



KUALITAS AIR TANAH DI KECAMATAN WATES, KABUPATEN KULON PROGO BERDASARKAN DATA GEOKIMIA

oleh

Pungky Nurhayati

(14/363735/TK/41773)

Departemen Teknik Geologi, Fakultas Teknik, Universitas Gadjah Mada

email : nurhayati.pungky13@gmail.com

Pembimbing : **Dr. Wahyu Wilopo, S.T., M.Eng.**

INTISARI

Kecamatan Wates merupakan ibukota dari Kabupaten Kulon Progo sehingga pusat pemerintahan dan aktivitas domestik masyarakat juga terpusatkan di Kecamatan Wates. Masyarakat di Kecamatan Wates juga memanfaatkan air tanah untuk kebutuhan sehari-hari. Namun kualitas yang dimiliki tiap lokasi dapat berbeda-beda apalagi Kecamatan Wates terletak dekat dengan pantai Glagah yang memungkinkan terjadinya intrusi air laut yang dapat menurunkan kualitas air tanah. Penelitian ini bertujuan untuk menentukan pola dan arah aliran air tanah di daerah penelitian, mengetahui kualitas air tanah yang ada di daerah penelitian berdasarkan analisis geokimia kandungan ion mayor, dan menentukan sumber salinitas air tanah di daerah penelitian. Metode penelitian menggunakan analisis geokimia ion mayor untuk menentukan kualitas air tanah dan analisis rasio Cl/Br untuk menentukan sumber salinitas air tanah, serta analisis *x-ray diffraction* (XRD) pada beberapa sampel tanah untuk mengetahui kandungan mineral yang ada di dalamnya. Hasil penelitian menunjukkan pola dan arah aliran air tanah di daerah penelitian secara umum dari arah utara ke selatan, namun ada anomali di bagian selatan yaitu memiliki arah aliran yang berkebalikan yaitu dari selatan ke utara yang dipengaruhi oleh morfologi *sand dune* pada dataran pantai. Berdasarkan analisis geokimia kandungan ion mayor terdapat 6 lokasi yang memiliki kualitas kurang baik yaitu Desa Triharjo bagian tenggara (STA 8 dan 22), Desa Ngestiharjo bagian utara (STA 23), Desa Sogan bagian timur (STA 18 dan 19), dan Desa Karangwuni bagian timur (STA 15) kemudian ada 2 lokasi yang memiliki kualitas buruk antara lain Desa Karangwuni bagian timur laut dan barat tepatnya di Sungai Serang (STA 14 dan 17). Sumber salinitas di STA 17 yaitu pencampuran air laut dengan air permukaan sedangkan STA 8, 14, 15, 19, 22, dan 23 yaitu berasal dari pelarutan mineral akuifer yang mengandung ion Cl seperti halit dan apatit.

Kata kunci : Kecamatan Wates, Kualitas Air Tanah, Geokimia Ion Mayor, Salinitas



GROUND WATER QUALITY AT WATES DISTRICT, KULON PROGO REGENCY BASED ON GEOCHEMICAL DATA

by

Pungky Nurhayati

(14/363735/TK/41773)

Department of Geological Engineering, Faculty of Engineering,
Universitas Gadjah Mada

email : nurhayati.pungky13@gmail.com

Advisor : **Dr. Wahyu Wilopo, S.T., M.Eng.**

ABSTRACT

Wates District is the capital of Kulon Progo Regency so that the center of government and domestic social activities are also concentrated in Wates District. People in Wates District also use ground water for their daily needs. However, the quality of each location can vary, especially the Wates District is located close to the Glagah beach that allows the occurrence of sea water intrusion that can reduce the quality of ground water. This study aims to determine the pattern and direction of ground water flow in the research area, to know the ground water quality that exist in the research area based on geochemical analysis of major ion content, and to determine the source of groundwater salinity in the research area. The research method used geochemical of major ion analysis for ground water quality analysis and Cl / Br ratio analysis to determine the source of groundwater salinity, while also analyzing x-ray diffraction (XRD) in some soil samples to determine the mineral content present in it. The results show the pattern and direction of groundwater flow in the research area in general from north to south, but there is anomaly in the south that has the direction of the opposite flow from south to north which is influenced by sand dune morphology on the coastal plain. Based on the geochemical analysis of the content of major ions there are 6 locations that have poor quality that is the southeastern Triharjo village (STA 8 and 22), the northern Ngestiharjo village (STA 23), the eastern Sogan village (STA 18 and 19), and the eastern Karangwuni village (STA 15) then there are 2 locations that have very poor quality that is the northeastern Karangwuni village precisely in the Serang's river (STA 14 and 17). Source salinity in STA 17 is mixing seawater with surface water while in STA 8, 14, 15, 19, 22 and 23 are derived from dissolution of minerals in aquifer which containing Cl ions such as halite and apatite.

Keyword : Wates District, Ground Water Quality, Major Ion Geochemistry, Salinity