# Evaluating the Drinking Water quality supplied by the large Treatment Plant in RAMADI City

Majeed Mattar Ramal

Anbar University College of Engineering\Dams & Water Resources Department.

## Abstract

This research evaluate the drinking water quality of The large treatment plant in the RAMADI city at AL-ANBAR Province .The water samples were taken from which The Intake (Raw Water   Euphrates), The Pumps Unit after Chlorination (Drinking water),. The Concentration of some Characteristics such as physical, Chemical and Biological (Bacteriological) Have been calculated. The samples have been taken twice in the month (average of three samples) for one year, to evaluate the drinking water quality and efficiency of the large water treatment plant in the RAMADI. the results show that the Ramadi drinking water quality, drinking water has mean (PH) value of (7.6),mean turbidity of(5 NTU), mean electrical conductivity of (1226 µohms/cm), mean alkalinity of (119 mg/l), mean total hardness of (394 mg/l),mean calcium cation concentration of (49.6 mg/l), mean magnesium cation concentration of (38.4 mg/l), mean chloride anion concentration of (197.5 mg/l), mean Sulphate concentration of (347 mg/l), mean total dissolved solids concentration of (889 mg/l), mean total suspended solids concentration of (24.2 mg/l), mean sodium cation concentration of (130 mg/l), mean potassium cation concentration of (4.9 mg/l), mean nitrate concentration of (3 mg/l),which within local and national standard limitations except the Sulphate (SO4), Turbidity and electrical conductivity which more than the local and national standard limitations, Although, the raw water has good physical and chemical water quality characteristics but, highly polluted with bacteria, drinking water was free from both Coliform bacteria and (E-coli),while has about (2 cells) of total plat count of bacteria . there are many essential problems in the plant, no significant change could be detected in raw and treated water quality. Because of, the maintenance is rarely practiced in time, In addition, the addition of lime is not applied in practice because of the operators thought that the low turbidity water not need lime ,lime not added when turbidity (equal or less than 5NTU). A study for each unit of plant was applied to collect the data and Concentration of some Characteristics such as physical, Chemical have been calculated to determine the

problem in the plant. Settling column experiment has been carried to determine the sedimentation tank removal efficiency, the sedimentation units has about (36%)removal efficiency, which is must be (70%-90%) ,the filtration units has about(23.4%) removal efficiency and the disinfection stage has about (97% - 100%) disinfection efficiency, which are within the Iraqi standard limitations and world health organization. (STATICA) descriptive statistical analysis program has been used to perform the required statistical analysis for the data. this program used to find some statistical distribution for water quality characteristics . Each set of data represents an operation period of one month. It was found that data were generally symmetrical and were skewed to the mean values, as measured by the Skewness coefficient .which means good distribution about mean value.