

DUKE POWER COMPANY  
PROCEDURE PREPARATION  
PROCESS RECORD

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(2) STATION: CATAWBA NUCLEAR

(3) PROCEDURE TITLE: DRAINING AND FILLING OF SPENT FUEL POOL TRANSFER  
CANAL AND CASK AREA

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**INFORMATION ONLY**

DUKE POWER COMPANY  
CATAWBA NUCLEAR STATION  
DRAINING AND FILLING OF SPENT FUEL  
POOL TRANSFER CANAL AND CASK AREA

1.0 PURPOSE

The purpose of this procedure is to define the proper methods to be used during the following operations:

3.0 Draining of Transfer Canal

4.0 Filling of Transfer Canal

5.0 Draining of Cask Area

6.0 Filling of Cask Area

2.0 LIMITS AND PRECAUTIONS

- 2.1 Safety belts should be worn when working near the edge of the Spent Fuel Pool.
- 2.2 Radiation levels in the Spent Fuel Building will be monitored by appropriate area monitoring equipment or by portable instruments.
- 2.3 All personnel working in the Spent Fuel Pool area will remove all objects from their person not required for performance of their work.
- 2.4 Protective clothing and dosimetry will be used at all times in accordance with applicable Radiation Work Permit.
- 2.5 Care must be maintained when handling the Weir Gates to prevent damaging the inflatable sealing surface.
- 2.6 The Inflatable Seal Pressure will be maintained at 35 to 40 psig when the gates are in operation.
- 2.7 Do not handle the Weir Gates over the fuel racks unless necessary for installation.
- 2.8 The Fuel Pool Ventilation System (VF) must be in operation and discharging through the HEPA filters and charcoal adsorbers while actually handling or suspending (excluding normal storage suspension) a Weir Gate in or over the Fuel Pool containing irradiated fuel (Tech. Spec. 3.9.11).

CH #1

~~2.9 Refer to Catawba Technical Specifications~~

2.1<sup>9</sup> Refer to Catawba Limits and Precautions (OP/O/A/6100/08).

### 3.0 DRAINING OF TRANSFER CANAL

#### 3.1 Initial Conditions

- 3.1.1 The Spent Fuel Pool is filled to approximately normal operating level (EL.598' 4 3/4").
- 3.1.2 The Aux. Hoist (East) and SFP Manipulator Crane available for use, with the bridge not parked over the cask area.
- 3.1.3 Spent Fuel Cooling Skimmer Loop in operation per OP/1/A/6200/05 or OP/2/A/6200/05 (Spent Fuel Cooling System).
- 3.1.4 Portable Air-operated Stainless Steel Sump Pump available with appropriate hoses and fittings.
- 3.1.5 Locked closed valve 1VI-134 or 2VI-134 (SFP Gate Seal Supply Isol.) is unlocked and open, and the regulator 1VI-135 or 2VI-135 (SFP Gate Seal Supply Regulator) is regulating at ~ 35 psig.
- 3.1.6 The Weir Gate Inflatable Seals and Weir Gate Sealing Surfaces are properly cleaned and free of debris.
- 3.1.7 Notify Health Physics that the draining operation is to begin.

#### 3.2 Procedure

- 3.2.1 Position the SFP Manipulator Crane in such a manner as to align the Monorail Hoist Hook vertically over the Transfer Canal Weir Gate.
- 3.2.2 Place the Weir Gate slings and shackles on the Monorail Hoist Hook.

NOTE: The mast should be in the pool area unless maintenance is required, in this case the mast should be in the transfer canal.

- 3.2.3 Attach the slings and shackles to the Transfer Canal Weir Gate and raise the Weir Gate from the hanger trunnions.
- 3.2.4 Lift the gate a sufficient height as to allow the bottom of the Weir Gate to clear the guide runners on the gate opening (~7½').
- 3.2.5 Place the "Bridge Left Interlock Bypass Switch" (TS-3), located inside the bridge console door, to the "Bypass" position.

- 3.2.6 Place the "Bridge Right Interlock Bypass Switch" (TS-4) to the "Bypass" position.
- 3.2.7 Place the "Trolley Interlock Bypass Switch" (TS-5) to the "Bypass" position.
- 3.2.8 Verify the "Trolley Bypassed" and "Bridge Bypassed" lights are illuminated on the bridge console.

NOTE: The above interlocks are required to be bypassed because the "Monorail Hoist Full Up" light is not illuminated.

- 3.2.9 Position the gate to allow the gate to fit through the gate opening. Drive the gate through the gate opening until the gate is just inside the pool area.
- 3.2.10 Position the gate with the gate hangers (trunnions) on the pool side.
- 3.2.11 Center the gate over the opening and mate the face of the gate with the face of the opening, lower the gate through the guide runners on the gate opening until the hangers (trunnions) rest on the hanger brackets.
- 3.2.12 Detach and remove the slings and shackles from the Transfer Canal Weir Gate.
- 3.2.13 Detach and remove the slings and shackles from the Monorail Hoist Hook.
- 3.2.14 Return the interlock switches previously bypassed (TS-3, 4 and 5) to the "Interlock" position and verify the "Trolley Bypassed" and "Bridge Bypassed" lights are not illuminated.
- 3.2.15 Attach Instrument Air (VI) Hoses to the Weir Gate Bladder Fittings and slowly pressurize the Weir Gate Seal to ~ 35 psig as indicated on Weir Gate Pressure Gauge.
- 3.2.16 Attach one end of air hose to the Station Air (VS) Header and the other end of the air hose to the Sump Pump Air Inlet Opening.
- 3.2.17 Attach one end of the water hose to the Sump Pump Water Outlet Opening and position the other end of the water hose so that the water will discharge into the Spent Fuel Pool.
- 3.2.18 Attach a safety line to the pump body and lower the sump pump to the bottom of the transfer canal; apply and maintain Station Air to begin pumping down the transfer canal.

- 3.2.19 Wash down transfer canal walls with demineralized water during pump out to hold down contamination levels.
- 3.2.20 Refer to OP/1/A/6200/05 or OP/2/A/6200/05 (Spent Fuel Cooling System) to maintain appropriate water level in Spent Fuel Pool during the pump out.
- 3.2.21 When water level has decreased below the Weir Gate, observe the sealing surface on the Weir Gate and determine if there is any leakage through the gate. If leakage is determined, increase the sealing pressure (in one psig increments) to a maximum seal pressure of N 40 psig. Record data in Enclosure 7.1.
- 3.2.22 If leakage still exists, allow the transfer canal to fill. Remove the Weir Gate and determine the problem.
- 3.2.23 If no leakage is exhibited by the Transfer Canal Weir Gate, continue pumping down the transfer canal until the canal is empty.
- 3.2.24 Have Health Physics representative survey the Transfer Canal Area to verify contamination and radiation levels are within acceptable limits. If the readings are above acceptable limits, wash down the transfer canal with demineralized water until the contamination and radiation levels are acceptable.
- 3.2.25 Stop the Portable Sump Pump and remove it from the transfer canal.
- 3.2.26 Have Chemistry Section sample spent fuel pool to determine that boron concentration is greater than or equal to 2000 ppm.
- 3.2.27 Wipe off excess water from pump, hoses and safety line, place in clean poly bag and return to storage.
- 3.2.28 Return all slings and shackles to their proper storage location(s).

#### 4.0 FILLING OF TRANSFER CANAL

##### 4.1 Initial Conditions

- 4.1.1 Section 3.0 of this procedure is complete.

##### 4.2 Procedure

- 4.2.1 Verify the portable sump pump is set up with water hoses and air hoses and is ready for operation.
- 4.2.2 Attach a safety line to the pump body and lower the sump pump into the Spent Fuel Pool adjacent to the Transfer Canal Weir Gate with the water discharge hose end in the transfer canal.

- 4.2.3 Apply and maintain Station Air to the Sump Pump to begin filling the transfer canal.
- 4.2.4 Refer to OP/1/A/6200/05 or OP/2/A/6200/05 (Spent Fuel Cooling System) to maintain appropriate water level in the Spent Fuel Pool during the filling operation.
- 4.2.5 Fill the transfer canal until the canal level is approximately equal to the Spent Fuel Pool level across the Weir Gate and stop the sump pump.
- 4.2.6 Position the SFP Manipulator Crane in such a manner as to align the Monorail Hoist Hook vertically over the Transfer Canal Weir Gate.
- 4.2.7 Place the Weir Gate slings and shackles on the Monorail Hoist Hook; place the other end of the slings and shackles to the Weir Gate lifting "eyes".
- 4.2.8 Remove the slack from the slings between the Hoist Hook and the Weir Gate.
- 4.2.9 Close and lock 1VI-134 or 2VI-134 (SFP Gate Seal Supply Isol.).
- 4.2.10 Break the seal on the Weir Gate Bladders by opening the air valves on the gate top and remove the instrument air hoses from the bladder fittings.  
  
NOTE: After the gate seal is broken, the level in the transfer canal should be equal to the level in the Spent Fuel Pool.
- 4.2.11 Raise the Weir Gate a sufficient height ( $\sim 7\frac{1}{2}'$ ) to allow the bottom of the gate to clear the guide runners in the gate opening.
- 4.2.12 Repeat steps 3.2.5 through 3.2.8.
- 4.2.13 Position the gate to allow the gate to fit through the gate opening. Drive the gate through the gate opening until the gate is adjacent to the gate hanger brackets on the canal wall.
- 4.2.14 Position the gate with the gate storage "eyes" over the gate hanger brackets and lower the gate until the storage "eyes" rest on the hanger brackets.
- 4.2.15 Detach and remove the slings and shackles from the Transfer Canal Weir Gate and store.
- 4.2.16 Repeat steps 3.2.13 and 3.2.14.

- 4.2.17 Remove the portable sump pump, hoses and fittings.
- 4.2.18 Wipe off excess water from pump, hoses, fittings and safety line. Place in clean poly bag and store.

## 5.0 DRAINING OF CASK AREA

### 5.1 Initial Conditions

- 5.1.1 The Spent Fuel Pool is filled to approximately normal operating level (EL. 598 4 3/4").
- 5.1.2 The Spent Fuel Building Auxiliary Hoist available for use per OP/O/A/6550/02 (Overhead Fuel Handling Crane and Auxiliary Hoist).
- 5.1.3 Spent Fuel Cooling Skimmer Loop in operation per OP/1/A/6200/05 or OP/2/A/6200/05 (Spent Fuel Cooling System).
- 5.1.4 Portable Air-operated Sump Pump available with appropriate hoses and fittings.
- 5.1.5 Locked close valve 1VI-134 or 2VI-134 (SFP Gate Seal Supply Isol.) is unlocked and open and the regulator 1VI-135 or 2VI-135 (SFP Gate Seal Supply Regulator) is regulating at  $\sim 35$  psig.
- 5.1.6 The Weir Gate Inflatable Seals and Weir Gate Sealing Surfaces are properly cleaned and free of debris.
- 5.1.7 Notify Health Physics that the draining operation is to begin.

### 5.2 Procedure

- 5.2.1 Place the Weir Gate slings and shackles on the ten (10) ton Auxiliary Hoist on the Overhead Crane.
- 5.2.2 Attach the slings and shackles to the Cask Area Weir Gate and raise the Weir Gate from the cask area wall hanger brackets.
- 5.2.3 Lift the gate a sufficient height as to allow the bottom of the Weir Gate to clear the guide runners on the gate opening ( $\sim 7\frac{1}{2}$  ft.).
- 5.2.4 Position the gate to allow the gate to fit through the gate opening. Drive the gate through the gate opening until the gate is just inside the pool area.
- 5.2.5 Position the gate with the gate hangers (trunnions) on the pool side.

- 5.2.6 Center the gate over the opening and mate the face of the gate with the face of the opening, lower the gate through the guide runners on the gate opening until the hangers (trunnions) reset on the hanger brackets.
- 5.2.7 Detach and remove the slings and shackles from the Cask Area Weir Gate.
- 5.2.8 Close Spent Fuel Pool Cooling Pool Skimmer Discharge valves to the cask area, to discontinue any makeup to cask area.
- 5.2.9 Attach instrument air hoses to the Weir Gate Bladder Fittings and slowly pressurize the Weir Gate Seal to  $\sim 35$  psig as indicated on the Weir Gate Pressure Gauge.
- 5.2.10 Attach one end of air hose to the Station Air (VS) header and the other end of the air hose to the Sump Pump Air Inlet Opening.
- 5.2.11 Attach one end of the water hose to the Sump Pump Water Outlet Opening and position the other end of the water hose so that the water will discharge into the Spent Fuel Pool.
- 5.2.12 Attach safety line to pump body and lower the sump pump to the bottom of the cask lower level; apply and maintain Station Air to begin pumping down the cask area.
- 5.2.13 Wash down the cask area walls with demineralized water during pump out to hold down contamination levels.
- 5.2.14 Refer to OP/1/A/6700/05 or OP/2/A/6200/05 (Spent Fuel Cooling System) to maintain appropriate water level in Spent Fuel Pool during the pump out.
- 5.2.15 When water level has decreased below the Weir Gate, observe the sealing surface on the Weir Gate and determine if there is any leakage through the gate. If leakage is determined, increase the sealing pressure (in one psig increments) to a maximum seal pressure of  $\sim 40$  psig. Record data in Enclosure 7.2.
- 5.2.16 If leakage still exists, allow the cask area to fill. Remove the Weir Gate and determine the problem.
- 5.2.17 If no leakage is exhibited by the Cask Area Weir Gate, continue pumping down the cask area until the cask area is empty.
- 5.2.18 Have Health Physics representative survey the cask area to verify contamination and radiation readings are within acceptable limits. If the readings are above acceptable limits, wash down the cask area with demineralized water until within the acceptable limits.

- 5.2.19 Have Chemistry Section sample spent fuel pool to determine that boron concentration is greater than or equal to 2000 ppm.
- 5.2.20 Stop the Portable Sump Pump and remove it from the cask area.
- 5.2.21 Wipe off excess water from pump, hoses, fittings and safety line. Place in clean poly bag and store.
- 5.2.22 Return all slings and shackles to their proper storage location(s).

## 6.0 FILLING OF CASK AREA

### 6.1 Initial Conditions

- 6.1.1 Section 5.0 of this procedure is complete.

### 6.2 Procedure

- 6.2.1 Open Spent Fuel Pool Cooling Pool Skimmer Discharge Valves to the cask area to begin fill of cask area.

NOTE: If cask area fill time needs to be reduced, the Portable Sump Pump may be used in conjunction with Skimmer Loop Discharge.

CAUTION: If Portable Sump Pump is used in conjunction with Skimmer Loop Discharge, some throttling may have to be done to maintain level in Spent Fuel Pool. (Maximum makeup is 310 gpm).

- 6.2.2 Refer to OP/1/A/6200/05 or OP/2/A/6200/05 (Spent Fuel Cooling System) to maintain appropriate water level in the Spent Fuel Pool during the filling operation.
- 6.2.3 Fill the cask area until the level in the cask area is approximately equal to the Spent Fuel Pool level across the Weir Gate.
- 6.2.4 Place the Weir Gate slings and shackles on the ten (10) ton Auxiliary Hoist on the Overhead Crane.
- 6.2.5 Attach the sling and shackles to the cask area Weir Gate and remove slack from the slings.
- 6.2.6 Close and lock 1VI-134 or 2VI-134 (SFP Gate Seal Supply Isol.).
- 6.2.7 Break the seal on the Weir Gate Bladders by opening the air valves on the top of the gate and remove instrument air hoses from the Weir Gate Bladder Fittings.

NOTE: After the gate seal is broken, the level in the cask area should be equal to the level in the Spent Fuel Pool.

- 6.2.8 Raise the Weir Gate a sufficient height to allow the bottom of the gate to clear the guide runners in the gate opening (~ 7 1/2 ft.).
- 6.2.9 Position the gate to allow the gate to fit through the gate opening. Drive the gate through the gate opening until the gate is adjacent to the gate hanger brackets on the cask area wall.
- 6.2.10 Position the gate with the gate storage "eyes" over the gate hanger brackets and lower the gate until the storage "eyes" rest on the hanger brackets.
- 6.2.11 Detach and remove the lifting slings and shackles from the Cask Area Weir Gate and return them to their proper storage location(s).

7.0 ENCLOSURES

- 7.1 Transfer Canal Weir Gate Data Sheet.
- 7.2 Cask Area Weir Gate Data Sheet.

TRANSFER CANAL WEIR GATE DATA SHEET  
OP/O/A/6550/14  
ENCLOSURE 7.1

		YES/NO	DATE/INITIAL
7.1.1	Leakage at 35 psig	___/___	___/___
7.1.2	Leakage at 36 psig	___/___	___/___
7.1.3	Leakage at 37 psig	___/___	___/___
7.1.4	Leakage at 38 psig	___/___	___/___
7.1.5	Leakage at 39 psig	___/___	___/___
7.1.6	Leakage at 40 psig	___/___	___/___

Completed by: \_\_\_\_\_

CASK AREA WEIR GATE DATA SHEET  
OP/0/A/6550/14  
ENCLOSURE 7.2

		YES/NO	DATE/INITIAL
7.2.1	Leakage at 35 psig	___/___	___/___
7.2.2	Leakage at 36 psig	___/___	___/___
7.2.3	Leakage at 37 psig	___/___	___/___
7.2.4	Leakage at 38 psig	___/___	___/___
7.2.5	Leakage at 39 psig	___/___	___/___
7.2.6	Leakage at 40 psig	___/___	___/___

Completed by: \_\_\_\_\_