

Shofi Nur Aliyah (Chemistry 2016)

UPT Laboratorium Uji Kualitas Lingkungan Dinas Lingkungan Hidup Kabupaten Gresik Provinsi Jawa Timur

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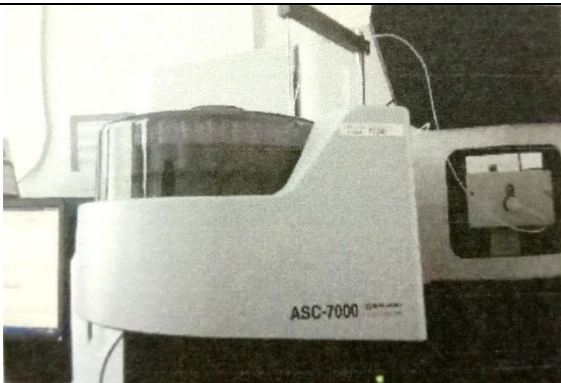

The UPT Environmental Quality Test Laboratory of the Environmental Service in Gresik Regency is where I did my internship from 10th June – 12th July 2019. This unit works in the operation of the Environmental Quality Test Laboratory. Due to the linearity of my task and the objectives of the UPT, because of that, I conducted an internship for the analysis of metal concentrations of Cd, Fe, and Mn in the water of the Manyar River for monitoring the quality of water using AAS (Atomic Absorption Spectrophotometer). The reason for choosing the sampling site was carried out on the Manyar Gresik River because the water in that river was quite polluted and had experienced deviations in water properties from normal conditions.



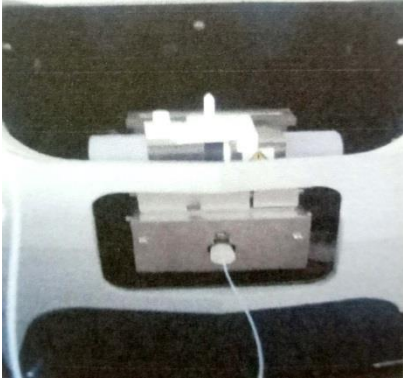
The samples tested were surface water, groundwater, and wastewater by testing the parameters of the nature of water pollution, followed by preservation of the sample test for tests that were not immediately carried out. Test preparation was carried out by making solvent solutions, washing solutions, and standard metal solutions for Cd, Fe, Mn.

The metal testing procedure using AAS is based on the absorption of light from a specific cathode lamp by atoms of the sample in an excited state. Measurements on AAS produce the wavelength of the sample metal. The wavelength obtained is 228.8 nm for the wavelength of Cd metal; 248.3 nm for Fe metal wavelength; 279.5 nm for the metallic wavelength Mn. Rinse the sample solution using a blank solution by clicking "auto-zero" then clicking "blank" then, a calibration curve will be obtained. After the calibration curve is obtained, the next step is to check the linear regression correlation coefficient ($r < 0.995$), if it is still below the limit, it is necessary to repeat and check the condition of the tool until the linear regression correlation coefficient ($r \geq 0.995$) is obtained. Sample testing is done by repeating two or three times. The more repetitions will get valid results. After testing all samples, save the test result data in each metal folder according to its type and include the sample number and the date of the sample test.

The analysis results using AAS with two repetitions resulted in a metal standard curve with the test results of the measured Cd metal values -0.0373 mg/L and -0.0361 mg/L,

indicating a negative result for the presence of Cd metal in the Manyar river. The measured Fe metal yields a value of 0.0472 mg/L and 0.0371 mg/L with a percentage of RPD value of 2.396%, which indicates that this test is still acceptable because the RPD value is still below the maximum limit of the specified standard, which is 10% so that the Fe metal in the Manyar river is by the applicable environmental quality standards. The measured Mn metal yields values of 0.8173 mg/L and 0.8188 mg/L. The RPD results show a value of 0.183%, which indicates that this test is still acceptable because the RPD value is still below the maximum limit of the specified standard, which is 10%.

No.	Photo	Explanation
1.		<p>Sampling of water on the Manyar River</p>
2.		<p>AAS Instruments</p>
3.		<p>Cathode lamps in AAS Instruments</p>

4.	 A photograph of an AAS instrument, specifically an ASC-7000 model, showing a bright orange flame in the burner area. The instrument is white and black, with a sample compartment open.	Flame when testing samples in AAS
5.	 A photograph of a white plastic rack holding several small, clear plastic cuvettes. The rack is circular and has a handle on the side.	Place to put samples in AAS (<i>Kuvet</i>)
6.	 A photograph of the burner assembly of an AAS instrument. It shows a white plastic housing with a burner tube and a gas inlet.	Burners in AAS Instruments