

INTISARI

Air yang berasal dari batuan pada tambang bawah tanah dikeluarkan dengan 2 tujuan, yaitu untuk penirisan tambang (*mine dewatering*), untuk mendukung kegiatan *development* dan produksi tambang. Untuk kegiatan *development* dan produksi, air digunakan untuk keperluan pemboran lubang tembak, pemboran lubang air, *ground support*, untuk *cleaning face* dan *equipment* dan kebutuhan toilet serta perkantoran.

Sumber air di tambang DMLZ tersebar di beberapa titik dengan total debit aktual yang dihasilkan 1850 gpm dengan total kebutuhan 1794 gpm. Sedangkan sumber air yang rencananya akan dibuka di level undercut dan intake diharapkan mampu menghasilkan debit 2100 gpm. Air dialirkan ke semua area tambang dengan dua sistem yaitu, dengan menggunakan tekanan yang dihasilkan air itu sendiri dan dengan menggunakan pompa. Pompa digunakan di dam Intake 1 North dan Ipuldam. Kedua dam ini merupakan tempat pengendapan air yang bercampur unsur *sulfur*.

Dari data sumber dan kebutuhan terlihat bahwa debit yang dihasilkan di sumber lebih besar dari kebutuhan. Seharusnya kebutuhan air tambang tercukupi dengan baik. Namun karena distribusi air yang kurang baik, maka aliran air tidak merata sesuai dengan kebutuhan. Masalah kekurangan kebutuhan air terbesar terjadi di level extraction dan undercut. Air di kedua level ini berasal dari 3 sumber yaitu sumber di Magazine, pompa di dam Intake 1 North dan Ipul dam.

Hasil simulasi menunjukkan untuk memenuhi kebutuhan air sampai akhir *development*, jaringan pipa ideal di area extraction menggunakan pipa 6 *inch* di jalur SFD dan NFD. Sedangkan jaringan pipa di area lain masih mumpuni menggunakan pipa 4 *inch*.

Kata kunci: debit, tekanan, DMLZ, pipa, distribusi air.

ABSTRACT

Water that comes from stones in underground mine extracted with two purposes, which are mine dewatering, supporting development and production of mining. In the development and production activity, water is used for some purposes such as pilot holes, ground support, cleaning face and equipment, toiletry and office purpose.

Water sources in DMLZ mine are spread on several points and produce actual total flow rate of 1850 gpm compare to 1794 gpm needs of actual total flow rate. Whereas water source planned to be built in undercut and intake level are expected to be able to produce 2100 gpm flow rate combined. Water are being delivered to all mine area by using two ways, which are taking advantage of the water pressure and using pumps. Pumps are used in Intake 1 North and Ipul dam. Both dams are used as water sedimentation area which are mixed with sulfur element.

Supply and demand data shows that flow rate from the supply is bigger than the demand. The data clearly tells that water needs in minefield supposed to be sufficed but because of poor water distribution, the delivery of water is not distributed equally as per need. Problem with water shortage mostly happened in extraction and undercut level. Water from these levels come from three sources which is Megazine, Intake 1 North, and Ipul dam pump.

Simulation result informs that in order to fulfill water demand until the end of development, 6 inch diameter pipe is suggested to be used in SFD and NFD line. In the meantime, 4 inch diameter pipe is still sufficient to be use in piping network in the other area.

Key words: debit, pressure, DMLZ, pipe, water distribution.