Source	Comment(s)	NRC Staff's Disposition and Basis
Anonymous	ML18345A267 Public Comment In nuclear energy, there are several main types of reactors used to create electricity. In order to create these electricity nuclear power plants use reactors which uses the energy released from splitting atoms to create heat. This heat is used to make steam to power turbines which produce electricity. The two most commonly used reactors are the advanced boiling water reactors and the pressurized water reactors or categorized as light water reactors. Both of these light water reactors have been redesigned multiple times of over the years to improve safety and the overall efficiency. This paper will go in depth over on which reactor is better between the boiling water reactor and the pressurized water reactor. Boiling Water Reactor (BWR) The boiling water reactor, or BWR, was first created the 1950s, is a lot more simplified than its counterpart the pressurized water reactor, or PWR. The BWR is built with one primary circuit of water that is pumped around the core which heats the water to creates steam to power a turbine connected to a generator, creating electricity. The leftover steam is then condensed as water and is returned to the reactor to begin the process again. That was the basic model with the design improving and becoming more efficient over time. A BWR does not need certain components such as a steam generator, pressurizer, or external recirculation loops or pumps. The reactor can operate at substantially lower pressure, hence not needing a pressurizer. Without all of the extra moving part, it causes less irradiation to the system which also increases the reactors production life. Pressurized Water Reactor (PWR) The way a pressurized water reactor works is very similar to a BWR but with slightly more steps. The PWR was also created in the 1950s but has one main difference of having two different water systems unlike a BWR having only just one. The water is heated up through the nuclear, but the water does not boil because of the second part of the reactor which is the pressurizer. This heated water then goes a steam generating system, creating steam that consecutively powers a generator creating electricity. This is roughly the same process as BWR with one more extra step requiring more moving parts to operate. Pros/Cons and Final Decision Both the BWR	No action. The comment is unrelated to the content of draft NUREG-2104.

	and the PWR have their pros and cons making them better in their own ways. Boiling water reactors are used more throughout the world has a total of 75 reactors mostly used the United States, Japan, and Sweden. The reason why most it is the most used reactor is from a few benefits that come along with it. BWRs can prevent the risk of fire and investment cost plus construction times are lower than a PWR, but these advantages do not come with disadvantages. The core of a BWR is less compact and is bigger than a PWR because it requires more control rods and uses four times more fuel elements. Pressurized water reactors are a close second in numbers, with there being a total of 49 in the world most used in Canada and India also has its pros and cons. PWRs are very stable and is easier to operate as long as there is power being provided. Plus it has a sperate loop for the water allows the water used in the reactor will not be contaminated, but still has disadvantages coming with it. As stated previously PWRs are very stable as long as power is provided, but the event of a power shortage can cause a meltdown which is why having backup power is a necessity. Also, the coolant waters must be heavily pressurized to remain a liquid at high temperatures which leads to high construction cost. Overall the final difference in the cost of electricity is very, and both have the advantages and disadvantages so it could go both ways.	

Docket: NRC-2011-0272-0004
Draft comment period: 11/29/2011 – 12/31/2016