
New List of Subsurface Stratigraphic Names of Oklahoma²

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"Subsurface Stratigraphic Names of Oklahoma," Guidebook VI of the Oklahoma Geological Survey, went to press in October, 1957 and shortly will be available to the public. The compilation of subsurface names was started in 1954 with the publication of a preliminary list by Carl C. Branson. This list resulted in contributions of additional data from numerous geologists of the state. It was decided then that it would be desirable to publish the information with electric logs illustrating the location of pay horizons or markers from a well in which these were found and named, or from a nearby well which showed the section both below and above the marker or pay. Each of these illustrations accompanied by a description of the zone was sent to at least two geologists for comment. Guide Book VI is the result. It consists of 215 pages on which there are some 225 illustrations and some 650 terms which are used in the subsurface of Oklahoma. The range in age represented is from Cambrian through Lower Cretaceous. About three-fourths of the names have been applied to rocks of Pennsylvanian age.

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During the short time since Guidebook VI went to press, some twenty terms have been noted for the first time in new publications. Most of these terms are applied to local pay zones. Two of them are names which already have been used. These are the McKinney sand of Virgillian age in the Burns field of Grady County and the Kirk sand, also of Virgillian age, in the Beaver field of Stephens County.

There exists already a McKinney sand in the East Pauls Valley field of Garvin County. The application of this name in the Beaver field is not desirable, but, since the McKinney sand of East Pauls Valley field is a local development, it is quite possible that the term will not be used extensively in the latter area.

However, in the case of the term, Kirk sand, the situation is quite different. The term, Kirk sand, was published in 1924 in the Bulletin of the Amer. Assoc. Petroleum Geologists by C. W. Tomlinson in reference to a Des Moinesian sandstone which was oil-producing in the Graham field. This sandstone has been called U. Fusulina or U. Fusulinid by present workers in the Ardmore basin area where it has been recognized over a distance of some fifty miles or more. John L. Hoard in "Petroleum Geology of Southern Oklahoma" recommended that the term Kirk sand be used instead of U. Fusulina or U. Fusulinid so that there would be no conflict with the "Fusulina" or Fusulinid sand, which is called L. Fusulina where the U. Fusulinid is present. The use of any fossil name for a marker is highly undesirable, but to use the term, Fusulina, or Fusulinid for the name of a producing sandstone in the Pennsylvanian is extremely poor nomenclature since the Pennsylvanian is full of fusulinids. The use of Lower and Upper applied to geologic markers also is dangerous since wherever either one is absent, there is a tendency to drop the qualifying adjective with the result that it is not clear which one is present. Since the name Kirk sand has been recommended as a regional term, it would be indeed unfortunate to have this term used for a different horizon in any area of the state.

Another term published was "Blanket sand." The use of such a general term should be discouraged since it does not imply a type locality and is normally used as a general geologic term describing continuity of a sand body.

The names of surface formations, such as Winfield, Topeka, and Wyandotte, are being applied to subsurface producing horizons. Let us hope that these long-distant correlations are correct and that the term actually is being applied to a continuation of that formation into subsurface.

The use of names applied to surface groups of rock units such as Douglas, Council Grove, and Marmaton for subsurface pays also is creeping into the literature. Such nomenclature is not desirable since these groups are in most cases several hundred feet thick. Neither the horizon nor the type locality of the pay zone is indicated in the name. A local name from a discovery well would result in better nomenclature over the long period of years that the name will probably be used. It is quite easy to predict that several producing zones will be found within these groups in northwestern Oklahoma.

The use of time terms, such as Morrow, Atoka, and Springer, for the name of a pay zone definitely should be discouraged. It is understandable that certain names have a golden aura because oil has been found in other areas in which that name has been used. However, geologic evidence, perhaps 10 to 20 years from now, may indicate that the producing horizon so-named is of a different age than the time term which now is being applied to the producing horizon.

It is thought that careful consideration should be given to the naming of producing horizons and marker beds. An attempt should be made to see that there are no duplications. Careful correlation should be made before a term already in use in a distant area is applied in a new area. Some names already have been used to such an extent that it is impossible to be sure how they are being used in a particular area. No old name should be applied if the correlation can not be definitely made. It is better to give a new name until a definite correlation is made as this new name easily can be discarded. However, when different horizons are given the same name, the problem of correcting the miscorrelation is indeed difficult. Some of the terms used in subsurface which are in this category are: Layton, Checkerboard, Tucker, Wilcox, Wayside, Peru, Glenn, Mayes, Avant, Dewey, and Coline. Although geologists are plagued with many names, more serious difficulties result when the same name is applied to pays or markers at different stratigraphic levels.

Rules for naming of subsurface units, formal or informal, have been set up by the American Commission on Stratigraphic Nomenclature. These rules call for a type locality in a well, depth of the unit, depths of units above and below, correlation and position in the general stratigraphic sequence, and other items which are listed in their Report 4, published in Bulletin of Amer. Association of Petroleum Geologists (1956), vol. 40, no. 8, p. 2013. It also would be advisable to have a Nomenclature Committee for Subsurface Names of Oklahoma, such as that already in existence for Field Names of Oklahoma, a committee of the Mid-Continent Oil and Gas Association. It then would be possible to register subsurface names so that there would be no duplication. A haphazard method of nomenclature, in the long run, will result in more confusion in the future, and the difficulty in communication among geologists, petroleum engineers, and statisticians will increase as the years roll along.
