



### REVIEWER'S REPORT

**Manuscript No.: IJAR-57593**

**Title: ASSESSMENT OF NATURAL RADIOACTIVITY AND HAZARD FROM CONSUMPTION OF COMMUNITY WATER SUPPLIED BY BOREHOLES AROUND GOLDMINE AREA IN KUILSE REGION, BURKINA FASO**

**Recommendation:**

- Accept as it is .....
- Accept after minor revision.....
- Accept after major revision .....**
- Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality			x	
Techn. Quality			x	
Clarity		x		
Significance			x	

**Reviewer's ID: JPR-171**

### Detailed Reviewer's Report

This study assesses natural radioactivity (<sup>238</sup>U, <sup>232</sup>Th, <sup>40</sup>K) in borehole water near a goldmine in Burkina Faso and concludes that radiological hazards are insignificant. While the topic is relevant, several major issues require revision. First, the methodology lacks essential details: the number of water samples is unclear (Table 2 lists 12 samples, but the abstract mentions "17 groundwater samples"? Table 1 shows only 7 location coordinates). This inconsistency must be resolved. Second, the gamma spectrometry calibration and efficiency are not adequately described; the energy calibration curve (Figure 2) is poorly labelled, and no minimum detectable activity (MDA) is reported. Third, the annual committed effective dose calculation uses a water consumption rate of 730 L/year for adults, which is reasonable, but the dose coefficients for <sup>238</sup>U and <sup>232</sup>Th are applied without clarifying whether they refer to chemical toxicity or radiological ingestion – this distinction is critical. Fourth, the conclusion incorrectly states "activity concentrations measured are far below the ICRP recommended level of 1000 Bq/L for which remedial action is needed" – this value (1000 Bq/L) typically refers to gross alpha activity, not individual radionuclides. The authors must correct this serious misinterpretation. Fifth, the English grammar and formatting need thorough editing (e.g., incomplete sentence at the end of the abstract). Sixth, references are outdated (WHO 2004, UNSCEAR 2000) – newer guidelines should be cited. A major revision addressing sampling clarity, analytical validation, dose interpretation, and reference updates is required before resubmission.