

## ABSTRACT

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THE RELATION BETWEEN CHLORINE RESIDUE CONTENT WITH COLIFORM BACTERIA NUMBER PDAM WATER TIRTA MOEDAL TOWARD CUSTOMERS IN WEST SEMARANG 2009

xi+ 56 pages+10 tables+11 pictures+4 encloses

Water is a natural substance that very important in our human's life. All biological reactions that take place inside our body are due to the existence of water. Complaint report from customers of PDAM related with water that is turbid, unpleasant smell and the presense of mosquito larvae, although the water we use should fulfill physic, chemistry, and bacteriology requirements.

One way is Chlorination Process, which is by adding chlorine or chlorine compound into the water in purpose to kill the bacteria or carry away the smell. Because of that problem, we need to do a research to find out if there is any relation between the content of chlorine residue and Coliform bacteria number of PDAM water toward customers in West Semarang 2009.

The kind of research that we use is Cross Sectional with 440 population and 40 samples by using *systematic proportional random sampling* technique near point 10, median point 15, and far point 15 samples. To examine the chlorine residue content is by MPN methods *correlation Rank Spearman* statistic test technique.

Result of chlorine residue for the near point approximately 0,36 mg/l with MPN number 0/100 ml, chlorine residue for the median point approximately 0,47 mg/l found positive MPN 43/100 ml, meanwhile for the far point positive MPN 23/100 ml. The result of *Rank spearman* statistic correlation has no relation between chlorine residue content with Coliform bacteria number, because from 0,05 signification we got p value 0,082 but if we related between chlorine residue content with sampling point distance, then we got p value 0,03 hence there is a relation.

Chlorine residue content approximately 0,37 mg/l. There are two possible locations, one location is because of leak in distribution pipes and another location is due to blackout disruption of PLN at processing instalation.

To keep the stability of doze of chlorine residue content that is injected, we inform to the customers not to retain the water flow after it is off, instead to throw it for a while.

Key words : Chlorine residue content, Coliform bacteria number  
Literary : 35. 1993-2009

## ABSTRAK

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### HUBUNGAN ANTARA KADAR SISA CHLOR DENGAN ANGKA BAKTERI COLIFORM AIR PDAM TIRTA MOEDAL DI TINGKAT PELANGGAN SEMARANG BARAT 2009

xi+ 56 hal+10 tabel+11 gambar+4 lampiran

Air merupakan salah satu materi alam yang sangat penting dalam kehidupan manusia. Semua reaksi-reaksi biologis yang berlangsung dalam tubuh karena pengaruh adanya air. Adanya laporan pengaduan dari pelanggan PDAM terkait air yang keruh, bau yang tidak enak dan adanya jentik-jentik nyamuk, meskipun Air yang digunakan hendaknya memenuhi syarat secara fisika, kimia maupun bakteriologi. Salah satunya dengan proses Chlorinasi yaitu pembubuhan chlor atau senyawa chlor ke dalam air dengan tujuan untuk membunuh kuman atau menghilangkan bau. Adanya permasalahan tersebut perlu dilakukan suatu penelitian apakah ada hubungan kadar sisa chlor dengan angka bakteri Coliform air PDAM di tingkat pelanggan Semarang Barat 2009?

Untuk mengetahui kadar sisa chlor dengan angka bakteri Coliform di tingkat pelanggan Semarang Barat

Jenis penelitian yang dilakukan Cross Sectional populasi 440 dan jumlah sampel 40 dengan teknik pengambilan sampel secara *systematic proporsional random sampling* titik terdekat 10 , menengah 15 dan terjauh 15 sampel. Pengujian kadar sisa chlor menggunakan metode Spektrofotometer dan angka bakteri Coliform metode MPN uji statistik teknik *korelasi Rank Spearman*.

Hasil kadar sisa chlor untuk titik terdekat rata-rata 0,36 mg/l dengan angka MPN 0/100 ml, titik menengah kadar sisa chlor rata-rata 0,47 mg/l ditemukan positif MPN 43/100 ml, sedangkan untuk titik terjauh positif MPN 23/100 ml. Hasil uji statistik korelasi *Rank Spearman* tidak ada hubungan antara kadar sisa chlor dengan angka bakteri Coliform, karena signifikansi 0,05 didapatkan hasil p value 0,082 tetapi bila antara kadar sisa chlor dengan jarak titik sampling dihubungkan, maka didapatkan p value 0,03 jadi terdapat hubungan.

Kadar sisa chlor rata-rata 0,37 m/l, Ada dua lokasi yang positif dimungkinkan, satu lokasi karena adanya kebocoran pipa distribusi dan satu lokasi disebabkan adanya gangguan PLN listrik mati, sehingga proses pengolahan air sempat terhenti menyebabkan air menjadi keruh.

Menjaga kestabilan dosis dari kadar sisa chlor yang diinjeksikan, Informasikan kepada pelanggan setelah aliran air mati jangan ditampung dahulu, tetapi dibuang sampai beberapa saat.

Kata Kunci : Kadar Sisa Chlor, Angka Bakteri Coliform  
Kepustakaan : 35 buah. 1993-2009