

Projek Desain Pabrik Pengolahan Limbah Air di Kalgoorlie, Australia = Design of Wastewater Treatment Plant in Kalgoorlie, Western Australia

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Abstrak

Pabrik pengolahan air limbah ini berada di 594 km timur dari Perth di kota Kalgoorlie. Region ini dikenal dengan industri pertambangan emas, yang diketahui menggunakan jumlah air yang besar dan jejak lingkungan yang ditinggalkan. Hasil riset dari CSIRO mengatakan bahwa operasional tambang emas membutuhkan lebih dari 250ML air untuk memproduksi 1 ton emas. Selain itu, situasi pertambangan emas saat ini di Kalgoorlie meninggalkan efek yang cukup drastic pada lingkungan sekitar. Di Kalgoorlie terdapat 26 sumber air yang dipergunakan untuk industri pertambangan. Selain itu, bendungan yang dipergunakan untuk menyimpan air hasil proses berbahaya bagi lingkungan sekitar. Tujuan utama dari pabrik ini merupakan untuk mendapatkan air proses pertambangan dari industri pertambangan emas untuk diolah kembali agar dapat dipergunakan kembali. Air yang dihasilkan akan menjadi 80% kelas C dan 20% kelas B.The wastewater treatment plant (WWTP) is located 594km east of Perth in the town of Kalgoorlie. This region has a prolific gold mining industry, an industry well known for its large water consumption and large environmental footprint. Research from CSIRO found that a gold mine operation requires over 250ML of water to produce a single tonne of gold. Moreover, current gold mining operations over the last few decades have devastated the natural landscape and quality of local waterways through the excessive sourcing of water from ground water reserves. There are a total of twenty-six operational bore fields in Kalgoorlie to supply water to all mining operations. Furthermore, tailing dams used to store processed mine water have caused further damage to waterways through the continual seepage back into underground reserve which has affected drinking water supplies. The sum of this reported damage over many years, further exacerbated by the call for more sustainable mining operations has allowed Gold Wastewater to see the benefits and longevity of investing in the area. Ultimately, the main purpose of the plant is to receive mine tailings from local gold mining operations, to process the tailings water up to re-use quality, and to return this water to the same mine operations in large quantities thus reducing the load on local water supplies. The water to be returned to mining operations will fall under Class C and will make up 80% of the water produced. The remaining 20% of water will undergo further processing to Class B, available for watering of parks, gardens and sports facilities, supporting the green vision of Kalgoorlie's community.