The Chang 7 dark mud shale of the Triassic Yanchang Formation in the Ordos Basin is an important source rock. The Chang 7 member has favorable prospect of shale gas showed by the latest exploration. The gas generation and trapping in the Chang 7 are studied using of 279 well logging data and the laboratory analysis test data of 347 core samples from 18 wells. In addition, the conditions of cap rocks and are also investigated. The results show that the dark mud shale which contains rich organic material - widely distributed. The total organic carbon (TOC) ranges from 0.65% to 21%, 80.7 percent be more than 2%. The vitrinite reflectance (Ro) is 0.7%-1.13%, most of the samples are in lower mature or mature stage for gas. In some places such as Xiasiwan, the maturity of the dark mud shale is up to 1.13%, the mud shale can generate moisture gas. The Chang7 dark mud shale lithology is mudstone, shale, silty mudstone, siltstone. The average content of different mineral compositions of the shale are: quartz is 27.75%, plagioclase is 18.46%, potassium feldspar is 7.82%, pyrite is 1.31%, siderite is 9.6%, calcite is 1.31%, iron dolomite is 0.75%, and clay mineral is 42.16%. There are a lot of porosities observed under scanning electron microscopy (SEM). The pore types are mainly intergranular pore, inter crystalline pore of the authigenic mineral and dissolution pore. The pore diameter is 1~10µm. The dark mud shale has four lithofacies. The core quality of the dark shale lithofacies is pure and exquisite, accompanying strong oil smell. The clastic compositions are mainly clay mineral, quartz, feldspar detritus, organic matter, etc. The dark gray fossiliferous mudstone lithofacies is rich in plant leaves, stem fossils, carbon crumbs and a small amount of bivalve fossil, but calcareous cements are common. The gray carbonaceous elastic silty mudstone lithofacies is abundant in carbide plant debris and mica. The particles of the gray argillaceous siltstone lithofacies is powder sand, quartz and feldspar particles are common. In vertical, the lithofacies changes quickly. Because it changes in the range of centimeter level, it can’t be identified in the well logging curve. A lot of air bubbles are seen separated out along the bedding plane and grain level in sit core test, the try gas output can reach 1000-3000 cubic meter/day. There is a certain relationship between gas content and lithology, lithofacies. The gas content is high in the coarse gray carbonaceous siltstone lithofacies and the gray argillaceous siltstone lithofacies. Although the adsorption volume has a certain relationship with carbon content and maturity, but the total volume of adsorbed gas proportion is not high. The study has a guiding significance for shale gas exploration of the Yanchang Formation in the Ordos Basin.