Relation of Natural Gas Occurrences to Lineaments, South Dakota

R.F. Bretz* and G.W. Shurr**

1981

This map presents a preliminary and ongoing study of the relation of natural gas occurrences to lineaments in the state of South Dakota. It is published as a general exploratory tool for industry gas and oil exploration.

The map is a companion to Bretz (1981), which gives information on the well locations plotted here. The majority of the natural gas occurrences shown here are methane and higher gases, but a few are hydrogen sulfide, kerosene, and other nonhydrocarbon gases.

Lineament Classification

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>Linear trends best developed and confirmed by well data.</td>
</tr>
<tr>
<td>Class II</td>
<td>Linear trends developed but not confirmed by well data.</td>
</tr>
<tr>
<td>Class III</td>
<td>Linear trends suggestive of gas potential.</td>
</tr>
<tr>
<td>Class IV</td>
<td>Linear trends not indicative of gas potential.</td>
</tr>
</tbody>
</table>

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The lineaments shown belong to four classes, as follows:

Class I lineaments were seen by two workers on Landsat MSS images of South Dakota.

Class II lineaments were seen by two workers on Landsat MSS images of South Dakota.

Class III lineaments were seen by one worker on Landsat MSS images of South Dakota.

Class IV lineaments were seen by one worker on Landsat MSS images of South Dakota.

Further lineament refinement is provided by showing only those with geometrical values or vertical-intensity magnetic map of the State (Petig, 1984). The lineaments shown represent preliminary analysis of both enhanced and nonenhanced images and are being continually refined. This is an expansion of work done in western South Dakota (Shurr, 1978) which includes the rationale and justification for employing lineaments as an exploratory tool was explained.

Lineament analysis of Landsat images supplied by Terri Erickson and William Larson, former St. Cloud State University, Wisconsin, students, is gratefully acknowledged.

REFERENCES

