| SYSTEM | SERIES | FORMATION | THICKNESS, IN FEET | |
|---|---|---|---|---|
| PENNSYLVANIAN | | Amsden formation | 23 | Limestone, gray, mottled brown, argillaceous; calcareous red siltstone and shale; angular chert; frosted quartz sand grains |
| | | | 20 | Limestone, light- and brownish-gray, dense, vuggy, stylolitic, oil-stained |
| | | | 27 | Limestone, light- to brownish-gray, dolomitic; small chert lenses; red shale partings near top; calcite-filled fractures |
| | | | 28 | Limestone, light-gray, dense, dolomitic; green shale and calcareous clay partings |
| | | | 23 | Limestone and dolomite breccia, reddish-gray; calcite cement |
| | | | 17 | Limestone, light-gray, dense; oil in large vugs |
| | | | 7 | Limestone breccia, cherty, dolomitic, light-gray, light-brown and white |
| | | | 25 | Limestone, light-gray, dense; chert nodules; vuggy zones |
| MISSISSIPPIAN | | Madison limestone | 64 | Limestone, medium- to light-gray, gray calcareous clay in stylolites; pinkish-gray zones; vuggy zones; lower 4 feet is dolomitic |
| | | | 52 | Limestone, dolomitic limestone, and dolomite; gray, dense, stylolitic; pyrite in vugs |
| | | | 104 | Limestone, gray; many vugs, 1 to 2 mm in diameter |
| | | | 63 | Limestone, dolomitic limestone, and dolomite, white to light-gray; two thin vuggy zones in limestone |
| | | | 50 | Limestone, light-gray, thin-bedded; thin oölitic beds containing vugs; oolites are 1/4 to 1 mm in diameter; fossil fragments |
| | | | 20 | Limestone, gray and purplish-gray, massive; vuggy |
| | | | 10 | Oölitic limestone, gray; vuggy; oölites are 1/4 to 5 mm in diameter |
| | | | 28 | Limestone, reddish-gray; upper 2 feet and lower 4 feet dolomitic |
| | | | 8 | Oölitic limestone, light-gray, dense |
| | | | 18 | Limestone, gray, dolomitic, vuggy; disseminated pyrite crystals common |
| | | | 31 | Oölitic limestone, pinkish- to light-gray, dense; fossils; vuggy zones |
| | | | 30 | Limestone, gray, slightly dolomitic, vuggy; disseminated pyrite |
| | | | 20 | Limestone, light brownish-gray, dolomitic |
| | | | 45 | Limestone, light brownish-gray and gray, dolomitic; coarse angular chert; medium to coarse angular quartz grains and pyrite are common |
| | | | 40 | Limestone, gray; a slightly dolomitic zone containing pyrite crystals |
| | | | 10 | Limestone, gray; very fine to medium angular to subangular, polished and frosted quartz grains are common |
| | | | 30 | Limestone, gray and greenish-gray, slightly dolomitic; small vugs |
| | | | 20 | Limestone, gray, arenaceous, dolomitic; very fine angular polished quartz grains; cherty |
| | | | 55 | Limestone, gray, mottled, dolomitic; disseminated galena |
| | | | 25 | Limestone, gray and brownish-gray, dolomitic; shaly |
| | | | 50 | Limestone, gray, slightly to strongly dolomitic, arenaceous; fine to medium, subrounded to rounded, frosted quartz sand; gypsum (rare) |
| | | | 50 | Limestone, gray and brownish-gray, massive, dolomitic; vuggy |
| DEVONIAN | ? | Three Forks shale and Jefferson limestone (undifferentiated) | 70 | Limestone, gray, finely crystalline, argillaceous, slightly to moderately dolomitic; upper and lower 10 feet contain fine subrounded frosted quartz grains |
| ORDOVICIAN | ? Upper Ordovician | Bighorn dolomite | 55 | Limestone, light-gray, dense, hard, strongly dolomitic; cuttings are fine and flaky |
| | | | 20 | Limestone, gray, dense; grades from argillaceous at top to arenaceous, dolomitic and dense with conchoidal fracture at bottom; fine, angular to subrounded, polished quartz grains |
| | | | 55 | Limestone, light-gray, dolomitic; disseminated dolomite crystals |
| | | | 60 | Limestone, gray, mottled white and dark-gray, massive, hard, dolomitic; chert in nodules and small lenses; stylolitic; vugs with dolomite crystals |
| | | | 50 | Limestone, white to light-gray, dense, moderately dolomitic |
| | | | 30 | Limestone, white, dense, hard, moderately dolomitic |
| | | | 40 | Limestone, light-gray, mottled, dolomitic; vugs 1 mm and less |
| | | | 30 | Limestone, gray, finely crystalline, sugary texture, dolomitic; lower 10 feet is brown |
| | | | 110 | Limestone, gray, finely crystalline, sugary texture; fossil fragments |
| CAMBRIAN | Upper Cambrian | Gallatin limestone | 20 | Limestone, gray, sandy texture |
| | | | 10 | Limestone, medium- to light-gray, finely crystalline, flaky; disseminated pyrite common; glauconite abundant; fragments of dark-green fissile calcareous shale |
| | | | 195 | Limestone, gray, finely crystalline, sandy texture; abundant glauconite; disseminated pyrite |
| | Middle Cambrian | Gros Ventre formation | 235 | Shale, greenish-gray and dark-green, calcareous; fissile; disintegrates rapidly in water; transparent mica (muscovite?) flakes common; fossils; silt in upper 20 feet |
| | | | 80 | Shale, dark-green, fissile, micaceous; disintegrates rapidly in water |
| | | | 80 | Shale, dark-green, fissile, micaceous (biotite and muscovite); very fine to fine, angular to subrounded, polished quartz grains; interlaminated calcite lenses less than 1 mm in thickness; fossil fragments; pyrite and calcite in small concretions |
| | | | 60 | Shale, dark-green, calcareous, fissile; fossils |
| | | | 160 | Shale, dark-gray and greenish-gray, fissile, micaceous, arenaceous; very fine angular polished quartz grains; the lower 40 feet (cored) shows crumpling and alinement of mica flakes; moderate metamorphism |
| | | | 54 | Shale, dark-gray, fissile, crumpled, arenaceous; many lenses and stringers of light-gray very fine angular polished quartz sand that is slightly calcareous |
| | | | 146 | Shale, dark-gray, fissile, crumpled, arenaceous, micareous; lenses and thin stringers of calcareous sandstone; lenses of dolomitic limestone |
| PRE-CAMBRIAN | | | 30 | Shale, dark-gray, fissile, micaceous, arenaceous |
| | | | 10 | Shale as above and fragments of granite; 25 percent of sample consists of kaolinized feldspar fragments, reddish-brown schist fragments, iron-oxide-stained angular quartz fragments, and fragments of fresh biotite |
| | | | 10 | |
| | | | 20 | No sample, 4440 to 4450 feet |
| | | | | Granite, medium-grained biotite granite and fine-grained pink granite |

Samples examined were obtained from cuttings and as chips from a core:
Cuttings 2465 to 2985; 3100 to 4163; 4390 to 4440 feet
Core 1847 to 2465; 2985 to 3100; 4163 to 4390; 4450 to 4470 feet

GAMMA RAY — Radiation intensity increases →

SELF-POTENTIAL — Millivolts

RESISTIVITY — Ohms $m^2/m$

Normal
0 — 50
0 — 500
0 — 5000

NEUTRON — Radiation intensity increases →

DEPTH, IN FEET

-10+

End of run

Shift

Shift

1900
2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
3000
3100
3200
3300
3400
3500
3600
3700
3800
3900
4000
4100
4200
4300
4400

Total depth 4470 feet

EXPLANATION

- Limestone
- Dolomitic limestone
- Oölitic limestone
- Silty limestone
- Shaly limestone
- Sandy limestone
- Breccia
- Chert
- Shale
- Calcareous shale
- Silty shale
- Sandy shale
- Granite
- Oil stain
- Oil saturation

LOG OF LOWER FORMATIONS IN THE INLAND EMPIRE REFINERIES WELL 52–34, CROW TRIBAL, SOAP CREEK DOME, MONTANA

334328 O - 55 (In pocket) No. 2