Review Form 1.7

Journal Name:	**Journal of Engineering Research and Reports**
Manuscript Number:	**Ms_JERR_118593**
Title of the Manuscript:	**Material and Design Considerations for Improved Buoy Reliability in Wave Energy Converter Systems**
Type of the Article	Numerical studies

Review Form 1.7

PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments **1. Is the manuscript important for scientific community?** (Please write few sentences on this manuscript) **2. Is the title of the article suitable?** (If not please suggest an alternative title) **3. Is the abstract of the article comprehensive?** **4. Are subsections and structure of the manuscript appropriate?** **5. Do you think the manuscript is scientifically correct?** **6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	1. The submitted manuscript is important as it explains use of different material and its failure on a buoy, deployed in WEC. The approach used by the authors is good and self-explanatory. However, a strong recommendation is made towards verifying the study through experiments, as a few design parameters cannot be assessed by numerical analyses. Pl see the following for reference, and cite them if found relevant. A) Chandrasekaran, S, and V.V.S. Sricharan 2019. Improved efficiency of a floating wave energy converter under different wave-approach angles: numerical and experimental investigations, J of Ocean Engg and Marine Energy, 5(1):41-50, doi.org/10.1007/s40722-019-00128-9, B) Srinivasan Chandrasekaran, and VVS Sricharan 2020. Numerical analysis of a new multi-body mechanical wave energy converter with a linear power-take off system, Renewable Energy, Elsevier, 159:250-271, 2. Title is OK 3. Yes 4. Ok 5. This cannot be verified as the supporting data is not available 6. No. There are many oversights. For example, current research deals with functionally graded materials for Marine applications. See the following as examples; authors shall cite them if found relevant. a) Srinivasan Chandrasekaran, S. Hari Murugaiyan Amirthalingam 2022. Functionally graded materials for marine risers by additive manufacturing for high-temperature applications: Experimental investigations, Structures, 35:931-938 b) Srinivasan Chandrasekaran, 2020. Design of Marine Risers with Functionally Graded Materials, Woodhead Publishing, Elsevier, pp. 200, ISBN: 978-0128235379.	
Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**	No. English need to be checked with a relevant software.	
Optional/General comments	a) Authors focused only on the use of HDPE/LDPE for buoy construction. Hence, title shall be modified suitably. b) Fig. 1 only shows a schematic view of the WEC chosen for the study. Kindly explain its working so that the effect of motion on the stresses on components can be understood. **c)** Figs. 2-4 show FE mesh details and dimensions of the buoy. Prior to this, authors shall explain the necessity of choosing PDPE/HDPE as alternate and support the chosen geometry. Kindly note that elliptical sections are novel under fluid structure interaction, effectively. Authors shall refer to the following and cite them, if found relevant. 1. Srinivasan Chandrasekaran, Shanmukha Rao 2023. Offshore Triceratops With Elliptical Legs Under Postulated Failure of Tethers, DOI: https://doi.org/10.1142/S0219455424501670, Int J Struc. Stabilty and Dynamics 2. Chandrasekaran, S, & Nagavinothini, R 2020. Dynamic response of offshore Triceratops with elliptical buoyant legs, Int. J of Innovative Infrastructure Solutions, 5(47):1-14 d) Sections 4.1 and 4.2 are parametric variations on the chosen geometry. sizing. Reviewer wishes to see the fundamental requirements of the chosen geometry and then subsequently varying these parameters in the study. Authors shall cite a few studies which supports the chosen geometry/sizing of the members. e) Section 4.3 needs a complete revision, as only HDPE/LDPE are compared and presented. Authors shall validate the behavior with existing material with at least one case and then show the advantage of LDPE/HDPE etc.	

	f) Section 5 need to be revised in line with the above comments.	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

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