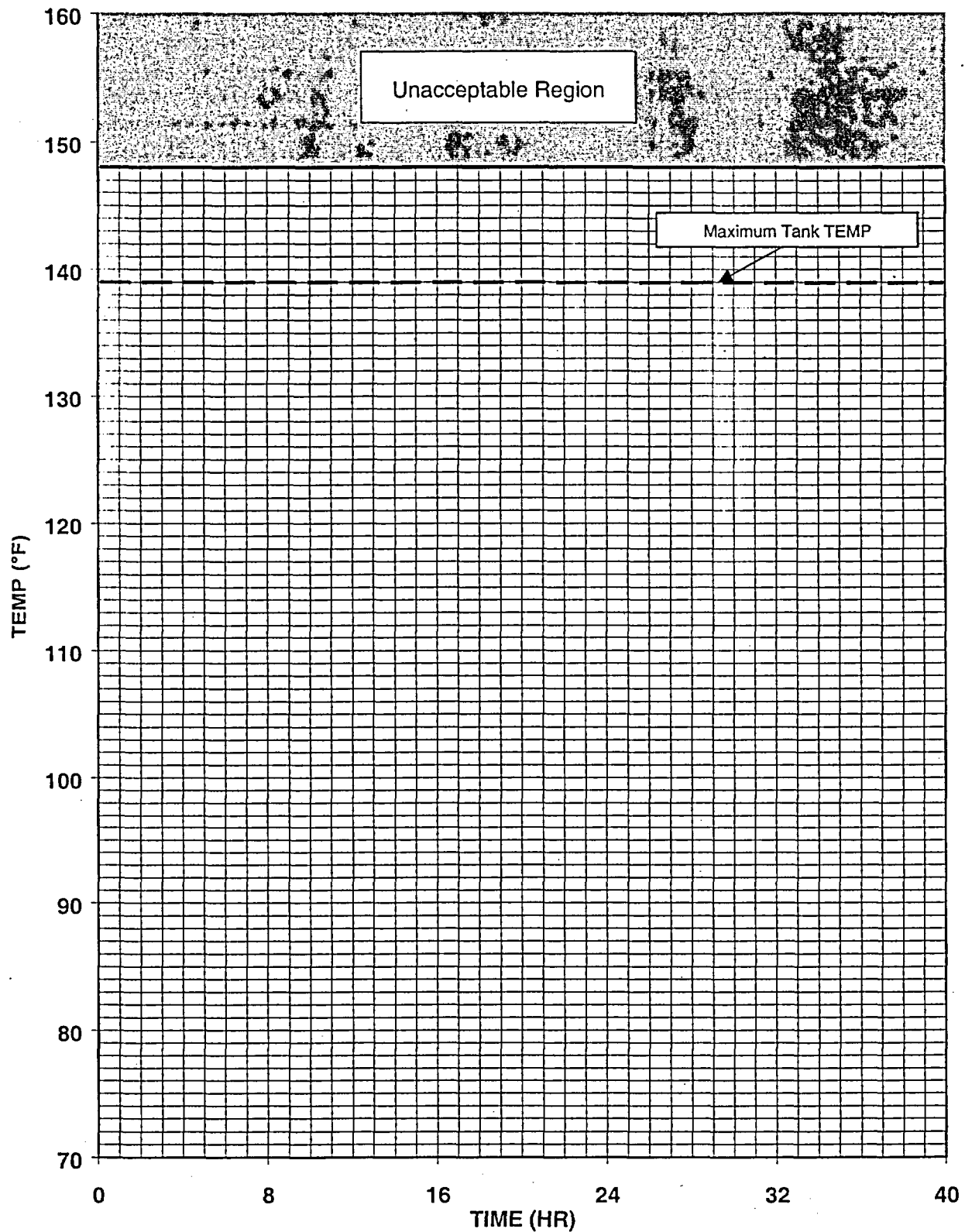
LEVEL TRENDS



Note 1: EFT-2 level instrumentation reference leg will flood if level is > 36 ft.

Note 2: CDT-1 will overflow to TB if level is > 33 ft.

TEMP TRENDS



Note 1: EFT-2 TEMP can be obtained from EF-28-TI.

ENCLOSURE 2 EFW MANAGEMENT PLAN

STATUS: EFP-3 IS RUNNING		
PROBLEM	SOLUTION	REFER TO
Any of the following are failed: • A EDG • A Train battery chargers • A Train battery failure	<ul style="list-style-type: none"> Start EFP-2 OR FWP-7 Stop EFP-3 before A Train battery fails. <p>-----OR-----</p> <ul style="list-style-type: none"> IF EFP-2 or FWP-7 <u>NOT</u> available, <u>THEN</u> cross-tie EFP-3 to B Train EFW. 	<p>Enclosure 9</p> <p>-----OR-----</p> <p>Enclosure 16</p>
Water sources on berm are depleted AND all the following are <u>NOT</u> available: • EFP-1 • FWP-7	<ul style="list-style-type: none"> Start EFP-2 aligned to hotwell. Align Units 1 or 2 Aux steam to EFP-2 before OTSG PRESS < 200 psig. <p>-----OR-----</p> <ul style="list-style-type: none"> IF EFP-2 is <u>NOT</u> available, <u>THEN</u> fill FST-1A/B using Units 1/2 fire service. 	<p>Enclosure 12 Enclosure 6</p> <p>-----OR-----</p> <p>Enclosure 13</p>
Water sources on berm are depleted AND all the following are <u>NOT</u> available: • FWP-7 • EFP-2	<ul style="list-style-type: none"> IF EFP-1 is available <u>AND</u> only A ES 4160V BUS energized, <u>THEN</u> start EFP-1 and align to the hotwell. <p>-----OR-----</p> <ul style="list-style-type: none"> IF EFP-1 is available <u>AND</u> Both ES 4160V Buses are energized by EDGs, <u>THEN</u> start EFP-1 and align to the hotwell. 	<p>Enclosure 10 then Enclosure 12</p> <p>-----OR-----</p> <p>Enclosure 11 then Enclosure 12</p>
EFT-2 TEMP is $\geq 130^{\circ}\text{F}$	<ul style="list-style-type: none"> Align EFP-3 to CDT-1 and isolate EFT-2 <p>-----OR-----</p> <ul style="list-style-type: none"> Start FWP-7 aligned to CDT-1 Stop EFP-3 <p>-----OR-----</p> <ul style="list-style-type: none"> Start EFP-2 aligned to the hotwell. Align Units 1 or 2 Aux steam to EFP-2 before OTSG PRESS < 200 psig. Stop EFP-3 	<p>Enclosure 5</p> <p>-----OR-----</p> <p>Enclosure 9</p> <p>-----OR-----</p> <p>Enclosure 12 Enclosure 6 Enclosure 9</p>
Water sources on berm are depleted AND all the following are <u>NOT</u> available: • FWP-7 • B-Battery	<ul style="list-style-type: none"> Start EFP-1 on A ES 4160V BUS Align EFP-1 to hotwell. <p>-----OR-----</p> <ul style="list-style-type: none"> Cross-Tie EFP-2 to A Train EFW. <p>-----OR-----</p> <ul style="list-style-type: none"> Refill EFT-2 using EFP-2 	<p>Enclosure 10 then Enclosure 12</p> <p>-----OR-----</p> <p>Enclosure 7</p> <p>-----OR-----</p> <p>Enclosure 8</p>

ENCLOSURE 2 EFW MANAGEMENT PLAN (CONT'D)

STATUS: EFP-2 IS RUNNING		
PROBLEM	SOLUTION	REFER TO
EFT-2 TEMP is $\geq 130^{\circ}\text{F}$	<ul style="list-style-type: none"> Start FWP-7 aligned to CDT-1 Stop EFP-2 <p>-----OR-----</p> <ul style="list-style-type: none"> Align EFP-2 to hotwell. Align Units 1 or 2 Aux steam to EFP-2 before OTSG PRESS < 200 psig. <p>-----OR-----</p> <ul style="list-style-type: none"> Align EFP-2 to CDT-<u>AND</u> isolate EFT-2 	<p>Enclosure 9</p> <p>-----OR-----</p> <p>Enclosure 12 Enclosure 6</p> <p>-----OR-----</p> <p>Enclosure 5</p>
<p><u>All</u> the following exist:</p> <ul style="list-style-type: none"> Water sources on berm are depleted Hotwell is <u>NOT</u> available 	<ul style="list-style-type: none"> Fill Fire Storage Tanks using Units 1/2 Fire Service. 	Enclosure 13
<p><u>All</u> the following exist:</p> <ul style="list-style-type: none"> EFP-2 suction is aligned to hotwell Hotwell level is approaching 24 in 	<ul style="list-style-type: none"> IF adequate level exists in EFT-2, <u>AND</u> EFT-2 temperature is < 139°F, <u>THEN</u> align EFP-2 suction to EFT-2 <p>-----OR-----</p> <ul style="list-style-type: none"> Gravity drain water from CDT-1 and FST-1A/B to hotwell using CDV-88 	<p>Enclosure 14</p> <p>-----OR-----</p> <p>N/A</p>
<p><u>All</u> the following are <u>NOT</u> available:</p> <ul style="list-style-type: none"> EFP-3 FWP-7 	<ul style="list-style-type: none"> IF EFP-1 is <u>NOT</u> available, <u>THEN</u> align Unit 1 or 2 steam to EFP-2 <p>-----OR-----</p> <ul style="list-style-type: none"> IF EFP-1 is available <u>AND</u> only A ES 4160V BUS energized, <u>THEN</u> start EFP-1 Stop EFP-2 <p>-----OR-----</p> <ul style="list-style-type: none"> IF EFP-1 is available <u>AND</u> Both ES 4160V Buses are energized by EDGs, <u>THEN</u> start EFP-1 Stop EFP-2 	<p>Enclosure 6</p> <p>-----OR-----</p> <p>Enclosure 10</p> <p>Enclosure 9</p> <p>-----OR-----</p> <p>Enclosure 11</p> <p>Enclosure 9</p>

ENCLOSURE 2 EFW MANAGEMENT PLAN (CONT'D)

STATUS: EFP-1 IS RUNNING		
PROBLEM	SOLUTION	REFER TO
EFT-2 TEMP is $\geq 130^{\circ}\text{F}$	<ul style="list-style-type: none"> Start FWP-7 aligned to CDT-1 Stop EFP-1 <p>-----OR-----</p> <ul style="list-style-type: none"> Align suction of EFP-1 to hotwell. <p>-----OR-----</p> <ul style="list-style-type: none"> Align EFP-1 to CDT-1 <u>AND</u> isolate EFT-2 	Enclosure 9 -----OR----- Enclosure 12 -----OR----- Enclosure 5
<u>All the following exist:</u> <ul style="list-style-type: none"> Water sources on berm are depleted Hotwell is <u>NOT</u> available 	<ul style="list-style-type: none"> Fill Fire Storage Tanks using Units 1/2 Fire Service. 	Enclosure 13
<u>All the following exist:</u> <ul style="list-style-type: none"> EFP-1 suction is aligned to hotwell Hotwell level is approaching 24 in 	<ul style="list-style-type: none"> <u>IF</u> adequate level exists in EFT-2, <u>AND</u> EFT-2 temperature is $< 139^{\circ}\text{F}$, <u>THEN</u> align EFP-1 suction to EFT-2 <p>-----OR-----</p> <ul style="list-style-type: none"> <u>IF</u> adequate level exists in EFT-2, <u>AND</u> EFT-2 temperature is $< 139^{\circ}\text{F}$, <u>THEN</u> start EFP-3 aligned to EFT-2 <p>-----OR-----</p> <ul style="list-style-type: none"> Gravity drain water from CDT-1 and FST-1A/B to hotwell using CDV-88 	Enclosure 14 -----OR----- Enclosure 9 -----OR----- N/A
<u>Any of the following are failed:</u> <ul style="list-style-type: none"> A Train battery chargers A Train battery failure 	<ul style="list-style-type: none"> Start EFP-2 <u>OR</u> FWP-7 Stop EFP-1 <u>before</u> A Train battery fails. <p>-----OR-----</p> <p><u>IF</u> EFP-2 or FWP-7 <u>NOT</u> available, <u>THEN</u> cross-tie EFP-1 to B Train EFW</p>	Enclosure 9 -----OR----- Enclosure 16

ENCLOSURE 2 EFW MANAGEMENT PLAN (CONT'D)

STATUS: FWP-7 IS RUNNING		
PROBLEM	SOLUTION	REFER TO
CDT-1 TEMP is $\geq 130^{\circ}\text{F}$	<ul style="list-style-type: none"> IF adequate level exists in EFT-2, AND EFT-2 temperature is $< 139^{\circ}\text{F}$, THEN start EFP-2 aligned to EFT-2 Stop FWP-7 Align Unit 1 or 2 steam to EFP-2 <p>-----OR-----</p> <ul style="list-style-type: none"> Align suction of FWP-7 to hotwell. Gravity drain CDT-1 to hotwell using CDV-88 <p>-----OR-----</p> <ul style="list-style-type: none"> IF Off-site power is available, THEN refill CDT-1 with Demin Water. 	<p>Enclosure 9</p> <p>Enclosure 9 Enclosure 6</p> <p>-----OR-----</p> <p>Enclosure 12</p> <p>-----OR-----</p> <p>Enclosure 3</p>
<p>All the following exist:</p> <ul style="list-style-type: none"> FWP-7 suction is aligned to hotwell Hotwell level approaching 24 in 	<ul style="list-style-type: none"> Gravity drain water from CDT-1 and FST-1A/B to hotwell using CDV-88 	N/A
<p>All the following exist:</p> <ul style="list-style-type: none"> EFP-1 start up is desired EDG load management <u>NOT</u> possible 	<ul style="list-style-type: none"> IF EFP-1 is available AND only A ES 4160V BUS energized, THEN start EFP-1 Stop FWP-7 <p>-----OR-----</p> <ul style="list-style-type: none"> IF EFP-1 is available, AND Both ES 4160V Buses are energized by EDGs, THEN start EFP-1 Stop FWP-7 	<p>Enclosure 10</p> <p>Enclosure 9</p> <p>-----OR-----</p> <p>Enclosure 11</p> <p>Enclosure 9</p>

ENCLOSURE 3 EFT-2/CDT-1 INVENTORY CONTROL

ACTIONS

- 3.1 IF at least 1 CDP is running,
THEN maintain EFT-2 level.

DETAILS

- 1 Ensure CD Hdr PRESS is between 90 and 150 psig.
- 2 Notify SPO to maintain EFT-2 level between 10 and 36 ft (95 ft TB behind Atmospheric Drain Tank):
 - Open CDV-260
"EFT-2 FILL FROM CONDENSATE".
 - Throttle CDV-259
"EFT-2 FILL FROM CONDENSATE"
as necessary to maintain EFT-2 level.

ENCLOSURE 3 EFT-2/CDT-1 INVENTORY CONTROL (CONT'D)

ACTIONS

DETAILS

3.2 Maintain CDT-1 level.

- IF at least 1 CDP is running,
 THEN maintain CDT-1 level
 between 10 and 31 ft using CD:
 - Ensure CD Hdr PRESS is
 between 90 and 150 psig.
 - Notify SPO to throttle
 CDV-88
 "CONDENSATE REJECT
 TO CDT-1"
 as necessary to maintain
 CDT-1 level
 (95 ft TB behind Atmospheric
 Drain Tank).
- IF no CDPs are running,
 THEN notify SPO to maintain
 CDT-1 level between 10 and 31 ft
 using DW:
 - Ensure CDV-88
 "CONDENSATE REJECT TO
 CDT-1" is closed
 (95 ft TB behind Atmospheric
 Drain Tank).
 - Throttle CDV-112
 "DW MAKEUP TO CDT-1"
 as necessary to maintain
 CDT-1 level
 (95 ft TB by MFWBPs).

ENCLOSURE 4 INSTALLATION OF EFT-2 TEMPORARY TRANSFER LINE

ACTIONS

DETAILS

CAUTION

Entry into EFT-2 Building may require additional precautions if power is not available to ventilation fan.

NOTE

- All fittings, hoses, and tools are located in the Fire Pump House.
- Five individuals are required to perform this enclosure

4.1 — Notify Control Room that EFT-2 temporary transfer line is being installed.

4.2 — IF B 4160V UNIT BUS is energized,
THEN ensure AHF-152 "EFT-2 ENC Vent Fan" runs for > 10 min prior to entry (Entrance to EFT-2).

4.3 — Ensure EFV-96 "EFT-2 DRAIN" is closed (Inside EFT-2 Building north wall).
(OPS or ERT)

- Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figures 1 and 2, in this procedure.
-

4.4 — Remove 4 in blank flange from EFV-96 "EFT-2 DRAIN" (Inside EFT-2 Building north wall).
(ERT)

- Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figures 1 and 2, in this procedure.

ENCLOSURE 4 INSTALLATION OF EFT-2 TEMPORARY TRANSFER LINE (CONT'D)

ACTIONS

DETAILS

NOTE

Match marks are installed on the flexible spool piece for match-up with EFV-96.

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| 4.5 — Install flexible spool piece with gaskets between EFV-96 "EFT-2 DRAIN" and spare penetration (Inside EFT-2 Building north wall).
(ERT) | • Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figures 1 and 2, in this procedure |
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| 4.6 — Ensure flange bolts and hose clamps are tight.
(ERT) | • Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figures 1 and 2, in this procedure |
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| 4.7 — Remove 4 in blank flange on spare penetration (Maintenance Support Building under diamond plate, below stairs south wall).
(ERT) | • Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figures 1 and 2, in this procedure |
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| 4.8 — Install double elbow assembly with gaskets on spare penetration.
(ERT) | • Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figures 1 and 2, in this procedure |
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ENCLOSURE 4 INSTALLATION OF EFT-2 TEMPORARY TRANSFER LINE (CONT'D)

ACTIONS

DETAILS

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| 4.9 <u> </u> Install hose adapter with gaskets to double elbow assembly. | • Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figures 1 and 2, in this procedure |
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| 4.10 <u> </u> Ensure flange bolts are tight.
(ERT) | • Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figures 1 and 2, in this procedure |
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| 4.11 <u> </u> Ensure adequate temporary support is placed under hose adapter. | |
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| 4.12 <u> </u> Connect 6 in hose to hose adapter on double elbow assembly and tighten securely.
(ERT) | |
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| 4.13 <u> </u> <u>IF</u> EFT-2 connection to FST-1A is desired,
<u>THEN GO TO</u> Step 4.22 in this enclosure. | |
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ENCLOSURE 4 INSTALLATION OF EFT-2 TEMPORARY TRANSFER LINE (CONT'D)

ACTIONS

DETAILS

STATUS

EFT-2 connection to CDT-1 is desired.

CAUTION

FWP-7 cannot be operated if EFT-2 is connected to CDT-1 unless FWV-265 is closed.

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| 4.14 ____ | Install 4x6 in adapter with gaskets on FWV-265 "FWP-7 FW EMERGENCY TRANSFER TO FS OR SD SYSTEM ISO" (119 ft TB near southwest stairway). (ERT) | <ul style="list-style-type: none">• Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figure 3, in this procedure. |
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| 4.15 ____ | Install hose adapter with gaskets to 4 x 6 in adapter. | <ul style="list-style-type: none">• Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figure 3, in this procedure. |
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| 4.16 ____ | Ensure adequate temporary support is placed under hose adapter. | |
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ENCLOSURE 4 . INSTALLATION OF EFT-2 TEMPORARY TRANSFER LINE (CONT'D)

ACTIONS

DETAILS

NOTE

Route hose between FSTs, down east side of FST-1A and through Turbine Building door.

- 4.17 ____ Connect sections of 6 in hose together and attach to hose adapter on FWV-265 "FWP-7 FW EMERGENCY TRANSFER TO FS OR SD SYSTEM ISO" (119 ft TB near southwest stairway). (ERT)
- Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figure 3, in this procedure.

ENCLOSURE 4 INSTALLATION OF EFT-2 TEMPORARY TRANSFER LINE (CONT'D)

ACTIONS

DETAILS

4.18 ____ Ensure all couplings and fittings are tight.
(ERT)

4.19 ____ Pressurize transfer hose.
(OPS)

1 ____ Slowly open EFV-96
"EFT-2 DRAIN"
(Inside EFT-2 Building north wall).

2 ____ Check all hoses and connections for leaks.

3 ____ IF leaks exist,
THEN perform the following in order:

____ Close EFV-96
"EFT-2 DRAIN"
(Inside EFT-2 Building north wall).

____ Repair leaks.

4.20 ____ Close EFV-96
"EFT-2 DRAIN"
(Inside EFT-2 Building north wall).

4.21 ____ EXIT this enclosure.

ENCLOSURE 4 INSTALLATION OF EFT-2 TEMPORARY TRANSFER LINE (CONT'D)

ACTIONS

DETAILS

STATUS

EFT-2 connection to FST-1A is desired.

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| 4.22 ____ | Install 2½ x 4 in adapter and 4 x 6 in adapter with gaskets to FSV-919 "FST-1A DRAIN AND SAMPLE VALVE" (Southeast side of FST-1A). | • Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figure 4, in this procedure. |
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| 4.23 ____ | Install hose adapter with gaskets to 4 x 6 in adapter. | • Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figure 4, in this procedure. |
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| 4.24 ____ | Ensure adequate temporary support is placed under hose adapter. | |
|-----------|---|--|
-
- | | | |
|-----------|--|--|
| 4.25 ____ | Connect sections of 6 in hose together and attach to hose adapter on FSV-919 "FST-1A DRAIN AND SAMPLE VALVE" (Southeast side of FST-1A). | • Refer to Enclosure 17, "EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION," Figure 4, in this procedure. |
|-----------|--|--|
-
- | | | |
|-----------|--|--|
| 4.26 ____ | Ensure all couplings and fittings are tight. | |
|-----------|--|--|

ENCLOSURE 4 INSTALLATION OF EFT-2 TEMPORARY TRANSFER LINE (CONT'D)

ACTIONS

DETAILS

4.27 ☐ Pressurize transfer hose.
(OPS)

1 ☐ Slowly open EFV-96
"EFT-2 DRAIN"
(Inside EFT-2 Building north wall).

2 ☐ Check all hoses and connections for
leaks.

3 ☐ IF leaks exist,
THEN perform the following in
order:

☐ Close EFV-96
"EFT-2 DRAIN"
(Inside EFT-2 Building
north wall).

☐ Repair leaks.

4.28 ☐ Close EFV-96
"EFT-2 DRAIN"
(Inside EFT-2 Building
north wall).

4.29 ☐ EXIT this enclosure.

ENCLOSURE 5 EFT-2 TRANSFER TO ALTERNATE TANKS FOR COOLING

ACTIONS

DETAILS

- 5.1 — IF EFT-2 transfer
to FST-1A is desired,
THEN GO TO Step 5.12
in this enclosure.

ENCLOSURE 5 EFT-2 TRANSFER TO ALTERNATE TANKS FOR COOLING (CONT'D)

ACTIONS

DETAILS

STATUS

EFT-2 transfer to CDT-1 is desired.

5.2 Verify 6 in hose is installed
 between EFT-2 and
 FWV-265
 "FWP-7 FW EMERGENCY
 TRANSFER TO FS OR SD
 SYSTEM ISO"
 (119 ft TB near southwest
 stairway).

 IF hose is NOT installed
 between EFT-2 and
 FWV-265,
 THEN PERFORM
 Enclosure 4 in this
 procedure.

ENCLOSURE 5 EFT-2 TRANSFER TO ALTERNATE TANKS FOR COOLING (CONT'D)

ACTIONS

DETAILS

CAUTION

Entry into EFT-2 Building may require additional precautions if power is not available to ventilation fan.

- 5.3 — IF B 4160V UNIT BUS is energized,
THEN ensure AHF-152 "EFT-2 ENC Vent Fan" runs for > 10 min prior to entry (Entrance to EFT-2).

- 5.4 — Open EFV-96 "EFT-2 DRAIN" (Inside EFT-2 Building north wall).

- 5.5 — Ensure transfer hose is not leaking.

NOTE

The next steps may result in a rapid decrease in EFT-2 level.

- 5.6 — Notify Control Room EFT-2 alignment to CDT-1 is in progress.

ENCLOSURE 5 EFT-2 TRANSFER TO ALTERNATE TANKS FOR COOLING (CONT'D)

ACTIONS

DETAILS

- 5.7 ___ Open FWV-265
 "FWP-7 FW EMERGENCY
 TRANSFER TO FS OR SD
 SYSTEM ISO"
 (119 ft TB near south
 west stairway).
-
- 5.8 ___ Ensure CDV-103
 "CDT-1 TO EFP SUCTION"
 is open
 (119 ft Berm by CDT-1).
-
- 5.9 ___ Unlock and close EFV-111
 "EFT-2 TO EFP SUCTION
 ISOLATION "
 (Inside EFT-2 Building
 northwest corner).
-
- 5.10 ___ Unlock and close EFV-109
 "EFT-2 TO EFP SUCTION
 ISOLATION"
 (Inside EFT-2 Building
 north wall).
-
- 5.11 ___ EXIT this enclosure.

ENCLOSURE 5 EFT-2 TRANSFER TO ALTERNATE TANKS FOR COOLING (CONT'D)

ACTIONS

DETAILS

STATUS

EFT-2 transfer to FST-1A is desired.

5.12 ____ Verify 6 in hose is installed
between EFT-2 and FSV-919
"FST-1A DRAIN AND
SAMPLE VALVE"
(Southeast side of FST-1A).

____ IF hose is NOT installed
between EFT-2 and
FSV-919,
THEN PERFORM
Enclosure 4 in this
procedure.

CAUTION

Entry into EFT-2 Building may require additional precautions if power is not available to ventilation fan.

5.13 ____ IF B 4160V UNIT BUS is
energized,
THEN ensure AHF-152
"EFT-2 ENC Vent Fan"
runs for > 10 min prior to
entry (Entrance to EFT-2).

ENCLOSURE 5 EFT-2 TRANSFER TO ALTERNATE TANKS FOR COOLING (CONT'D)

ACTIONS

DETAILS

5.14 ____ Open EFV-96
"EFT-2 DRAIN"
(Inside EFT-2 Building
north wall).

5.15 ____ Ensure transfer hose is not
leaking.

NOTE

The next step may result in a rapid decrease in EFT-2 level.

5.16 ____ Notify Control Room EFT-2
alignment to CDT-1
is in progress.

5.17 ____ Open FSV-919
"FST-1A DRAIN AND
SAMPLE VALVE"
(Southeast side of FST-1A).

5.18 ____ Close CDV-288
"FST TO CDT-1
CROSS-TIE DRAIN"
(119 ft Berm by FST-1A).

ENCLOSURE 5 EFT-2 TRANSFER TO ALTERNATE TANKS FOR COOLING (CONT'D)

ACTIONS

DETAILS

5.19 ____ Open CDV-289
"FST TO CDT-1
CROSS-TIE ISO"
(119 ft Berm by FST-1A).

5.20 ____ Open FSV-918
"FST TO CDT-1
CROSS-TIE ISO"
(119 ft Berm by FST-1A).

5.21 ____ Unlock and close EFV-111
"TO EFW PUMP SUCTION"
(Inside EFT-2 Building
northwest corner).

5.22 ____ Unlock and close EFV-109
"TO EFW PUMP SUCTION"
(Inside EFT-2 Building
north wall).

5.23 ____ EXIT this enclosure.

ENCLOSURE 6 ALIGNING UNIT 1 OR 2 STEAM TO EFP-2

ACTIONS

DETAILS

NOTE

If EFP-2 is the only available FW source, then not aligning Unit 1 or 2 steam may require EFP-2 to be cycled on and off based on available steam pressure.

- 6.1 IF Unit 1 or 2 steam is available,
 AND 95 ft IB is accessible,
 THEN notify SPO to perform warmup and
 pressurization of AS line to EFP-2
- 1 Throttle ASV-15
 "AS ISO TO EFP-2"
 1 turn open
 (119 ft TB NW stairs).
- 2 WHEN steam PRESS is equalized
 around ASV-15,
 THEN open ASV-15
- 3 Blowdown condensate from
 ASDT-2 by cycling ASV-110
 "ASDT-2 BLOWDOWN"
 (95 ft TB behind Atmospheric
 Drain Tank).
- 4 WHEN AS lines are warmed and
 free of condensate,
 THEN notify Control Room.
-
- 6.2 WHEN AS lines are warmed
 and pressurized,
 THEN notify PPO to
 blowdown MSDT-21
- Blowdown condensate from MSDT-21
by throttling open MSV-290
"MSDT-21 BLOWDOWN"
(95 ft IB by EFP-2).

ENCLOSURE 6 ALIGNING UNIT 1 OR 2 STEAM TO EFP-2 (CONT'D)

ACTIONS

DETAILS

- 6.3 WHEN AS is ready to be aligned to EFP-2,
 THEN notify PPO to align Unit 1 or 2 steam to EFP-2
- 1 Ensure MSDT-21 is free of condensate and close MSV-290 "MSDT-21 BLOWDOWN" (95 ft IB by EFP-2).
- 2 Open ASV-23 "UNITS 1 OR 2 STEAM TO EFP-2" (95 ft IB by EFP-2).
-

- 6.4 EXIT this enclosure.

ENCLOSURE 7 EFP-2 CROSS-TIE TO A TRAIN EFW

ACTIONS

DETAILS

STATUS

- A EDG is supplying the A ES 4160V BUS.
- B ES 4160V BUS is de-energized.
- EFP-2 cross-tie to A Train EFW is desired.

7.1 — Verify ASV-50
"EFP-2 TRIP &
THROTTLE VALVE"
is not tripped.

- "EF PUMP 2 TRIP" annunciator alarm
(H-07-04) not lit.

— IF ASV-50 is tripped,
THEN notify SPO to
perform Enclosure 15,
"EFP-2 TRIP RECOVERY" in
this procedure.

ENCLOSURE 7 EFP-2 CROSS-TIE TO A TRAIN EFW (CONT'D)

ACTIONS

DETAILS

7.2 ☐ Ensure EFP-2 normal discharge path is isolated.

1 ☐ Depress "MANUAL PERMISSIVE" push buttons on EFIC channels A and B.

2 Close EFP-2 discharge block valves:

☐ EFV-11

☐ EFV-32

3 Notify PPO to open EFP-2 discharge block valve switches (A ES 480V SWGR Room):

☐ DPDP 8C-1
"EFV-11 MOTOR POWER"

☐ DPDP 8C-3
"EFV-32 MOTOR POWER"

7.3 ☐ Start EFP-2

- Open ASV-204

ENCLOSURE 7 EFP-2 CROSS-TIE TO A TRAIN EFW (CONT'D)

ACTIONS

DETAILS

7.4 ___ Notify PPO to cross
 connect EFW trains.

1 ___ Unlock and close EFV-12 switches
 (A ES 480V SWGR Room):

 ___ DPDP 8C-5
 "EFV-12 MOTOR POWER"

 ___ DPDP 8C-6
 "EFV-12 CONTROL POWER"

2 ___ Depress the open push button on
 EFV-12-MST
 (A ES 480V SWGR Room).

3 ___ WHEN EFV-12 is open,
 THEN open and lock EFV-12
 switches
 (A ES 480V SWGR Room):

 ___ DPDP 8C-5
 "EFV-12 MOTOR POWER"

 ___ DPDP 8C-6
 "EFV-12 CONTROL POWER"

4 ___ Notify Control Room that EFV-12
 is open.

7.5 ___ WHEN EFP-2 is aligned to
 supply EFW to OTSGs,
 THEN stop EFP-3

ENCLOSURE 7 EFP-2 CROSS-TIE TO A TRAIN EFW (CONT'D)

ACTIONS

DETAILS

7.6 Depress both
 "EFW INITIATE"
 push buttons on
 EFIC channels A and B.

7.7 Ensure EFW flow is
 controlled.

[Rule 3, EFW/AFW Control]

7.8 EXIT this enclosure.

ENCLOSURE 8 TRANSFERING HOTWELL TO EFT-2 USING EFP-2

ACTIONS

DETAILS

STATUS

All the following exist:

- B-Battery failed
- Water sources on berm depleted
- Hotwell transfer to EFT-2 using EFP-2 is desired

8.1 ☐ IF hotwell is NOT at atmospheric PRESS, THEN break condenser vacuum.

1 Close all MSIVs:

☐ MSV-412

☐ MSV-413

☐ MSV-414

☐ MSV-411

2 ☐ Control OTSG PRESS using ADVs.

3 Select condenser ARPs to "PULL TO LOCK":

☐ ARP-1A

☐ ARP-1B

4 Open condenser vacuum Bkrs:

☐ ARV-48

☐ ARV-49

ENCLOSURE 8 TRANSFERING HOTWELL TO EFT-2 USING EFP-2 (CONT'D)

ACTIONS

DETAILS

8.2 ____ Ensure EFP-2 EFW block valves are closed.

- ____ EFV-11
 - ____ EFV-32
-

8.3 ____ WHEN condenser is at atmospheric PRESS, THEN notify SPO to align EFP-2 to hotwell.

- 1 ____ Ensure EFV-36
"EFW & AFW SUCTION ISO FROM HOTWELL" is open
(95 ft TB between C & D inlet waterboxes).
 - 2 ____ Unlock and open EFV-1
"EFP-2 SUCTION FROM CONDENSER"
(95 ft IB by EFP-2).
 - 3 ____ Unlock and close EFV-4
"EFP-2 SUCTION FROM EFT-2"
(95 ft IB by EFP-2).
-

8.4 ____ Start EFP-2

- Open ASV-204

ENCLOSURE 8 TRANSFERING HOTWELL TO EFT-2 USING EFP-2 (CONT'D)

ACTIONS

DETAILS

8.5 WHEN hotwell \leq 24 in,
 OR EFT-2 is at desired
 level,
 THEN stop EFP-2

- Close ASV-204

8.6 EXIT this enclosure.

ENCLOSURE 9 START UP AND SHUTDOWN OF EFW/AFW PUMPS

ACTIONS

DETAILS

CAUTION

Ensure adequate margin is available on A EDG before starting EFP-1

- 9.1 IF EFP-1 start is desired from hotwell,
 THEN ensure flow path is properly aligned and start EFP-1
- 1 Ensure condenser is at atmospheric PRESS.
 - 2 Ensure EFV-36
 "EFW & AFW SUCTION ISO FROM HOTWELL" is open
 (95 ft TB between C & D inlet waterboxes).
 - 3 Unlock and open EFV-2
 "EFP-1 SUCTION FROM CONDENSER"
 (95 ft IB by EFP-1).
 - 4 Unlock and close EFV-3
 "EFP-1 SUCTION FROM EFT-2"
 (95 ft IB by EFP-1).
 - 5 Ensure EFP-1 EFIC control valves are closed.
 - 6 Ensure EFP-3 is in
 "PULL TO LOCK".
 - 7 Start EFP-1 and ensure EFW flow is controlled.
- [Rule 5, EDG Control]
- 8 Ensure EFW flow is maintained
 < limit of EOP-14, Emergency Operating Procedures Enclosures,
 Figure 3

ENCLOSURE 9 START UP AND SHUTDOWN OF EFW/AFW PUMPS (CONT'D)

ACTIONS

DETAILS

CAUTION

Ensure adequate margin is available on A EDG before starting EFP-1

9.2 ____ IF EFP-1 start is desired from EFT-2, THEN ensure flow path is properly aligned and start EFP-1

1 ____ OPEN EFV-109
"EFT-2 TO EFW PUMP SUCTION"
(119 ft berm inside
EFT-2 Building).

2 ____ Open EFV-111
"EFT-2 TO EFW PUMP SUCTION"
(119 ft Berm inside
EFT-2 Building).

3 ____ Unlock and open EFV-3
"EFP-1 SUCTION FROM EFT-2"
(95 ft IB by EFP-1).

4 ____ Unlock and close EFV-2
"EFP-1 SUCTION FROM
CONDENSER"
(95 ft IB by EFP-1).

5 ____ Ensure EFP-1 EFIC control valves
are closed.

6 ____ Ensure EFP-3 is in
"PULL TO LOCK".

7 ____ Start EFP-1 and ensure EFW flow
is controlled.

[Rule 5, EDG Control]

8 ____ Ensure EFW flow is controlled.

[Rule 3, EFW/AFW Control]

ENCLOSURE 9 START UP AND SHUTDOWN OF EFW/AFW PUMPS (CONT'D)

ACTIONS

- 9.3 IF EFP-2 start is desired from hotwell,
THEN ensure flow path is properly aligned and start EFP-2

DETAILS

- 1 Ensure condenser is at atmospheric PRESS.
- 2 Ensure EFV-36 "EFW & AFW SUCTION ISO FROM HOTWELL" is open (95 ft TB between C & D inlet waterboxes).
- 3 Unlock and open EFV-1 "EFP-2 SUCTION FROM CONDENSER" (95 ft IB by EFP-2).
- 4 Unlock and close EFV-4 "EFP-2 SUCTION FROM EFT-2" (95 ft IB by EFP-2).
- 5 Ensure EFP-2 EFIC control valves are closed.
- 6 Start EFP-2 by opening 1 of the following:
 - ASV-5
 - ASV-204
- 7 Ensure EFW flow is controlled.

[Rule 3, EFW/AFW Control]

ENCLOSURE 9 START UP AND SHUTDOWN OF EFW/AFW PUMPS (CONT'D)

ACTIONS

- 9.4 IF EFP-2 start is desired from EFT-2,
 THEN ensure flow path is properly aligned and start EFP-2

DETAILS

- 1 OPEN EFV-109
 "EFT-2 TO EFW PUMP SUCTION"
 (119 ft berm inside EFT-2 Building).
- 2 Open EFV-111
 "EFT-2 TO EFW PUMP SUCTION"
 (119 ft Berm inside EFT-2 Building).
- 3 Unlock and open EFV-4
 "EFP-2 SUCTION FROM EFT-2"
 (95 ft IB by EFP-2).
- 4 Unlock and close EFV-1
 "EFP-2 SUCTION FROM CONDENSER"
 (95 ft IB by EFP-2).
- 5 Ensure EFP-2 EFIC control valves are closed.
- 6 Start EFP-2 by opening 1 of the following:
 ASV-5
 ASV-204
- 7 Ensure EFW flow is controlled.
 [Rule 3, EFW/AFW Control]

ENCLOSURE 9 START UP AND SHUTDOWN OF EFW/AFW PUMPS (CONT'D)

ACTIONS

- 9.5 — IF EFP-3 start is desired,
THEN ensure flow path is
properly aligned and start
EFP-3

DETAILS

- 1 — IF starting EFP-3 from EFT-2,
THEN ensure the following valves
are open:
- EFV-109
"EFT-2 TO EFW PUMP
SUCTION"
(119 ft berm inside
EFT-2 Building)
 - EFV-111
"EFT-2 TO EFW PUMP
SUCTION"
(119 ft Berm inside
EFT-2 Building)
- 2 — IF EFP-3 will NOT be aligned
to EFT-2,
THEN ensure proper suction flow
path exists.
- 3 — Ensure EFP-3 EFIC control valves
are closed.
- 4 — Ensure EFP-1 is in
"PULL TO LOCK".
- 5 — Depress "MANUAL PERMISSIVE"
push button on EFIC channel A.
- 6 — Select EFP-3 to
"NORMAL AFTER STOP".
- 7 — Reset the fuel rack on
EFP-3 diesel (119 ft Berm inside
EFP-3 Building).
- 8 — Start EFP-3
- 9 — Ensure EFW flow is controlled.

[Rule 3, EFW/AFW Control]

ENCLOSURE 9 START UP AND SHUTDOWN OF EFW/AFW PUMPS (CONT'D)

ACTIONS

DETAILS

9.6 ____ IF FWP-7 start is desired
from CDT-1,
THEN ensure flow path is
properly aligned and start
FWP-7

- 1 ____ Ensure CDT-1 level ≥ 5 ft.
- 2 ____ Ensure CDV-102
"CDT-1 LOWER ISO" is open
(119 ft Berm by CDT-1).
- 3 ____ OPEN FWV-214 "FWP-7
SUCTION FROM CDT-1"
(95 ft TB by FWP-7).
- 4 ____ Close FWV-213
"FWP-7 SUCTION FROM
HOTWELL"
(95 ft TB by FWP-7).
- 5 ____ Ensure all AFW control valves are
closed.
- 6 ____ Start FWP-7

ENCLOSURE 9 START UP AND SHUTDOWN OF EFW/AFW PUMPS (CONT'D)

ACTIONS

9.7 ____ IF FWP-7 start is desired from hotwell,
THEN ensure flow path is properly aligned and start FWP-7

DETAILS

- 1 ____ Ensure condenser is at atmospheric PRESS.
- 2 ____ Ensure hotwell level \geq 48 in.
- 3 ____ Ensure EFV-36
"EFW & AFW SUCTION ISO FROM HOTWELL" is open
(95 ft TB between C & D inlet waterboxes).
- 4 ____ Open FWV-213
"FWP-7 SUCTION FROM HOTWELL"
(95 ft TB by FWP-7).
- 5 ____ Close FWV-214
"FWP-7 SUCTION FROM CDT-1"
(95 ft TB by FWP-7).
- 6 ____ Ensure all AFW control valves are closed.
- 7 ____ Start FWP-7

ENCLOSURE 9 START UP AND SHUTDOWN OF EFW/AFW PUMPS (CONT'D)

ACTIONS

DETAILS

9.8 ____ IF FWP-7 start is desired from EFT-2,
THEN ensure flow path is properly aligned and start FWP-7

- 1 ____ Ensure EFT-2 level \geq 9 ft.
- 2 ____ Ensure EFP-1 and EFP-2 are not running.
- 3 ____ OPEN EFV-109
"EFT-2 TO EFW PUMP SUCTION"
(119 ft berm inside EFT-2 Building).
- 4 ____ Ensure EFV-3 is open
"EFP-1 SUCTION FROM EFT-2"
(95 ft IB by EFP-1).
- 5 ____ Unlock and open EFV-2
"EFP-1 SUCTION FROM CONDENSER"
(95 ft IB by EFP-1).
- 6 ____ Open FWV-213
"FWP-7 SUCTION FROM HOTWELL"
(95 ft TB by FWP-7).
- 7 ____ Close FWV-214
"FWP-7 SUCTION FROM CDT-1"
(95 ft TB by FWP-7).
- 8 ____ Close EFV-36
"EFW & AFW SUCTION ISO FROM HOTWELL"
(95 ft TB between C & D inlet waterboxes).
- 9 ____ Ensure all AFW control valves are closed.
- 10 ____ Start FWP-7

ENCLOSURE 9 START UP AND SHUTDOWN OF EFW/AFW PUMPS (CONT'D)

ACTIONS

DETAILS

9.9 IF stopping any EFW
OR AFW pump is desired,
THEN stop affected pump.

1 IF EFP-1 shutdown is desired,
THEN select EFP-1 to
"PULL TO LOCK".

2 IF EFP-2 shutdown is desired,
THEN perform the following in
order:

Depress "MANUAL
PERMISSIVE" push button
on EFIC channel B.

Close ASV-204

Close ASV-5

3 IF EFP-3 shutdown is desired,
AND EFP-3 is aligned to EFT-2,
THEN perform the following in
order:

Depress "MANUAL
PERMISSIVE" push button
on EFIC channel A.

Stop EFP-3

4 IF EFP-3 shutdown is desired,
AND EFT-2 is isolated,
THEN select EFP-3 to
"PULL TO LOCK".

5 IF FWP-7 shutdown is desired,
THEN stop FWP-7

9.10 EXIT this enclosure.

ACTIONS

DETAILS

STATUS

All the following exist:

- EFP-1 starting desired
- B ES 4160V BUS not energized
- A EDG supplying power to A ES 4160V BUS
- DHR not in service
- LPI not required

10.1 ___ Ensure available margin on
A EDG.

- Ensure all the following are not
running:

___ DHP-1A

___ RWP-3A

___ DCP-1A

___ BSP-1A

___ AHF-15A

- ___ Ensure CAHE-3A "A BAST
HEATER" selected to "OFF"
(119 ft AB by BASTs)
- ___ Ensure BWST Htr control switch
selected to "LOCAL"

ENCLOSURE 10 EFP-1 TO DHR TRANSITION (CONT'D)

ACTIONS

DETAILS

10.2 ___ Start EFP-1

1 ___ Ensure proper suction flow path exists.

2 ___ IF EFP-3 is running,
THEN stop select EFP-3 to
"PULL TO LOCK".

3 Ensure EFP-1 EFIC control valves are closed:

___ EFV-58

___ EFV-57

4 ___ Start EFP-1

[Rule 5, EDG Control]

5 ___ Ensure EFW flow is controlled.

[Rule 3, EFW/AFW Control]

ENCLOSURE 10 EFP-1 TO DHR TRANSITION (CONT'D)

ACTIONS

DETAILS

10.3 ____ WHEN transition to DHR is
required,
THEN stop EFP-1

1 ____ Raise level in available OTSGs to
> 90%.

2 Close EFP-1 EFIC control valves

____ EFV-58

____ EFV-57

3 ____ Select EFP-1 to "PULL TO LOCK".

10.4 ____ Transition to DHR using
applicable EOP or AP.

10.5 ____ EXIT this enclosure.

ENCLOSURE 11 EFP-1 ALIGNMENT TO A EDG WITHOUT LOAD MANAGEMENT

ACTIONS

DETAILS

STATUS

All the following exist:

- EFP-1 starting desired
- BOTH ES 4160V Buses energized by EDGs
- Stopping SWP-1A or RWP-2A not desired
- DHR not in service
- LPI not required

11.1 ____ Ensure CC ventilation and
CC chiller is aligned to
B ES 4160V BUS.

- Refer to EOP-14, Enclosure 17,
Control Complex Emergency
Ventilation and Cooling, for guidance.

11.2 ____ Ensure available margin on
A EDG.

- Ensure all the following are not
running:

____ DHP-1A

____ RWP-3A

____ DCP-1A

____ BSP-1A

____ AHF-15A

ENCLOSURE 11 EFP-1 ALIGNMENT TO A EDG WITHOUT LOAD MANAGEMENT
(CONT'D)

ACTIONS

DETAILS

11.3 ____ Start EFP-1

1 ____ Ensure a proper suction flow path exists.

2 ____ IF EFP-3 is running,
____ THEN select EFP-3 to
"PULL TO LOCK".

3 Ensure EFP-1 EFIC control valves are closed:

____ EFV-58

____ EFV-57

4 ____ Start EFP-1

[Rule 5, EDG Control]

5 ____ Ensure EFW flow is controlled.

[Rule 3, EFW/AFW Control]

11.4 ____ WHEN transition to DHR
is required,
____ THEN ensure DHR is
aligned to the
B ES 4160V BUS.

- Transition to DHR using applicable EOP or AP.

11.5 ____ EXIT this enclosure.

ENCLOSURE 12 ALIGNING EFW/AFW PUMPS TO HOTWELL

ACTIONS

DETAILS

12.1 ____ Ensure hotwell is at atmospheric PRESS.

1 Close all MSIVs:

____ MSV-412

____ MSV-413

____ MSV-414

____ MSV-411

2 ____ Control OTSG PRESS using ADVs.

3 Select condenser ARPs to "PULL TO LOCK":

____ ARP-1A

____ ARP-1B

4 Open condenser vacuum Bkrs:

____ ARV-48

____ ARV-49

12.2 ____ WHEN hotwell is at atmospheric PRESS, THEN notify SPO to determine hotwell TEMP.

• Record hotwell TEMP:

CD-53-TI
"CDHE-4A SOUTHSIDE
TEMPERATURE": _____ °F
(95 ft TB south of A hotwell)

CD-55-TI
"CDHE-4B SOUTHSIDE
TEMPERATURE": _____ °F
(95 ft TB south of B hotwell)

ENCLOSURE 12 ALIGNING EFW/AFW PUMPS TO HOTWELL (CONT'D)

ACTIONS

DETAILS

12.3 ___ Verify hotwell is available.

• Verify all the following exist:

___ Hotwell level > 48 in

___ Hotwell TEMP < 139°F

___ IF hotwell is NOT available,
THEN EXIT this enclosure.

12.4 ___ IF EFP-1 alignment to the
hotwell is desired,
THEN align EFP-1 to
hotwell.

1 ___ Ensure EFV-36
"EFW & AFW SUCTION ISO
FROM HOTWELL" is open
(95 ft TB between C & D inlet
waterboxes).

2 ___ Unlock and open EFV-2
"EFP-1 SUCTION FROM
CONDENSER"
(95 ft IB by EFP-1).

3 ___ Unlock and close EFV-3
"EFP-1 SUCTION FROM EFT-2"
(95 ft IB by EFP-1).

4 ___ IF EFP-1 start up is desired,
THEN CONCURRENTLY PERFORM
Enclosure 9 in this procedure.

5 ___ Maintain total EFW flow \leq limits
of EOP-14, Emergency Operating
Procedures Enclosures, Figure 3

ENCLOSURE 12 ALIGNING EFW/AFW PUMPS TO HOTWELL (CONT'D)

ACTIONS

12.5 ____ IF EFP-2 alignment to the hotwell is desired, THEN align EFP-2 to hotwell.

DETAILS

- 1 ____ Ensure EFV-36
"EFW & AFW SUCTION ISO
FROM HOTWELL" is open
(95 ft TB between C & D inlet
waterboxes).
- 2 ____ Unlock and open EFV-1
"EFP-2 SUCTION FROM
CONDENSER"
(95 ft IB by EFP-2).
- 3 ____ Unlock and close EFV-4
"EFP-2 SUCTION FROM EFT-2"
(95 ft IB by EFP-2).
- 4 ____ IF EFP-2 start up is desired,
THEN CONCURRENTLY PERFORM
Enclosure 9 in this procedure.
- 5 ____ Maintain total EFW flow \leq limits
of EOP-14, Emergency Operating
Procedures Enclosures, Figure 3

ENCLOSURE 12 ALIGNING EFW/AFW PUMPS TO HOTWELL (CONT'D)

ACTIONS

DETAILS

12.6 ____ IF FWP-7 alignment to the hotwell is desired,
THEN align FWP-7 suction from hotwell.

- 1 ____ Ensure EFV-36
"EFW & AFW SUCTION ISO FROM HOTWELL" is open
(95 ft TB between C & D inlet waterboxes).
- 2 ____ Open FWV-213
"FWP-7 SUCTION FROM HOTWELL"
(95 ft TB by FWP-7).
- 3 ____ Close FWV-214
"FWP-7 SUCTION FROM CDT-1"
(95 ft TB by FWP-7).
- 4 ____ IF FWP-7 start up is desired,
THEN CONCURRENTLY PERFORM
Enclosure 9 in this procedure.

12.7 ____ IF at any time hotwell level is ≤ 24 in,
THEN ensure adequate suction source exists.

- Perform 1 of the following:
 - ____ Transfer pump suction to alternate supply.
 - ____ Refill hotwell.
 - ____ Stop any running EFW or AFW pump aligned to the hotwell.

12.8 ____ WHEN no running EFW
OR AFW pump is aligned to the hotwell,
THEN EXIT this enclosure.

ENCLOSURE 13 REFILLING FST-1A/1B FROM UNIT 1 OR 2 FIRE SYSTEM

ACTIONS

DETAILS

- 13.1 ____ Notify CR-1/2
Control Room that FST
filling evolution will be
performed.

NOTE

FST-1A or 1B is full when level is 36 ft (Approximately 9,860 gal = 1 ft.)

- 13.2 ____ Start FST-1A fill.

- 1 ____ Ensure FSV-27
"FST-1A INLET ISO"
is open
(119 ft Berm between FSTs).
- 2 ____ IF FST-1A and FST-1B are NOT
cross-tied,
THEN ensure FSV-28
"FST-1B INLET ISO" is closed
(119 ft Berm between FSTs).

3 Open 1 of the following valves:

- ____ FSV-25
"UNIT 1 & 2 FILL ISOLATION TO
UNIT 3 FIRE SERVICE"
(95 ft West of Berm outside
protected area)
- ____ FSV-285
"FSV-25 BYPASS"
(95 ft West of Berm outside
protected area)

ENCLOSURE 13 REFILLING FST-1A/1B FROM UNIT 1 OR 2 FIRE SYSTEM
(CONT'D)

ACTIONS

DETAILS

13.3 WHEN FSTs are at desired level,
THEN stop FST fill.

1 Close FSV-25
"UNIT 1 & 2 FILL ISOLATION TO
UNIT 3 FIRE SERVICE"
(95 ft West of Berm outside
protected area).

2 Close FSV-285
"FSV-25 BYPASS"
(95 ft West of Berm outside
protected area).

3 IF FST-1A and FST-1B are NOT
cross-tied,
THEN perform the following:

Open FSV-28
"FST-1B INLET ISO"
(119 ft Berm between FSTs).

Close FSV-27
"FST-1A INLET ISO"
(119 ft Berm between FSTs).

13.4 EXIT this enclosure.

ENCLOSURE 14 ALIGNING EFW PUMPS TO EFT-2

ACTIONS

DETAILS

14.1 ____ Ensure EFT-2 level is ≥ 9 ft.

14.2 ____ Verify CDT-1 level is ≥ 5 ft.

____ IF CDT-1 level is < 5 ft,
____ THEN ensure CDV-103
"CDT-1 TO EFP SUCTION"
is closed
(119 ft Berm by CDT-1).

14.3 ____ IF EFP-1 alignment to EFT-2
is desired,
____ THEN align EFP-1 to EFT-2

1 ____ Ensure EFV-109
"EFT-2 TO EFW PUMP SUCTION"
is open
(119 ft berm inside
EFT-2 Building).

2 ____ Ensure EFV-111
"EFT-2 TO EFW PUMP SUCTION"
is open
(119 ft Berm inside
EFT-2 Building).

3 ____ Unlock and open EFV-3
"EFP-1 SUCTION FROM EFT-2"
(95 ft IB by EFP-1).

4 ____ Unlock and close EFV-2
"EFP-1 SUCTION FROM
CONDENSER"
(95 ft IB by EFP-1).

ENCLOSURE 14 ALIGNING EFW PUMPS TO EFT-2 (CONT'D)

ACTIONS

DETAILS

- 14.4 ____ IF EFP-2 alignment to EFT-2 is desired,
THEN align EFP-2 to EFT-2
- 1 ____ Ensure EFV-109
"EFT-2 TO EFW PUMP SUCTION"
is open
(119 ft berm inside
EFT-2 Building).
 - 2 ____ EFV-111
"EFT-2 TO EFW PUMP SUCTION"
is open
(119 ft Berm inside
EFT-2 Building).
 - 3 ____ Unlock and open EFV-4
"EFP-2 SUCTION FROM EFT-2"
(95 ft IB by EFP-2).
 - 4 ____ Unlock and close EFV-1
"EFP-2 SUCTION FROM
CONDENSER"
(95 ft IB by EFP-2).
-

14.5 ____ EXIT this enclosure.

ACTIONS

DETAILS

CAUTION

If EFP-2 trip recovery follows an OTSG overfill event ensure MS lines and EFP-2 steam supply header are drained prior to performing EFP-2 trip recovery.

15.1 ☐ Cause of the EFP-2 trip has been identified and corrected.

15.2 ☐ Ensure EFP-2 steam supply isolation valves are closed.

- ☐ ASV-5
- ☐ ASV-204

15.3 ☐ Ensure EFP-2 normal discharge path is isolated.

1. ☐ Depress "MANUAL PERMISSIVE" push buttons on EFIC channels A and B.
2. Close EFP-2 EFIC control valves:
 - ☐ EFV-55
 - ☐ EFV-56

ENCLOSURE 15 EFT-2 TRIP RECOVERY (CONT'D)

ACTIONS

DETAILS

15.4 ___ Notify SPO to
reset ASV-50
(95 ft IB by EFP-2).

- 1 ___ Turn handwheel clockwise to
raise latch collar.
 - 2 ___ Ensure tappet and tappet nut are
fully depressed.
 - 3 ___ Engage latch lever.
 - 4 ___ Slowly open ASV-50 by turning
handwheel counterclockwise until
full open.
 - 5 ___ Notify Control Room to verify
Annunciator alarm "EF PUMP 2
TRIP" (H-07-04) clears.
-

15.5 ___ Notify Control Room EFP-2
is reset.

15.6 ___ EXIT this enclosure.

ENCLOSURE 16 EFP-1/EFP-3 CROSS-TIE TO B TRAIN EFW

ACTIONS

DETAILS

STATUS

- EFP-1/EFP-3 cross-tie to B Train EFW is desired.

16.1 ___ Ensure EFP-1 / EFP-3
normal discharge path is
isolated.

1 ___ Depress "MANUAL PERMISSIVE"
push buttons on
EFIC channels A and B.

2 Close EFP-1/ EFP-3 discharge block
valves:

___ EFV-14

___ EFV-33

3 Notify PPO to open EFP-1 / EFP-3
discharge block valve switches
(B ES 480V SWGR Room):

___ DPDP 8D-1
"EFV-14 MOTOR POWER"

___ DPDP 8D-3
"EFV-33 MOTOR POWER"

ENCLOSURE 16 EFP-1/EFP-3 CROSS-TIE TO B TRAIN EFW (CONT'D)

ACTIONS

DETAILS

16.2 ____ IF EFV-12 power available,
THEN notify PPO to open
EFV-12 electrically.

1 Unlock and close EFV-12 switches
(A ES 480V SWGR Room):

____ DPDP 8C-5
____ "EFV-12 MOTOR POWER"

____ DPDP 8C-6
____ "EFV-12 CONTROL POWER"

2 ____ Depress the open push button on
EFV-12-MST
(A ES 480V SWGR Room).

3 ____ WHEN EFV-12 is open,
THEN open and lock EFV-12
switches
(A ES 480V SWGR Room):

____ DPDP 8C-5
____ "EFV-12 MOTOR POWER"

____ DPDP 8C-6
____ "EFV-12 CONTROL POWER"

____ IF EFV-12 power is NOT
available,
THEN notify PPO to open
EFV-12 manually.
(95 ft IB by EFP-1)

16.3 ____ IF EFP-2 is not running,
THEN close EFP-2 EFIC
control valves.

• Close EFP-2 EFIC control valves:

____ EFV-55

____ EFV-56

ENCLOSURE 16 EFP-1/EFP-3 CROSS-TIE TO B TRAIN EFW (CONT'D)

ACTIONS

DETAILS

16.4___ Start EFP-1 or EFP-3.

16.5___ Depress both
"EFW INITIATE"
push buttons on
EFIC channels A and B.

16.6___ IF EFP-2 is running,
THEN stop EFP-2

16.7___ Ensure EFW flow is
controlled.

[Rule 3, EFW/AFW Control]

16.8___ EXIT this enclosure.

ENCLOSURE 17 EFP-2 TEMPORARY TRANSFER LINE CONFIGURATION

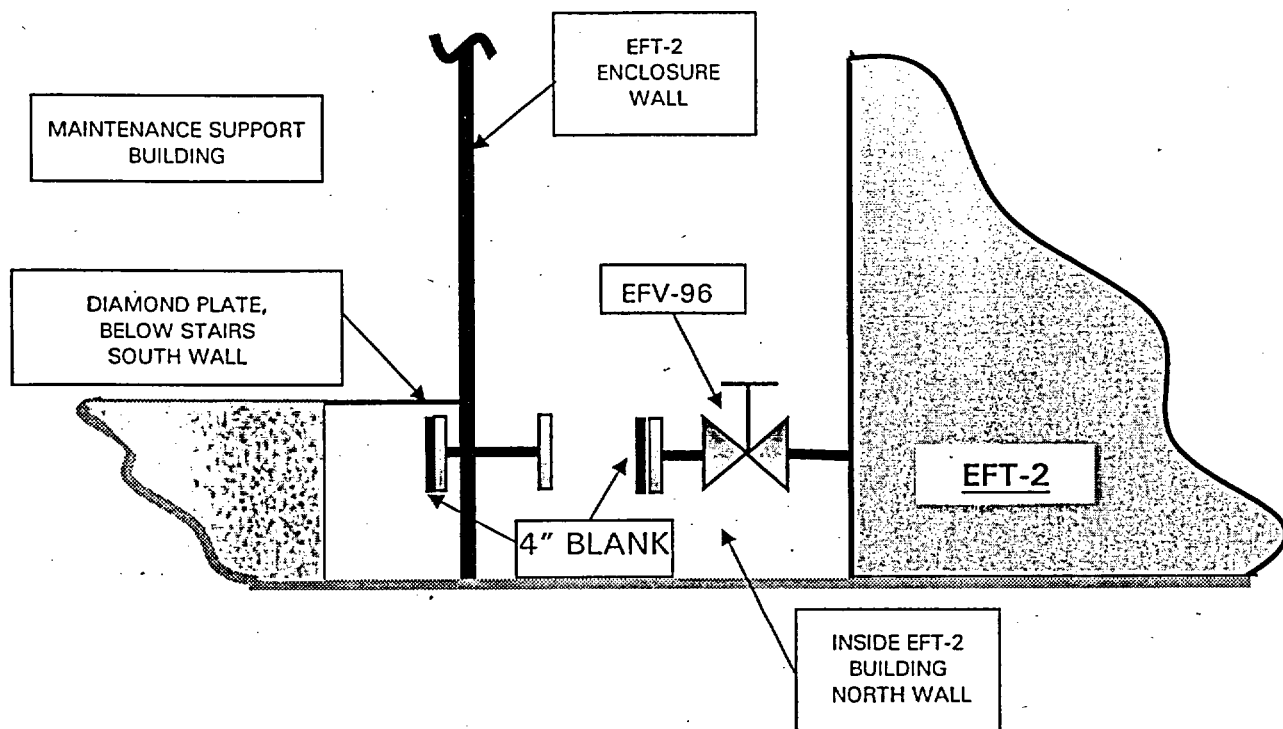


FIGURE 1 - CONFIGURATION OF EFT-2 PIPING
AT BEGINING ENCLOSURE 4.0

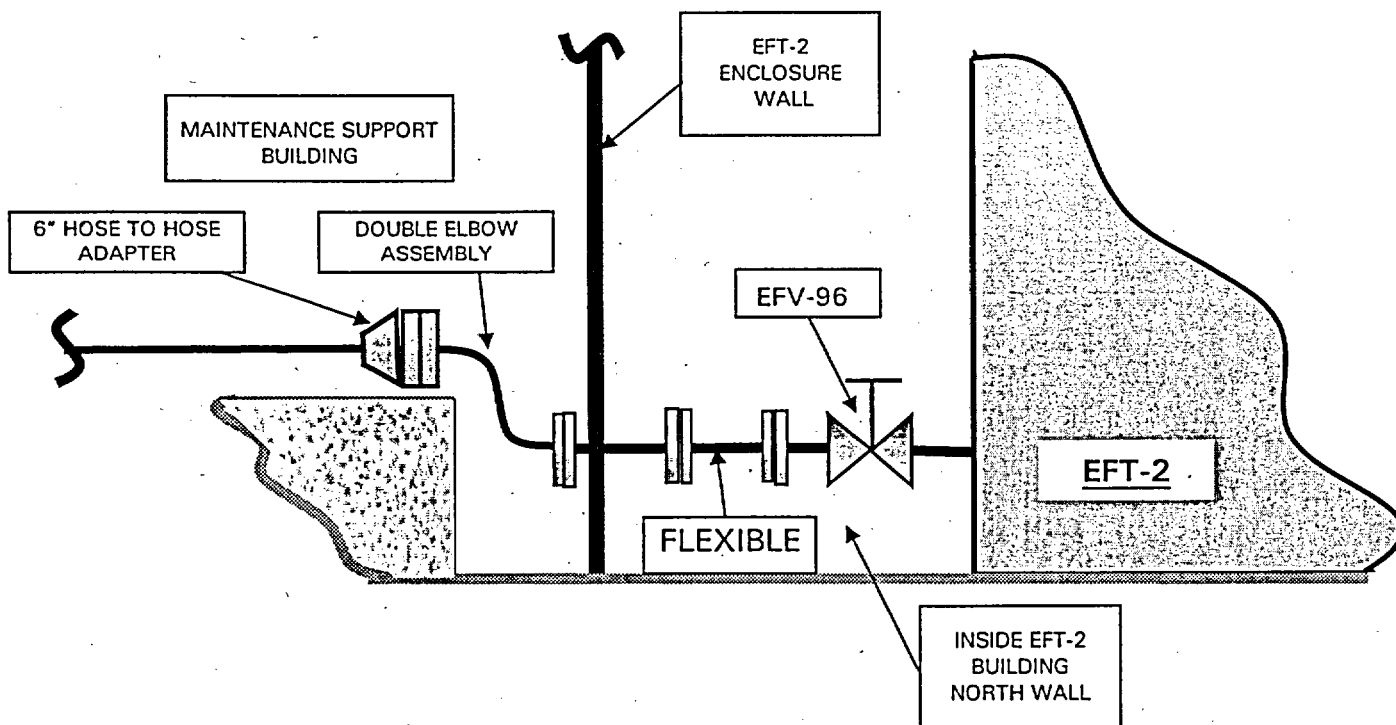


FIGURE 2 - CONFIGURATION OF EFT-2 TRANSFER LINE
CONNECTION AT THE END OF ENCLOSURE 4, STEP 4.11

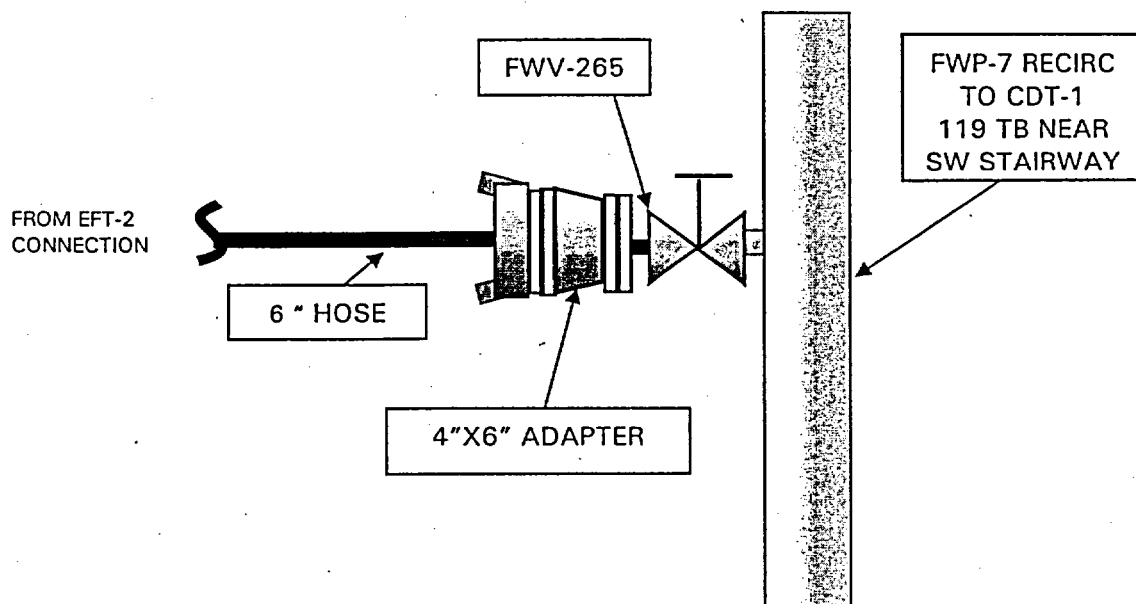


FIGURE 3 - CONFIGURATION OF EFT-2 CONNECTIONS TO CDT-1 AT THE END OF ENCLOSURE 4, STEP 4.16

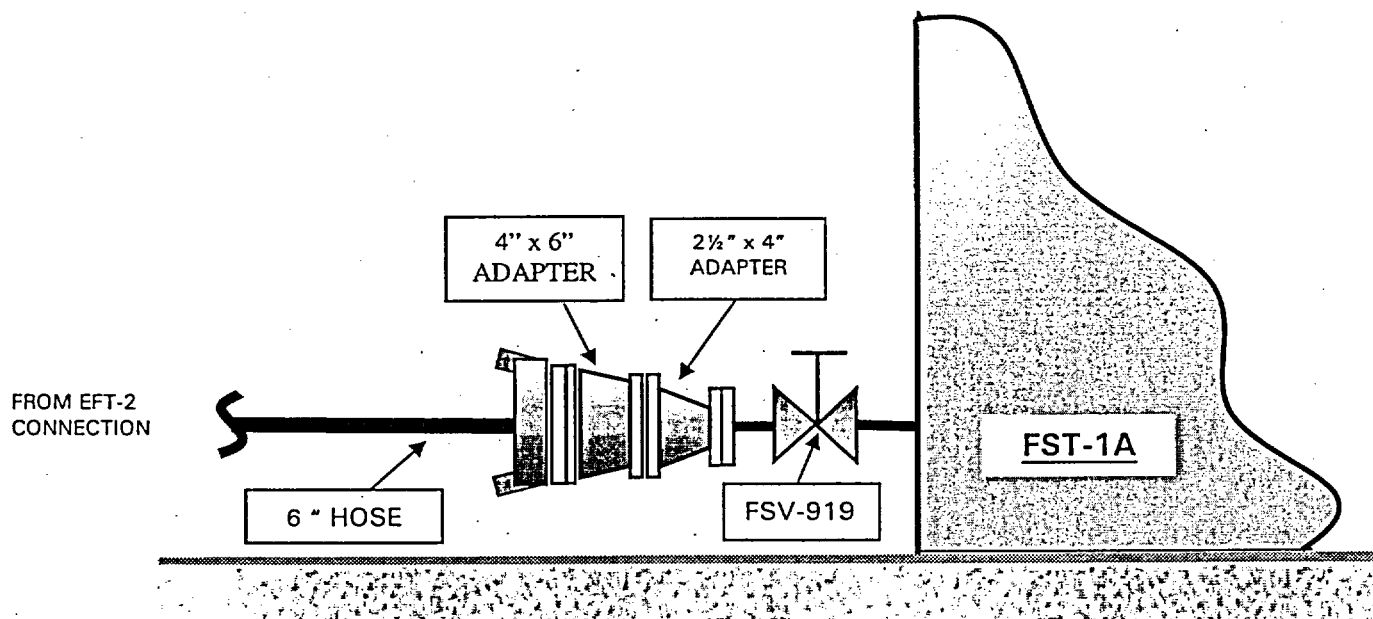


FIGURE 4 - CONFIGURATION OF FST-1A SOUTHEAST SIDE AT THE END OF ENCLOSURE 4, STEP 4.25

Summary of Changes

SECTION	CHANGE
Cover Page	Changed Florida Power Logo and name to Progress Energy Logo and Name
Enclosure 10 step 10.1	Add requirements to ensure CAHE-3A, "A" BAST Heater control switch is selected to off and BWST Heater control switch is selected to local. (Ref NTM 87456)