



## FOCUSED DENSITY

Focused density surveys provide a continuous log of bulk formation density, using two or three shielded detectors in constant contact with the borehole wall. Algorithms use the detectors to compensate for borehole effects, such as wall rugosity, mudcake, and some casing influences.

The density probe contains a removable Cesium-137 gamma source and multiple Sodium Iodide scintillation detectors. A motor-actuated caliper keeps the shielded source and detectors in constant contact with the borehole wall, while also measuring borehole diameter. Gamma radiation that is back-scattered by the formation (Compton scattering) reaches the detectors, where formation density is inversely proportional to the gamma count rate. Calibrated measurements may be presented in grams/cm<sup>3</sup> or pounds/ft<sup>3</sup>.

COLOG utilizes advanced software that compensates for borehole effects, and if a matrix density is known, formation porosity may also be estimated. Engineering moduli can be calculated when density data is combined with the pressure-wave and shear-wave velocities from our Full-Waveform Sonic log.

Focused density probes can be fitted with short or long caliper arms to accommodate a wide range of borehole sizes; from small NQ drilled boreholes to large augured holes.

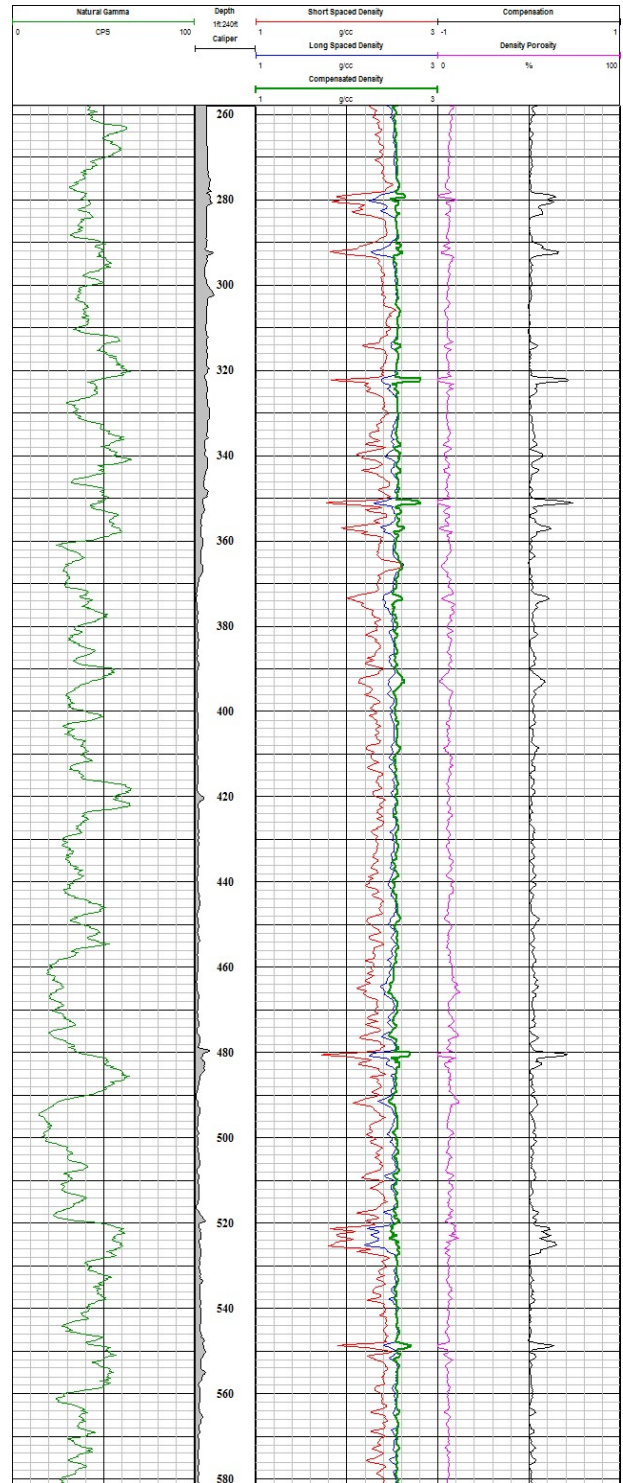


### APPLICATIONS:

- + Formation Density
- + Concrete Foundation Density
- + Casing Completion Evaluation
- + Formation Porosity
- + Engineering Moduli
- + Bed Resolution

### PROBE SPECIFICATIONS:

|                          |                                  |
|--------------------------|----------------------------------|
| Diameter:                | 50 mm (1.97 in.)                 |
| Length:                  | 3.02 m (9.91 ft.)                |
| Max Temperature Rating:  | 70°C (158°F)                     |
| Max Pressure Rating:     | 200 bar (2900 psi)               |
| Parameters Measured:     | Formation Density, Hole Diameter |
| Gamma Source:            | Cs <sup>137</sup>                |
| Gamma Detector:          | Nal (Ti) Crystal                 |
| Borehole Diameter Range: | 64 – 355 mm (2.5 – 14 in.)       |



### COLOG Regional Offices

corporate office  
833 Hog Back Drive  
Golden, Colorado 80403  
303-279-0171

southeast region  
Ocean Springs, MS  
256-424-5780

western region  
Elko, NV  
775-777-3433

southwest region  
Eloy, AZ  
480-236-6815

northeast region  
Hartford, CT  
203-666-1234

[www.colog.com](http://www.colog.com)