Kenneth G. "Kenny" McPeek was born August 2, 1962 in Fort Chaffee, Arkansas and raised in Lexington, Kentucky. He graduated from Tates Creek High School and then the University of Kentucky with a Bachelor of Arts in Business Administration. In 1985 McPeek received his Thoroughbred Trainer's License. The most important race of his career was the 2002 Belmont Stakes, when Sarava, trained by McPeek and considered a longshot, won. This race was considered McPeek's big break. That year, he was voted the Big Sport of Turfdom Award by the Turf Publicists of America.

McPeek serves on the Boards of the University of Kentucky College of Agricultural Equine Program Advisory Committee, Thoroughbred Owners and Breeders Association (TOBA), and the National Horsemen's Benevolent and Protective Association (HBPA). He is a member of the New York Racing Association (NYRA) and The Cornell College of Veterinary Medicine Equine Veterinary Medical Director Search Committee.

McPeek has trained a number of successful racehorses. In 2002, he won the Belmont Stakes with Sarava. He has won back-to-back Spinster Stakes' with Take Charge Lady in 2002 & 2003 and back-to-back Gulfstream Park Breeder's Cup Handicaps with Hard Buck (BRZ) & Prince Arch in 2004 & 2005. Other Grade 1 victories include the Florida Derby, Ashland Stakes, Blue Grass Stakes, Dixiana Breeders Futurity and the Darley Alcibiades Stakes three times in his career. He has also trained all-time leading North American money earner Curlin, Dream Empress, Tejano Run, Golden Ticket, Harlan’s Holiday, Hard Buck (BRZ), Java’s War, Pure Fun, Repent, Take Charge Lady, Einstein, Prince Arch, Noble’s Promise, Kathmanblu and Rogue Romance, among others.

McPeek has won more than 174 stakes in his career, with 74 of them graded. Through May 1, 2017, he has 1,536 career wins with earnings of more than $71 Million.

In 2006, McPeek purchased the former Pillar Stud, a 115-acre farm, in Lexington, Kentucky which he renamed Magdalena Farm in honor of Magdalena Weber Shely (b. 6/2/1793), the original Matriarch of the land. The farm has an illustrious history, dating back to the revolutionary war. It has been home to many famous Thoroughbreds, including the 1959 Kentucky Derby winner Tomy Lee, who is buried on the grounds. Magdalena Farm has 23 turnout paddocks and multiple barns housing 63 stalls. McPeek had a golf course designer oversee the farm development, including the 2-mile European style turf training course complete with gradual slopes for optimum conditioning.

The office at Magdalena Farm is also the home base for McPeek Racing, Magdalena Racing Partnerships, and Horse Races Now.

McPeek has developed Horse Races Now, the comprehensive horse racing app. The app had been downloaded over 500,000 times.