

## **ABSTRACT**

*Sea water is salty so that it cannot be used directly as a water source. Sea water must first be processed into fresh water through a desalination process. One alternative technology that can be a fresh water solution is Capacitive Deionization (CDI) technology. The aim of this research is to develop a CDI cell design with the inlet position made parallel to the outlet with the hypothesis that such a position can give time for salt ions to fill the pores of activated carbon well. In the first cycle it was seen that the reduction in salt content reached a maximum value of 32% for CDI cells with a distance between the electrodes of 2 mm. Reduction of maximum salt content can occur by 80% in 15 cycles. Based on the results of desalination measurements, it can be seen that this CDI cell has the potential to be developed as an alternative fresh water solution.*

***Keywords: sea water, capacitive deionization, activated carbon, electrode distance, reduction in salt content***