DESCRIPTION OF UNITS

SEMINOLE FORMATION (Pennsylvanian, Missourian)—Formation consists of a lower sandstone member, middle argillaceous limestone, and an upper concretionary clayshale member. The lower sandstone member, the Tulsa Sandstone, is the most geologically significant and most productive sandstone in Oklahoma. It is commonly considered the base of the Oklahoma City Sandstone and is usually found from 90 to 100 ft above the formation's base. The middle argillaceous limestone member is typically less than 100 ft thick and consists of a variety of lithologies, including sandstone, siltstone, and mudstone. The upper concretionary clayshale member is the thickest part of the formation and consists of concretionary, silty clayshales, mudshales, and siltstones. The Tulsa coal also occurs within the Seminole Formation.

NELLIE BLY FORMATION (Pennsylvanian, Missourian)—Comprises a lower sandstone member and an upper mixed-lithology member. The lower sandstone member is typically from 10 to 20 ft thick and consists of a fine-grained sandstone that may correlate to the Cottage Grove Sandstone. The upper mixed-lithology member consists of a variety of lithologies, including sandstone, siltstone, and mudstone.

BIXBY FORMATION (Pennsylvania, Desmoinesian)—Complex sequence of silty and sandy rocks that includes the Clear Creek Sandstone, which is usually located from 90 to 100 ft above the formation's base. The Clear Creek Sandstone is a medium to coarse-grained sandstone that is typically 10 to 20 ft thick.

TULSA FORMATION (Pennsylvania, Desmoinesian)—Complex sequence of clayshales, laminated siltstones, and mudstones. The most prominent unit is the Avant Limestones, which are typically medium gray (N5) to medium light gray (N6), medium to locally thick bedded, algal lime mudstones separated by and an intervening interbedded sandstone and shale interval. The Avant Limestones vary from 1.5" to 6" thick; clayshale partings and thin (< 5" thick) intervals locally near top of shale intervals.

WAXY FORMATION (Pennsylvania, Desmoinesian)—Comprises a lower sandstone member and an upper mixed-lithology member. The lower sandstone member is typically from 10 to 20 ft thick and consists of a fine-grained sandstone that may correlate to the Cottage Grove Sandstone. The upper mixed-lithology member consists of a variety of lithologies, including sandstone, siltstone, and mudstone.

INTERMEDIATE MUNCEY FORMATION (Pennsylvania, Desmoinesian)—Comprises a lower sandstone member and an upper mixed-lithology member. The lower sandstone member is typically from 10 to 20 ft thick and consists of a fine-grained sandstone that may correlate to the Cottage Grove Sandstone. The upper mixed-lithology member consists of a variety of lithologies, including sandstone, siltstone, and mudstone.

MUNCIE CREEK SHALE (Pennsylvania, Desmoinesian)—A dark, organic-rich, laminated shale that is typically from 5 to 20 ft thick. The Muncie Creek Shale is a weakly cemented mudstone that contains a variety of lithofacies, including sandstone, siltstone, and mudstone. The Muncie Creek Shale is typically from 5 to 20 ft thick and consists of a variety of lithologies, including sandstone, siltstone, and mudstone.

AVANT LIMESTONES (Pennsylvania, Desmoinesian)—A complex sequence of lime mudstones separated by and an intervening interbedded sandstone and shale interval. The Avant Limestones vary from 1.5" to 6" thick; clayshale partings and thin (< 5" thick) intervals locally near top of shale intervals.

MUNCIE CREEK SHALE (Pennsylvania, Desmoinesian)—A dark, organic-rich, laminated shale that is typically from 5 to 20 ft thick. The Muncie Creek Shale is a weakly cemented mudstone that contains a variety of lithofacies, including sandstone, siltstone, and mudstone. The Muncie Creek Shale is typically from 5 to 20 ft thick and consists of a variety of lithologies, including sandstone, siltstone, and mudstone.

SPRINGFIELD FORMATION (Pennsylvania, Desmoinesian)—Comprises a lower sandstone member and an upper mixed-lithology member. The lower sandstone member is typically from 10 to 20 ft thick and consists of a fine-grained sandstone that may correlate to the Cottage Grove Sandstone. The upper mixed-lithology member consists of a variety of lithologies, including sandstone, siltstone, and mudstone.

HOGSHOOTER FORMATION (Pennsylvania, Desmoinesian)—Complex sequence of sandstone, siltstone, and mudstone. The Hogshooter Formation is typically from 5 to 20 ft thick and consists of a variety of lithologies, including sandstone, siltstone, and mudstone.