Pottawatomie County
Project No. 63-75 FAS 145-A1
Sheet 1 of 2

Geologists Report

Feb. 1941

Formations To Be Encountered

1. Burr Limestone
2. Reca Shale
3. Howe Limestone
4. Bennett Shale
5. Glenrock Limestone
6. Johnson Shale
7. Long Creek Limestone
8. Hughes Creek Shale
9. Americus Limestone

1. Burr Limestone

This member is composed of four parts. The upper part is a 2.0' limestone, gray to light gray on exposure (gray to black on fresh fracture), horizontal and vertical joints, weathers easily (contains many solution holes), in texture fairly dense and contains many fossils (crinoid remains, fusulinids and pelecypods). Below the 2.0' limestone is a 0.3' hard, buff, shaley limestone. Underlying the 0.3' part is a 5.4' shale, buff in color. The basal part of the member is a limestone that varies from 0.7' to 1.0' in thickness, gray in color, blocky, fine grained and contains few fossils. The total thickness of this member is 8.4'-8.7'. This member will not be encountered on the Project, but was used in obtaining directional dip and lays close to center line at Sta. 537/ (Rt.) The lower part is found Rt. of the forenamed Sta.

2. Reca Shale

The upper part of this member is a 2.4' zone of hard calcareous shale. Underlying this zone is 5.6' of green shale, in turn underlain by a 0.5' irregular, impure limestone. Below the irregular limestone is 17.8' of shale, green and maroon in color and is banded in structure. Below the 17.8' shale is a 0.4' limestone part which is hard and gray to buff in color. The basal part of this member is 8.6' of green shale. The total thickness of member is 29.7'. On this Project this member should be classed as common excavation (Sta. 522 to 538) due to weathering it has undergone. From test holes the shale appears very mealy showing much weathering.

3. Howe Limestone

This member is a buff, impure limestone, showing many solution holes and irregular in bedding. The thickness is 1.3'. This member should be classed as rock excavation due to the combination it makes with the upper Bennett Shale below. The Howe Ls. and the upper Bennett Shale produce a 4.0' zone that is hard and would be difficult to remove.

4. Bennett Shale.

At the base of the Howe Ls. is a 0.2' buff shale underlain by a 2.5' hard calcareous shale, light buff in color, weathered it breaks out in concoidial shapes. This part of the member is very hard and should be classed as rock excavation along with the above Howe Ls. The lower part of this member is 6.2' shale, gray, grading to black at the base. The total thickness of this member is 8.9'. The upper part of the member should be classed as rock excavation and the lower part common excavation.

5. Glenrock Limestone

The Glenrock member is a gray to light gray-and buff in color, blocky and massive. The member contains abundant fusulinids, a small amount of chert, and has a irregular top (semi-nodular) and a minor system of vertical fractures. The thickness of the Glenrock is constant at 1.0' The member would be classed as rock excavation.

6. Johnson Shale

The Johnson shale is a dark gray (grading to black) shale, 5.2' in thickness and would be classed as common excavation.

7. Long Creek Limestone

This limestone may be divided into two parts with an upper part 0.5' of black fissile shale which is hard. The lower part is a dark gray to buff ls., hard and fine grained. This whole member is hard and would be classed as rock excavation. The total thickness is 1.7'.

8. Hughes Creek Shale

This member is composed of hard shale, dark grey, olive green, and drab in color. Many fossils were found in this member (brachipods, bryozoans, and crinoid remains). The thickness of this member varies from 10.5' (at shot #23) to 17.3' on centerline. This member due to its hardness would be classed as rock excavation.

9. Americus Limestone.

The Americus is composed of three parts. The upper part is a 0.8' massive, gray limestone. It weathers out in large slabs and contains abundant crinoid remains. In color it varies from gray to black. Below the 0.8' part is a 0.5' hard, drab, and green shale. The basal part is a 2.7' light grey and buff, limy shale and weathers into small parts. The total thickness of the member is 4.0' and the member would be classed as rock excavation.

Directional Dip.

Dip data was obtained by elevations on the Americus, Glenrock and the lower part of the Burr Ls. All elevations were converted to the Glenrock Ls. datum. From the contoured sheets a high is found in the vicinity of Sta. 530 (Bk.) with one flank crossing center line to the west. From Sta. 520 to 490 the elevations show a slight increase. From Sta. 490 to 476 center line is crossing the nose of a high with the highest point to the east one-half mile. From Sta. 476 to 370/ center line is going down the flank of a syncline. To the west of Sta. 340 a minor high is found. From Sta. 340 to 292 (beginning of Proj.) contour information is lacking due to lack of control elevations.

Hydrology

No seeps or springs were found on this Proj. All wells on the Proj. apparently get their water from the valley. (Gravel)

Remarks

From the profile it may be noted that from Sta. 303 to 313 a small area of strata is found consisting of the Bennett Shale and the Glenrock Ls. From Sta. 313 to 512 all formations are absent (to depth of test holes) and silty clay, clay and gravel is found. From Sta. 512 to 539 regular geologic strata is found, from the Americus Ls. up to and including most of the Rock Shale. Overlying these formations is a thick mantle of silty clay. The contact between the silty clay and the shale is marked due to the regular occurrence of gravel. Should grade line go through this gravel water might be found, especially in wet weather. This gravel probably drains to the east. From Sta. 539 to 560 valley fill is found. From Sta. 560 to 563 the Bennett Shale and the Glenrock Ls. reappear.

Respectfully Submitted,

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Geologist.