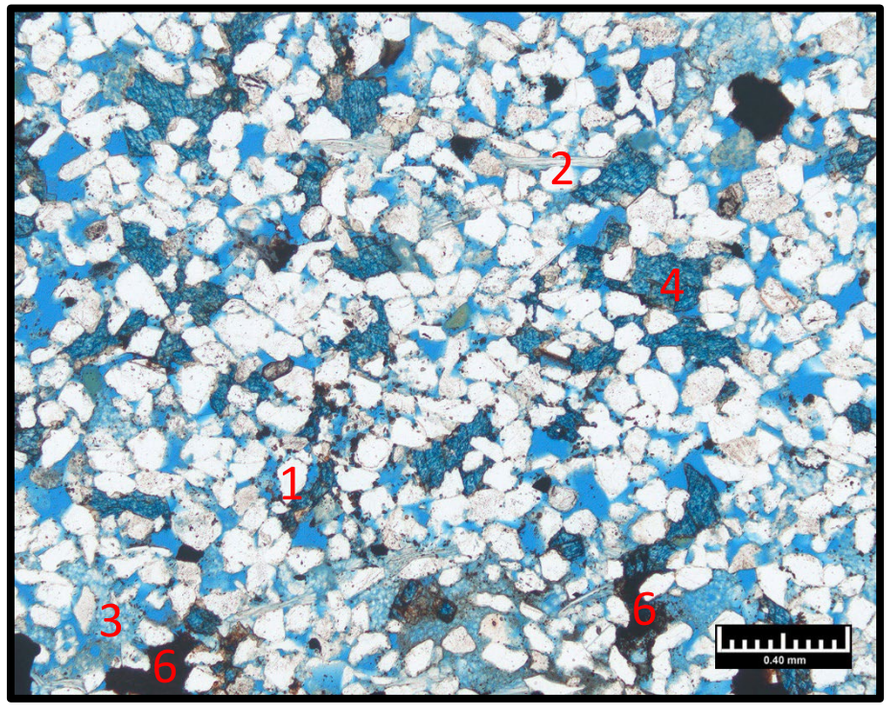
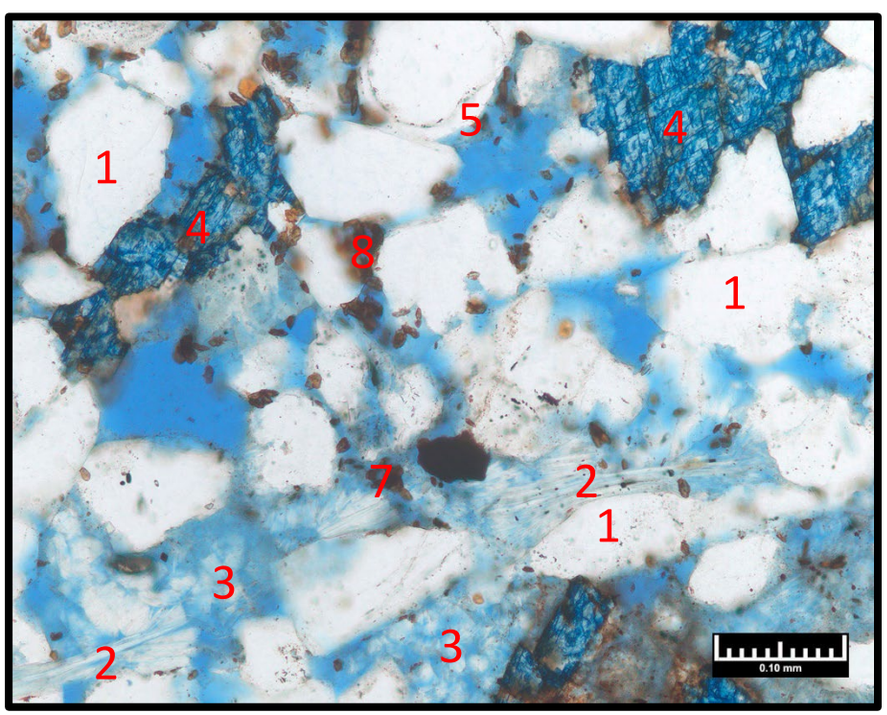
Strategic Biofuels LLC
Louisiana Green Fuels Well 001
Caldwell Parish
Onshore Louisiana

4918.30 FEET
Sample ID 3-8H
Thin Section C9

Project # HH-108056
Rotary Sidewall Core





ROCK NAME (Folk): Quartzarenite
SEDIMENTARY FABRIC: Massive to faintly laminated
GRAIN SIZE RANGE*: 0.02mm (medium silt) to 0.20mm (fine sand)
AVERAGE GRAIN SIZE*: 0.12mm (very fine sand)
ROUNDNESS*: Sub-angular to sub-rounded
SORTING*: Well
COMPACTION: Low to moderate; based on floating to longitudinal grain contacts

*Sand/silt portion only

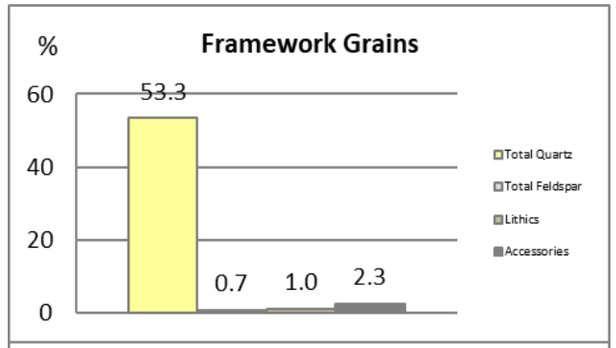
FRAMEWORK GRAINS/ALLOCHEMS:

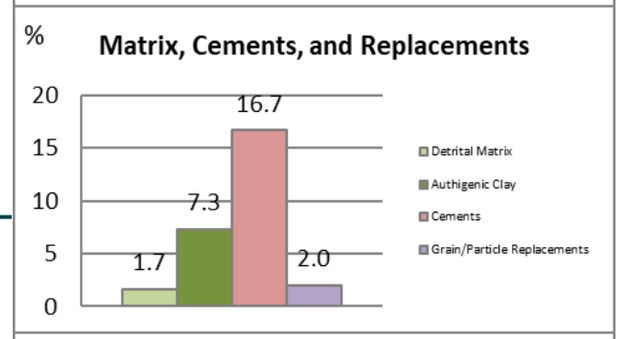
MAJOR: Monocrystalline quartz (50.0%)
MINOR: Metaquartzite (2.3%), muscovite (2.3%), polycrystalline quartz (1.0%)
ACCESSORY: Organic fragments (0.7%), plagioclase (0.7%), pseudomatrix from deformed mica fragments (0.7%), chert fragments (0.3%), glauconite (0.3%)
MATRIX: Minor inherited grain-coating/pore-lining (1.0%) and trace pore-filling disordered/infiltrated (1.0%) detrital clays

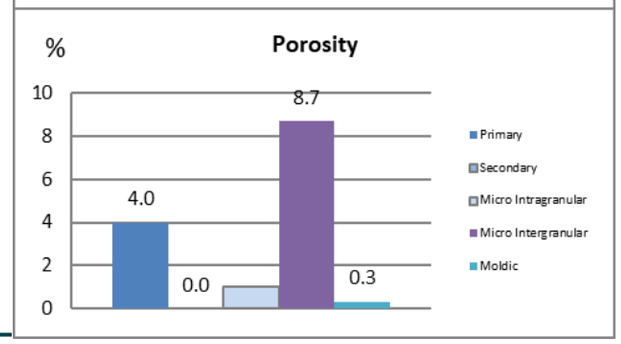
DIAGENESIS:

MAJOR:
Iron kutnohorite – Minor to common fine crystalline cement (7.7%)
Dickite – Minor to common authigenic booklets filling intergranular pores (6.7%)
Quartz overgrowths – Minor to common, poorly to well-developed and commonly coalescing (6.0%)

MINOR/ACCESSORY:
Residual Bitumen – Minor dead oil filling intergranular pores (1.7%)
Siderite – Minor replacement (1.7%) and rare pore-filling (0.7%) fine crystals
Iron kutnohorite – Rare microcrystalline to fine crystalline replacement of the matrix (0.3%)
Dickite – Rare authigenic booklets replacing unstable detrital grains (0.7%)







PORE TYPES:

Minor to common primary intergranular micropores mainly between detrital grains (<15µm; 8.7%). Minor primary intergranular pores (4.0%). Minor intragranular micropores within partially dissolved detrital grains (<15µm; 1.0%). Rare moldic pores (0.3%).

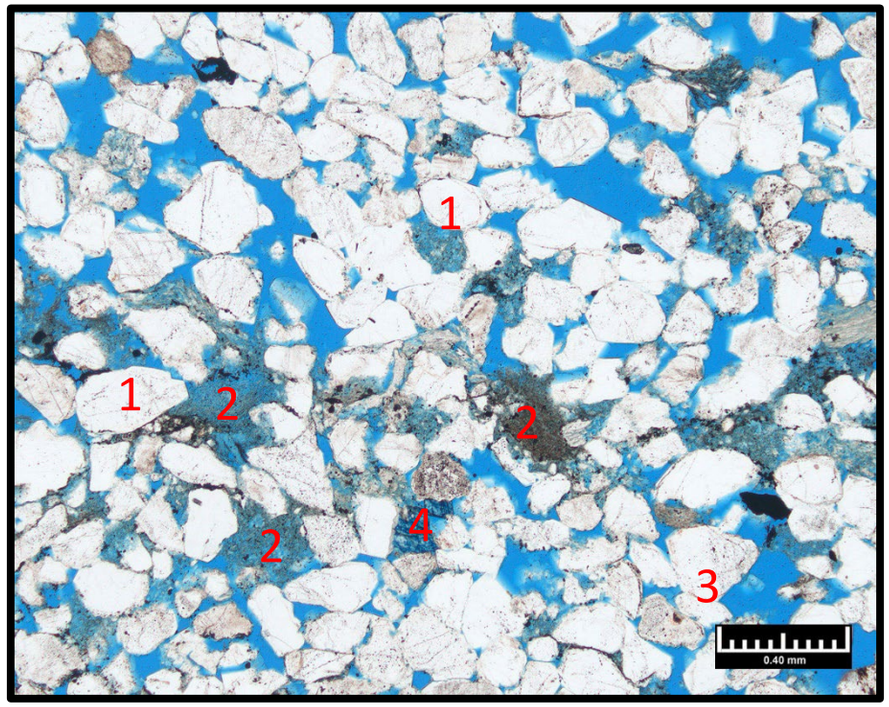
PETROGRAPHIC SUMMARY:

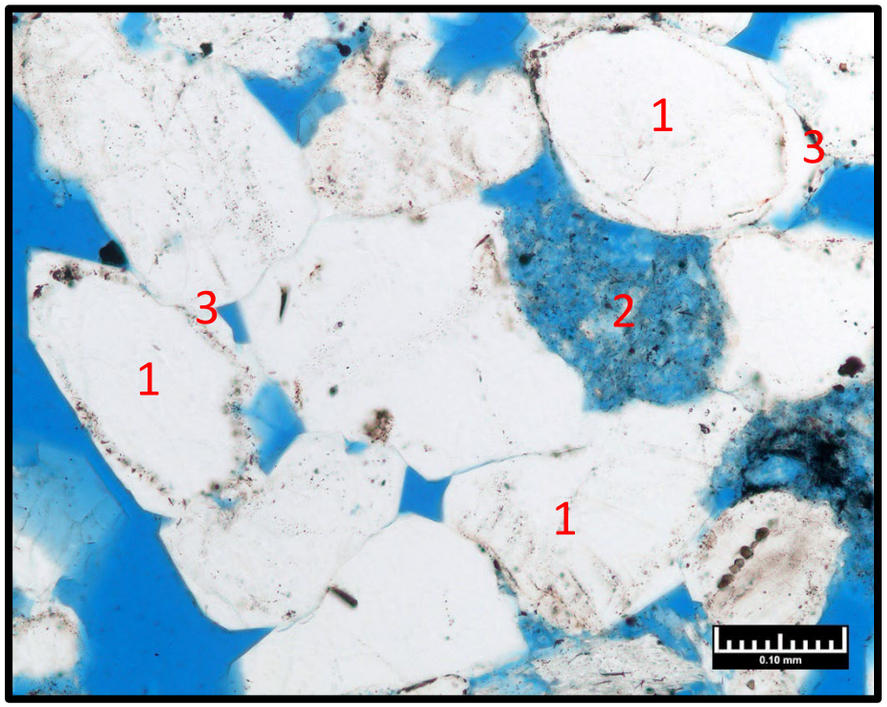
Photographs depict a massive to faintly laminated quartzose sandstone classified by Folk as quartzarenite. Detrital grains consist primarily of abundant monocrystalline quartz (1). Minor amounts of metaquartzite, muscovite (2), polycrystalline quartz, organic fragments, plagioclase, pseudomatrix from deformed mica fragments, chert fragments, and glauconite are additionally present. The detrital matrix consist primarily of minor grain-coating/pore-lining and trace pore-filling disordered/infiltrated detrital illite. The majority of the dickite content is present as minor to common authigenic booklets filling intergranular pores (3) and rare replacement of detrital grains. Other common cement types include minor to common fine crystalline iron kutnohorite rhombs (stained blue; 4) and poorly to generally well-developed quartz overgrowths (5). Minor dead oil (6) is present filling intergranular pores. Fine crystalline siderite is present as minor replacement of the iron kutnohorite rhombs, matrix, and detrital grains (7) and rare pore-filling crystals (8). Intergranular pores and micropores are minor to common (blue epoxy) and well preserved; however, these pores are poorly connected to neighboring pores where authigenic clays and cements are present, diminishing permeability.

Strategic Biofuels LLC
Louisiana Green Fuels Well 001
Caldwell Parish
Onshore Louisiana

5263.30 FEET
Sample ID 4-14-H
Thin Section C10

Project # HH-108056
Rotary Sidewall Core





ROCK NAME (Folk): Sublitharenite
SEDIMENTARY FABRIC: Massive to faintly laminated
GRAIN SIZE RANGE*: 0.02mm (coarse silt) to 0.45mm (medium sand)
AVERAGE GRAIN SIZE*: 0.20mm (fine sand)
ROUNDNESS*: Sub-angular to sub-rounded
SORTING*: Well
COMPACTION: Low to moderate; based on floating to longitudinal grain contacts

*Sand/silt portion only

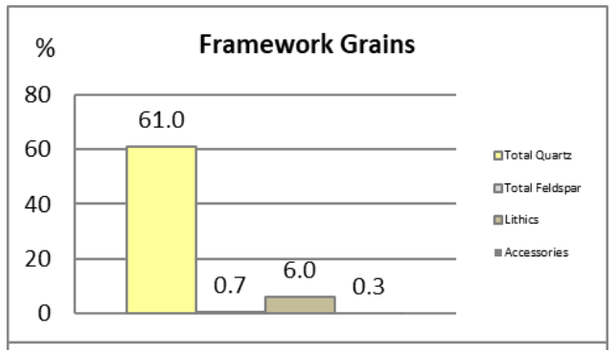
FRAMEWORK GRAINS/ALLOCHEMS:

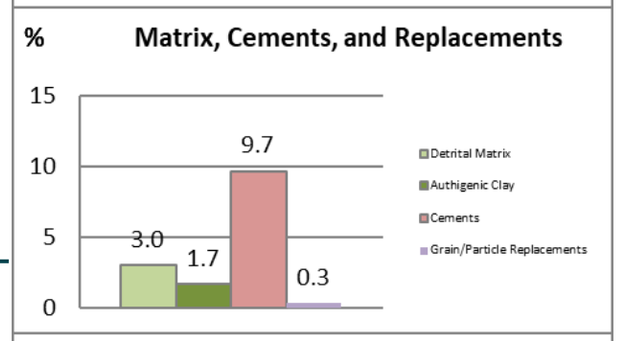
MAJOR: Monocrystalline quartz (57.3%)
MINOR: Chert fragments (2.3%), polycrystalline quartz (2.3%), pseudomatrix from deformed mica, metamorphic, and mudstone fragments (2.0%), metamorphic rock fragments (1.3%), metaquartzite (2.3%), muscovite (2.3%)
ACCESSORY: Plagioclase (0.7%), zircon (0.3%), organic fragments (0.3%), sandstone fragments (0.3%)
MATRIX: Minor inherited grain-coating/pore-lining (1.7%) and pore-filling disordered/infiltrated (1.3%) detrital clays

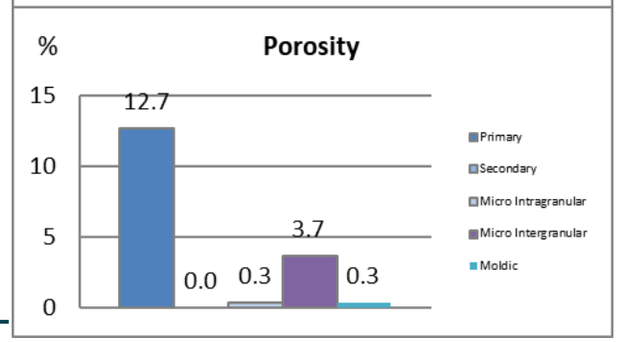
DIAGENESIS:

MAJOR:
Quartz overgrowths – Minor to common, generally well developed and commonly coalescing (9.0%)

MINOR/ACCESSORY:
Dickite – Minor pore-filling (1.3%) and rare grain-replacing (0.3%) authigenic booklets
Iron kutnohorite – Rare microcrystalline to fine crystalline cement (0.3%)
Residual Bitumen – Rare dead oil filling intergranular pores (0.3%)
Chert/Chalcedony – Rare replacement of the matrix (0.3%)







PORE TYPES:

Common primary intergranular pores (12.7%). Minor primary intergranular micropores mainly between detrital grains (<15µm; 3.7%). Rare intragranular micropores within partially dissolved detrital grains (<15µm; 0.3%). Rare moldic pores (0.3%).

PETROGRAPHIC SUMMARY:

Photographs depict a massive to faintly laminated, slightly lithic, quartzose sandstone classified by Folk as litharenite. Detrital grains consist primarily of abundant monocrystalline quartz (1). Minor amounts of chert fragments, polycrystalline quartz, pseudomatrix (from deformed mica, metamorphic, and mudstone fragments), metamorphic rock fragments, metaquartzite, muscovite, plagioclase, zircon, organic fragments, and sandstone fragments are additionally present. The detrital matrix consists primarily of minor grain-coating/pore-lining and pore-filling disordered/infiltrated (2) detrital illite mixed with rare to minor dickite. The majority of the dickite content is present as minor authigenic booklets filling intergranular pores and rare replacement of detrital grains. Quartz overgrowths represent the most common authigenic cement and are generally well-developed and coalescing (3), defined by iron-oxide clay rims. Iron kutnohorite cement is present but rare (stained blue; 4). Pore types include common primary intergranular pores, minor primary intergranular micropores, rare intragranular micropores within partially dissolved detrital grains, and rare grain moldic pores. Good porosity and minor to common cement volume generally results in good porosity but relatively low permeability