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APERTURE  
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**NOTES:**

1. THE OPERATING SEQUENCES DESCRIBED IN THESE NOTES ARE BASED ON UNIT 1 EQUIPMENT. IDENTICAL SEQUENCES APPLY TO UNITS 2 AND 3. THE GENERAL PHILOSOPHY OF OPERATION ALSO APPLIES TO THE CONDENSATE PHASE SEPARATOR SYSTEM SHOWN ON 47W610-77-6 AND 77-7.
2. THE SPENT RESINS AND SLUDGE FROM THE FILTER DEMINERALIZER ARE COLLECTED IN THE CLEANUP BACKWASH RECEIVING TANK. WHILE CONTAINED IN THE RECEIVING TANK, DISCHARGE VALVES FCV-77-133 AND FCV-77-143 ARE CLOSED. VALVES FCV-77-130 AND FCV-77-143 ARE OPENED. THE BACKWASH TRANSFER PUMP IS STARTED AND THE SLUDGE IS CIRCULATED AROUND THE LOOP FROM THE RECEIVING TANK TO THE PHASE SEPARATOR VIA FCV-77-137 AND BACK TO THE TANK VIA FCV-77-143 ON THE PUMP OUTLINE. THIS RECYCLES THE SPENT RESINS. SLUDGE SETTLES TO THE BOTTOM OF THE TANK. AT THE END OF THE SETTLING PERIOD, THE TANK IS VENTED AND THE SLUDGE IS PLUMBED BY THE BACKWASH TRANSFER PUMP TO A WASTE PACKAGE.
3. THE TANKER RESINS COLLECTED IN UNITS 1 AND 2 ARE PIPED SO THAT THESE TANKS CAN ACT AS RESERVOIRS FOR EACH OTHER. THE UNIT 3 RECEIVING TANK IS EQUIPPED WITH CLEANUP TRANSFER PUMPS.
4. THE TANK IS ADMITTED TO THE CLEANUP PHASE SEPARATOR THROUGH FCV-77-155. AFTER THE TANK HAS BEEN ALLOWED TO SETTLE FOR A PERIOD OF TIME, FCV-77-151 AND FCV-77-155 ARE CLOSED AND A CLEANUP DEWATER PUMP IS STARTED. WHEN THE DEWATER PUMP REACHES THE LEVEL TO WHICH LS-77-146 IS SET, THE DEWATER PUMP IS STOPPED AND FCV-77-151 IS CLOSED AUTOMATICALLY. FCV-77-155 IS CLOSED BY THE OPERATOR. AFTER THE CLEANUP CYCLE IS COMPLETED, AFTER DECAT THE MIXING LINE VALVE FCV-77-133 AND RECYCLE LINE VALVE FCV-77-152 ARE CLOSED AND A CLEANUP SLUDGE PUMP IS STARTED. THE OPERATOR STARTS THE SEPARATOR SUGGLER LEVEL SYSTEM VIA HS-77-142.

THE SLUDGE IS RECYCLED IN THE SEPARATOR TO AGITATE AND PREVENT SETTLING. FCV-77-150 IS OPENED IN THE LOWER PUMP SECTION TO RECYCLE THE SLUDGE TO THE WASTE-WORKING SYSTEM. THE SEPARATOR IS VENTED TO THE LOG-LEVEL POINT IS REACHED TO CONTINUE UNTIL THE LOG-LEVEL POINT IS REACHED. THE RECYCLE LINE VALVE FCV-77-152 AND RECYCLE LINE VALVE FCV-77-151 ARE CLOSED. THE SLUDGE PUMP IS STOPPED. FCV-77-153 AND FCV-77-152 ARE OPENED TO BACKWASH THESE LINES. TRIP IC-77-157 TRIP CLOSURE FCV-77-149 FCV-77-150, AND FCV-77-147 TO COMPLETE THE BACKWASH CYCLE AFTER THE REMOVAL OF SLUDGE FROM THE SEPARATOR TO THE WASTE PACKAGE.

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1.100	16-4-74	100	100	100	100	100	100	100	100
REVISED FOR FC 535									
3.12.1980 1.19.74 ENC. ON THE									
ADDED VALVES AND DELETED AN OLD PUMP/TRANS. N. B.									
POWERHOUSE UNITS 1-3									
MECHANICAL CONTROL DIAGRAM RADWASTE SYSTEM									
BROWNS FERRY NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY DIVISION OF ENGINEERING DESIGN									
SUBMITTED	RECOMMENDED	APPROVED							
D. E. ...	M. W. ...	R. H. ...							
KNOXVILLE	4-10-69	67	M	4	47W610-77-4				

DESIGNED BY	DATE	SCALE	SHEET NO.	TOTAL SHEETS
ENGINEER				
CHECKED BY				
APPROVED BY				

NOTE Rev. 1: Entire dwg. changed; rev. for vendor's design & misc. chg.