

## Pemilihan dan perancangan unit pengolahan lumpur di IPA Legong (PDAM) Tirta Kahuripan = The choosing and designing of sludge treatment unit in Legong water treatment plant (PDAM) Tirta Kahuripan / Okita Miraningrum Nur Atsari

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### Abstrak

[Berdasarkan Peraturan Pemerintah Nomor 16 Tahun 2005 limbah akhir dari proses pengolahan air wajib diolah sebelum dibuang IPA Legong di bawah PDAM Tirta Kahuripan selama ini langsung membuang lumpurnya ke badan air Sungai Ciliwung tanpa pengolahan apapun Dalam penelitian ini ada empat alternatif yang dibuat dan pemilihan berdasarkan pertimbangan kebutuhan lahan volume dry cake pengoperasian dan biaya Alternatif yang terpilih adalah alternatif 1 terdiri dari 1 bak ekualisasi 1 gravity thickening 1 sludge conditioning tank 1 belt filter press 1 bak penampung lumpur dan 1 bak supernatan dengan menerapkan resirkulasi air cucian filter dan supernatan menjadi air baku sehingga lumpur yang diolah hanya berasal dari unit sedimentasi Debit lumpur dari instalasi konvensional sebesar 382 87 m<sup>3</sup> hari sedangkan debit lumpur dari instalasi heksakoloidal sebesar 191 43 m<sup>3</sup> hari Perkiraan kebutuhan lahan yang diperlukan adalah sebesar 420 m<sup>2</sup> ;Based on Government Regulation Number 16 Year 2005 waste produced from water treatment process must be treated before discharging Legong Water Treatment Plant under PDAM Tirta Kahuripan discharge the sludge directly into stream water Ciliwung without any treatment In this research there are four alternatives sludge treatment made and the choosing done based on land area dry cake volume operational and maintenance and financial criteria The choosen alternative is first alternative consists of 1 equalization tank 1 gravity thickener 1 sludge conditioner tank 1 belt filter press 1 dry cake tank and 1 supernatant tank by applying filter backwash waste recycle into raw water so the sludge that flows into treatment unit only comes from sedimentation unit Sludge generation from conventional installation is 382 87 m<sup>3</sup> day and from hexacoloidal installation is 191 43 m<sup>3</sup> day Land area needed for sludge treatment approximately is 420 m<sup>2</sup> , Based on Government Regulation Number 16 Year 2005 waste produced from water treatment process must be treated before discharging Legong Water Treatment Plant under PDAM Tirta Kahuripan discharge the sludge directly into stream water Ciliwung without any treatment In this research there are four alternatives sludge treatment made and the choosing done based on land area dry cake volume operational and maintenance and financial criteria The choosen alternative is first alternative consists of 1 equalization tank 1 gravity thickener 1 sludge conditioner tank 1 belt filter press 1 dry cake tank and 1 supernatant tank by applying filter backwash waste recycle into raw water so the sludge that flows into treatment unit only comes from sedimentation unit Sludge generation from conventional installation is 382 87 m<sup>3</sup> day and from hexacoloidal installation is 191 43 m<sup>3</sup> day Land area needed for sludge treatment approximately is 420 m<sup>2</sup> ]