An Initial Study Of Laundry Industrial Effects To The Water Pollution In Bekasi

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Abstract: The research has been conducted by using the laundry liquid waste. The purpose of this research is to find out the solids in the laundry liquid water in particular area Bekasi. The result shown that level of the solids has been dissolved to ground water it was from 0.19 to 0.34. And level of the solids the one has been dissolved to laundry waste tend to be cloudy (not clear) with pH from 7.85 to 8.12. The laundry industries in Bekasi do not use the waste management to handle the pollution, especially in the waste water. Whereas liner obtained from the sample of laundry water (before and after laundry process) tend to high.
Keyword: industry, pollution, water, waste management,Bekasi

I. INTRODUCTION

Environmental pollution can be annoying gaps in human life[1].One of the environmental pollution that often occurs today is the mass of water pollution[1, 2]. Pollution occurs when the composition of a substance or substances that exist in the air exceeded the specified threshold. The presence of chemicals that exceed the limits can be harmful to human health, and also can disrupt the lives of animals and plants[3, 4]. With the onset of pollution can also disrupt the climate (weather) resulting from human activity and technological advances mainly due to fuel combustion process industry or motor vehicles, then it can lead to acid ground water because of many kinds of gases produced and mixed with air as contaminants[5].

Nowadays a lot of home laundry services are growing rapidly over population growth and Industries especially in particular area around Bekasi. Bekasi is one of the areas in state of West Java which include having largest population. By having the increasing of home laundry businesses, environmental pollution in West Java areas will increase too[6]. Chemicals that are air pollutants are carbon dioxide (CO_2), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen oxide (NO_2), hydrocarbons, particulates and heavy metals[4].

In the modern age where the total population is increasing and more and more dense, to meet the needs of biological and technological advances, the activities that disrupt the balance of growth for recycled materials is increasing. To prevent or reduce or eliminate the consequences is too great influence of the environment caused by pollution, it should be their self-awareness of each person to always take care of the environment and protecting the environment and also for the welfare of life, such as a green spot in the industrial area[7, 8]. Additionally, the waste management is very useful for any kind of business or industrial matter[9, 10].

In the other hand, the issues of the low education level for Indonesian and the high number of the social welfare in the society have to followed by the growth of the industrial area[11, 12]. The most laundry businesses exist around the crowded housing area. The emergence of home laundry business actually has good benefits for the people surrounding, but the growth of this laundry activities was not followed by a good waste water treatment so giving a negative impact to the environment[13, 14].

Liquid waste on the laundry water lot s contain the remnant of detergent, fragrances, clothes softener, and bleach which is very dangerous, also laundry liquid waste that has been used to wash it was a lot of solids substances contain such minerals, metals that are very dangerous and harmful for the health of the environment. Nearly all this laundry businesses discharge the waste through a sewer or the body of water without being processed first so that it will pollute the environment. This is causes an imbalance of the biota that are located along the gutters included the solids which is dissolved in the laundry water and absorbed into the ground.

Research the level of acidity in the rainwater in the area of Bekasi in March 2016, serves to determine the propensity How pH (acidity level) of rain in the area Bekasi.The information about theTDS value and EC values is also important to check the standard of pollution in Bekasi[15-17].

II. RESEARCH METHODOLOGY

This research was conducted around 10 days between May to June 2016. Laundry liquid waste samples taken in 10 home laundry businesses around Bekasi such Jatiwaringin, PondokGede, Rawapanjang, And AroundBekasi. The tools or the equipment we used in this research is pH meter (waterproof tester). From 10 laundry industries samples of laundry liquid waste obtains directed done the analysis to test the content of pH in laundry liquid waste. With used the temperatures is around 26.40 C to 26.70 C.

III.   RESULTS AND DISCUSSION

Research conducted by putting samples of laundry water before and after into the plastic container and measure them by using a pH meter.
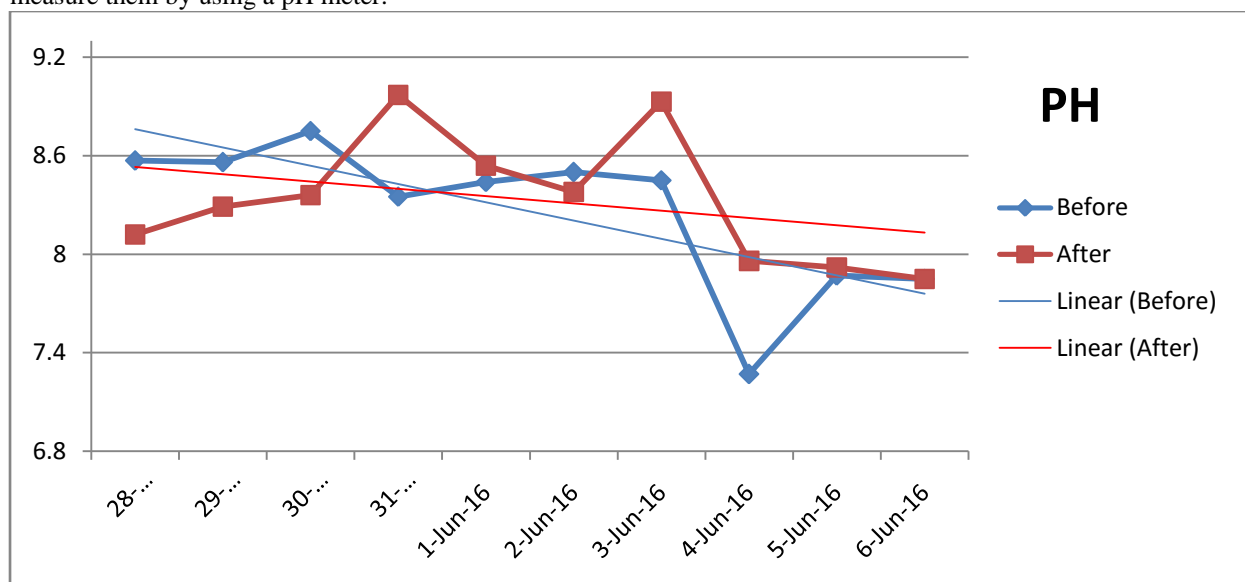

Figure.pH results

3.1   Before laundry process

It has been noted that the ground water is said to be normal, if pH has amount between 0.4 to o.68. On the chart above can be shown that the uses of tap water before the process of laundry uses have a pH level above 8.57 and below 7.85. On 28 May 2016 (Saturday), 4th June 2016 (Saturday), 5th June 2016 (Sunday) and 6th June 2016 (Monday) have the higher pH level, the amount is 7.85. As for the date 1st June 2016 (Wednesday), 2nd June 2016 (Thursday) has the lower pH level the amount is 8 and the liner on the tap water tends to high.

3.2   After the laundry process

On the chart above can be shown that the water after being used in the laundry processed have the TDs amount around 8.12 to 7.85. It was seen the higher of the increase on the 31st May 2016 (Tuesday) and 3rd June 2016 (Friday) the amount is 8.96. As for the date 2nd June 2016 (Thursday) has the lowest pH level the mount 7.85. is and the liner of the laundry liquid waste id tends to high.

3.3   Data of analysis

The result of the research can be shown which the pH level amount on 31st May 2016 (Tuesday) and 3rd June 2016 (Friday) has the higher pH level amount, the amount is 0.86 (above pure and clear water) because the water pH level tends to high. This is caused by the withdrawal of the laundry liquid waste which had contained detergent, fragrance, or the high amount of bleach, and dirt from the clothes that have been rinsed with unfiltered by the soil/ground surface. As for date 2nd June 2016 (Thursday) has a huge decrease in pH level. This has happened because the pH level has been decreased experience from the withdrawal pH of the laundry liquid waste. It can be seen on the 2nd June 2016 (Thursday) until 4th June 2016 (Saturday), the pH level on the water bit by bit getting higher or increase which could be caused by the process of the laundry user was increased.

As for the water have been used by the process of the laundry used have been increasing in the high pH level on the 3rd June 2016 (Friday) the amount is 0.86. The level seems high, it caused by the amount of using detergent, fragrance, and the high of dirt from the clothes, also it was because the increasement from the process of laundry user is higher than the average or usual.

The liner of 2 charts above also shown that it is grown (pH been increased). This is not only because detergent that influential in the level dissolved solid in laundry liquid waste. One of factor that cause the liner tend to increase because there are other compounds that are plastered in the dirty clothed, example is a fat or

sweat also dust which contain metal that plastered or stuck in the clothes. It could be cause the 2 liner of the chart goes higher or been increased.

All the laundry industries in Bekasi are home industries with very low information regarding the waste management. The education of waste management has to be done by the local government. Cost and benefit of this industry have to conclude the less emission and less waste. This is important for the green future of Bekasi area.

IV. CONCLUSION

Based on the results of the research it can be concluded that dissolved solids level in the Around BekasiArea.

1. The levels of the solids the one have been dissolved in the tap water deliver from ground water tend to be good with pH range between 0.4-0.68.
2. The levels of dissolved of solids in the laundry liquid waste range from 0.73 – 1.73 are included in the category not good.
3. The second liner chart (process of the laundry water before and after the process of laundry) tends to increase.
4. The laundry industries in Bekasi do not use the waste management to handle the pollution, especially in the waste water

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