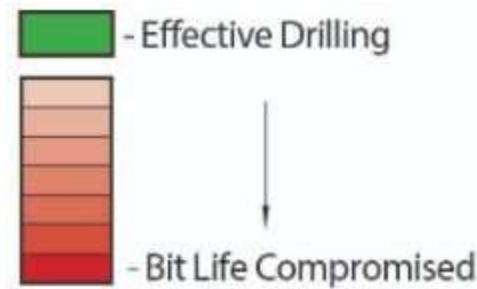
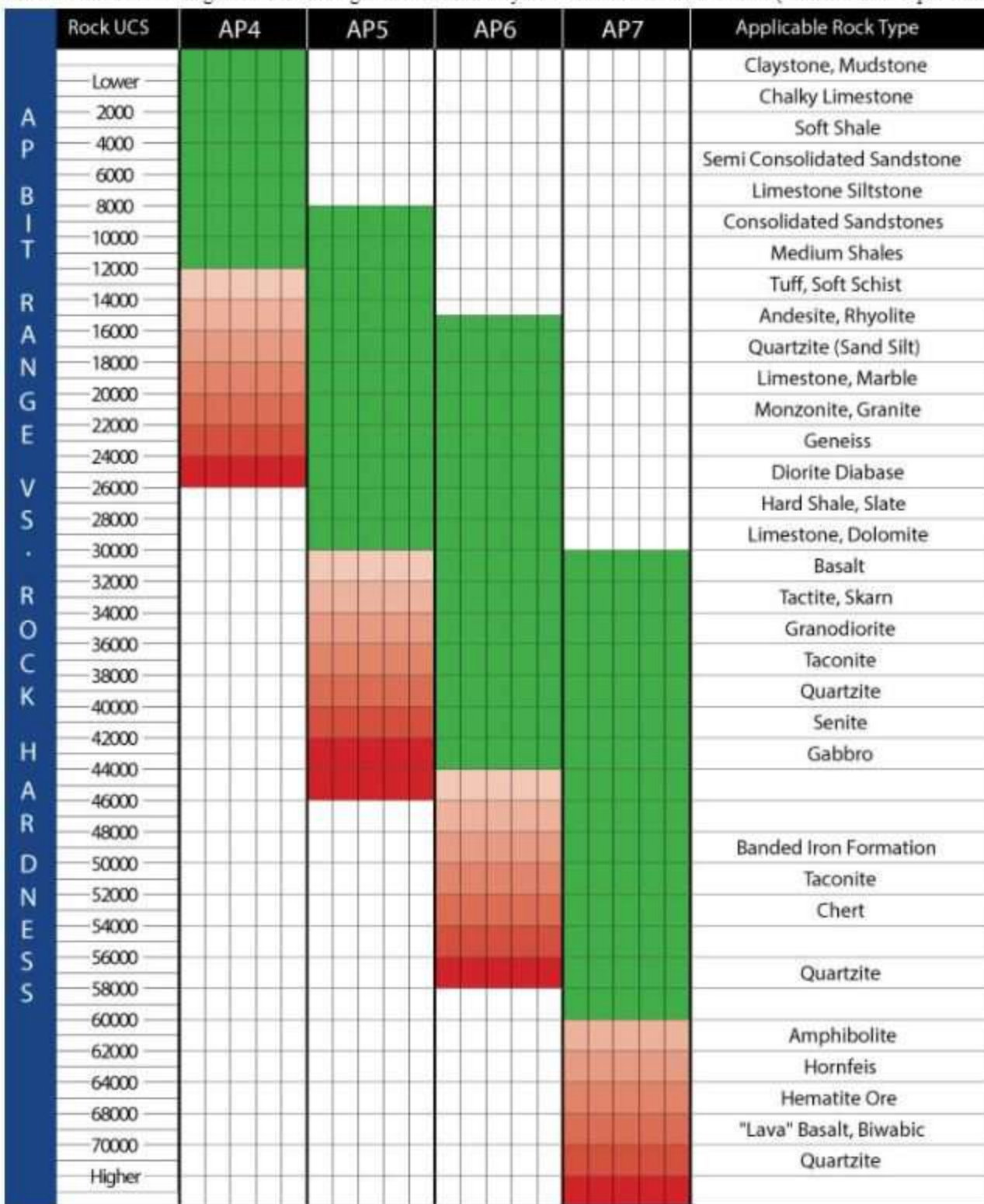


Please use this chart as a guideline as drilling conditions will vary from site to site and Rock UCS (Unconfined Compressive Strength) is only one factor that contributes to "drillability" of any rock.



AP	IADC Code	Bit Weight lbs/in	RPM
AP4	4.1 - 4.4	1000 - 5000	50 - 140
AP5	5.1 - 5.4	3000 - 6600	50 - 120
AP6	6.1 - 6.4	4000 - 7000	50 - 110
AP7	7.1 - 7.4	5000 - 8000	50 - 80

Other factors strongly influencing drillability are: fracture toughness, shear strength, young's modulus of elasticity, Poisson's ratio of stress vs strain, internal angle of friction. Rock variables must be considered when attempting to determine the best bit for overall life at optimum penetration rates. Other equally important factors affecting drilling performance are specific to the drilling equipment and operator. Notable items include: Driller experience and training, Compressor size and condition, Mechanical condition of the drill, pipe size and straightness, stabilizer size and condition, deck bushing size and condition, surface condition and overburden, sub surface blast fracturing, angle drilling, revolutions per minutes utilized, weight applied to bit, hole cleaning, water applied for dust control, lubrication provided for bit bearings, etc.