INTRODUCTION
The Fruitland and Pictured Cliffs formations cover an enormous area in the center, or inner part, of the San Juan Basin in Colorado and New Mexico (See map). This area is approximately 85 miles in a northwest-southeast direction and 70 miles in a northeast-southwest direction. The area within the outcrop of the Pictured Cliffs totals 6000 square miles. Of the 6000 square miles which contain the Pictured Cliffs and Fruitland formations, a minimum of 1500 square miles, or 1,000,00 acres, contain proven and semi-proven gas reserves in these horizons.

Commercial gas was first discovered in the Pictured Cliffs sandstone on November 25, 1927 in the Fulcher-Kutz Pictured Cliffs gas field. Development of the Pictured Cliffs gas was at first very slow. However, as more markets became available, development and exploration began to increase in tempo. The period from 1950 to the present time has been the greatest period of activity. It is during this period that Pictured Cliffs has seen its greatest development. The Fruitland formation has only recently been proven to contain valuable accumulations of commercial gas. Its first commercial production was undertaken by Stanolind Oil and Gas Company in January of 1954 at Ignacio, Colorado.

Today the shallow gas horizons of the Pictured Cliffs and Fruitland are becoming more and more commercially attractive. This is because of increasing market demands, relative shallow drilling in comparison to other horizons, improved gas prices which are helping to offset the high drilling costs, improved well completion methods, and more available geologic information.

STRATIGRAPHY
The stratigraphy of the Pictured Cliffs and Fruitland formation is that of a series of interbedded sands, shales and coals. The sands which form the basal unit of the Fruitland-Pictured Cliffs series are termed the Pictured Cliffs formation. These sands are grey to greyish-white, salt and pepper, fine to medium grain, well sorted, angular to sub-rounded, and composed mainly of quartz with some ferro-magnesium minerals, including glauconite, cemented with calcite and bentonite. The Pictured Cliffs formation is transitional with the underlying Lewis shale. The base of the Pictured Cliffs is taken as the base of the last massive sandstone.

Overlying the Pictured Cliffs formation is the Fruitland formation, which is composed of shales, coals and sands. These sandstones are similar in their lithologic description to the sands of the Pictured Cliffs, while the shales vary in color from dark grey to black, they are very carbonaceous and often contain fragments of lignite and wood particles along with seams of coal. The coal varies from lignite to low grade sub-bituminous and mostly occurs in thin seams and, in some cases, in beds of 10 to 20 feet in thickness. The base of the Fruitland formation is taken at the top of the first massive sandstone which exhibits the typical Pictured Cliffs type of lithology. The top of the Fruitland is transitional with the overlying Kirtland shale and is generally taken at the top of the first coal bed. There is often a thin, greyish-white sandstone marker bed associated with the coal bed. On the electrical well log, the top of the Fruitland can be found by the series of high resistivities. Studies made of the lithology of the Fruitland-Pictured Cliffs have shown that these two formations are interfingered in a series of lenses exhibiting both Pictured Cliffs and Fruitland types of lithology (See fig. 1).

In the southwest part of the inner San Juan Basin, the Pictured Cliffs sandstone is overlain by the Fruitland coal and shale formation. Here the sandstone of the Pictured Cliffs is about 80 feet in thickness with a commercial pay thickness of around 30 feet. As one goes toward the northeast portion of the San Juan Basin, additional overlying sands become present, apparently crossing time lines, becoming progressively younger to the northeast. As each new sand of the Pictured Cliffs unit builds up above the basal sand, or True Pictured Cliffs sand, the typical Fruitland facies moves upslope. The original Fruitland section in the southwest part of the basin becomes thin shales and is gradually replaced by sands. New lenses of Fruitland lithology develop overlying the new Pictured Cliffs sand lenses. By the time the Ignacio Field in Colorado is reached, five new sands have developed. These additional sands account for the much larger thickness of the Pictured Cliffs sandstone in Colorado and northern New Mexico. The total sand thickness is as much as 400 feet in comparison to the 80 feet found in the Fulcher-Kutz area. These sands are individual sand bodies that are separated by Fruitland lithology of shales and coals. In many places it is very difficult to distinguish the individual sand bodies or sand lenses. However, for correlation purposes, these sands in ascending order have been termed by the author to be the True Pictured Cliffs sand or basal Pictured Cliffs sandstone, the Upper Pictured Cliffs sand, "A" bed of the Pictured Cliffs, "B" bed of the Pictured Cliffs, "C" bed of the Pictured Cliffs and "D" bed of the Pictured Cliffs (See fig. 1). Any one, or all of these beds, can be overlain by the typical Fruitland, depending upon its locality. These beds are identical in their appearance to the basal Pictured Cliffs sand. For practical purposes, the top of the Pictured Cliffs is taken at the first massive sand which exhibits typical Pictured Cliffs type of lithology. The division into individual beds is within the Pictured Cliffs sands. The breakdown into individual sand lenses within the Pictured Cliffs is valuable for correlating purposes and for avoiding occasional water bearing zones that may occur in coal beds or fractured shales between the sand bodies. It has been found that by correlation or tracing of the True Pictured Cliffs or basal sandstone of the Pictured Cliffs, that actual Cretaceous structure of deeper horizons is reflected and can be detected. In the southern part of the area, the top of the True Pictured Cliffs sandstone is easily detected while in the northern part of the area the True Pictured Cliffs sandstone has been replaced by Lewis shale type of lithology. Where this has occurred, a correlating interval