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ADVANCES IN CLEANER PRODUCTION

“CLEANER PRODUCTION INITIATIVES AND CHALLENGES FOR A SUSTAINABLE WORLD”

Decisions and Procedures to Cleaner Production Concerning on Liquid Effluents Assessment

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Abstract

This paper describes a study for cleaner production liquid effluent assessment. The radioisotope Tritium (^3H), generated in the routine operation plant was stored in a 300m^3 capacity tank. The tank flow rate exit was estimated as $10.9 \pm 0.9 \text{ m}^3 \cdot \text{h}^{-1}$ for liquid controlled dispenser. The Tritium, potential pollutant was used as radiotracer for estimate the dilution factor liquid effluent. A planned release for stored effluent tank was carried-out. Simultaneously it was made sampling upstream of the storage tank discharge point, monitoring the tritium concentration in the mix sewerage system point. The initial concentration of the ^3H was determined as $56881 \pm 3255 \text{ Bq L}^{-1}$. The estimated dilution factor for the aqueous effluent, in the discharge point E1 was of 4.3 and 7.4 respectively relative to two consecutive days of planned release and diluted effluents sampling. The developed methodology was rapid and without additional environmental or monetary costs, being able to use in industry, mining, milling, agriculture and others human production field. As the used radiotracer Tritium is already existent routinely in the effluent, doesn't increment radioisotope concentrations into sewage and environment, the goal of cleaner production practices and procedures.

Keywords: *liquid effluent, environmental assessment, radiotracer, tracer, cleaner production.*

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