

SARI

Airtanah adalah salah satu sumber air yang karena kualitas dan kuantitasnya cukup potensial untuk dikembangkan guna memenuhi kebutuhan dasar makhluk hidup. Penelitian terhadap potensi airtanah sangat penting mengingat air merupakan sumber utama kehidupan manusia. Tingginya perkembangan manusia di Kecamatan Sleman sehingga akan meningkatkan kebutuhan akan air bersih dan pemanfaatan airtanah di Kecamatan Sleman. Tujuan dari penelitian ini adalah untuk mengetahui potensi airtanah meliputi kualitas dan kuantitas airtanah serta sifat geokimia airtanah. Metode penelitian berupa pengamatan geologi, geomorfologi dan hidrogeologi. Pengamatan hidrogeologi meliputi ; sifat fisik, kimia, pengukuran kedalaman sumur gali, analisis ion penyusun utama airtanah serta interpretasi data bor untuk mengetahui ketebalan akuifer. Kualitas airtanah daerah penelitian tergolong kelas airtawar dengan nilai DHL 190-360 $\mu\text{s/cm}$ TDS 90-170 mg/l dan PH 6,4-7,2. Berdasarkan kandungan ion nitrat (NO_3^-) terdapat satu sampel airtanah (SG 21) yang memiliki nilai kandungan nitrat yang sangat tinggi melebihi batas maksimum (50 mg/l) nitrat yaitu 66,91 mg/l. Sehingga kualitas airtanah pada STA ini tidak baik digunakan untuk kebutuhan air bersih. Tipe airtanah yang berkembang di daerah penelitian secara umum terdiri dari 3 tipe secara geokimia, yaitu: (a) $\text{Na}^+\text{K}^+ - \text{HCO}_3$, (b) $\text{Na}^+\text{K}^+ - \text{Mg}^{2+} - \text{HCO}_3$, (c) $\text{Na}^+\text{K}^+ - \text{HCO}_3 - \text{SO}_4$. Kuantitas airtanah yang meliputi cadangan statis daerah penelitian 719.404.536,79 m^3 dan cadangan dinamis daerah penelitian 33.410.905.453,90 liter/tahun atau 1059,446 liter/detik, serta resapan airtanah daerah penelitian 19.544.073.340 mm/tahun. Sehingga debit pengambilan airtanah harus kurang dari 1059,446 liter/detik agar tidak terjadi kerusakan airtanah.

Kata Kunci: Airtanah, Kualitas, Kuantitas, Geokimia

ABSTRACT

Groundwater is one of the water resource, because its quality and quantity is very potential to develop for human life. Research of groundwater potential is very important because water is the main source for human life. The high rate of human development in Sleman Regency will increase demand of clean water and groundwater uses in Sleman Regency. The purpose of this research is to know about groundwater potential included groundwater quality and quantity along with characterisitic of groundwater geochemistry. The method in this research is geological observation, geomorphological, and hydrogeological. Hydrogeology observation included : physical characteristic, chemistry, deep measurement of well, analysis main ionic groundwater composer and also interpret drill data to detect aquifer thickness. Groundwater quality of research area classified as good groundwater with Electric Conductance value 190-360 $\mu\text{s/cm}$, total dissolved solidified value (TDS) 90-170 mg/l and PH 6,4-7,2. Based on contain of ionic nitrat (NO_3^-) be found one groundwater sampel (SG21) who has high contain of ionic nitrat which more than maximum limit (50 mg/l) is 66,91 mg/l. So, the groundwater quality in this observation station is not good to uses as utility of freshwater. Groundwater type in this research area consits of 3 type geochemistry, that is: (a) $\text{Na}^+ + \text{K}^+ - \text{HCO}_3$, (b) $\text{Na}^+ + \text{K}^+ - \text{Mg}^{2+} - \text{HCO}_3$, (c) $\text{Na}^+ + \text{K}^+ - \text{HCO}_3 - \text{SO}_4$. Groundwater quantity which included groundwater static reserve of research area is 719.404.536,79 m^3 and groundwater dynamic reserve is 33.410.905.453,90 liter/year or 1059,446 liter/second, and then groundwater recharge of research area is 19.544.073.340 mm/year. So, rate of flow groundwater removal must be less than 1059,446 liter/second.

Keywords: *Groundwater, Quality, Quantity, Geochemistry*