w#30428

GEOLOGICAL NOTES

In a simple classification rocks may be grouped into three divisions: (1) sedimentary, (2) igneous, and (3) metamorphic. In Iowa only sedimentary rocks are found in place at the surface except in the extreme northwestern corner of the state and only the deeper drill holes encounter anything but sedimentary formations, except as boulders, etc., in the drift.

Sedimentary rocks.—Sedimentary rocks are formed of grains worn from older rocks by the action of rain, wind, frost, ice, etc. Such materials were carried by water, glaciers or wind until deposited as beds of clay, sand, gravel, marl, loess, etc. Other deposits consist largely of corals, or of shells, such as oysters and clams. When first deposited the materials are loose and unconsolidated, but they become gradually hardened and cemented together, especially when covered by later beds, and form solid rocks, such as limestone, shale, sandstone, etc.

Igneous rocks.—Igneous rocks have come from the earth's interior in a moulton state and have forced their way between other rocks or have overflowed as lava beds at the surface. They are nearly all more or less crystalline in texture. In Iowa they occur only as boulders in the glacial drifts, and have been carried here from distant points by the glaciers.

Metamorphic rocks.—Sedimentary and igneous rocks which have been changed or altered by heat, pressure or solutions or a combination of these are known as metamorphic rocks. Quartzites, schists and gneisses are examples.

Rocks of different ages.—Rocks of the types indicated above occur the world over. Those from one locality often cannot be distinguished by ordinary means from those of another, although actually there may be a great difference in age and a wide variation in the conditions of formation. One cannot say, therefore, that because a rock in Iowa has the same composition as an oil-bearing rock in Texas the Iowa rock is the same age and will yield oil.

Fossils.—Remains of animals and plants are often found in sedimentary rocks. These generally consist of portions or impressions of shells, skeletons, or leaves, and are known as fossils. A bed can frequently be recognized and its age determined by fossils. It is of great importance that all fossils be saved. The Survey will be glad to identify these for well owners or drillers.

Definition of a formation.—A rock or succession of rocks possessing a uniformity of character throughout a considerable area is termed a formation and is given a name, such as St. Peter sandstone, etc. The impotance of identifying these is great and their identification will be considerably facilitated by the preservation of accurate samples.

Structure.—When deposited sedimentary beds are nearly horizontal. Later they have often been moved into inclined positions, or bent into wave-like folds, the arches of which are known as **anticlines** and the troughs as **synclines**. When the beds are further disturbed they may become broken and the different parts displaced or **faulted** from their original position. The slope of the beds is known as the **dip**, and the direction in which they extend or would crop out on a horizontal surface, is known as the **strike**. The direction of strikes and dips are of importance in studying the occurrence of water and oil and should be recorded whenever possible. In Iowa the angles of dip are usually very small.

Well #1

WELL RECORD

Well is located 2 miles N E S (W) and ______ miles N E S W from

Greenfield (Nearest Town) in Adair (County),

in the NE ¼ ______ ¼ Sec. 14 T. 75N R. 32W

Owner City of Greenfield Well No. ~~2~~ 1

Postoffice address Greenfield, Ia.

Contractor Ro-Banks, Inc.

Address R.R. 1, Box 7, St. Charles, Ia.

Driller David A. Pickar

Well begun 6-29, 1989;

completed 6-29, 1989

Rig used—Cable, Rotary, Jet, or Bucket

Depth of well 45' 2" (Feet)

Size of hole (note total amount of each size)

24" Gravel Packed

Main water supply at 32' (Feet below surface)

Final water head 11' 7" (Feet above or below surface)

Is well pumped? Yes

Yield 110 gpm (Gallons per minute)

Water level when pumping 22' 6"

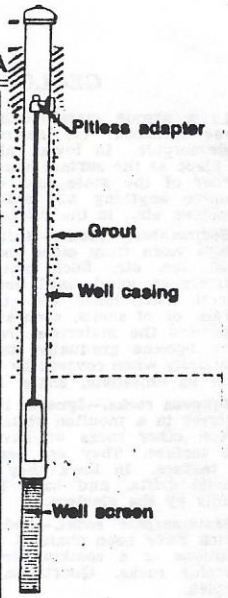
Position of well Valley (Upland, valley, side hill, etc.)

ıte and Time	Water Level	SOURCE OF WATER		Production in Gallons per Minute	Pumping Level
		Depth	Type of Rock		
		SEE ATTACHED REPORT			

NOTE: Water levels should be recorded at time of change AND at regular intervals; for example each morning before drilling starts or at the end of each 100 feet of drilling.

RECORD OF PERMANENT CA

Size Pipe	Amount of Pipe	Depth to Bottom of Pipe	Depth to Top of Pipe	Type* and Weight of Pipe
10"	30	33	3	.365 40.48 1



*As cast, wrought iron, steel, concrete, etc.

Is screen used? Yes Diameter 10 (Inches)

Length 8 (Feet) Depth to bottom 41

Depth to top 33 Slot size 70

Are packers or seals used? No

Kind _____

Where used _____

Kind of pump _____ Dia. _____ (Inches)

Capacity of pump _____ (g.p.m.)

Power used _____ (Kind and amount)

Depth to bottom of pump line _____ feet,

including _____ feet tailpiece.

Remarks on construction of well _____

_____