Storage of Radioactive Waste
A Hypothetical Scenario

Radioactive nuclear waste is accumulating at the Calvert Cliffs nuclear energy plant in Maryland. Because the U.S. Government nuclear waste facility at Yucca Mountain in Nevada is not ready, this waste will have to be stored in Maryland until the Yucca Mountain facility is ready.

The Baltimore Gas and Electric Company plans to store the waste in thick concrete vaults. The vaults are thick enough to prevent radiation from penetrating to the outside. However, the vaults are not designed to last for long periods of time, so the radioactive waste will have to be transferred to new vaults unless it can be stored in the U.S. Government waste disposal facility.

The probability that a leak could occur during transfer from old vaults to new ones is small (about 1×10^{-6}) and could cause 10 fatalities. The probability of a leak at the Yucca Mountain facility is even less; about 1×10^{-8}. Since the population density in Nevada is less than that in Maryland, a leak at Yucca Mountain could cause only 2 fatalities. The probability of a leak during transportation to Yucca Mountain, Nevada, is about 2×10^{-9} per mile and could cause 10 fatalities. This information is summarized below:

	Number of Fatalities	Probability of a Leak
Storage at Calvert Cliffs	10	1×10^{-6}
Storage at Yucca Mountain	2	1×10^{-8}
Transport to Nevada	10	2×10^{-9} per mile

The governor of Maryland is trying to get the U.S. government to hurry up and get the Yucca Mountain facility ready soon. As part of his argument, he wants to show that keeping the nuclear waste in Maryland is a greater risk than moving it to Yucca Mountain. Calculate the risk for each alternative. Do the risk data support the Governor's argument? Explain your answer.