

Appendix 1 - Physical Characteristics of Rock Specimens

Specimen 20-Kc-CB - Coarse-grained sandstone

Poorly sorted mixture of predominantly dark- and light colored subangular coarse sand grains with lesser proportions of granules and pebbles; non-calcareous. Medium/thick bedding.

Specimen 19-Kws-CB - Very fine-grained sandstone

Bright white color; weathers to pale gray and pale tan; moderately sorted subangular grains in a matrix of poikilitic calcite cement; irregular packing ranging from a cement supported texture of grains completely separated from one another to clusters of a few grains with some corners and edges touching other grains to zones with a grain supported texture of closely packed grains with some silica cement as well as calcite cement; grains account for 71%, and calcite cement accounts for 29% of the total rock volume.

Specimen 18-Kgm-CB - Silty claystone

Dark gray rock breaks into irregular chunks with some brown striated surfaces; weathers to light gray color; non-calcareous; consists of clay with widely separated subangular coarse silt grains and some sand sized chert fragments and silty claystone fragments; Clay is predominantly montmorillonite and makes up 75% of the total rock volume.

Specimen 17-Kp-CB - Coarse-grained sandstone

Poorly sorted mixture of predominantly dark- and light colored subangular coarse and medium sand grains with lesser proportions of granules and pebbles; non-calcareous.

Specimen 16-Jmy-CB - Fine/medium-grained sandstone

Gray color, weathers to tan and yellow; moderately sorted subangular fine and medium sand grains in a matrix of poikilitic calcite cement; irregular packing ranging from a cement supported texture of grains completely separated from one another to clusters of a few grains with some corners and edges touching other grains to zones with a grain supported texture of closely packed grains with some silica cement as well as calcite cement; grains make up 77% and poikilitic calcite cement makes up 23% of the total rock volume. The bedding is medium to thick with coarse cross bedding.

Specimen 15-Jmy-CB - Very fine-grained sandstone

Gray color, weathers green and brown; moderately sorted subangular fine- and very fine-grained sand and coarse silt in a matrix of poikilitic calcite cement; predominantly a loosely packed cement supported texture with grains separated from one another or touching at relatively few corners and edges; poikilitic calcite cement (39%) and interstitial clay (5%) make up 44% of the total rock volume. Thinly bedded layers display thin irregular wavy laminations.

Specimen 14-Jmy-CB - Sandstone

Gray color; weathers brown and yellow; coarse textured rock; thick bedding with thick cross bedding; decomposes into fine sand grains; calcareous.

Specimen 13-Jmrb-CB - Very fine-grained sandstone

Pale gray color, weathers to shades of brown and red; moderately sorted subangular fine- and very fine-grained sand, and coarse and medium silt in a matrix of poikilitic calcite cement; predominantly a loosely packed cement supported texture with grains separated from one another or touching at relatively few corners and edges; poikilitic calcite cement (51%) and interstitial clay (1%) make up 52% of the total rock volume. Medium/thick bedding with irregular thick laminations.

Specimen 12-Jms-CB - Siltstone

Gray; poorly sorted angular grains ranging in size from clay through fine-, medium-, and coarse silt; moderately close packing with predominantly interstitial calcite cement which makes up 41% of the total rock volume. Thinly bedded with discontinuous subparallel thin laminations mostly ≤ 5 mm thick.

Specimen 11-Jms-CB - Fine/very fine-grained sandstone

Pale gray, weathers to shades of tan, brown, and red; moderately sorted subangular fine- and very fine-grained sand and coarse silt in a matrix of poikilitic calcite cement; loosely packed cement supported texture with grains separated from one another or touching at relatively few corners and edges with some small zones of closely packed grains; poikilitic calcite cement (30%) and interstitial clay (2%) make up 32% of the total rock volume. Medium bedding with thin discontinuous lamination.

Specimen 10-Jms-CB - Very fine-grained sandstone/coarse siltstone

Pale gray, weathers to shades of tan, brown, and red; moderately sorted subangular very fine-grained sand and coarse silt in a matrix of poikilitic calcite cement; loosely packed cement supported texture with grains separated from one another or touching at relatively few corners and edges with some small zones of closely packed grains; poikilitic calcite cement (44%) and interstitial clay (3%) make up 47% of the total rock volume. Medium/thick bedding with some cross laminations ≤ 10 mm thick.

Specimen 9-Jms-CB - Very fine-grained sandstone

Pale gray, weathers to shades of brown; moderately sorted subangular very fine-grained sand and coarse silt in a matrix of poikilitic calcite cement; loosely packed cement supported texture with grains separated from one another or touching at relatively few corners and edges with some small zones of closely packed grains; poikilitic calcite cement (39%) and interstitial clay (6%) make up 45% of the total rock volume; medium/thick bedding.

Specimen 8-Jms-TSS - Silty claystone

Pale brown, weathers pale yellow: subangular silt grains (23%), widely spaced in a matrix of clay (44%) and cryptocrystalline calcite (33%); scattered through the clay/calcite matrix are angular fragments of silty claystone the size of medium and coarse sand grains which appear very similar to the matrix except for subtle color differences; extending throughout the clay/calcite matrix is an irregular network of small fractures. The rock displays no lamination, and breaks into irregular equi-dimensional chunks less than a few cm in diameter.

Specimen 7-Jml-CB - Silty claystone

Gray, weathers pale green; subangular silt grains (20%) widely spaced in a matrix of clay (46%) and cryptocrystalline calcite (34%); scattered through the clay/calcite matrix are angular fragments of silty claystone the size of medium and coarse sand grains and larger granules which appear very similar to the clay/calcite matrix except for subtle color differences. The rock occurs in a 30cm thick layer which is unlaminated and breaks into irregular equi-dimensional chunks.

Specimen 6-Jml - Very fine-grained sandstone

Pale gray, weathers pale green with some reddish color on the lamination surfaces; moderately sorted subangular very fine-grained sand and coarse silt in a matrix of poikilitic calcite cement; loosely packed cement supported texture with grains separated from one another or touching at relatively few corners and edges with some small zones of closely packed grains; poikilitic calcite cement (39%) and interstitial clay (5%) make up 44% of the total rock volume; thin/medium bedding with thin cross laminations ≤ 10 mm thick.

Specimen 5-Jml-CB - Very fine-grained sandstone

Pale gray, weathers pale green with some reddish color on the lamination surfaces; moderately sorted subangular very fine-grained sand and coarse silt in a matrix of poikilitic calcite cement; loosely packed cement supported texture with grains separated from one another or touching at relatively few corners and edges with a few small zones of closely packed grains; poikilitic calcite cement (47%) and interstitial clay (6%) make up 53% of the total rock volume; thin/medium bedding with thin cross laminations ≤ 10 mm thick.

Specimen 4-Jml-CB - Very fine-grained sandstone

Pale gray, weathers pale green with some reddish color on the lamination surfaces; moderately sorted subangular very fine-grained sand and coarse silt in a matrix of poikilitic calcite cement; loosely packed cement supported texture with grains separated from one another or touching at relatively few corners

and edges with a few small zones of closely packed grains; poikilitic calcite cement (44%) and interstitial clay (10%) make up 54% of the total rock volume; thin/medium bedding.

Specimen 3-Jsd-TSS - Very fine-grained glauconitic sandstone

Pale gray, weathers to shades of pale green, red, and brown; moderately sorted subangular very fine-grained sand and coarse silt in a matrix of poikilitic calcite cement; loosely packed cement supported texture with grains separated from one another or touching at relatively few corners and edges; poikilitic calcite cement (29%) and interstitial clay (5%) make up 34%, and the glauconite fraction is 1% of the total rock volume; friable and thinly bedded fissile rock with cross laminations ≤ 5 mm thick.

Specimen 2-Jsd-TSS - Very fine-grained glauconitic sandstone

Pale gray, weathers to shades of pale green, red, and brown; moderately sorted subangular very fine-grained sand and coarse silt in a matrix of poikilitic calcite cement; loosely packed cement supported texture with grains separated from one another or touching at relatively few corners and edges; poikilitic calcite cement (39%) and interstitial clay (6%) make up 45%, and the glauconite fraction is 1% of the total rock volume. Friable and thinly bedded fissile rock with cross laminations ≤ 5 mm thick.

Specimen 1-Jsd-BSA - Fine-grained glauconitic sandstone

Pale gray, weathers to greenish gray; moderately sorted subangular fine-, and very fine-grained sand and coarse silt in a matrix of poikilitic calcite cement; loosely packed cement supported texture with grains separated from one another or touching at relatively few corners and edges; poikilitic calcite cement (32%) and interstitial clay (11%) make up 45%, and the glauconite fraction is 7% of the total rock volume; thinly bedded with subparallel laminations ≤ 5 mm thick.