Perancangan desain instalasi pengolahan lumpur di IPA Cipaku PDAM Tirta Pakuan Kota Bogor = Design planning of sludge treatment plant in Cipaku water treatment plant PDAM Tirta Pakuan Kota Bogor

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Abstrak

Limbah residu lumpur dari pengolahan air wajib untuk diolah sebelum dibuang ke badan air sesuai dengan Peraturan Pemerintah Nomor 16 Tahun 2005. IPA Cipaku yang merupakan salah satu insatalasi pengolahan air bagi PDAM Tirta Pakuan Kota Bogor saat ini masih melakukan pembuangan lumpur sisa pengolahan pada badan air sungai Cisadane tanpa melalui pengolahan limbah apapun. Timbulan volume lumpur maksimum sebesar 1471,49 m3/hari dan timbulan volume rata-rata sebesar 724,54 m3/hari. Timbulan massa lumpur maksimum sendiri adalah sebesar 1731,38 kg/hari dengan nilai rata-rata 1074,54 kg/hari. Pemilihan pengolahan lumpur didasarkan pada karakteristik lumpur yang dihasilkan, luas lahan, dan timbulan dry cake dari dua alternatif desain. Dari hasil perhitungan dan pertimbangan didapatkan alternatif desain berupa 1 bak penampung, 1 Chemical Conditioning Tank, 1 Recovery Basin, 1 Gravity Thickener, dan 1 Belt Filter Press. Luas lahan yang dibutuhkan sekitar 360m2.
<hr>Residual sludge waste from water treatment plant needs to be treated before being discharged into water bodies in accordance with Peraturan Pemerintah No. 16 Tahun 2005. IPA Cipaku as one of Water Treatment Plant under PDAM Tirta Pakuan Kota Bogor still disposes process residual sludge to river Cisadane water bodies without going through any waste processing. The maximum sludge generation volume is 1471,49 m3/day and the average generation volume is 724,54 m3/day. The maximum mass of sludge generation alone is 1731,38 kg/day with an average mass generation value of 1074,54 kg/day. The selection of sludge treatment is based on the characteristics of the sludge produced, the land area, and the dry cake generation of two alternative designs. The calculations and considerations resulted an alternative design of a sludge treatment plant consisting of 1 holding tank , 1 Chemical Conditioning Tank, 1 Recovery Basin, 1 Gravity Thickener, and 1 Belt Filter Press. The land area required is approximately 360 m2.