

THE EFFECTS OF ABATTOIR WASTE ON GROUNDWATER QUALITY AT YOLA MAIN SLAUGHTER SLAB, ADAMAWA STATE, NIGERIA

Umaru. A. B, Hong. A. H, Burmamu. B. R & Bala. S. M

*Department of Agricultural and Environmental Engineering,
Modibbo Adama University of Technology, Yola. Adamawa State, Nigeria*

Received: 23 Apr 2018

Accepted: 23 May 2018

Published: 02 Jun 2018

ABSTRACT

*The study assessed the impact of abattoir waste on groundwater quality around Yola main slaughtering slab. Untreated wastes from the abattoir are discharged directly onto the surrounding, which has no drainage channel to convey the waste away from the area. Leachates from dumped and decomposed wastes have also been observed to percolate into soil to contaminate the groundwater. Six water samples were collected from different sources at different distances and depth, within and outside the abattoir which include four boreholes and two wells. Physical, chemical and biological parameters of the samples were determined. The mean values for the hand dug well water samples were found to be temperature (25.35°C), pH (7.04), Conductivity (581.50 $\mu\text{s}/\text{cm}^{-1}$), TDS (289.50mg/l), TSS (50.50mg/l), DO (0.00mg/l), COD (6200.00mg/l), BOD (2.03mg/l), NH_4^+ (0.11mg/l), NO_3^- (8.63mg/l), PO_4 (43.30mg/l), total coli form (30.00cfu), fecal coli form (0.00cfu), turbidity (46.75NTU) and color (415.00pt). Student *t* –test, and the Analysis of Variance was utilized to determine variations of the analyzed parameters. It was discovered that most of the analyzed parameters for boreholes samples such as temperature (23.95°C), PH (7.08), Conductivity (458.75 $\mu\text{s}/\text{cm}^{-1}$), TDS (229.25mg/l), TSS (2.25mg/l), DO (0.00mg/l), BOD (4.47mg/l), Nitrate (5.12mg/l), Coli form Bacteria (0.00cfu), Feecal Coli form (0.00cfu) and Turbidity (1.15NTU) are in compliance with FEPA acceptable limits, and for hand dug wells samples, only Temperature, pH, Conductivity, TDS, DO, Feecal Coli form, and Nitrate are in compliance with FEPA acceptable limits. The study therefore, concluded that the water from hand dug wells is not fit for drinking unless adequately treated. It was recommended that there is the need for the treatment of the abattoir effluents before discharging them into the environment.*

KEYWORDS: *Abattoir, Contamination, Groundwater, Leachates, Quality Parameters*