

Denne rapport  
tilhører



**L&U DOK. SENTER**

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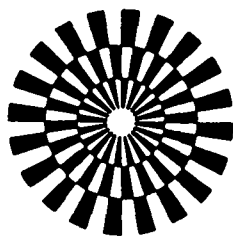
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FINAL REPORT

ROCK MINERAL ANALYSIS

WELL: 31/2-5

DATE: JULY 81



**GECO**

GEOPHYSICAL COMPANY  
OF NORWAY A-S



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We received 30 samples for mineralogical analysis. The samples consist of a mixture of sandstone, siltstone and clay. But coarse grains of mica parallel to the bedding as well as trace of shellfragments were discovered.

A description of procedures is as follows:

XRD:

A semi-quantitative analysis on the most important minerals by means of X-ray diffraction (XRD).

a) A bulk volume of cleaned samples were crushed and sieved through a 74  $\mu\text{m}$  sieve. Thereafter mounted on special glass-plates with a thin film of vaseline. The samples were then run on XRD both untreated and treated with glycocoll.

Following minerals were detected in quantitatively amounts: mica/illite, kaolinite, chlorite, mixed layer from 10-14Å, quartz, alkaline feldspar, plagioclase, calcite and pyrite. And some of them showed trace of anhydrite.

The results are given in tab. I.

The amount of kaolinite and chlorite are added in the tab. Kaolinite is the main fraction of these two and the chlorite content is estimated to be 2 - 3 percent of bulk volume.

b) Clay fraction (<2  $\mu\text{m}$ ). Cleaned samples were broken by hand and treated in ultrabath. The clayfraction was removed by sedimentation of material <2  $\mu\text{m}$  and filtered on milliporefilter.

The results are given in tab. II.

The clayfraction has the same minerals as bulk sample, but differ in percentage distribution. A crystalline kaolinite is the main clay fraction.

In tab. II kaolinite and chlorite are added, but the amount of chlorite is very low, approx. 0 - 5 percent.



MANOMETRIC CARBON DETERMINATION.

Organic and inorganic carbon in bulk samples were treated with acid, and the amount of CO<sub>2</sub>-gas detected manometric.

The results are given in tab. III where the amount of inorganic carbon is calculated as carbonate (calcite). The amount of organic carbon is approx. 0-1 percent.

CONCLUSION.

Quartz and kaolinite are the two main minerals in all samples analysed. Feldspar is usually between 10-20 percent - most K-feldspar. Mica/illite are maximum 5-10 percent with the exception of two samples. The total amount of mica/clayminerals (illite + kaolinite + chlorite + mixed layer) varies from 10 to 50 percent with an average of 25 percent.

Traces of pyrite are present in all samples. The calcite amount probably occur from shellfragments.

TAB. I. SEMIQUANTITATIVE ANALYSIS BY XRD.



| Sample  | Illite | Kaolinite<br>Chlorite | Mixed<br>layer<br>10-14Å | Quartz | K-Feldspar | Plagio<br>clase | Calcite | Pyrite |
|---------|--------|-----------------------|--------------------------|--------|------------|-----------------|---------|--------|
| 1543.4  | 5      | 10                    |                          | 60     | 15-20      | 0-5             | trace   | 0-5    |
| 1544.1  | 5-10   | 20-25                 | trace                    | 55     | 5-10       |                 | 0-5     | 0-5    |
| 1544.6  | 10     | 10-15                 |                          | 50     | 25         |                 | 0-5     | 0-5    |
| 1545.0  | trace  | 10-15                 |                          | 65     | 20-25      |                 |         |        |
| 1563.85 | 10     | 10-15                 |                          | 60     | 10         | 5-10            | 0-5     |        |
| 1564.2  | 10     | 5-10                  |                          | 70     | 10-15      |                 | 0-5     | 0-5    |
| 1565.6  | 0-5    | 15-20                 |                          | 70     | 10         |                 |         |        |
| 1598.7  | 5-10   | 10                    |                          | 65     | 15-20      |                 | trace   |        |
| 1601.0  | 0-5    | 20                    |                          | 55     | 5-10       |                 | 0-5     | 0-5    |
| 1601.8  | 0-5    | 10-15                 |                          | 55     | 5-10       |                 | 10      | 0-5    |
| 1604.8  | trace  | 5-10                  |                          | 90     |            |                 | 0-5     |        |
| 1605.1  | 5      | 10                    |                          | 55     | 30         |                 | 0-5     | 0-5    |
| 1605.35 |        | 10-15                 |                          | 70     | 15         |                 | 0-5     |        |
| 1607.2  | 5      | 25                    |                          | 45     | 15         |                 | 5       | 0-5    |
| 1608.3  | 0-5    | 0-5                   |                          | 65     | 20         |                 | 0-5     | 0-5    |
| 1608.6  | 10     | 20                    |                          | 70     |            |                 | 0-5     | 0-5    |
| 1610.4  |        | 5-10                  |                          | 80     | 10         |                 | 0-5     | 0-5    |
| 1613.1  | trace  | 10                    |                          | 80     |            |                 | 5-10    | 0-5    |
| 1616.2  | 5-10   | 20-25                 |                          | 55     | 5          |                 | 5       | 0-5    |
| 1618.9  | 10     | 20-25                 | 0-5                      | 55     | 10         |                 | 0-5     | 0-5    |
| 1620.1  | 5-10   | 15-20                 | 0-5                      | 60     | 5-10       | 0-5             | 0-5     | 0-5    |
| 1621.1  | 10     | 20-25                 | 0-5                      | 45     | 10         |                 | 0-5     | 0-5    |
| 1623.3  | 10     | 30                    |                          | 50     |            | 5               | 5       | 0-5    |
| 1626.3  | 5-10   | 20                    | 0-5                      | 60     | 10         |                 | 0-5     | 0-5    |
| 1629.6  | 15-20  | 25                    |                          | 40     |            | 10-15           | 0-5     | 0-5    |
| 1634.1  | 5      | 25                    |                          | 50     | 15-20      |                 | trace   | 0-5    |
| 1638.3  | 5      | 30                    | trace                    | 50     | 5-10       |                 | 0-5     | 0-5    |
| 1642.3  | 10     | 35-40                 | trace                    | 30     | 20         |                 | 0-5     |        |
| 1645.4  | 10-15  | 25-30                 | trace                    | 30     | 15-20      |                 | 0-5     |        |
| 1648.6  | 10     | 25                    | trace                    | 45     |            | 15              | 0-5     |        |





TAB. III. ORGANIC AND INORGANIC CARBON (CARBONATE) BY  
MANOMETHRIC METHODE.

| Sample  | Calcite<br>o/o | Organic carbon<br>o/o |
|---------|----------------|-----------------------|
| 1543.4  | 0.5            | 0.14                  |
| 1544.1  | 4.25           | 0                     |
| 1544.6  | 3.17           | 0                     |
| 1545.0  | 0              | 0                     |
| 1563.85 | 1.33           | 0                     |
| 1564.2  | 1.75           | 0.01                  |
| 1565.6  | 2.58           | 0.19                  |
| 1598.7  | 0.75           | 0.35                  |
| 1601.0  | 3.17           | 0.37                  |
| 1601.8  | 9.58           | 0.62                  |
| 1604.8  | 1.50           | 0.22                  |
| 1605.1  | 1.08           | 0.32                  |
| 1605.35 | 0.97           | 0.21                  |
| 1607.2  | 4.50           | 0.61                  |
| 1608.3  | 1.67           | 0.49                  |
| 1608.6  | 2.58           | 0.33                  |
| 1610.4  | 0              | 0.54                  |
| 1613.1  | 5.42           | 0.40                  |
| 1616.2  | 3.50           | 0.51                  |
| 1618.9  | 1.58           | 0.38                  |
| 1620.1  | 2.25           | 0.42                  |
| 1621.1  | 0.92           | 0.50                  |
| 1623.3  | 4.83           | 0.29                  |
| 1626.3  | 1.0            | 0.63                  |
| 1629.6  | 2.75           | 0.69                  |
| 1634.1  | 0.67           | 0.96                  |
| 1638.3  | 1.00           | 0.81                  |
| 1642.3  | 1.25           | 0.66                  |
| 1645.4  | 0.75           | 0.72                  |
| 1648.6  | 0.25           | 0.33                  |