



SDI Review Form 1.6

Journal Name:	Physical Science International Journal
Manuscript Number:	Ms_PSIJ_23750
Title of the Manuscript:	PERFORMANCE OF 19.75% UO ₂ FUEL MATERIAL IN THE CORE OF NIGERIA MINIATURE NEUTRON SOURCE REACTOR (MNSR)
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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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	<p>1- The focus of the work is a proposal to change of fuel system of reactor NIRR-1, from HEU type to LEU type. However, many parts of the text of the manuscript gives the impression that the change has already been made. This is confusing to the readers.</p> <p>2- Results presented in Tables and Figures refer to the proposed LEU fuel system. Nevertheless, it is useful to include data and illustrations that allow comparisons against the existing HEU fuel system.</p> <p>3- The work do not address reactivity changes occurring from a hot shut down to full power condition.</p> <p>4- It is convenient to consider variations in power coefficient of reactivity.</p> <p>5- Include data on temperature changes of the moderator.</p> <p>6- From an initial fresh fuel charge to equilibrium fuel burn up there is a large increase in negative reactivity arising from buildup of long lived neutron absorbing fission products and depletion of fissile material. It is convenient to provide relevant Figures for reactor NIRR-1.</p> <p>7- It is convenient to include a table of values of the rate of reactivity loss for the proposed change from HEU to LEU.</p> <p>8- Figures 2 and 3 are quite similar to trends reported in the literature. Suggest inclusion of figures illustrating differences between HEU and LEU cases.</p> <p>9- A large number of papers have already been published on possible changes in fuel system of NIRR-1. The manuscript does not make clear how the results of the present study depart from those considered in earlier works.</p> <p>For additional details see attached version of manuscript with review comments</p>	<p>I have supply all the part that are pointed out by the reviewer's.</p> <p>Please kindly take note that I have also make some little correction in the journal title, the journal now entitle: COMPUTATIONAL STUDY OF 19.75% UO₂ FUEL FOR THE CORE CONVERSION OF NIGERIA RESEARCH REACTOR-1 (NIRR-1) FROM HEU TO LEU.</p> <p>The information available to us from literature shown that a research has never been conducted on NIRR-1 using 19.75% enriched UO₂ material as the fuel with VENTURE-PC code and SCALE 6.1 code as the computational tools.</p>



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	Plerase clarify the ethical issue: The results reported in this manuscript are related to works reported in the literature by the team working at NIRR (Ibrahim, Y.V., Odoi, H.C., Thomas, J.W., Jonah, S.A., Ibikunle, K., Li, Y., Ajuji, A.S., Onimisi, M.Y., Salawu, A.). In the absence of information on authors of the present work, it is difficult to make comments on eventual ethical issues	
Minor REVISION comments		
Optional/General comments		