

Occurrence of recent lump-shape sediments features in Quarry, Alahmadi, Kuwait: possibly an indicator of hydrocarbon gas seepages.

Mohammad H. Abdullah¹, Fowzia Abdullah¹

¹Earth and Environmental Sciences, Kuwait University, Kuwait City, KUWAIT

ABSTRACT

This study is to describe lump-shape sediments features and how they are formed. The lumps are dome-like shapes and they are muddy sands cracked on its top. They are white and yellow colors. The lumps range from 15 to 75 cm height and from 20 to 104 cm width.

The lumps are composed of sediments and are found on the top of Kuwait Group and Dammam formations. They are located on the eastern boundaries of the Greater Burgan Field in a Quarry in Al-Ahamdi. Nine sediments samples from these lumps were collected, described and identified. The samples were sieved, to identify the grain sizes. They were examined microscopically using transmitted, polarized microscopes and SEM (scanning electron microscope). In addition, geochemical methods have been used such as XRD (x-ray diffraction) and XRF (x-ray fluorescence).

The collected samples are heterogeneous in minerals composition. However, they are homogenous in grain size distribution. Sieving and visual observation show that the sediments are muddy sands (contain 57% sands and 43% mud in average). The predominant mineral in all samples is the Quartz, and Feldspar. The Montmorillonite clay is found in some samples, which is probably formed by the alteration of Feldspar minerals. The Alunogen (hydrous aluminum sulfates) has been found in two samples. Other minerals identified are Gypsum, Calcite, Dolomite and Pyrite. The presence of Alunogen, Pyrite (both contain Sulphur) minerals and the shape of these lumps in Al-ahamdi area, one of the oil fields, may indicate hydrocarbon gas/oil seepage. Keeping in mind that the Kuwaiti oil and gas is rich in sulfur in its coo sitcom. This study is the first and preliminary investigation in this area and needs further studies.