Wire ropes have many industrial applications, most of which are in difficult environments. The ropes are complex, consisting of a number of strands that are woven in specific patterns. The strands are also complex, consisting of a number of wires and a variety of diameters. The specific ropes being discussed are 3.5-inch (8.9-cm) diameter, 6 x 47 ropes with a right regular lay (RRL) and an independent wire rope core (IWRC). The individual wires are made of near-eutectoid carbon steel with a pearlitic microstructure that is heavily cold drawn, often with reductions up to 90 or 92%. After drawing, the wires are galvanized for corrosion protection, as these ropes are mooring ropes for oil drilling platforms in the ocean. The talk will show the microstructure, Zn coatings, and cross-sectional hardnesses of three similar size wire ropes made by different manufacturers.

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