Thin Section Analysis Report

Sample ID:	H-6-00
Formation/Member Name:	Gordon
Lithologic Classification:	Sandstone
Depth/Depth Range:	2906 ft
Date of Analysis:	7/14/2017
Analyzed by:	L. Ditzler

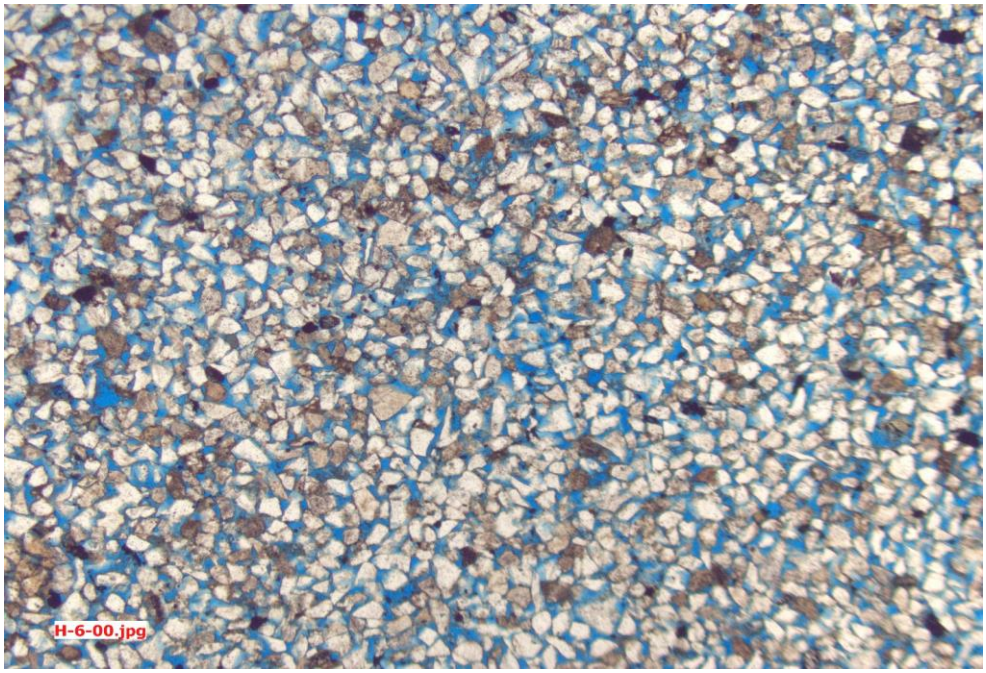
Texture		Comments
Grain Size	fine-grained, 177-250µ	
Rounding	Sub-angular to sub-rounded	
Sorting	well sorted	

Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline	4%	
Monocrystalline	86%	
Microcrystalline	5%	
Feldspar		
Plagioclase		2% total feldspar
Orthoclase		
Microcline		
Carbonate		
Calcite		
Dolomite		
Aragonite		
Clay		
Illite	<1%	total clay - skattered flakes and patches
Smectite		
Kaolinite		
Muscovite		
Chlorite	<<1%	
Glauconite		
Rock Fragments		
Sedimentary		
Volcanic		
Metamorphic		
Other (Accessory Minerals)		
	Zircon	very minor amount

Cementing Materials		Comments
Quartz		very poorly cemented
Feldspar		
Carbonate		
Clay	3%	
Iron Oxide, Hydoxide and/or Sulfide		
Other		

Visual Porosity Estimate	Comments
25%	primarily intergranular - evenly dispersed

25x magnification, 5mm field of view



Thin Section Analysis Report

Sample ID:	H-4-99
Formation/Member Name:	Gordon
Lithologic Classification:	Sandstone
Depth/Depth Range:	2894.9 ft
Date of Analysis:	7/14/2017
Analyzed by:	L. Ditzler

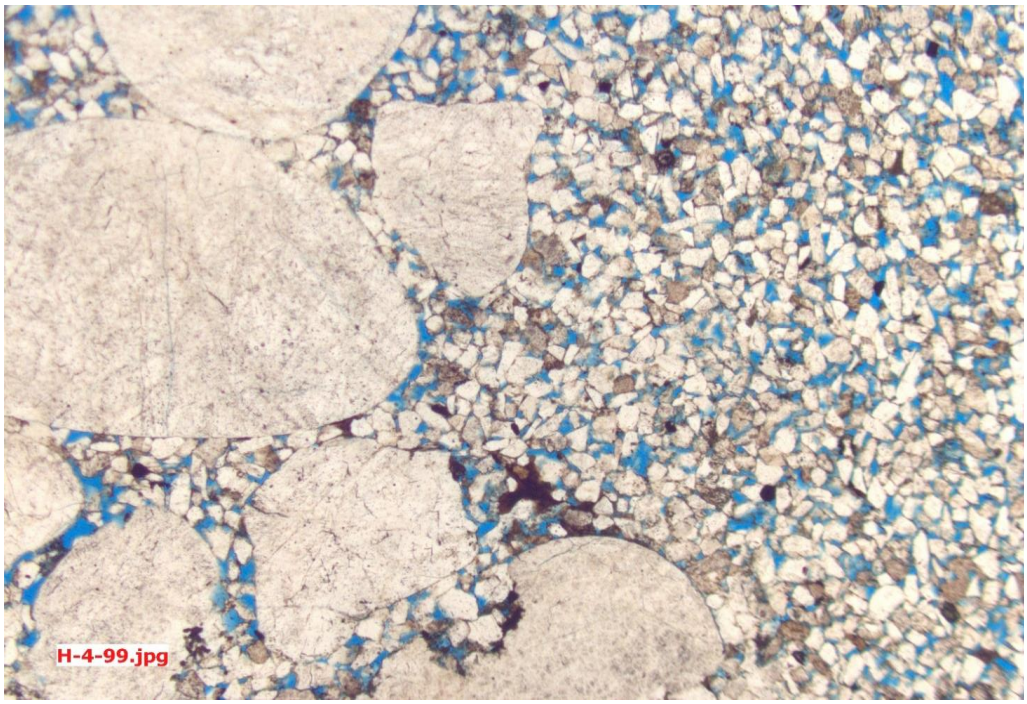
Texture		Comments
Grain Size	very-fine (88-125µ) to very-coarse (1410-2000µ)	some lamination based on grain size
Rounding	very-coarse grains are very well rounded while very-fine grains are sub-rounded to	
Sorting	poor	

Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline	3%	
Monocrystalline	90%	
Microcrystalline	3%	
Feldspar		
Plagioclase	1%	total feldspar
Orthoclase		
Microcline		
Carbonate		
Calcite		
Dolomite		
Aragonite		
Clay		
Illite		scattered grains
Smectite		
Kaolinite		
Muscovite	<1%	
Chlorite		
Glauconite		
Rock Fragments		
Sedimentary		
Volcanic		
Metamorphic		
Other (Accessory Minerals)		
	Zircon	very minor amount

Cementing Materials		Comments
Quartz		Poorly cemented
Feldspar		
Carbonate		
Clay	3%	
Iron Oxide, Hydoxide and/or Sulfide		
Other		

Visual Porosity Estimate	Comments
25%	primarily intergranular - evenly dispersed

25x magnification, 5mm field of view



Thin Section Analysis Report

Sample ID:	H-2-99
Formation/Member Name:	Gordon
Lithologic Classification:	Quartz Comglomerate
Depth/Depth Range:	2892.75 ft
Date of Analysis:	7/14/2017
Analyzed by:	L. Ditzler

Texture		Comments
Grain Size	very-fine (88-125µ) to granular (2-6mm)	
Rounding	well rounded to subangular	
Sorting	very-coarse grains are very well rounded while very-fine grains are sub-rounded to sub-angular	

Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline	43%	
Monocrystalline	40%	
Microcrystalline	2%	
Feldspar		
Plagioclase	2%	Total feldspar
Orthoclase		
Microcline		
Carbonate		
Calcite		
Dolomite		
Aragonite		
Clay		
Illite		Scattered grains of muscovite and minor biotite (<<1%)
Smectite		
Kaolinite		
Muscovite	<1%	
Chlorite		
Glauconite		
Rock Fragments		
Sedimentary		
Volcanic		
Metamorphic		
Other (Accessory Minerals)		

Cementing Materials		Comments
Quartz	<1%	some quartz overgrowths
Feldspar		
Carbonate		
Clay	1%	minor, scattered
Iron Oxide, Hydoxide and/or Sulfide	7%	
Other		

Visual Porosity Estimate	Comments
4%	both intergranular and within fractures in grains

25x magnification, 5mm field of view

