Science, Engineering and Social Science Series
ISSN/e-ISSN: 2541 – 0369/2613 – 988X
DOI: 10.51971/joma.v8n1.0800302024
Vol. 8, No. 1, 2024, Printed in the Indonesia

Analysis of Proper Assessment Results on Palm Oil Liquid Waste Management on Water Pollution Control Aspects at PT. XX

Bambang Prasetio[1*], Aulia Annas Mufti[1], Alfian Zurfi[1], Dinda Fajar Utami[1], Erlina Kurnianingtyas[2]
[1]*Environmental Engineering, Sumatera Institute of Technology, South Lampung, Indonesia*
[2] *Water Management Engineering, Sumatera Institute of Technology, South Lampung, Indonesia*

The industrial world has developed very quickly in recent year, and this has a direct correlation to the emission or trash created. Of course, environmental pollution cannot occur from created waste or pollutants without management or control measures. The Ministry of Environment and Forestry has an innovation, namely the existence of a company performance rating assessment program in environmental management efforts or often called PROPER. PT Asam Jawa is a company engaged in agro-industry and has been registered as a PROPER participant. According to the results of the PROPER assessment, PT Asam Jawa received a blue rating, which means that the company has complied with applicable laws and regulations. The analysis in this report is carried out by looking at the PROPER assessment report on the Water Pollution Control aspect, interviews, observations and documentation related to Water Pollution Control. After that, primary and secondary data collection is carried out. Data processing analysis is carried out by descriptive analysis, where a comparison is made between the results of monitoring during practical work with applicable regulations. From the results of the report, it shows that PT Asam Jawa is in the Obedient category where the results are shown through the PROPER assessment report card.

Keywords: *PROPER, Pollution Control, Compliance*

1. INTRODUCTION

The industrial sector is one of the backbones of the national economy and development. Therefore, to realize a stable economy requires the development of a strong and sustainable industrial sector [1]. This is in line with the development of the palm oil industry in Indonesia growing rapidly and meeting various challenges that must be faced, the negative allegations are caused by the weight of palm oil mill (PKS) waste that must be disposed of increasing, so that oil palm plantations carry out management of the waste produce. This step is an effort to reduce negative impacts in order to realize an environmentally sound industry. If managed properly, waste can have a positive impact on the production of oil palm Fresh Fruit Bunches (FFB) because it contains high nutrients.

The government through the Ministry of Environment and Forestry has a policy called PROPER (*Public Disclosure Program For Environmental Compliance*). PROPER is a company performance rating assessment program in environmental management efforts that contains an evaluation of the performance of the person in charge of the business in the field of environmental management [2].

PT Asam Jawa is a national private company engaged in oil palm plantations and the processing industry of plantation products in the form of Fresh Fruit Bunches (FFB) to produce palm oil (CPO), and palm kernel (Kernel). In the production process, several by-products are produced in the form of liquid waste, solid waste, waste in the form of empty bunches, and Toxic Hazardous Waste (LB3).

[*]*Email Address:* bambang.prasetio@tl.itera.ac.id

PT Asam Jawa has controlled or managed the waste produced in accordance with applicable laws and regulations, so that PT Asam Jawa received a BLUE rating in the PROPER assessment. However, changes in regulations, increases in production targets, and technological developments make environmental management efforts in all companies including PT. Asam Jawa must continue to be evaluated so that it continues to run effectively and efficiently in order to support the company's environmental performance remains good and get a better rating in the next PROPER assessment period.

2. METHODOLOGY

The research was carried out over a period of one month, from July 3, 2023 to August 4, 2023. The data needed in this research was obtained by literature study, namely by selecting literature tailored to what was studied and must be relevant, including books, scientific journals, research reports, official websites and applicable regulations in Indonesia. The type of data used is primary data obtained through field observations, interviews, and documentation. Then secondary data obtained through PROPER assessment data and accredited laboratory analysis results.

3. RESULTS AND DISCUSSION

A. Proper Assessment Results on Water Pollution Control Aspects

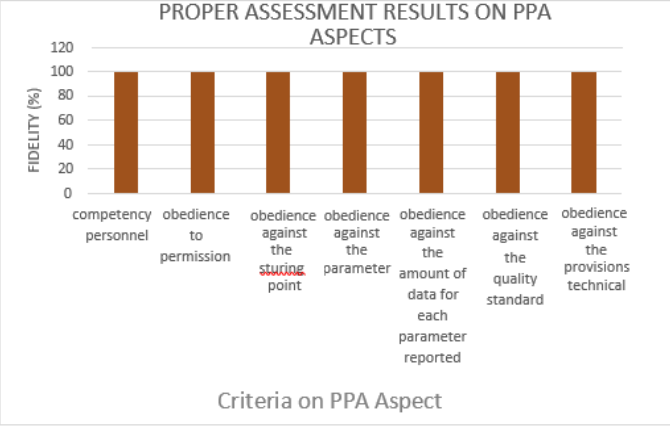

Figure 1. Graph of compliance with water pollution control aspects

In the aspect of water pollution control, there are seven assessment criteria. In this case PT Asam Jawa has met the compliance of all existing assessment criteria. The following is an analysis of the results of the PROPER assessment in the aspect of water pollution control in each assessment criterion [2] .

B. Compliance with licenses

PT. Asam Jawa disposes of the liquid waste produced and utilizes it in the form of LA (Land application), in this case in accordance with the Permen LHK No 01 of 2021, it is necessary to obtain a permit for the utilization of liquid waste in the form of land application. The following is the Liquid Waste Utilization Permit on Land Application and Liquid Waste Disposal Permit issued by the South Labuhan Batu Regency Environmental Service for PT Asam Jawa [3]:

Table I. Compliance with Licenses

Document Type	Document Number	Validity Period
Permit for Utilization of Liquid Waste in Soil Applications	503/0001/DPM-PPTSPLS/LA/III/2020	5 years
Domestic Liquid Waste Discharge Permit	503/114/DPMPPTSP-LS/IPALD/XI2020	5 Years

C. Compliance with personal competencies

PT Asam Jawa has one person who is responsible for water pollution control and has received competency certification from the National Certification Agency (BSN). As presented in the following Table II.

Table II. Certificate of Competence of Personnel

Personnel	Certificate number	Competency type
Ngatsukma bakti	39000 3125.05 0005872 2021	Person in charge of water Pollution control operations

D. Adherence to setup points and monitoring points

Based on Permen LHK No. 01 Year 2021 Appendix I, Point II, Part A, what is meant by a structuring point is a location that is used as a reference for monitoring in the context of structuring wastewater quality standards [4]. The determination of the structuring point is based on the permit, technical regulations, or applicable regulations. At This assessment criterion is said to be compliant if the PROPER participant has an arrangement in accordance with what is stipulated in the permit, technical regulations, or applicable regulations.

Figure 2. Monitoring point

E. Obedience to parameter

PT Asam Jawa has reported monthly and daily monitoring data 100% of the required 12 months during the PROPER assessment period. Reporting activities are carried out through the SIMPEL website.

F. Adherence to Quality Standards

PT Asam Jawa has monitored and analyzed these parameters. The following are the results of the analysis of the monthly monitoring of each parameter at the arrangement point.

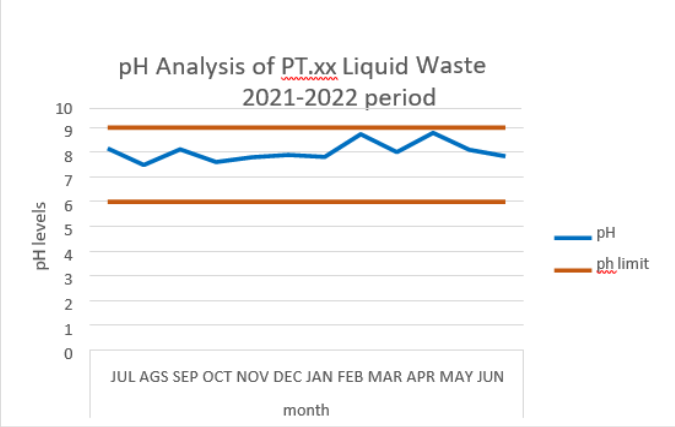

Figure 3. Diagram of pH analysis of effluent

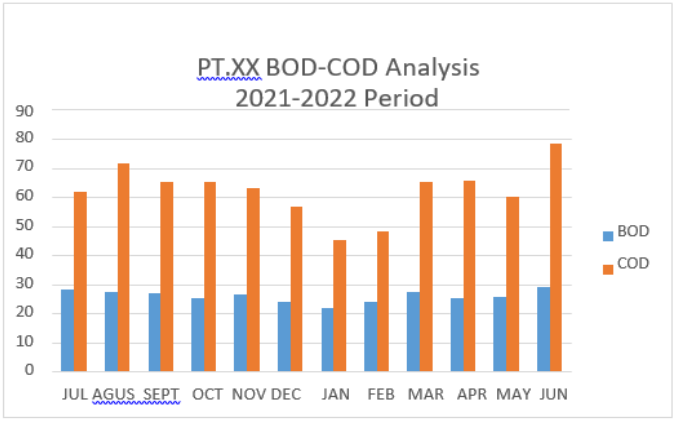

Figure 4. BOD-COD analysis diagram

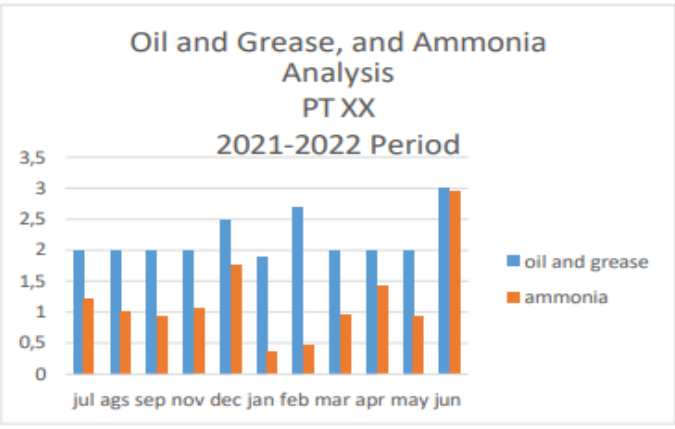

Figure 5. and grease analysis diagram

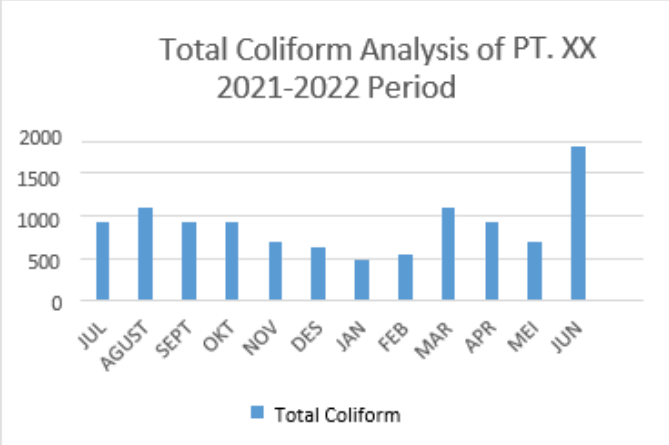

Figure 6. Total coliform analysis diagram

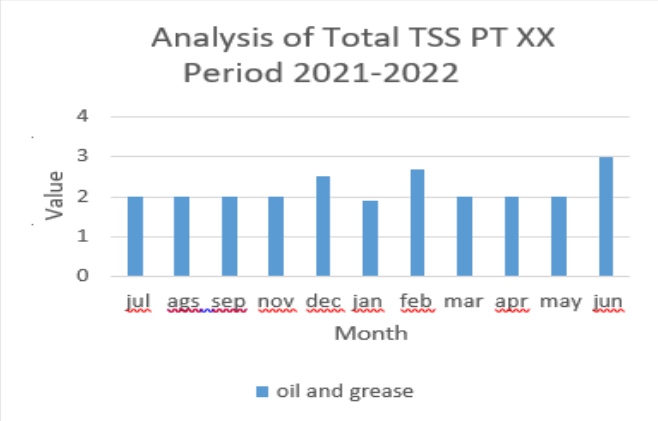

Figure 7. Total TSS analysis diagram

The diagrams above are the results of monthly analysis of the parameters at the compliance point. Where based on the diagrams above, the liquid waste of PT Asam Jawa for the period July 2021-June 2022 is considered safe for disposal into water bodies, because the parameters contained in the liquid waste are still below the quality standards set by the government [5, 6, 7]. Here, the Adherence to technical requirements as follows:

I. Completeness of styling points

The Point of Compliance is the point that is used as a reference for monitoring in order to comply with wastewater quality standards. In this case, PT Asam Jawa has a structuring point, namely the WWTP outlet.

Figure 8. Structuring points

II. Separating sewerage from rainfall runoff water

Based on Permen LHK No. 01 of 2021 Appendix I, point II, part A. PROPER participants are said to be compliant if they have separated the sewerage with rainwater runoff. In this case, PT Asam Jawa has made efforts to separate the wastewater channel from rainwater runoff. Waste water channels are made using a trench system.

III. Install a discharge measuring instrument

PT Asam Jawa already uses a flow meter that is installed at the inlet or outlet of the WWTP.

Figure 9. Discharge measuring instrument at the outlet of the WWTP

IV. Using accredited laboratory services

PT Asam Jawa uses laboratory services that have been accredited by the National Accreditation Committee (KAN), as presented in the table.

Table III. Accredited laboratories

Laboratory	Accreditation Number
Pro-Enviro	LP-1296 IDN

V. No dilution

In the technical provisions of the PPA aspect of Permen LHK No. 01 of 2021 Appendix I, point II, part A. PROPER participants are required not to dilute in wastewater disposal. PT Asam Jawa does not dilute because the liquid waste produced is directly flowed to the WWTP and also between the wastewater channel and rainwater runoff is a different channel.

VI. Identify the type of wastewater produced

PT Asam Jawa has identified the liquid waste generated. Liquid waste comes from production activities and domestic activities in the factory [9, 10]. The following are the sources of liquid waste from production activities: 1) Sterilizer station, 2) Digester Station, 3) Clarification Station, 4) Boiler Blowdown While the source of liquid waste that comes from domestic activities, namely: 1) Office Activities, 2) Kitchen Activities, 3) Bathroom

4. CONCLUSIONS

Based on the results and discussion of the practical work activities that have been carried out, it is concluded that PT. Asam Jawa in its efforts to control water pollution has carried out in accordance with applicable laws and regulations in the PROPER assessment on the aspect of water pollution control PT. Asam Jawa is included in the obedient category seeing from the aspects related to water pollution control and To obtain a Green rating in the PROPER assessment PT Asam Jawa needs to fulfill additional aspects that exceed compliance, namely life cycle assessment, environmental management system, application of environmental management system for resource utilization, protection of biodiversity, community empowerment, disaster response, and social innovation.

References

[1] T. Islamy, "The Effect of Investment and Employment on Small Industry in Surabaya," *International Joournal of Economics and Bussiness,* vol. 1, no. 3, p. 1, 2013.

[2] Regulation of The Minister of Environment and Foresty Number 01 of 2021, " The Company Performance Rating Assessment Program in Environmental Management," Jakarta, 2021.

[3] South Sumatra Environmental Service, "Socialization of the Implementation of PROPER 2022 Preparation Activities," DLH South Sumatra, Palembang, 2022.

[4] Sugiharto, Basics of Wastewater Management, Jakarta: UI Press, 2008.

[5] Minister of Environment Regulation Number 05 of 2014, "Wastewater Quality Standard," Jakarta, 2014.

[6] I. R. a. A. E. R. E, "Effectiveness of Wastewater Treatment Plant (WWTP) Performance of Sugar Industry in Kediri Regency and Sidoarjo Regency," *Journal of Environmental Technology,* vol. 202, pp. 236-242, 2019.

[7] N. I. a. e. al, "Reducing TDS Levels in Tofu Waste with Biofilm Technology Using Gravel Biofilter Media from the Merapi Volcano Eruption in Random Form," *Environmental Engineering Study Program FT Undip,* vol. 2, no. 3, pp. 1-10, 2013.

[8] M. a. Eddy, Wastewater Engineering: Treatment, Disposal, and Reuse, New York: Mc Graw Hill Inc, 2008.

[9] I. R. K. Purba, Performance of Down-Flow Hanging Sponge (DHS) Reactor in Treating Domestic Wastewater in Jakarta, Jakarta: University of Indonesia, 2012.

[10] Decree of the Minister of Environment Number 112 Year 2003, "Domestic Wastewater Quality Standards," Jakarta, 2003.

Received: 8 Jan 2024, Accepted: 7 Mar 2024