## Hole U1415H core descriptions

### Visual core descriptions

<table>
<thead>
<tr>
<th>Depth (m)</th>
<th>Core length (cm)</th>
<th>Orientation</th>
<th>Shipboard samples</th>
<th>Scanned image</th>
<th>Magnetic susceptibility (LXI10)-(T)</th>
<th>Visual core description</th>
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</thead>
<tbody>
<tr>
<td>0.0</td>
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</table>

### Section: 345-U1415H-1R-1-A

**Rock Name:** olivine-bearing gabbro

**Grain Size:** medium to fine-grained

**Texture:** granular

**Pieces:** #1

**Contacts:** contact not recovered

**Modal Abundances**

<table>
<thead>
<tr>
<th>Primary Mineral</th>
<th>Percent</th>
<th>Size Max</th>
<th>Shape</th>
<th>Habit</th>
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</thead>
<tbody>
<tr>
<td>olivine</td>
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<td>plagioclase</td>
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<tr>
<td>orthopyroxene</td>
<td>0.1</td>
<td>0.1</td>
<td>anhedral</td>
<td>prismatic</td>
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</table>

**Comments:**

**Alteration:** Minimal alteration except for the olivine which is completely replaced in a mesh texture of serpentine, and locally to talc and a clay mineral. Plagioclase is locally altered to chlorite adjacent to olivine. Amphibole is pseudomorphically replaced by amphibole. Composites polycrystalline amphibole and secondary plagioclase, thin in width.

**Structure:** Magnetic foliation defined by plagioclase and olivine SPO.

### Section: 345-U1415H-1R-1-A

**Rock Name:** olivine-bearing gabbro

**Grain Size:** medium-grained

**Texture:** granular

**Pieces:** #2

**Contacts:** contact not recovered

**Modal Abundances**

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<td>0.1</td>
<td>0.1</td>
<td>anhedral</td>
<td>prismatic</td>
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</tbody>
</table>

**Comments:**

**Alteration:** Minimal alteration except for the olivine which is completely replaced in a mesh texture of serpentine, and locally to talc and a clay mineral. Plagioclase is locally altered to chlorite adjacent to olivine. Amphibole is pseudomorphically replaced by amphibole. Composites polycrystalline amphibole and secondary plagioclase, thin in width.

**Structure:** Magnetic foliation defined by plagioclase and olivine SPO.

### Section: 345-U1415H-1R-1-A

**Rock Name:** olivine-bearing gabbro

**Grain Size:** medium-grained

**Texture:** granular

**Pieces:** #3

**Contacts:** contact not recovered

**Modal Abundances**

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<td>plagioclase</td>
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<td>23.0</td>
<td>4.0</td>
<td>subhedral</td>
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</table>

**Comments:**

**Alteration:** Minimal alteration except for the olivine which is completely replaced in a mesh texture of serpentine, and locally to talc and a clay mineral. Plagioclase is locally altered to chlorite adjacent to olivine. Amphibole is pseudomorphically replaced by amphibole. Composites polycrystalline amphibole and secondary plagioclase, thin in width.

**Structure:** Magnetic foliation defined by plagioclase and olivine SPO.

### Section: 345-U1415H-1R-1-A

**Rock Name:** olivine-bearing gabbro

**Grain Size:** medium-grained

**Texture:** granular

**Pieces:** #4

**Contacts:** contact not recovered

**Modal Abundances**

<table>
<thead>
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<th>Percent</th>
<th>Size Max</th>
<th>Shape</th>
<th>Habit</th>
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<tr>
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<td>3.0</td>
<td>subhedral</td>
<td>tabular</td>
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<tr>
<td>plagioclase</td>
<td>23.0</td>
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<td>subhedral</td>
<td>prismatic</td>
</tr>
<tr>
<td>orthopyroxene</td>
<td>13.0</td>
<td>3.0</td>
<td>subhedral</td>
<td>prismatic</td>
</tr>
</tbody>
</table>

**Comments:**

**Alteration:** Minimal alteration except for the olivine which is completely replaced in a mesh texture of serpentine, and locally to talc and a clay mineral. Plagioclase is locally altered to chlorite adjacent to olivine. Amphibole is pseudomorphically replaced by amphibole. Composites polycrystalline amphibole and secondary plagioclase, thin in width.

**Structure:** Magnetic foliation defined by plagioclase and olivine SPO.
### Hole U1415H-1R Section 1, Top of Section: 0.0 m (CSF-A)

| Depth (m) | Contact (mm) | Magnetic susceptibility (emu/g) | Lithology | Magnetic fabric | Alteration intensity | LITHOLOGIC INTERVAL | SECTION | ROCK NAME | GRAIN SIZE | TEXTURE | PIECES | CONTACTS | MODAL ABUNDANCES | PRIMARY MINERAL | PERCENT | SIZE MAX | SHAPE | HABIT | COMMENTS |
|-----------|---------------|---------------------------------|-----------|----------------|-------------------|---------------------|------------------|----------|-----------|------------|---------|--------|-----------|----------------|----------------|---------|----------|-------|------|----------|
| 0.0       |                |                                 | Orthopyroxene-bearing olivine gabbro |                |                  |                    | 5                  | 345-U1415H-1R-1A | gabбро | medium grained | granular   |          | 95      | contact not recovered | Orthopyroxene | 4.0     | 3.0      | subhedral-prismatic | 0.00      | Slightly altered, olivine is replaced by serpentine and clay minerals, clinopyroxene is replaced by amphibole. Thin veins of prehnite cut piece. Vug with zeolite is present, also clay minerals in cataclastic seams. |
| 0.2       |                |                                 | Gabbro    |                |                  |                    | 6                  | 345-U1415H-1R-1A | gabбро | medium grained | poikilitic granular |          | 95      | contact not recovered | Orthopyroxene | 4.0     | 3.0      | subhedral-anhedral | 0.00      | Moderately altered rock with talc and tremolite after olivine, and also more commonly serpentine after olivine. Plagioclase is altered to chlorite where it contacts relict olivine. |
| 0.4       |                |                                 | Gabbro    |                |                  |                    | 7                  | 345-U1415H-1R-1A | gabбро | medium grained | granular   |          | 95      | contact not recovered | Orthopyroxene | 2.0     | 2.0      | subhedral-subequant | 0.00      | Highly altered cataclastic rock with numerous veins of probably prehnite. Pyroxene is slightly altered to amphibole, olivine is completely altered to serpentine and clay minerals. Carcassite with deformed prehnite vein. High density thin alteration veins in a cross-cutting network. |
| 0.6       |                |                                 | Orthopyroxene-bearing olivine gabbro |                |                  |                    | 8                  | 345-U1415H-1R-1A | gabбро | medium grained | granular   |          | 95      | contact not recovered | Orthopyroxene | 7.0     | 7.0      | subhedral | 0.00      | Slightly altered, olivine is replaced by serpentine and clay minerals, clinopyroxene is replaced by amphibole. Thin veins of prehnite cut piece. Vug with zeolite is present, also clay minerals in cataclastic seams. Magnetical fabric defined by plagioclase and olivine SPO. Low density of alteration veins. |

### LITHOLOGIC INTERVAL: 6
### SECTION: 345-U1415H-1R-1A
### ROCK NAME: gabbro
### GRAIN SIZE: medium grained
### TEXTURE: poikilitic granular
### PIECES: 95
### CONTACTS: contact not recovered
### MODAL ABUNDANCES

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<thead>
<tr>
<th>Primary Mineral</th>
<th>Percent</th>
<th>Size Max (mm)</th>
<th>Shape</th>
<th>Habit</th>
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</thead>
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<tr>
<td>Sulfide</td>
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<td>subhedral-subequant</td>
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<tr>
<td>Plagioclase</td>
<td>60.0</td>
<td>5.0</td>
<td>euhedral-subhedral-lath-shaped</td>
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<tr>
<td>Clinopyroxene</td>
<td>35.0</td>
<td>8.0</td>
<td>anhedral-intertial</td>
<td></td>
</tr>
<tr>
<td>Oxide</td>
<td>0.1</td>
<td>0.2</td>
<td>anhedral-subequant</td>
<td></td>
</tr>
<tr>
<td>Olivine</td>
<td>0.3</td>
<td>0.2</td>
<td>anhedral-equant</td>
<td></td>
</tr>
</tbody>
</table>

### COMMENTS
- Slightly altered, olivine is replaced by serpentine and clay minerals, clinopyroxene is replaced by amphibole. Thin veins of prehnite cut piece. Vug with zeolite is present, also clay minerals in cataclastic seams. Magnetical fabric defined by plagioclase and olivine SPO. Low density of alteration veins.
Hole 345-U1415H-1R Section 1, Top of Section: 0.0 m (CSF-A)

LITHOLOGIC INTERVAL: 0.0 m
SECTION: 345-U1415H-1R-1-A
ROCK NAME: olivine gabbro
GRAIN SIZE: medium grained
TEXTURE: granular
PIECES: #9
CONTACTS: contact not recovered
MODAL ABUNDANCES
Primary Mineral | Percent | Size Max (mm) | Shape | Habit
--- | ------ | ------------- | ------ | ---
olivine | 100.0 | 3.0 | euhedral-
plagioclase | 60.0 | 3.0 | euhedral-
phenocryst | subhedral-
lath-shaped | subequant
clinopyroxene | 30.0 | 8.0 | anhedral |
interstitial | orthopyroxene | 1.0 | 1.4 | subhedral |
| prismatic |
sulfide | 0.1 | 0.1 | anhedral |
equant
COMMENTS
ALTERATION: Plagioclase is very fresh, except for chlorite rims surrounding olivine. Olivine is serpentinized and altered to clay minerals and pyrite in places.
STRUCTURE: Magmatic foliation defined by plagioclase and olivine SPO.

LITHOLOGIC INTERVAL: 0.2 m
SECTION: 345-U1415H-1R-1-A
ROCK NAME: olivine gabbro
GRAIN SIZE: medium grained
TEXTURE: granular
PIECES: #10
CONTACTS: contact not recovered
MODAL ABUNDANCES
Primary Mineral | Percent | Size Max (mm) | Shape | Habit
--- | ------ | ------------- | ------ | ---
olivine | 15.0 | 3.0 | euhedral-
plagioclase | 60.0 | 3.0 | euhedral-
lath-shaped | subequant
clinopyroxene | 20.0 | 12.0 | anhedral |
| interstitial |
orthopyroxene | 4.0 | 7.0 | subhedral |
| prismatic |
sulfide | 0.1 | 0.1 | anhedral |
equant
COMMENTS
ALTERATION: Relatively fresh rock, serpentinization of olivine accounts for most of the alteration in this piece. Serpentinitization is concentrated in oriented domains ~8mm thick and spaced 2 cm, no prehnite is observed, weakly developed corona textures.
STRUCTURE: Magnetic foliation defined by plagioclase, olivine, and clinopyroxene SPO. Low density of curved, overlapping thin alteration veins.
Authors: NA, JK, MP

Olivine-bearing gabbro

Shape Habit Zoning Color Special features
subhedral-anhedral tabular continuous zoning anhedral

Nature of ign. domains:
Replacement of clinopyroxene by green amphibole along the cleavage. Presence of traces of plagioclase pervasively altered into zeolite with minute replacement in the core of large grains.

PHOTOMICROGRAPHS:
345_U1415H_1R_1_TS_07.JPG

STRUCTURE COMMENT:

ALTERATION / ISEDIMENTOPHORE

ALTERATION COMMENTS

Vein summary
case 1 Zeolite vein intersecting or brecciating in the same direction as the cataclastic deformation. Diorite breccia with preexisting macrocrysts, well-weathered with some epidote mineral. Probably zeolite. Late veins cutting off the breccia are delaminated along the cataclastic slipping main axis.

ALTERATION / ISEDIMENTOPHORE

Vein 1 mm-thick wedgy veins filled with preexisting prehnite and serpentine, cut plagioclase and clinopyroxene, but not the cataclasite.

Crystal Plastic
No recognizable crystal plastic deformation preserved.

Brittle
Dense anastomosing, but localized fractures and incipient brecciation (<20% matrix). Entire section intensely 'shattered' with no fill.

Cross-cutting Relationships (as apparent in thin section):
2) Cataclasism.

Cataclastic zone along the section with partial zeolite veins cutting patchy heterogranular alteration of the background with very fine grained clay-rich vein surrounding blocks of relatively fresh gabbro. Abundant cataclastic deformation crosscutting or elongating in the same direction as the cataclastic deformation. Massive texture with prismatic minerals, soft veins filled with an isotropic mineral, probably zeolite. Late veins crosscutting all minerals are deformed along the cataclastic slipping main axis.

Cataclastic zone over the section with partial zeolite vein filling. Heterogeneous alteration of the background with very fine grained clay-rich vein surrounding blocks of relatively fresh gabbro. Abundant cataclastic deformation crosscutting or elongating in the same direction as the cataclastic deformation. Massive texture with prismatic minerals, soft veins filled with an isotropic mineral, probably zeolite. Late veins crosscutting all minerals are deformed along the cataclastic slipping main axis.

Domain summary
Due to very strong cataclastic/metamorphic overprint primary modes and mineral features are hardly to estimate

Domain number:
10

Domain relative abundance (%):
100

Domain grain size:
heterogranular

Domain type:
Cataclastic zone

Relative abundance (%):
100

Estimated total % alteration:
20

Special features

ALTERATION / ISEDIMENTOPHORE

ALTERATION COMMENTS

Vein summary
case 1 Zeolite vein intersecting or brecciating in the same direction as the cataclastic deformation. Diorite breccia with preexisting macrocrysts, well-weathered with some epidote mineral. Probably zeolite. Late veins cutting off the breccia are delaminated along the cataclastic slipping main axis.

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ALTERATION / ISEDIMENTOPHORE

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10

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100

Domain grain size:
heterogranular

Domain type:
Cataclastic zone

Relative abundance (%):
100

Estimated total % alteration:
20

Special features

ALTERATION / ISEDIMENTOPHORE

ALTERATION COMMENTS

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ALTERATION / ISEDIMENTOPHORE

Vein 1 mm-thick wedgy veins filled with preexisting prehnite and serpentine, cut plagioclase and clinopyroxene, but not the cataclasite.

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100

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Domain type:
Cataclastic zone

Relative abundance (%):
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Special features

ALTERATION / ISEDIMENTOPHORE

ALTERATION COMMENTS

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ALTERATION / ISEDIMENTOPHORE

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Cataclastic zone along the section with partial zeolite veins cutting patchy heterogranular alteration of the background with very fine grained clay-rich vein surrounding blocks of relatively fresh gabbro. Abundant cataclastic deformation crosscutting or elongating in the same direction as the cataclastic deformation. Massive texture with prismatic minerals, soft veins filled with an isotropic mineral, probably zeolite. Late veins crosscutting all minerals are deformed along the cataclastic slipping main axis.

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Domain summary
Due to very strong cataclastic/metamorphic overprint primary modes and mineral features are hardly to estimate

Domain number:
10

Domain relative abundance (%):
100

Domain grain size:
heterogranular

Domain type:
Cataclastic zone

Relative abundance (%):
### PRIMARY MINERALOGY

<table>
<thead>
<tr>
<th>No. of Igneous domains</th>
<th>Nature of ign. domains</th>
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<tbody>
<tr>
<td>1</td>
<td>olivine-bearing gabbronorite</td>
</tr>
</tbody>
</table>

#### Igneous domain 1

**Igneous domain number:** 1  
**Domain lithology:** olivine-bearing gabbronorite  
**Domain grain size:** medium grained  
**Grain size distribution:** equigranular  
**Domain texture:** granular  
**Relative abundance (%):** 100  
**Domain comment:** It was macroscopically described as olivine gabbronorite, however, olivine was found to be less than the definition for olivine gabbro (see methods).

<table>
<thead>
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<th>Original (%)</th>
<th>New (%)</th>
<th>Shape</th>
<th>Habit</th>
<th>Zoning</th>
<th>Color</th>
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### ALTERATION / METAMORPHISM

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<th>Domain rel. abund %</th>
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#### Alteration domain 1

**Alteration domain number:** 1  
**Background**

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<th>%</th>
<th>PRIMARY MINERAL REPLACED</th>
<th>%</th>
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</tbody>
</table>

**Domain total alteration %:** 8

**Alternation Comment:** Very low degree of homogeneous, pervasive alteration. Pyrite occurs in clay matrix pseudomorphs after olivine, along cleavage surfaces of clinopyroxene, and chlorite-filled fractures in plagioclase.

**Structure Comment:** Weakly foliated with weak magmatic foliation defined by SPO of plagioclase and clinopyroxene, with annealed grain boundaries. Very rare submagmatic deformation twinning in plagioclase. Cross-cutting relationships are associated with alteration.

**Photomicrographs:** 345_U1415H_1R_1_TS_08.JPG  
345_U1415H_1R_1_TS_08-2.JPG
THIN SECTION: 345-U1415H-1R-1-W 33/36-TSB_Piece_7-TS_09 Thin Section no.: 9

Rock name: orthopyroxene- and olivine-bearing gabbro

Rock comment: 

Lithologic interval: 7

Piece No.: #7

Authors: TH, KF

Billet request comment: IgPet: Primary Mineralogy

PRIMARY MINERALOGY

No. of Igneous domains: 1
Nature of ign. domains: orthopyroxene- and olivine-bearing gabbro

Igneous domain number: 1
Domain lithology: orthopyroxene- and olivine-bearing gabbro

Domain grain size: medium grained
Grain size distribution: inequigranular

Domain texture: ophitic

Relative abundance (%): 100

Domain comment: Vein is formed by cataclastic deformation. Plagioclase and clinopyroxene show crystal plastic deformation

<table>
<thead>
<tr>
<th>Phase</th>
<th>Present (%)</th>
<th>Original (%)</th>
<th>Size mode (mm)</th>
<th>Shape Habit Zoning Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olivine</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>anhedral equant</td>
</tr>
<tr>
<td>Plagioclase</td>
<td>48</td>
<td>50</td>
<td>2</td>
<td>subhedral tabular continuous zoning</td>
</tr>
<tr>
<td>Clinopyroxene</td>
<td>44</td>
<td>44</td>
<td>0</td>
<td>anhedral irregular colorless</td>
</tr>
<tr>
<td>Orthopyroxene</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>anhedral to subhedral colorless</td>
</tr>
<tr>
<td>Oxide</td>
<td>0</td>
<td>0.1</td>
<td>0</td>
<td>anhedral subequant</td>
</tr>
</tbody>
</table>

ALTERATION / METAMORPHISM

No. of alteration domains: 1

Domain rel. abund %: 100

Estimated total % alteration: 40

Alteration domain number: 1

Domain type: background

SECONDARY MINERALOGY

% PRIMARY MINERAL REPLACED

<table>
<thead>
<tr>
<th>Mineral</th>
<th>%</th>
<th>PRIMARY MINERAL</th>
<th>REPLACEMENT MINERAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>chlorite</td>
<td>12.1%</td>
<td>Plagioclase 50%</td>
<td>Plagioclase 50%</td>
</tr>
<tr>
<td>clay minerals</td>
<td>3%</td>
<td>Clinopyroxene 40%</td>
<td>Clinopyroxene 40%</td>
</tr>
<tr>
<td>green amphibole</td>
<td>8.4%</td>
<td>Orthopyroxene 10%</td>
<td>Green amphibole 70%</td>
</tr>
<tr>
<td>talc</td>
<td>6%</td>
<td>Orthopyroxene 4%</td>
<td>Orthopyroxene 100%</td>
</tr>
<tr>
<td>other</td>
<td>17.5%</td>
<td>Plagioclase 17.5%</td>
<td>Clastic minerals 2%</td>
</tr>
</tbody>
</table>

Domain total alteration %: 47

Vein summary: 

Vein 1: Prehnite filled vein, associated with some hydro-garnet. Degree of alteration increases prehnite vein. Cataclastic textures are especially noticeable near the vein. Plagioclase is highly fractured, bent and shows crystal plastic deformation. Clinopyroxene has lost cleavage planes. Pyrite occurs as relatively large grains in clay mineral pseudomorphs. Plagioclase is often highly fractured, bent, shows undulose extinction, altered to something fine grained along fractures (too fine grained to identify). Clinopyroxene is often bent, shows undulose extinction, altered to something fine grained along fractures (too fine grained to identify).

ALTERATION COMMENT:

STRUCTURE COMMENT:

PHOTOMICROGRAPHS:

345_U1415H_1R_1_TS_09.JPG
345_U1415H_1R_1_TS_09-2.JPG
345_U1415H_1R_1_TS_09-3.JPG
345_U1415H_1R_1_TS_09-4.JPG
**THIN SECTION: 345-U1415H-1R-1-W 51/53-TSB_Piece_10-TS_10 Thin Section no.: 10**

**Rock name:** olivine-gabbro

**Authors:** JM, KF

**Lithologic interval:** 10

**Piece No.: #10**

**Billet request comment:** IgPet: Primary Mineralogy

### PRIMARY MINERALOGY

<table>
<thead>
<tr>
<th>Igneous domain number</th>
<th>Domain comment</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>primary mineralogy</td>
</tr>
</tbody>
</table>

#### Igneous domain number 1

**Domain lithology:** olivine gabbro

**Domain grain size:** medium grained

**Grain size distribution:** equigranular

**Domain texture:** granular

**Relative abundance (%):** 100

### PRIMARY MINERAL

<table>
<thead>
<tr>
<th>PRIMARY MINERAL</th>
<th>% REPLACED</th>
<th>PRIMARY MINERAL REPLACED</th>
<th>% ORIGINAL</th>
<th>% ALTERED</th>
<th>REPLACEMENT MINERAL</th>
<th>ALTERNATION COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olivine</td>
<td>13</td>
<td>18</td>
<td>5</td>
<td>2.5</td>
<td>Anhedral</td>
<td>Irregular-amoeboid</td>
</tr>
<tr>
<td>Plagioclase</td>
<td>63</td>
<td>65</td>
<td>2</td>
<td>2.5</td>
<td>Subhedral tabular</td>
<td>Continuous zoning</td>
</tr>
<tr>
<td>Clinopyroxene</td>
<td>15</td>
<td>17</td>
<td>2</td>
<td>3</td>
<td>Anhedral subequant</td>
<td>Colorless</td>
</tr>
<tr>
<td>Orthopyroxene</td>
<td>0.2</td>
<td>0.2</td>
<td>0</td>
<td>1</td>
<td>Anhedral subequant</td>
<td>Colorless</td>
</tr>
<tr>
<td>Oxide</td>
<td>0.1</td>
<td>0.1</td>
<td>0</td>
<td>0.1</td>
<td>Anhedral equant</td>
<td></td>
</tr>
</tbody>
</table>

### ALTERATION / METAMORPHISM

<table>
<thead>
<tr>
<th>Alteration domain number</th>
<th>% of alteration domains</th>
<th>Domain rel. abund %</th>
<th>Estimated total % alteration</th>
<th>ALTERNATION COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>90</td>
<td>5</td>
<td>Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.</td>
</tr>
</tbody>
</table>

**Vein summary:**

1. Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.

**ALTERATION COMMENT:**

Very low degree of homogeneous, pervasive alteration. Pyrite occurs in association with talc by replacing olivine, along chloropyroxene cleavage surfaces, and in chalcedony-filled fractures in plagioclase.

**STRUCTURE COMMENT:**

Diagonal: Moderate magmatic foliation defined by plagioclase, olivine and clinopyroxene SPO, with annealed grain boundaries. Common, conspicuous deformation bands in and around grains of olivine. Tabular shape/size preferred (symmetrical shape and size). Subgrain and deformation twin formation.

Diagonal: Other alteration or no significant alteration.

Uncementation: Very weak cement consists of fine and very fine-grained calcite, with minor amount of chlorite and serpentine (areas in olivine).

**PHOTOMICROGRAPHS:**

S6_345_U1415H_1R_1_TS_10.jpg

S6_345_U1415H_1R_1_TS_10-2.jpg

Cell size: 100 mm

Long axes of tabular grains are strongly aligned.

Vein 1:

- Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.

Vein 2:

- Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.

Vein 3:

- Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.

Vein 4:

- Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.

Vein 5:

- Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.

Vein 6:

- Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.

Vein 7:

- Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.

Vein 8:

- Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.

Vein 9:

- Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.

Vein 10:

- Chlorite filled fractures, crosscutting all minerals; fine grained, granular chlorite.