

	<p style="text-align: center;"><b>INDIANA AND MICHIGAN POWER</b>  <b>D. C. COOK NUCLEAR PLANT</b>  <b>UPDATED FINAL SAFETY ANALYSIS</b>  <b>REPORT</b></p>	<p>Revision: 17</p> <p>Table: 9.2-4</p> <p>Page: 1 of 1</p>
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## FAILURE ANALYSIS OF THE CHEMICAL AND VOLUME CONTROL SYSTEM

Component		Failure	Comments and Consequences
a.	Letdown Line	Rupture in the line inside the reactor containment	The remote air-operated valve located near the main coolant loop is closed on low pressurizer level to prevent supplementary loss of coolant through the letdown line rupture. The containment isolation valves in the letdown line are automatically closed by the containment isolation signal initiated by the concurrent loss-of-coolant accident. The closure of these valves prevents any leakage of the reactor containment atmosphere outside the reactor containment.
b.	Normal and alternate Charging Line	See above	The check valves located near the main coolant loops prevent supplementary loss of coolant through the line rupture. The check valve located at the boundary of the reactor containment prevents any leakage of the reactor containment atmosphere outside the reactor containment.
c.	Seal Water Return Line	See above	The motor-operated isolation valves located inside and outside the containment are manually closed or are automatically closed by the containment isolation signal initiated by the concurrent loss-of-coolant accident. The closure of that valve prevents any leakage of the reactor containment atmosphere outside the reactor containment.
d.	Letdown Line	Rupture in the line outside the containment	Any break between containment and the letdown heat exchanger would potentially result in flashing hot letdown fluid and would be identified by lo flow in the letdown line and other system indications. The increase in letdown flow caused by a break downstream of the letdown flow indicator would be matched by an automatic increase in the charging flow and a HI Letdown Flow Alarm. An operational level in the pressurizer would, therefore, be maintained. Ultimately, the operator would be alerted by a Lo Lo level alarm in the volume control tanks. (Other indications would be an increased charging flow and falling volume control tank level. Also, the area monitors in the auxiliary building would detect any increase in activity). By observing the flow meter on the letdown line, the operator could detect the increase in flow, depending on the location of the break. The break could then be isolated by closing the redundant isolation valves in the letdown lines. Any spillage would be drained and collected in the Radioactive Waste Disposal System, while residual gases from any flashed coolant would be circulated through particulate filters before being discharged to the atmosphere through the plant vent.