Thin Section Analysis Report

Sample ID:	LH-1-02
Formation/Member Name:	Gordon
Lithologic Classification:	Sandstone
Depth/Depth Range:	3136.75
Date of Analysis:	7/17/2017
Analyzed by:	Ellen Davis

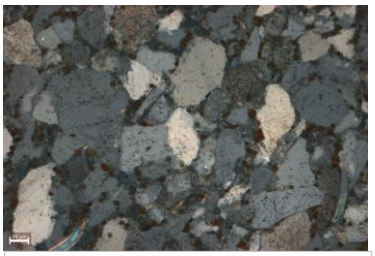
observed at 10x

Texture		Comments
Grain Size	50-200 µm, average grain size ~125 µm	
Rounding	subangular, subrounded	
Sorting	well sorted	

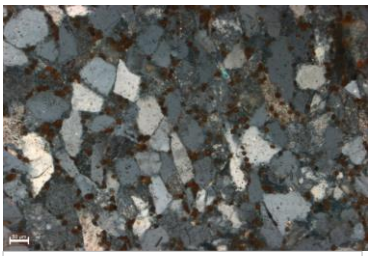
Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline	·some polycrystalline quartz present	
		images LH-1-02_0002 - LH-1-02_0005, LH-1-02_0007
Monocrystalline	~75% monocrystalline quartz ·smaller, subhedral grains ·not much overgrowth	
Microcrystalline	grains can be easily observed under petroscope	
	XN: black, white, gray PPL: light brown	
Feldspar		
Plagioclase	·albite twinning present	image LH-1-02_0001
Orthoclase	N/A	
Microcline	N/A	
Carbonate		
Calcite	~25% calcite ·subhedral grains ·mostly cementing grains	image LH-1-02_0006
	XN: brown, green, pink PPL: light brown	
Dolomite	N/A	
Aragonite	N/A	
Clay		
Illite	N/A	
Smectite	N/A	
Kaolinite	N/A	
Muscovite	<5% muscovite ·small, subangular grains	images LH-1-02_0010, 0013, 0014, 0019
	XN: blue, purple, orange PPL: gray-green	
Chlorite	N/A	
Glauconite	N/A	
Rock Fragments		
Sedimentary	·sedimentary rock fragments present	image LH-1-02_0020
Volcanic	N/A	
Metamorphic	N/A	
Other (Accessory Minerals)		
	images LH-1-02_0009, LH-1-02_0012	

Cementing Materials		Comments
Quartz	·some intergrown quartz grains	
Feldspar		
Carbonate	·some calcite cementing	
Clay		
Iron Oxide, Hydoxide and/or Sulfide		
Other		

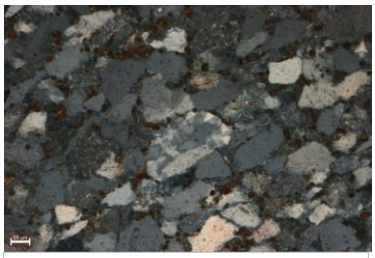
Visual Porosity Estimate	Comments
	images LH-1-02_0015 - LH-1-02_0018



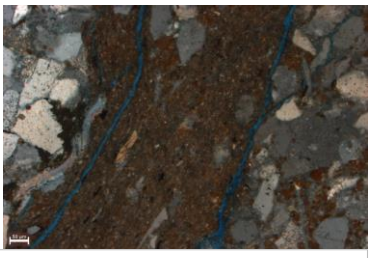
This image shows subhedral, intergrown quartz grains.
(10x, XN)



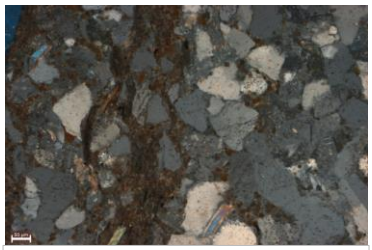
The subangular and subrounded quartz grains in this image. Some iron is shown here as well.
(10x, XN)



This image shows polycrystalline quartz as well as subhedral, monocrystalline quartz grains.



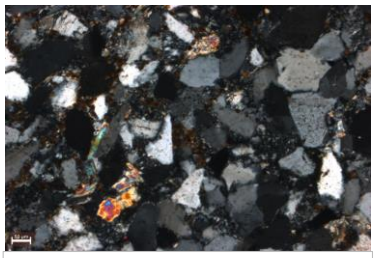
This image shows a large calcite grain.
(10x, XN)



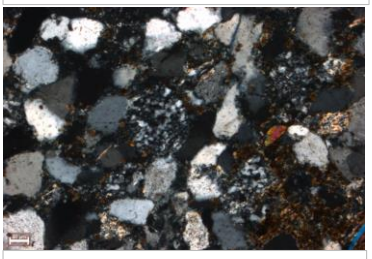
The subhedral quartz grains in this image are cemented by calcite. Some grains of birefringent muscovite are also present.
(10x, XN)



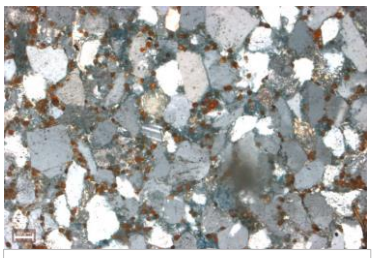
This image shows several grains of birefringent muscovite in a matrix of intergrown quartz.
(10x, XN)



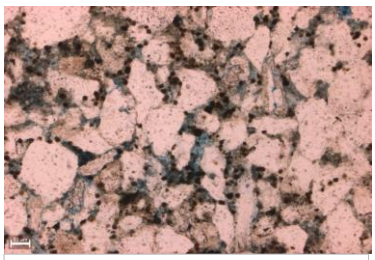
The birefringent subhedral muscovite grains in this image are surrounded by quartz grains.
(10x, XN)



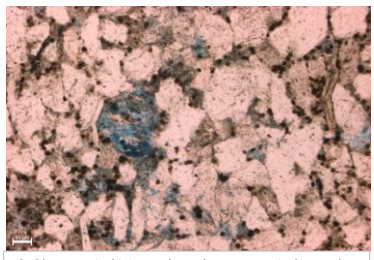
This image shows sedimentary rock fragments and subhedral quartz grains.
(10x, XN)



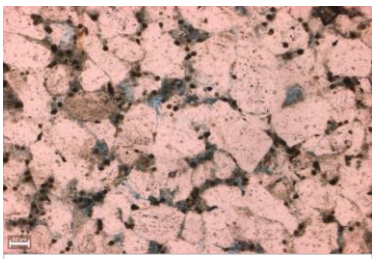
This image shows a small, subangular grain of plagioclase feldspar with albite twinning in a matrix of quartz grains.
(10x, XN)



This image shows the porosity of this sample.
(10x, PPL)



The blue epoxy in this image shows the pore space in the sample.
(10x, PPL)



The pore space in this image is filled with blue epoxy.
(10x, PPL)

Thin Section Analysis Report

Sample ID: LH-5-02
Formation/Member Name: Gordon
Lithologic Classification: Sandstone
Depth/Depth Range: 3138.8
Date of Analysis: 7/18/2017
Analyzed by: Ellen Davis

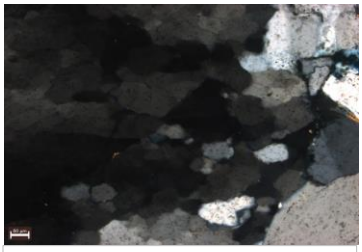
observed at 10x

Texture		Comments
Grain Size	50-600 µm, average grain size ~100 µm	
Rounding	subangular, subrounded	
Sorting	primarily well sorted	

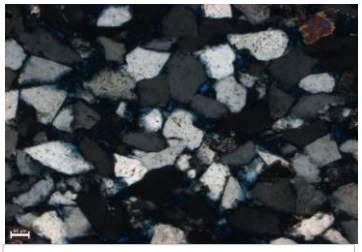
Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline	·polycrystalline quartz present in larger grains	images LH-5-02_0003, 0009, 0010
Monocrystalline	~90% monocrystalline quartz ·smaller, subhedral grains with not much overgrowth	
Microcrystalline	grains can be easily observed under petroscope	
	XN: black, white, gray PPL: light brown	
Feldspar		
Plagioclase	·albite twinning present	images LH-5-02_0002, 0004
Orthoclase	N/A	
Microcline	N/A	
Carbonate		
Calcite	~<10% calcite ·subhedral grains	images LH-5-02_0006, 0008
	XN: brown, green, pink PPL: light brown	
Dolomite	N/A	
Aragonite	N/A	
Clay		
Illite	N/A	
Smectite	N/A	
Kaolinite	N/A	
Muscovite	<5% muscovite ·small, subangular and subrounded grains	images LH-5-02_0005, 0007
	XN: blue, purple, orange PPL: gray-green	
Chlorite	N/A	
Glauconite	N/A	
Rock Fragments		
Sedimentary	·some sedimentary rock fragments present	images LH-5-02_0001, 0014
Volcanic	N/A	
Metamorphic	N/A	
Other (Accessory Minerals)		

Cementing Materials		Comments
Quartz	·some intergrown quartz grains	
Feldspar		
Carbonate	·some calcite cementing	
Clay		
Iron Oxide, Hydoxide and/or Sulfide		
Other		

Visual Porosity Estimate		Comments
	·visual porosity estimate is ~30%	images LH-5-02_0011 - LH-5-02_0015



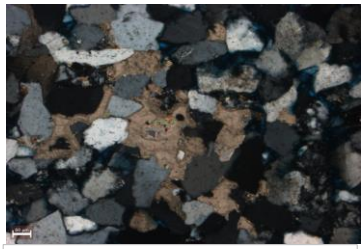
This image shows polycrystalline quartz grains.
(10x, XN)



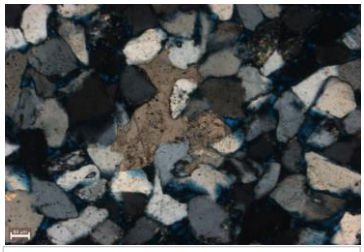
This image shows subrounded and subangular quartz grains with some intergrowth and some pore space visible. Colored muscovite can be seen in the top right corner as well.
(10x, XN)



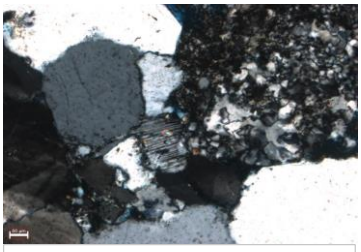
Larger quartz grains with some intergrowth are shown in this image.
(10x, XN)



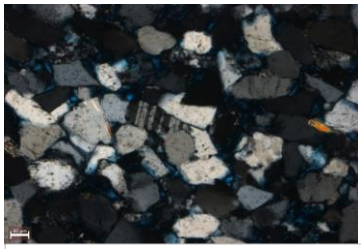
The quartz in this image is cemented by grains of anhedral calcite.
(10x, XN)



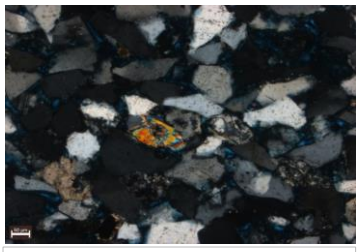
This image shows a grain of anhedral calcite surrounded by smaller, subhedral quartz grains.
(10x, XN)



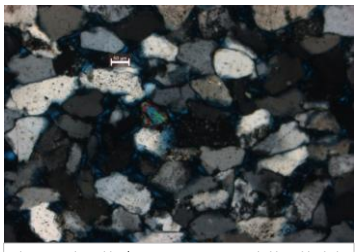
This image shows plagioclase feldspar with albite twinning. Some larger quartz grains and sedimentary rock fragments are present as well.
(10x, XN)



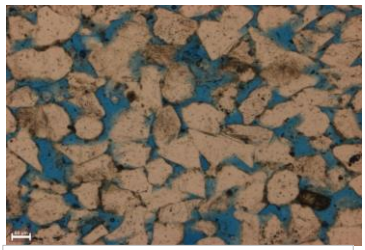
Plagioclase feldspar with albite twinning is shown in this image. Subrounded and subangular quartz grains surround the feldspar.
(10x, XN)



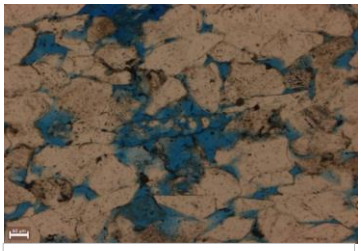
The brightly colored grain in this image is muscovite. The muscovite is surrounded by subangular quartz and some pore space can be seen.
(10x, XN)



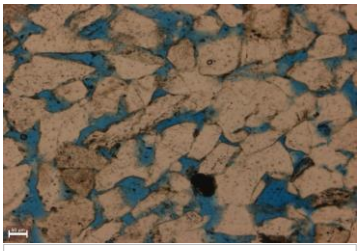
This image shows blue/green muscovite surrounded by subhedral quartz and pore space.
(10x, XN)



This image shows the pore space in the sample. The blue is the epoxy filling the pore space and the brown is the grains.
(10x, PPL)



The blue in this image shows the pore space in this sample.
(10x, PPL)



This image shows pore space in the sample.
(10x, PPL)

Thin Section Analysis Report

Sample ID: LH-9-02
Formation/Member Name: Gordon
Lithologic Classification: Sandstone
Depth/Depth Range: 3141.40
Date of Analysis: 7/18/2017
Analyzed by: Ellen Davis

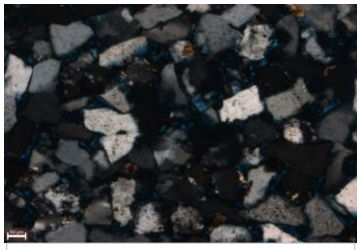
observed at 10x

Texture		Comments
Grain Size	50-150 µm, average grain size ~100 µm	
Rounding	subangular, subrounded grains	
Sorting	well sorted	

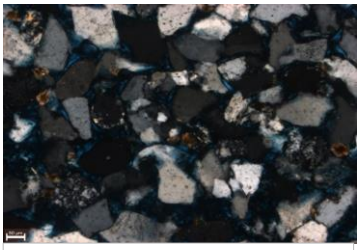
Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline	·some polycrystalline quartz present	images LH-9-02_0009, 0010, 0012
Monocrystalline	~90% monocrystalline quartz ·smaller, subhedral grains	
Microcrystalline	grains can be easily observed under petroscope	
	XN: black, white, gray PPL: light brown	
Feldspar		
Plagioclase	·albite twinning present	images LH-9-02_0002, 0004
Orthoclase	N/A	
Microcline	N/A	
Carbonate		
Calcite	~10% calcite ·mostly subhedral grains	images LH-9-02_0003, 0005
	XN: brown, green, pink PPL: light brown	
Dolomite	N/A	
Aragonite	N/A	
Clay		
Illite	N/A	
Smectite	N/A	
Kaolinite	N/A	
Muscovite	<5% muscovite ·small, subangular and subrounded grains	images LH-9-02_0001, 0008
	XN: blue, purple, orange PPL: gray-green	
Chlorite	N/A	
Glauconite	N/A	
Rock Fragments		
Sedimentary	·sedimentary rock fragments present	images LH-9-02_0006, 0011
Volcanic	N/A	
Metamorphic	N/A	
Other (Accessory Minerals)		
	some iron present	image LH-9-02_0007

Cementing Materials		Comments
Quartz	·intergrown quartz grains	
Feldspar		
Carbonate	·some calcite cementing	
Clay		
Iron Oxide, Hydoxide and/or Sulfide		
Other		

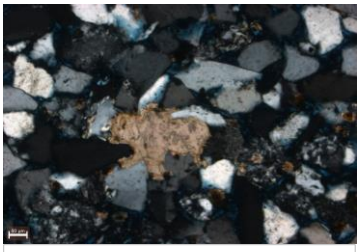
Visual Porosity Estimate		Comments
	·visual porosity estimate is ~30%	images LH-9-02_0013 - LH-9-02_0016



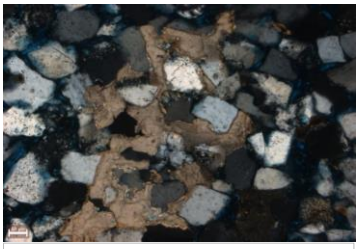
This image shows subangular and subrounded quartz grains with some pore space present as well.
(10x, XN)



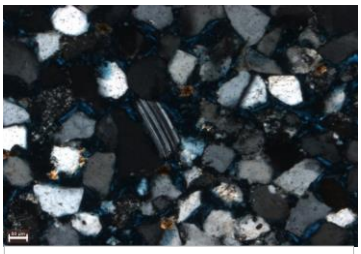
Subhedral quartz grains are shown in this image along with some polycrystalline quartz grains and sedimentary rock fragments.
(10x, XN)



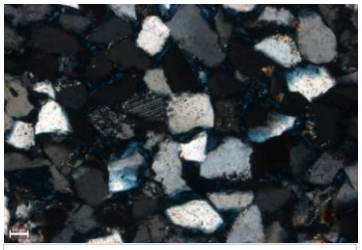
This image shows anhedral calcite and subhedral quartz grains.
(10x, XN)



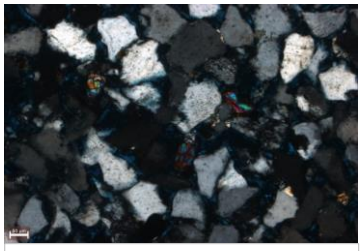
The subangular and subrounded quartz grains in this image are cemented by calcite grains.
(10x, XN)



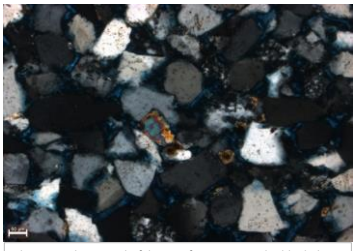
This image shows plagioclase feldspar with albite twinning. Some quartz grains and pore space is shown as well.



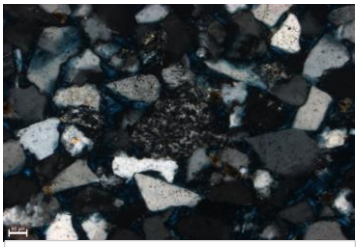
Plagioclase feldspar with albite twinning is surrounded by subhedral quartz grains in this image.
(10x, XN)



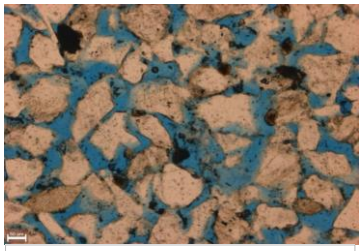
The three brightly colored grains in this image are subhedral muscovite grains. The muscovite is surrounded by quartz grains.
(10x, XN)



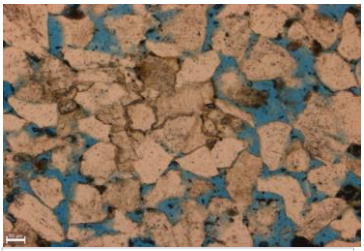
This image shows a colorful grain of muscovite and subhedral quartz grains.
(10x, XN)



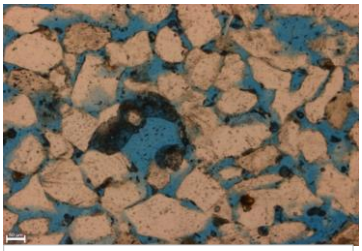
This image shows a sedimentary rock fragment surrounded by quartz grains and pore space.
(10x, XN)



This image shows the pore space present in the sample.
(10x, PPL)



The blue in this image is epoxy used to show pore space in a sample.
(10x, PPL)



This image shows the porosity of this sample.
(10x, PPL)

Thin Section Analysis Report

Sample ID: LH-11-02
Formation/Member Name: Gordon
Lithologic Classification: Sandstone
Depth/Depth Range: 3143.85
Date of Analysis: 7/18/2017
Analyzed by: Ellen Davis

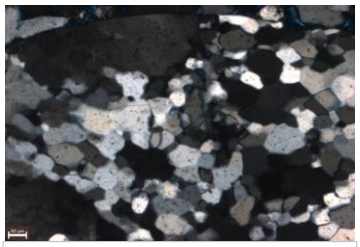
observed at 10x

Texture		Comments
Grain Size	50-150 µm, average grain size ~80 µm	
Rounding	subangular, subrounded grains	
Sorting	well sorted	

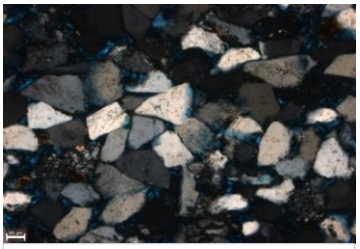
Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline	·polycrystalline quartz present	images LH-11-02_0007, 0008, 0009
Monocrystalline	~90% monocrystalline quartz ·small, mostly subhedral grains	
Microcrystalline	grains can be easily observed under petroscope	
	XN: black, white, gray PPL: light brown	
Feldspar		
Plagioclase	·albite twinning present	images LH-11-02_0004, 0005
Orthoclase	N/A	
Microcline	N/A	
Carbonate		
Calcite	~10% calcite ·mostly subhedral, cementing grains	images LH-11-02_0002, 0006
	XN: brown, green, pink PPL: light brown	
Dolomite	N/A	
Aragonite	N/A	
Clay		
Illite	N/A	
Smectite	N/A	
Kaolinite	N/A	
Muscovite	<5% muscovite ·small, subhedral grains	images LH-11-02_0001, 0003
	XN: blue, purple, orange PPL: gray-green	
Chlorite	N/A	
Glauconite	N/A	
Rock Fragments		
Sedimentary	·sedimentary rock fragments present	images LH-11-02_0003, 0011
Volcanic	N/A	
Metamorphic	N/A	
Other (Accessory Minerals)		
	possibly iron present	image LH-11-02_0010

Cementing Materials		Comments
Quartz	·intergrown quartz grains	
Feldspar		
Carbonate	·some calcite cementing	
Clay		
Iron Oxide, Hydoxide and/or Sulfide		
Other		

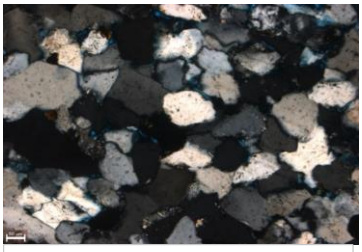
Visual Porosity Estimate		Comments
	·visual porosity estimate is ~30%	images LH-11-02_0012 - LH-11-02_0015



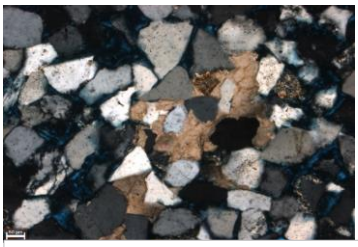
This image shows polycrystalline quartz.
(10x, XN)



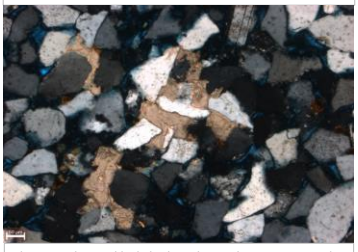
This image shows subangular and subrounded quartz grains with some pore space visible.
(10x, XN)



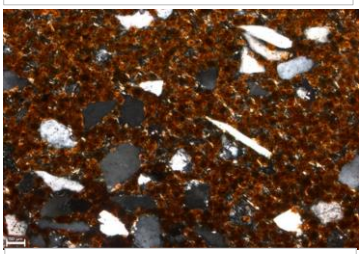
Subhedral quartz is shown in this image, some of which is intergrown.



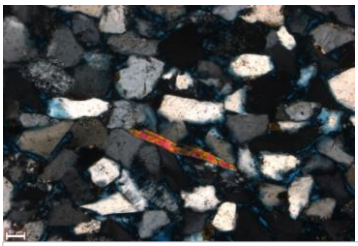
The subhedral quartz in this image is cemented by anhedral calcite.
(10x, XN)



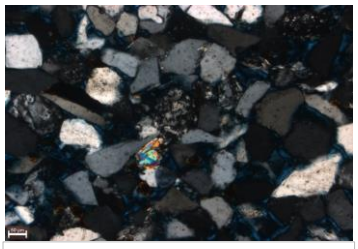
This image shows subhedral calcite along with quartz grains and some pore space.
(10x, XN)



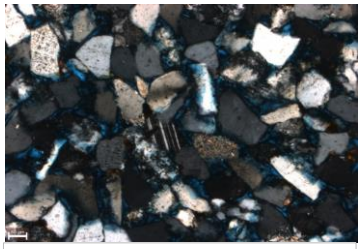
This image shows iron cementing subhedral quartz grains.
(10x, XN)



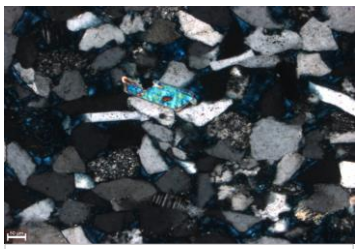
The elongated pink and orange grain in this image is muscovite. The muscovite is surrounded by subhedral quartz.
(10x, XN)



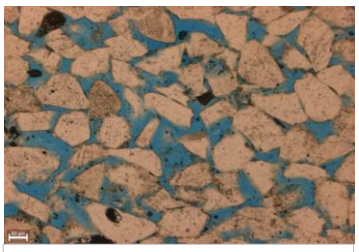
This image shows a grain of subhedral muscovite along with quartz grains, pore space, and sedimentary rock fragments.
(10x, XN)



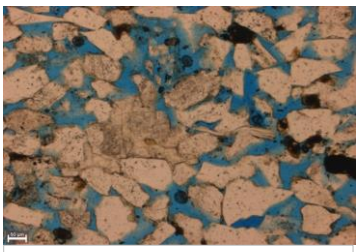
The albite twinning in this image shows the presence of plagioclase feldspar. The feldspar is surrounded by subhedral quartz grains and pore space.



This image shows plagioclase feldspar, a grain of muscovite, sedimentary rock fragments, and subhedral quartz grains.
(10x, XN)



The blue epoxy in this image shows the pore space in the sample.
(10x, PPL)



This image shows the porosity of the sample.
(10x, PPL)

Thin Section Analysis Report

Sample ID:	LH-12-02
Formation/Member Name:	Gordon
Lithologic Classification:	Sandstone
Depth/Depth Range:	3145.25
Date of Analysis:	7/18/2017
Analyzed by:	Ellen Davis

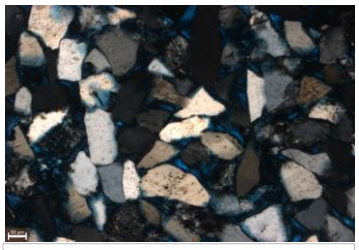
observed at 10x

Texture		Comments
Grain Size	50-100 µm, average grain size ~80 µm	
Rounding	subangular, subrounded grains	
Sorting	well sorted	

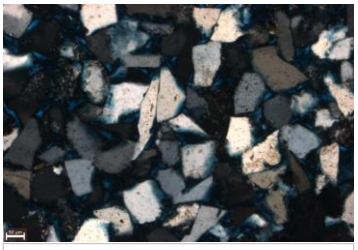
Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline		images LH-12-02_0008, 0010
Monocrystalline	~90% monocrystalline quartz ·small, mostly subhedral grains ·not much intergrowth	
Microcrystalline	grains can be easily observed under petroscope	
	XN: black, white, gray PPL: light brown	
Feldspar		
Plagioclase	·albite twinning present	images LH-12-02_0001, 0003
Orthoclase	N/A	
Microcline	N/A	
Carbonate		
Calcite	~10% calcite ·mostly subhedral, cementing quartz grains	images LH-12-02_0002, 0004, 0011
	XN: brown, green, pink PPL: light brown	
Dolomite	N/A	
Aragonite	N/A	
Clay		
Illite	N/A	
Smectite	N/A	
Kaolinite	N/A	
Muscovite	<5% muscovite ·small, subhedral grains	images LH-12-02_0005, 0007
	XN: blue, purple, orange PPL: gray-green	
Chlorite	N/A	
Glauconite	N/A	
Rock Fragments		
Sedimentary	·sedimentary rock fragments present	images LH-12-02_0006, 0009
Volcanic	N/A	
Metamorphic	N/A	
Other (Accessory Minerals)		

Cementing Materials		Comments
Quartz	·some intergrown quartz is present	
Feldspar		
Carbonate	·some calcite cementing	
Clay		
Iron Oxide, Hydoxide and/or Sulfide		
Other		

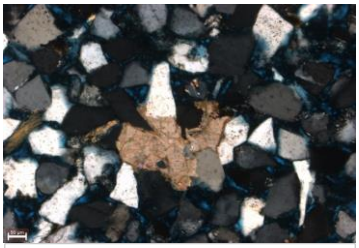
Visual Porosity Estimate		Comments
	·visual porosity estimate is ~25%	images LH-12-02_0012 - LH-12-02_0015



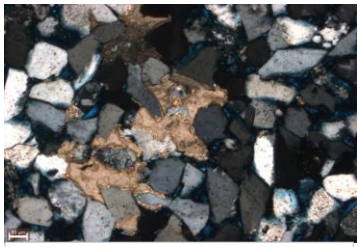
This image shows subhedral quartz grains, some intergrown. Pore space is also shown by blue epoxy.
(10x, XN)



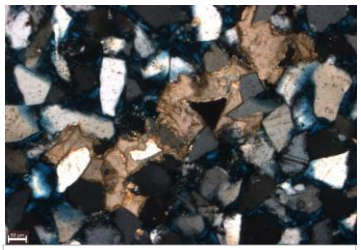
Subangular and subrounded quartz grains are shown in this image.
(10x, XN)



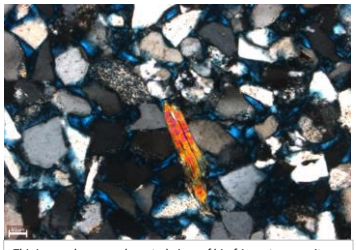
The calcite in this image is surrounded by subhedral quartz grains.
(10x, XN)



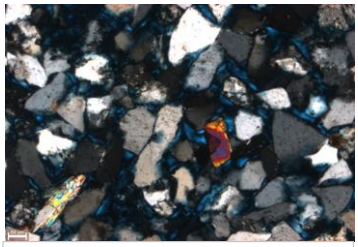
This image shows calcite cementing smaller quartz grains and sedimentary rock fragments.
(10x, XN)



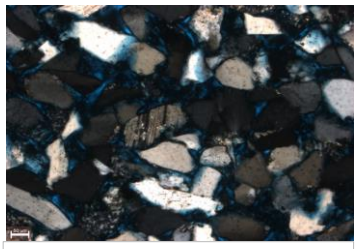
Subangular calcite cements quartz grains in this image. Blue epoxy shows pore space here as well.
(10x, XN)



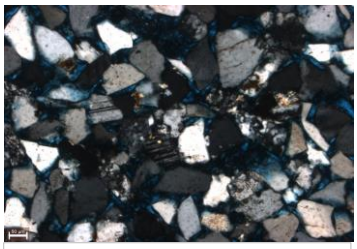
This image shows an elongated piece of birefringent muscovite along with some quartz grains and sedimentary rock fragments.
(10x, XN)



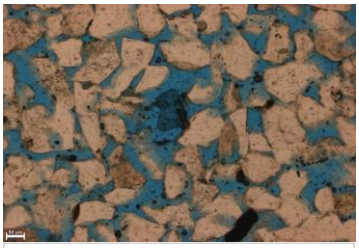
The subhedral, birefringent grains in this image are muscovite, surrounded by pore space and quartz grains.
(10x, XN)



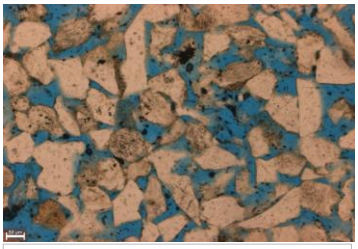
This image shows plagioclase feldspar with albite twinning. Subhedral quartz grains and sedimentary rock fragments surround the feldspar.
(10x, XN)



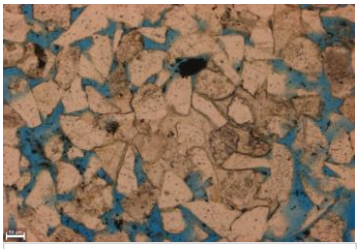
Two grains of plagioclase feldspar, sedimentary rock fragments, and subhedral quartz grains are shown in this image.
(10x, XN)



This image shows the porosity of the sample.
(10x, PPL)



The blue epoxy shows the pore space in this sample.
(10x, PPL)



This image shows the porosity of the sample. The light-brown, subangular grains are surrounded by blue epoxy.
(10x, PPL)

Thin Section Analysis Report

Sample ID: LH-15-02
Formation/Member Name: Gordon
Lithologic Classification: Sandstone
Depth/Depth Range: 3148.00
Date of Analysis: 7/19/2017
Analyzed by: Ellen Davis

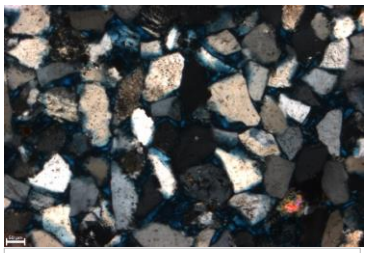
observed at 10x

Texture		Comments
Grain Size	50-200 µm, average grain size ~80 µm	
Rounding	subangular, subrounded grains	
Sorting	well sorted	

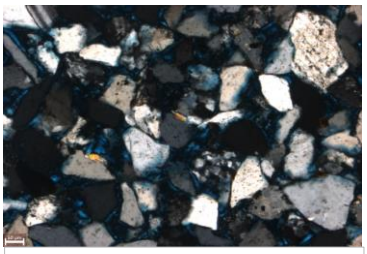
Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline		images LH-15-02_0007, 0012
Monocrystalline	~90% monocrystalline quartz ·small, mostly subhedral grains	
Microcrystalline	grains can be easily observed under petroscope	
	XN: black, white, gray PPL: light brown	
Feldspar		
Plagioclase	~3% feldspar ·albite twinning present	images LH-15-02_0001, 0009, 0010
Orthoclase	N/A	
Microcline	N/A	
Carbonate		
Calcite	~10% calcite ·subhedral, cementing quartz	images LH-15-02_0002, 0003, 0005
	XN: brown, green, pink PPL: light brown	
Dolomite	N/A	
Aragonite	N/A	
Clay		
Illite	N/A	
Smectite	N/A	
Kaolinite	N/A	
Muscovite	~3% muscovite ·small, elongated grains	images LH-15-02_0006, 0008, 0010
	XN: blue, purple, orange PPL: gray-green	
Chlorite	N/A	
Glauconite	N/A	
Rock Fragments		
Sedimentary	·sedimentary rock fragments present	image LH-15-02_0004
Volcanic	N/A	
Metamorphic	N/A	
Other (Accessory Minerals)		

Cementing Materials		Comments
Quartz	·some intergrown quartz is present	
Feldspar		
Carbonate	·some calcite cementing	
Clay		
Iron Oxide, Hydoxide and/or Sulfide		
Other		

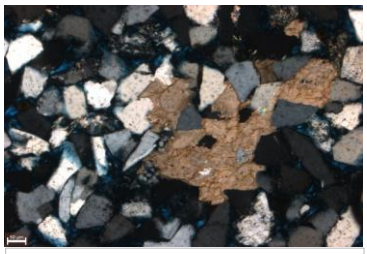
Visual Porosity Estimate		Comments
	·visual porosity estimate is ~20%	images LH-15-02_0013 - LH-15-02_0016



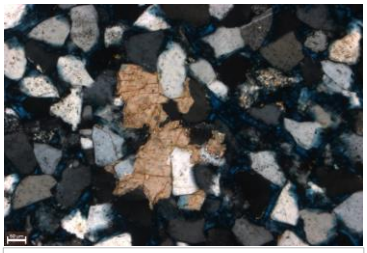
This image shows subangular quartz grains and pore space.
(10x, XN)



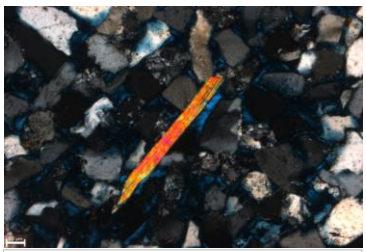
This image shows quartz grains of different sizes. Some sedimentary rock fragments are shown as well.
(10x, XN)



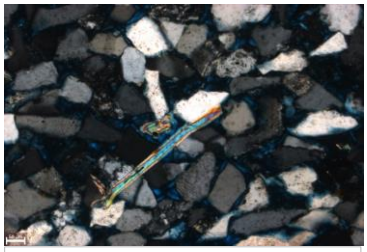
This image shows subangular calcite surrounded by subhedral quartz grains.
(10x, XN)



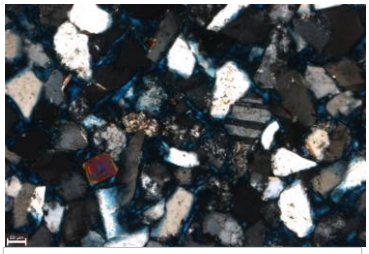
The calcite in this image cements quartz grains.
(10x, XN)



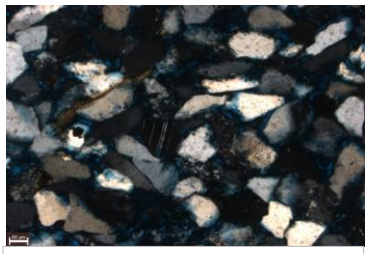
This image shows an elongated grain of birefringent muscovite.
(10x, XN)



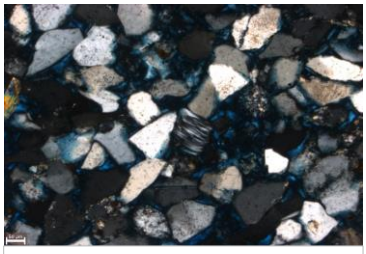
The bright blue grains in this image are muscovite. These grains of muscovite are surrounded by quartz grains.
(10x, XN)



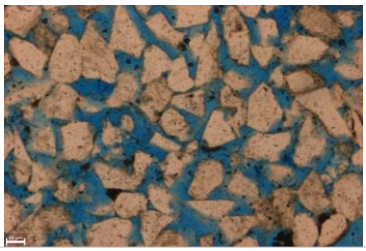
This image shows a grain of birefringent muscovite, a grain of subhedral plagioclase feldspar, and some sedimentary rock fragments.
(10x, XN)



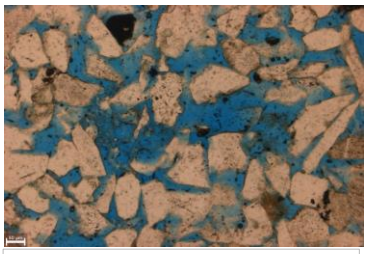
The albite twinning in this image shows plagioclase feldspar surrounded by subhedral quartz grains.
(10x, XN)



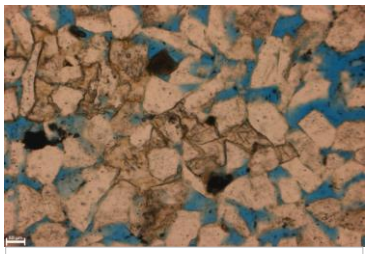
This image shows quartz grains, plagioclase feldspar, sedimentary rock fragments, and birefringent muscovite.
(10x, XN)



The blue epoxy in this image shows the pore space of the sample.
(10x, PPL)



This image shows the porosity of the sample.
(10x, PPL)



The subhedral grains in this image is shown with blue epoxy filling the pore space.
(10x, PPL)

Thin Section Analysis Report

Sample ID:	LH-17-02
Formation/Member Name:	Gordon
Lithologic Classification:	Sandstone
Depth/Depth Range:	3151.90
Date of Analysis:	7/19/2017
Analyzed by:	Ellen Davis

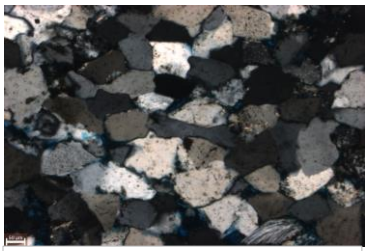
observed at 10x

Texture		Comments
Grain Size	50-200 µm, average grain size ~100 µm	
Rounding	subangular, subrounded grains	
Sorting	well sorted	

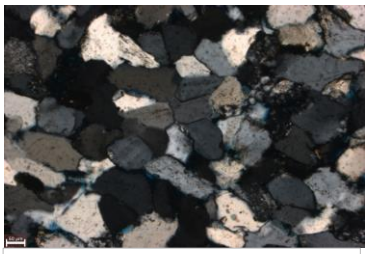
Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline	·some polycrystalline quartz present	images LH-17-02_0003, 0007
Monocrystalline	~95% monocrystalline quartz ·small, mostly subhedral grains	
Microcrystalline	grains can be easily observed under petroscope	
	XN: black, white, gray PPL: light brown	
Feldspar		
Plagioclase	·albite twinning present	images LH-17-02_0001, 0005
Orthoclase	N/A	
Microcline	N/A	
Carbonate		
Calcite	·almost no calcite	
Dolomite	N/A	
Aragonite	N/A	
Clay		
Illite	N/A	
Smectite	N/A	
Kaolinite	N/A	
Muscovite	<5% muscovite ·small, subhedral grains	images LH-17-02_0002, 0004, 0006
	XN: blue, purple, orange PPL: gray-green	
Chlorite	N/A	
Glauconite	N/A	
Rock Fragments		
Sedimentary	·sedimentary rock fragments present	images LH-17-02_0008, 0013
Volcanic	N/A	
Metamorphic	N/A	
Other (Accessory Minerals)		
	some iron present	

Cementing Materials		Comments
Quartz	·cementing is primarily intergrown quartz	
Feldspar		
Carbonate		
Clay		
Iron Oxide, Hydoxide and/or Sulfide		
Other		

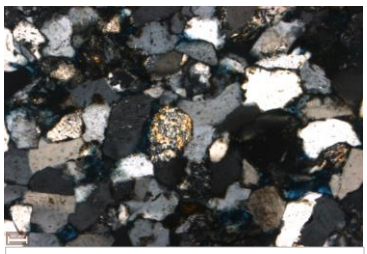
Visual Porosity Estimate		Comments
	·visual porosity estimate is ~8%	images LH-17-02_0009 - LH-17-02_0012



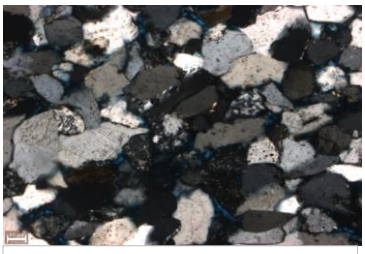
This image shows intergrown quartz grains.
(10x, XN)



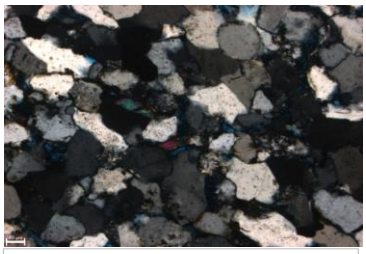
The subhedral quartz grains in this image are intergrown. Some sedimentary rock fragments are also shown.
(10x, XN)



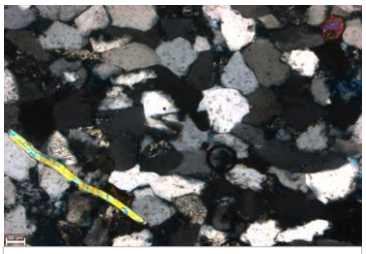
This image shows a sedimentary rock fragment with iron present in the grain. Intergrown quartz grains surround the sedimentary rock fragment.
(10x, XN)



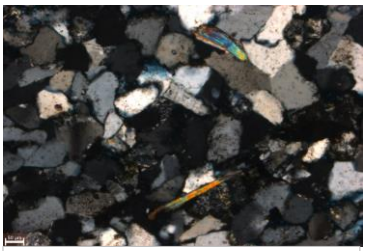
Sedimentary rock fragments are cemented in grains of intergrown quartz.
(10x, XN)



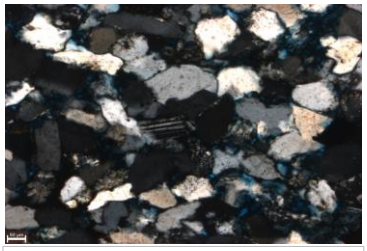
The colorful muscovite grains in this image are surrounded by subhedral intergrown quartz grains.
(10x, XN)



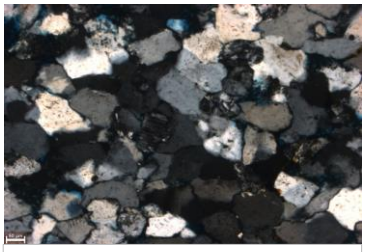
This image shows two grains of birefringent muscovite: one elongated and one subrounded.
(10x, XN)



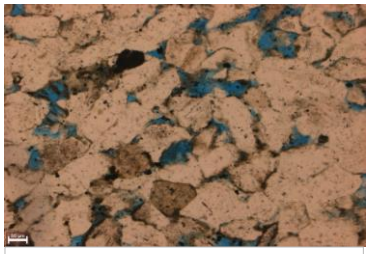
Two grains of birefringent muscovite are embedded in a matrix of intergrown quartz.
(10x, XN)



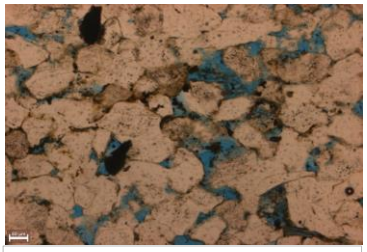
This image shows plagioclase feldspar with albite twinning surrounded by intergrown quartz grains.
(10x, XN)



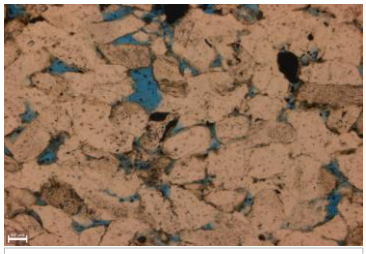
Although slightly difficult to see, this image shows plagioclase feldspar. Intergrown quartz and sedimentary rock fragments are also present in this image.
(10x, XN)



This image shows the porosity of the sample.
(10x, PPL)



Blue epoxy in this image shows the pore space in this sample.
(10x, PPL)



The pore space in these subhedral grains is filled by blue epoxy.
(10x, PPL)

Thin Section Analysis Report

Sample ID:	LH-20-02
Formation/Member Name:	Gordon
Lithologic Classification:	Sandstone
Depth/Depth Range:	3158.30
Date of Analysis:	7/19/2017
Analyzed by:	Ellen Davis

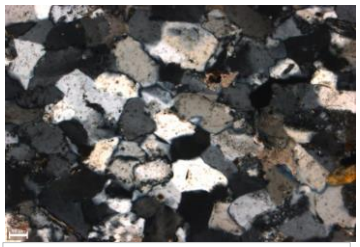
observed at 10x

Texture		Comments
Grain Size	50-250 µm, average grain size ~150 µm	
Rounding	subangular, subrounded grains	
Sorting	well sorted	

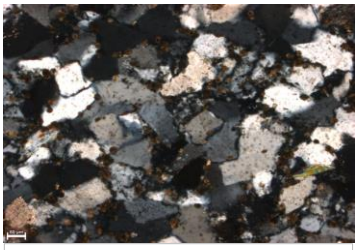
Composition/Detrital Minerals		Comments
Quartz		
Polycrystalline		images LH-20-02_0005, 0008, 0009
Monocrystalline	~60% monocrystalline quartz ·subhedral grains ·abundant intergrowth	
Microcrystalline	grains can be easily observed under petroscope	
	XN: black, white, gray PPL: light brown	
Feldspar		
Plagioclase	·albite twinning present ·small, subhedral grains	images LH-20-02_0001, 0003, 0007
Orthoclase	N/A	
Microcline	N/A	
Carbonate		
Calcite	~40% calcite ·calcite mostly cementing smaller quartz grains	images LH-20-02_0004, 0009, 0010
Dolomite	N/A	
Aragonite	N/A	
Clay		
Illite	N/A	
Smectite	N/A	
Kaolinite	N/A	
Muscovite	<5% muscovite ·small, subhedral grains	images LH-20-02_0002, 0006
	XN: blue, purple, orange PPL: gray-green	
Chlorite	N/A	
Glauconite	N/A	
Rock Fragments		
Sedimentary	·sedimentary rock fragments present	
Volcanic	N/A	
Metamorphic	N/A	
Other (Accessory Minerals)		
	iron present	

Cementing Materials		Comments
Quartz	·some intergrown quartz cementing	
Feldspar		
Carbonate	·primarily calcite cementing	
Clay		
Iron Oxide, Hydoxide and/or Sulfide		
Other		

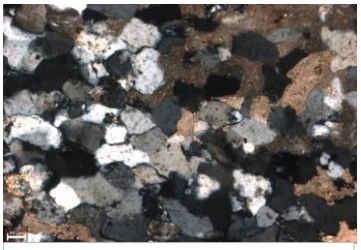
Visual Porosity Estimate		Comments
	·visual porosity estimate is ~3%	images LH-20-02_0011 - LH-20-02_0014



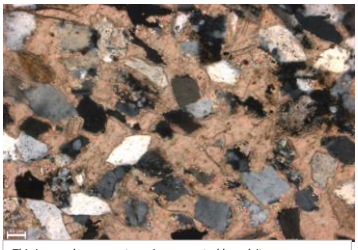
This image shows intergrown, subhedral quartz grains.
(10x, XN)



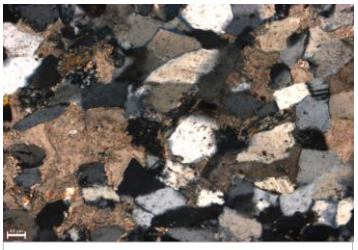
Intergrown quartz grains in this image are covered with iron.
(10x, XN)



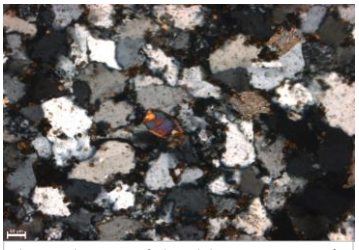
Quartz grains in this image are cemented by calcite. Some polycrystalline quartz is present as well.
(10x, XN)



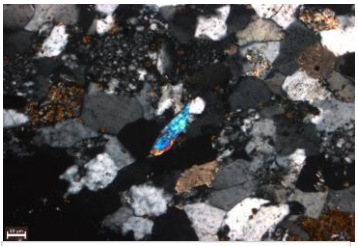
This image shows quartz grains cemented by calcite.
(10x, XN)



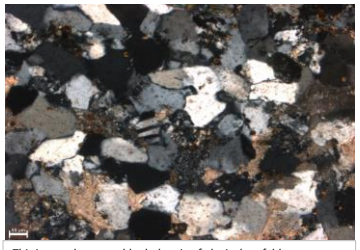
Calcite in this image surrounds intergrown quartz grains and sedimentary rock fragments.
(10x, XN)



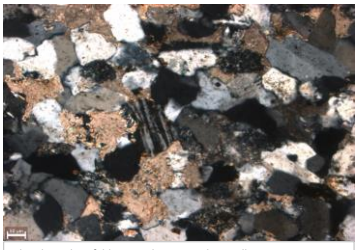
This image shows a grain of subrounded muscovite in a matrix of intergrown quartz.
(10x, XN)



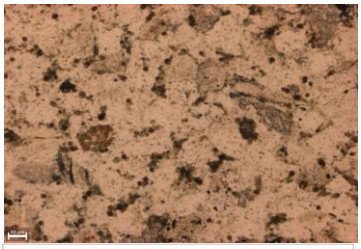
This elongated grain of birefringent muscovite is surrounded by sedimentary rock fragments and intergrown quartz.
(10x, XN)



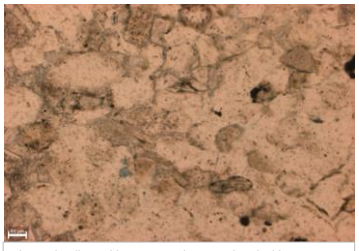
This image shows a subhedral grain of plagioclase feldspar. Sedimentary rock fragments, calcite grains, and intergrown quartz are also shown here.
(10x, XN)



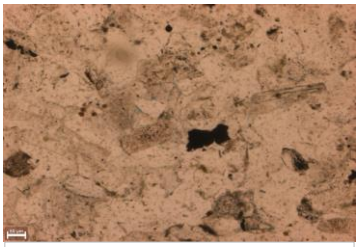
The plagioclase feldspar in this image shows albite twinning surrounded by clacite and intergrown quartz.
(10x, XN)



This image shows the porosity of the sample.
(10x, PPL)



There is hardly any blue epoxy in this image but the blue epoxy that is visible shows the pore space in the sample.
(10x, PPL)



This image shows the porosity of this sample.
(10x, PPL)