

MAR 19680043: FORT VERMILION

Received date: Dec 31, 1968

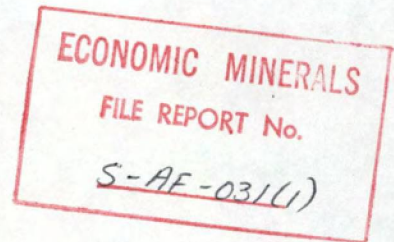
Public release date: Jan 01, 1970

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GEOLOGICAL REPORT



SULPHUR PROSPECTING PERMIT NO. 31

FORT VERMILION AREA

Township 111, Range 6, West of the 5th Meridian

SULPHUR PROSPECTING PERMIT NO. 31

Location

Permit No. 31 is in the vicinity of Twp. 111, Range 6, west of the 5th Meridian. (See Geological Map) It consists of 31 sections or approximately 19,840 acres. *↳ Map No. 1*

General Geology

In this area Devonian rocks are overlain unconformably by Cretaceous shale. Erosion has exposed the Devonian in the lower areas, while the hills are composed of Cretaceous shales. The Devonian has a gentle regional dip to the southwest, so the subcrop trend is roughly northwest.

The Grosmont dolomite, a porous rock unit, has its northwestern limit along a line trending northeasterly through Township 108, Range 7, West of the 5th Meridian. Its subcrop-outcrop edge trends northwesterly through Township 104, Range 4, West of the 5th Meridian.

Sulphur Occurrence

The original discovery of sulphur in this area was in Township 110, Range 5, West of the 5th Meridian (Sulphur Permit #18). This sulphur is probably the key to understanding sulphur deposits elsewhere in the area.

A trench in Lsd. 11-8-110-5 West of the 5th Meridian is thought to be the showing on which the original discovery is based.

The trench is about two feet wide, four feet deep, and 80 feet long and trends N 26 deg. W. The trench is on a bulldozed line

about 500 feet long that appears to have been cut for geophysical purposes. The ground is a level bench that is a few feet higher than land to the east and south. It is covered with small second-growth poplar and birch trees. The trench is on glacial drift consisting of clay with scattered small cobbles. The weighted average percentage grade of sulphur by volume in the trench is about 17%. The highest assay comes from a small pit, about 25 feet west of the main trench, where the ground is about 90% sulphur by volume. The sulphur occurs as flour-like, imperfect, stubby crystals, about 25 microns in length that are scattered through the clay.

A test hole drilled nearby struck a small amount of sour inflammable gas at about 35 to 50 feet. The gas could be heard bubbling up through the water at the bottom of the hole. This association of shallow gas (probably from the Grosmont) and native sulphur seems too close to be coincidental and therefore is assumed to have genetic significance. Hydrogen sulphide can be oxidized to elemental sulphur by atmospheric oxygen. Therefore precipitation of native sulphur in the soil and subsoil is a possibility if sour gas leaked to the surface from an imperfectly sealed trap.

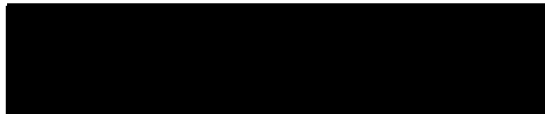
Details of Permit No. 31

Permit No. 31 is on the south slope of the Caribou Mountains; it is heavily timbered and lacks well defined drainage. Since the Caribou Mountains are composed of Cretaceous rocks, a fairly thick Cretaceous cover is present in the northern part of this permit. The southern part of this permit is underlain by tight Hay River limestone. The porous Grosmont dolomite is present about three or four miles south.

Conclusions

Because of thick Cretaceous cover and the distance to the Grosmont dolomite, permit No. 31 seems, in our opinion, to be unattractive for this type of sulphur deposit. We have therefore chosen to drop this permit.

Respectfully submitted,



H. R. HOVDEBO
Professional Geologist, Alberta

1968 0043

SULPHUR PROSPECTING PERMIT NO. 31

BLACKHAWK EXPLORATION LTD.,
301 BLOW BUILDING,
CALGARY, ALBERTA

DATE OF ISSUE - DECEMBER 7, 1967
AREA - 19840 ACRES

TP. 111

845/10

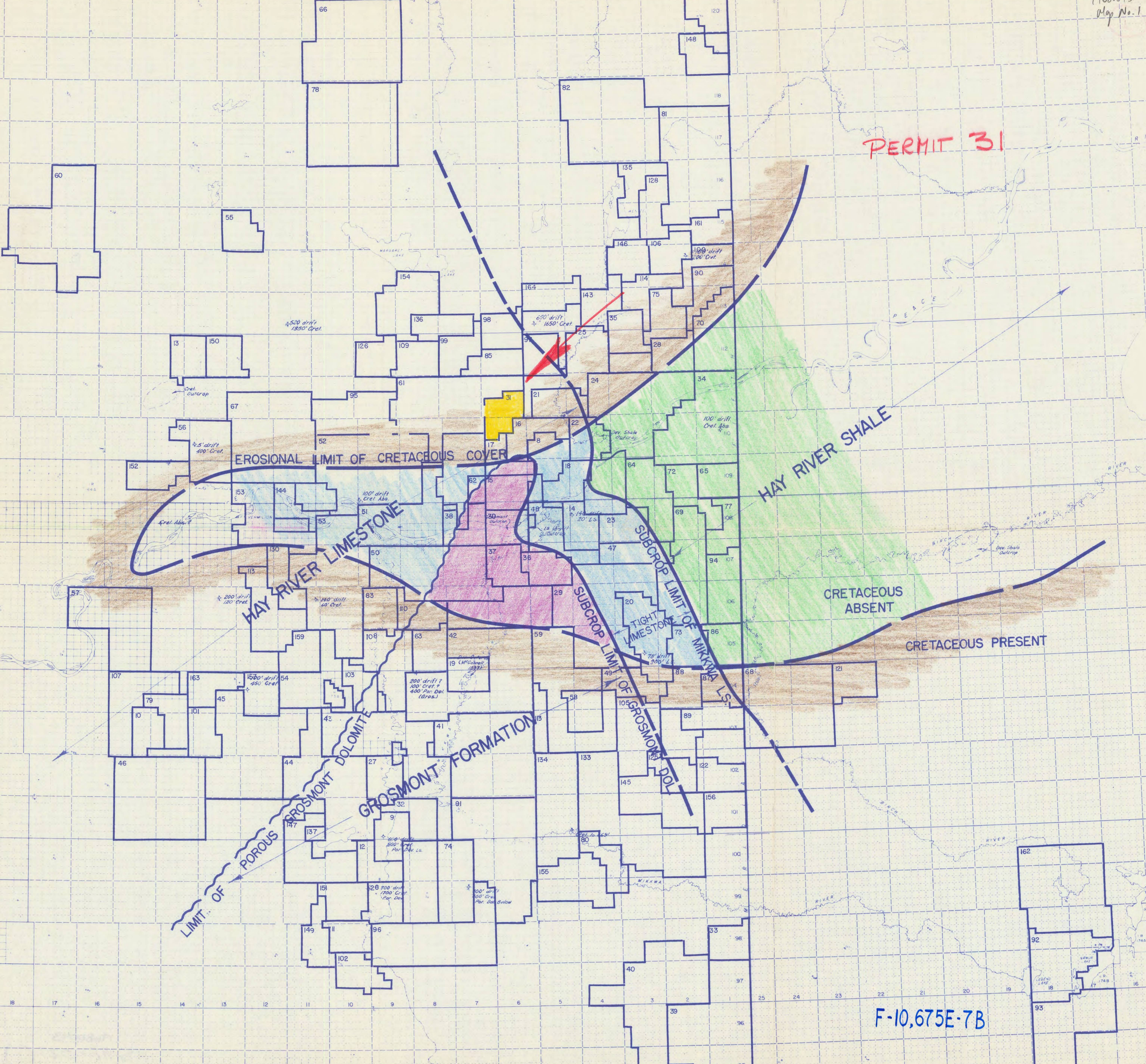
TP. 110

TP. 109

R. 6

R. 5 W. 5 M.

PERMIT 31



F-10,675E-7B