IP of 2,254 BOPD and 21.8 MMCFGD. Three wells are testing and only two wells are known dry holes.

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Structural Pattern of Eastern Part of Disturbed Belt of Montana

The eastern part of the disturbed belt of Montana is in the foothills east of the northern Rocky Mountains. The area studied extends about 190 km from Wolf Creek north to Browning, Montana. It is about 30 km wide in the northern and southern parts, narrowing to about 10 km in the central part. The eastern margin is bounded by a thrust fault or folds.

The eastern part of the disturbed belt contains four structural-stratigraphic subdivisions which are, from west to east: (1) thrust-faulted Jurassic and Lower Cretaceous mudstone and sandstone; (2) folded and locally thrust-faulted Upper Cretaceous mudstone; (3) Upper Cretaceous sandstone and mudstone that are imbricately thrust faulted in the northern part, complexly folded near the central part, and folded and thrust faulted in the southern part; and (4) folded and locally thrust-faulted Upper Cretaceous thin sandstone and thick mudstone. The latter is absent in the central parts.

Structural trends change from northwest in the northern part of the area, to due south in the central part, and southeast in the southern part.

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Geology and Structural Control of Geothermal System at Roosevelt Hot Springs KGRA, Beaver County, Utah

The Roosevelt Hot Springs KGRA is located in the Basin and Range province along the western flank of the Mineral Mountains. It is within the Wah Wah–Tusher mineral belt which has been the locus for rhyolitic intrusive and extrusive activity through Tertiary and into Quaternary time. The area is just east of the Sevier (Cretaceous) thrust belt and is near the margin of the Intermountain seismic belt. Geologic mapping has identified three metamorphic and plutonic units of Precambrian age, nine intrusive phases of the Tertiary Mineral Mountains pluton, three Pleistocene rhyolitic extrusive phases, and siliceous hot spring deposits of relatively recent age. Cuttings from exploration holes indicate that the Precambrian and Tertiary crystalline rocks host the present geothermal system.

The structure of the area is dominated by low-angle normal faults (denudation faults) which dip to the west. The hanging wall of the principal denudation fault was intensely brecciated during the fault episode forming steep fault zones which generally strike northwest. Both these low- and high-angle fault zones show the development of intense, silicified mylonites. Adjacent to these mylonite zones, the crystalline rocks are highly fractured. East-west and northeast-trending high-angle faults cut the denudation faults and channel much of the recent hot-spring activity.

The geothermal system is a high-temperature, water-dominated resource which is probably related to an igneous heat source. The low primary permeability of the reservoir rocks and the location of the geothermal field indicate structural control of the system. The reservoir geometries and permeabilities result from the intersections of the principal fault systems.

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Petrology of Tertiary Sandstones of Southern Piceance Creek Basin, Colorado—Implication for Provenance and Depositional Processes

Comparative petrographic analyses of channel-form and tabular sandstone bodies in the upper Wasatch Formation (Paleocene-Eocene) and lower Green River Formation (Eocene) in the southern Piceance Creek basin show that compositional and textural variability is primarily a reflection of provenance and the environment of deposition.

Sandstones from the upper Wasatch Formation and lower Green River Formation are generally similar in texture and composition and have varying concentrations of (1) angular to well-rounded monocrystalline quartz grains, some with abraded overgrowths; (2) fresh and slightly altered potassic and sodic feldspars; and (3) volcanic lithic fragments, mostly andesite. Wasatch sandstones contain slightly more lithic fragments than those of the lower Green River, which are more quartzose. This difference is attributed to the fluvial mode of deposition of the Wasatch in contrast to the marginal-lacustrine nature of the Green River sandstones. Lacustrine sandstone also commonly contains accessory analcime and pyrite.

The sampled intervals of the Green River Formation permit an evaluation of the source terrane and its evolution during development of Lake Uinta. Paleocurrent data suggest that the sources for most of the sediment were on the south, southwest, and southeast. Petrographic similarities among the samples imply a relatively constant source terrane during deposition of the Green River Formation that was composed of Mesozoic and Paleozoic sedimentary rocks and late Mesozoic and early Cenozoic silicic volcanic and plutonic rocks.

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Petroleum Exploration in Younger Over Older Thrust Plates in Southeastern Idaho

West of the Paris and Putnam faults (Bear River and Portneuf Ranges, Idaho), thrust plates of younger strata overlie older with tectonic omissions as great as 7 km, in contrast to eastern foreland thrusts of older over younger strata with repetitions of about 6 km. Folds in the western plates are broad, open, and upright in contrast to tight asymmetric folds in eastern plates.

Three major thrust plates are recognized from extensive but incomplete mapping. (1) An uppermost and