



**GEOLOGICAL SURVEY OF CANADA  
OPEN FILE 6823**

**Distribution of diagenetic minerals in Lower Cretaceous  
sandstones and their relationship to lithofacies from a proximal  
to distal transect: Como P-21, Panuke B-90, Cohasset A-52,  
Balmoral M-32 and Lawrence D-14 wells, Scotian Basin**

**A. Karim, G. Pe-Piper, and D.J.W. Piper**

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## **Preface**

This Open File is one of a series on detrital and diagenetic mineralogy of the Lower Cretaceous rocks of the Scotian Basin resulting from a collaborative program initiated in 2001 between Saint Mary's University and the Geological Survey of Canada. This report provides the results of a study of diagenetic sedimentary petrography from conventional core in Lower Cretaceous rocks from the transect from Como P-21, through Panuke B-90, Cohasset A-52, and Balmoral M-32 to Lawrence D-14. A comparison of diagenetic minerals in the Como–Lawrence transect with the outboard wells from the Glenelg field provides a better understanding of the distribution of diagenetic cements, including carbonate cements, in different parts of the basin.

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## ABSTRACT

Diagenetic cements are of decisive importance in determining the reservoir quality. It is therefore important to understand how such cements form. Only a few recent studies of diagenetic alteration have been published for the Scotian basin. The spatial and temporal distribution of diagenetic cements has been interpreted in relationship to lithofacies of the Lower Cretaceous sandstones from a proximal to distal transect from 5 wells (Como P-21, Panuke B-90, Cohasset A-52, Balmoral M-32, and Lawrence D-14). Polished thin sections were studied by optical microscopy and electron microprobe to characterize grain size, texture, and chemical composition of diagenetic minerals.

Kaolinite, pyrite, illite, quartz overgrowths, early and late carbonates are the diagenetic minerals cementing the Lower Cretaceous sandstones. Kaolinite, early calcite I, Fe-calcite I, siderite A and B occur in fluvial and river-mouth to prodeltaic sandstones; lithofacies strongly influenced by meteoric water and with not much organic carbon. Siderite hemispheres are restricted to estuary sandstones and intertidal to subtidal sandstones. Pyrite is abundant in tidal-estuary to fluvial sandstones, transgressive, shoreface sandstones, and in river-mouth to prodeltaic turbidites. The highest amounts of pyrite were found in samples lacking early calcite I and Fe-calcite I cements. Quartz overgrowths occur in all lithofacies, and better developed in coarse sandstones. Late carbonate cements including Fe-calcite II and ankerite occur in most of the lithofacies including tidal-estuary to fluvial sandstones, prodeltaic turbidites, sand flat-intertidal to subtidal sandstones, and in shoreface sandstones. Abundance of late carbonate cements are partly related to limestones and bioclastic sandstones in the section; samples with high amounts of late carbonate cements were found either below or above intervals rich in bioclasts or limestones.

In summary, in the Como-Panuke-Cohasset-Balmoral-Lawrence transect, the succession seems to be more marine from Como to Lawrence. Kaolinite is abundant in Como, Panuke and Cohasset and it is rare in Balmoral and absent in Lawrence, whereas carbonate cements are rare in Como and more abundant in Panuke, Cohasset, Balmoral and Lawrence. Limestones and bioclasts are the source of some of the calcium for the late carbonate cements. This study demonstrates that the distribution of diagenetic minerals and their impact on reservoir-quality evolution can be better elucidated when linked to lithofacies.

## 1. Introduction

The Scotian margin, offshore eastern Canada, is a passive continental margin that rifted in the late Triassic (McIver, 1972; Given, 1977; Wade and MacLean, 1990). The Lower Cretaceous Missisauga and Logan Canyon formations are sandy deltaic units on the outer Scotian Shelf in the Sable Subbasin (Fig. 1), that host most of the gas and oil discoveries of the Scotian Basin.

The Scotian Basin covers an area of approximately 300,000 km<sup>2</sup>, stretching from the eastern part of Georges Bank to the central Grand Banks (Wade and MacLean, 1990). The Scotian Basin is a part of a wedge of Mesozoic-Cenozoic sediments deposited on the southeastern flank of the Appalachian Orogen. During the late Jurassic and early Cretaceous, Nova Scotia was located approximately 30°N of the equator (Irving et al., 1993), the Atlantic Ocean was approximately 1,000 km wide (Ziegler, 1989), and the climate was warm and temperate (Rees et al., 2000).

Diagenetic cements (principally clay minerals, carbonates and quartz) are commonly the dominant components of diagenesis and hence they are of critical importance in determining the reservoir quality (Morad et al., 1998). It is therefore important to understand how these cements form and their distribution in the basin. Only a few recent studies of diagenetic alteration have been published for the Scotian Basin (e.g. Jansa and Noguera Urrea, 1990; Drummond, 1992; Gould et al., 2010a; Karim et al., 2010; Pe-Piper et al., 2004, 2009, 2010).

Sequence stratigraphic techniques, important for predicting the spatial and temporal distribution of facies-controlled reservoirs, seals and source rocks, are based on changes in relative sea level and rates of sediment supply (e.g., Posamentier and Allen, 1999). The facies-controlled depositional porosity and permeability are usually modified by a variety of diagenetic alterations at near-surface conditions and during progressive sediment burial. Thus, linking the distribution of diagenetic alteration to sequence stratigraphy and lithofacies should enhance our ability to better unravel and predict reservoir-quality evolution of sandstones (e.g., Taylor et al., 1995; Moral et al., 2000; Al-Ramadan et al., 2005; El-ghali et al., 2006a, b, c; Machent et al., 2007; Taylor and Machent, 2010).

The objective of this study is to investigate the links of spatial and temporal distribution of diagenetic cements to a depositional lithofacies framework and their impact on reservoir quality in the transect from Como P-21, through Panuke B-90, Cohasset A-52, and Balmoral

M-32 to Lawrence D-14 in the western Sable Subbasin. The study is supported by recent logging and correlation of conventional cores from these wells by Gould et al. (2011). In addition a comparison of diagenetic cements between the Como–Lawrence transect and the Glenelg field reveals the similarities and differences between the outboard and inboard parts of the basin.

## **2. Methods**

For all the studied wells, Como P-21, Panuke B-90, Cohasset A-52, Balmoral M-32 and Lawrence D-14, samples were collected from conventional cores stored at the Canada-Nova Scotia Offshore Petroleum Board Geoscience Research Centre in Dartmouth, Nova Scotia. Polished thin sections, impregnated with blue epoxy, were made for most of the sandstone samples: 11 thin sections from Como P-21; 56 thin sections from Panuke B-90; 54 thin sections from Cohasset A-52; 3 thin sections from Balmoral M-32; and 5 thin sections from Lawrence D-14. All polished thin sections were studied by petrographic microscope using transmitted and reflected light to determine the mean grain size and the relative percentages of grains, matrix, cement and porosity (Tables 1-5). The different types of cement and their order of formation were also identified.

Representative polished thin sections from different lithofacies were analyzed at the Regional Microprobe Centre at Dalhousie University to determine the composition of diagenetic cements. The JEOL-8200 electron microprobe there has five wavelength spectrometers and a Noran 133 eV energy dispersion detector. The beam was operated at 15kV and 20 nA, using a beam diameter of 5  $\mu\text{m}$ . The energy dispersive spectrometer (EDS) was used for quick identification of minerals. Elements measured were Si, Al, Ti, Cr, Fe, Mn, Mg, Ca, Na, K, P, Ba, Sr, and Ni and Ba. Representative analyses are shown in Appendix 1.

Back-scattered electron (BSE) images were useful in investigating textural relationships between diagenetic phases (Appendix 2). The structural formulae of analyzed siderite were calculated on the basis of six oxygen atoms. For the calcite nomenclature, all analyses that have more than 1 wt. % of FeO and more than 1 wt. % of MgO are called ferroan calcite (Fe-calcite) and magnesian calcite (Mg-calcite) respectively.



### **3. Geological setting**

#### **3.1. Lithofacies**

Identification and nomenclature of lithofacies in cores are based on the scheme of Gould et al. (2010b), as summarized in Appendix 4. This nomenclature (lithofacies 0 to 10) is based on previous studies of lithofacies identification and interpretation by MacRae and Jauer (2001), modified by Piper et al. (2004), Cummings and Arnott (2005), Cummings et al. (2006) and Karim et al. (2008; 2010). The detailed descriptions and interpretations of lithofacies for the logged conventional core are presented in other Open File reports (Gould et al. 2010b, 2011). In this study, we present a summary of the predominant lithofacies in each well and illustrate the core logs to show the location of samples studied.

In the Como P-21 well, core 1, from the Upper Member of the Missisauga Formation, is dominated by tidal-flat lithofacies 5 and 6 with minor transgressive (lithofacies 3) and shore-face (lithofacies 2) intervals. Core 2, sampled from the Middle Member of the Missisauga Formation, is dominated by fluvial lithofacies 4, transgressive lithofacies 3 and tidal-flat lithofacies 5 and 6 (Fig. 2).

In Panuke B-90, cores 1-3, from the Cree Member of the Logan Canyon Formation were sampled. The predominant sediments are prodeltaic turbidites (lithofacies 0, 9), shore-face (lithofacies 2) and transgressive units (lithofacies 3; Figs. 3A, B). Cores 4, 5, and the upper part of core 6, from the Naskapi Member of the Logan Canyon, are mainly shelf mudstones (lithofacies 1) with transgressive bioclastic limestones (lithofacies 3) and prodeltaic turbidites (lithofacies 9; Figs. 3B, C). Cores 6–18 are from the Upper Member of the Missisauga Formation. The predominant sediments in these cores are tidal-estuary to fluvial sandstones (lithofacies 4) and tidal-flat lithofacies (5 and 6; Figs. 3C-F), although transgressive and shore-face sediments are also present.

In Cohasset A-52, Cores 1–19, from the Cree Member of the Logan Canyon Formation were sampled. River-mouth to prodeltaic turbidites (lithofacies 0, 9) predominate, with lesser fluvial, shore-face, transgressive and tidal-flat lithofacies (Figs. 4A-D) in these cores. Core 20, from the Naskapi Member of the Logan Canyon, is made of mainly mudstone and siltstone with thin sandstone beds (lithofacies 0b). Cores 21 and 22 are from the Upper Member of the Missisauga Formation. Similar to the other cores, they consist essentially of river-mouth to prodeltaic turbidites (lithofacies 9), with some shore-face sediments (lithofacies 2; Fig. 4D).

In Balmoral M-32, only one core was available from the Cree Member of the Logan Canyon Formation. It is dominated by tidal-flat lithofacies 5 and 6, with some tidal-estuary (lithofacies 4), transgressive (lithofacies 3) and shore-face (lithofacies 2) sediments (Fig. 5).

Cores 1 and 2 from Lawrence D-14 are from the Upper Member of the Missisauga Formation. They consist mainly of river-mouth to prodeltaic turbidites (lithofacies 9) with some transgressive (lithofacies 3) and tidal-flat (lithofacies 6) intervals (Fig. 6).

### ***3.2. Correlations between wells***

Based on gamma ray logs and lithologies in conventional core, a correlation between cores from the Logan Canyon and Missisauga Formations was proposed by Gould et al., 2011 (Fig. 7). In the Cree Member, cores 1 and 2 from Panuke B-90 correlate with core 13 from Cohasset A52 and core 3 from Panuke correlates with cores 15 and 16 from Cohasset (Fig. 7A). Core 10 from Cohasset A-52 correlates with core 1 from Balmoral M-32 (Fig. 7B). In the Upper Member of the Missisauga Formation, core 1 from Como P-21 correlates with core 7 from Panuke B-90, cores 21 and 22 from Cohasset A-52, and cores 1 and 2 from Lawrence D-14 (Fig. 7C).

### ***3.3. Relationship to rocks at the Glenelg field***

The sediments in the transect Como–Lawrence (inboard wells) form a more condensed section, with the Upper Member of the Missisauga Formation being about 200 m thick, whereas in the Glenelg field (outboard wells), the Upper Member is 800 m thick. Therefore the correlative sediments in Glenelg field studied by Karim et al. (2008, 2010) were buried deeper than those in the transect Como–Lawrence. In both the inboard and outboard wells three characteristic vertical successions of different lithofacies were recognized: prodeltaic, shoreface, and tidal parasequences (Gould et al., 2010b). The prodelta parasequence is dominant in the Glenelg field, whereas tidal parasequences are common in the inboard wells, but are also found in wells farther outboard. Shoreface parasequences are generally found in the inboard wells.

## 4. Diagenetic minerals and paragenetic sequence

### 4.1. Silicate minerals

#### *Clay Minerals*

Clay minerals in the sandstones studied include kaolinite, grain-coating clays, illite and chlorite. Kaolinite has percentages ranging from 0.1 % to 10 %. Kaolinite booklets fill pores between detrital grains and replace detrital K-feldspar (Fig. 8A). They are engulfed by and therefore predate Fe-calcite (Appendix 2C-fig. 17). Kaolinite is absent from sandstone samples from the Lawrence D-14 well.

Grain-coating clays are mostly illitic. They occur as continuous to discontinuous layers around detrital grains. They also fill pores and form bridges between detrital grains (App. 2C-fig 19). Grain-coating illitic clays are engulfed by Mg-calcite, siderite B and Fe-calcite II (Fig. 8B, App. 2C-fig 15). They are abundant in oolitic limestones from Panuke B-90 and in the prodeltaic sandstones from Cohasset A-52.

Illite ranges from 0.1 to 7% and occurs mainly as pore-linings and replacement of grain-coating clays and matrix. It forms fibrous and hair-like crystals, up to 10  $\mu\text{m}$  long, and is commonly associated with chlorite. Illite is engulfed by, and thus predates Fe-calcite II (Fig. 8C). Illite is present in tidal-estuary to fluvial sandstones, river-mouth to prodeltaic turbidites, and shoreface sandstones.

Chlorite occurs in small amounts (0.1 to 5 %) as chlorite rims and pore-filling fibrous chlorite. Chlorite rims form tiny crystals (5 to 10  $\mu\text{m}$ ) around detrital grains, but pore-filling chlorite forms longer crystals (20  $\mu\text{m}$  long). Like illite, fibrous chlorite replaces clay matrix (App. 2E-fig 7) and it is present in the same lithofacies as the illite. However chlorite rims are present only in tidal-estuary to fluvial sandstones.

#### *Quartz*

Quartz cement (0.1 to 7 %) occurs as euhedral, syntaxial overgrowths around detrital quartz grains. It is better developed in coarse sandstones than in fine sandstones. The boundaries between the quartz overgrowths and the detrital-quartz grain are well defined by clay coatings, corrosion and fluid inclusions. Quartz overgrowths engulf, and thus postdate kaolinite and illite, but are engulfed by, and thus predate, Fe-calcite II and ankerite (Fig. 8). Quartz cement is present in most of the lithofacies including tidal-estuary to fluvial sandstones, river-mouth to

prodeltaic turbidite, shoreface, transgressive, and tidal-flat sandstones.

## **4.2. Carbonate minerals**

### *Siderite*

Three types of siderite (A-C) were distinguished on the basis of texture. Siderite A occurs as small (< 10  $\mu\text{m}$ ) crystals that form rims around detrital grains. These rims are well formed and mostly continuous around bioclasts and lithoclasts rather than around detrital quartz (Fig. 9A). Siderite rims are in contact with detrital quartz grains lacking quartz overgrowths, and therefore predate quartz overgrowths. They are also engulfed by and thus predate Fe-calcite (Fig. 9A). Siderite type B occurs as well-formed individual euhedral crystals (10 to 20  $\mu\text{m}$ ) that fill the pore space between detrital grains (Fig. 9B). It has in places grown up to the irregular corroded margins of framework quartz grains. The siderite B crystals are zoned: they contain dark zones rich in Mg and bright zones poor in Mg. Siderite B commonly appears to have undergone a large amount of dissolution (Fig. 9B). Similar to siderite A, siderite B is in contact with detrital quartz and is engulfed by Fe-calcite: therefore it predates both quartz overgrowths and Fe-calcite cements. Siderite hemispheres (siderite C) are nodule-like cements. They form as concentric layers separated by porosity zones in an overall hemispherical structure 20 to 80  $\mu\text{m}$  in radius (Fig. 9D). Some of these concentric layers form around a quartz nucleus. The siderite hemispheres are in contact with detrital quartz grains and are engulfed by grain-coating clays (Fig. 9D).

The abundance of siderite varies stratigraphically. Siderite rims (A) are present only in shoreface sandstones from the Cree Member of the Cohasset A-52 well. Siderite B is abundant in tidal-estuary to fluvial sandstones, river-mouth to prodeltaic turbidite, transgressive and shoreface sandstones from the Cree Member and the upper part of the Upper Member of the Missisauga Formation of Cohasset A-52; and from the Naskapi Member and the upper part of the Upper Member of the Missisauga Formation of Panuke B-90 and in only the Upper Member of the Missisauga Formation of Como P-21. Siderite hemispheres (C) are present in tidal-estuary to fluvial sandstones from the Cree Member in the Cohasset A-52 well and in sand- flat intertidal to subtidal sandstones from the Upper Member of the Missisauga Formation of the Panuke B-90 well. Electron microprobe analyses revealed that siderite A is rich in Mg and siderite C is poor in Mg. Siderite B may have either high or low values of Mg (Fig. 10). Siderite B crystals show an

oscillatory texture with alternation of bright (with low Mg) and dark (with high Mg) zones. The dark zones are twice as rich in Mg than the bright zones. Siderite B with dissolution (Fig 9C) shows only low values of Mg, suggesting that zones with high Mg were probably dissolved.

### *Calcite*

Calcite cement is a low Mg- and low Fe-calcite. Two generations of calcite cement were distinguished; calcite I and calcite II. Calcite I is porous and fills large pores. It is in contact with detrital quartz grains and therefore it predates quartz overgrowths (App. 2A-fig 7). Calcite II is present in tidal-estuary to fluvial sandstones. Like Mg-calcite, calcite II cement fills large intergranular pores prior to compaction. It forms microcrystals ( $< 10 \mu\text{m}$ ) replacing Mg-calcite (Fig. 8B) and coarse crystals ( $> 20 \mu\text{m}$ ) that fill large pores (Fig. 8D). Calcite II cement engulfs and thus postdates chlorite + illite and quartz overgrowth cements (Figs. 8D, F; App. 2E-fig. 12). It is present in tidal-estuary to fluvial sandstones, river-mouth to prodeltaic turbidite, transgressive, shoreface and sand-flat intertidal to subtidal sandstones.

### *Mg-calcite*

Mg-calcite occurs as porous microcrystalline cement. It fills large intergranular pores, probably prior to compaction (Fig. 8B). It is in contact with detrital grains and predates quartz overgrowths. Mg-calcite is present only in transgressive units of oolitic limestone.

### *Fe-calcite*

Fe-calcite is the most dominant cement in the wells studied. Two generations of Fe-calcite were recognized: Fe-calcite I occurs as porous (Fig 9A) and solid cement. It fills large intergranular pores prior to compaction (Fig. 9A). Fe-calcite I engulfs siderite rims and siderite B, it is in contact with detrital quartz grains, and it inhibits quartz overgrowths. Therefore Fe-calcite I postdates siderite A and B and predates quartz overgrowths (Figs. 9A, B; App. 2B-figs. 36, 40). Fe-calcite I also engulfs grain-coating clays, and it shows common dissolution along the cleavage planes (Fig. 8C). Fe-calcite I is present in tidal-estuary to fluvial sandstones, river-mouth to prodeltaic turbidite, transgressive and shoreface sandstones.

Fe-calcite II is coarse-crystalline ( $> 20 \mu\text{m}$ ) and grows over and engulfs kaolinite, chlorite + illite and quartz overgrowths (Fig. 8D; 9C). Fe-calcite II fills large intergranular pores

between detrital grains and micropores between siderite A/B crystals and it replaces clays in coated grains (App. 2C-figs. 1, 3). Fe-calcite II is present in tidal-estuary to fluvial sandstones, river-mouth to prodeltaic turbidite, shoreface, transgressive, and tidal sandstones.

#### *Fe-Mg-calcite*

Fe-Mg-calcite occurs as sparry, coarse crystalline cement that completely fills large intergranular pores between detrital grains. It engulfs kaolinite, siderite B, and quartz overgrowth cements (Fig. 8E). It is common only in one sample (2217.17) from shoreface sandstone (lithofacies 2x) below a shelly transgressive unit (lithofacies 3y) from the Cohasset A-52 well.

#### *Ankerite*

Ankerite occurs as sparry, coarse-crystalline (30 to 100  $\mu\text{m}$ ) cement that fills large pores (Fig. 8F; App. 2A-fig. 5). It replaces early calcite I in coarse sandstones and it engulfs and thus postdates calcite I, calcite II, quartz overgrowths and illite cements (Fig. 8F). Ankerite was found with Fe-calcite II filling large intergranular pores, but the textural relationship between the two cements was not always clear (Figs. 8F; App. 2B-figs. 9, 10; App. 2A-fig. 5). Figure 8F shows some ankerite cement engulfing Fe-calcite II and calcite II, which suggests that the ankerite cement was probably formed after Fe-calcite II and calcite II. Ankerite engulfs and thus postdates quartz overgrowths (App. 2A-fig. 5; App. 2B-figs. 7, 11, 54). Ankerite cement is present in tidal-estuary to fluvial sandstones, prodeltaic turbidite, tidal and shoreface sandstones from Panuke B-90 and Como P-21 wells. It is absent in Cohasset A-52, Lawrence D-14 and Balmoral M-32 wells.

## **4.2. Other diagenetic minerals**

#### *Pyrite*

Pyrite framboids about 10  $\mu\text{m}$  across occur surrounded by kaolinite, illite + chlorite, siderite B, Fe-Mg-calcite and Fe-calcite II cements (Figs. 8A, D, E; 9B). It is in contact with detrital quartz grains and thus it predates quartz overgrowths. Pyrite occurs also engulfed by and thus predates ankerite (App. 2B-fig. 35). It is present in tidal-estuary to fluvial sandstones, river-mouth to prodeltaic turbidites, and tidal sandstones.

## *Glauconite*

Glauconite with deep-green colour is abundant (3 to 10 %) in transgressive units of lithofacies 3 and in prodeltaic turbidites (lithofacies 9). It forms flakes 5 to 10 µm in diameter that replace mud intraclasts.

## **5. Discussion**

### ***5.1. Relationship of eogenetic minerals and lithofacies***

The paragenetic sequence of all the wells studied is summarized in figure 11. In all wells kaolinite is abundant (5 -10%) in tidal-estuary to fluvial sandstones and river-mouth to prodeltaic turbidites (Table 6). This suggests that the fluvial and river-mouth lithofacies 4 and 9 were strongly influenced by meteoric water. Small amounts of early kaolinite were found in almost all lithofacies, implying that even fully marine lithofacies experienced some flux of meteoric water. Early calcite I and Fe-calcite I are present in similar lithofacies (fluvial, transgressive and prodeltaic sandstones), but early Mg-calcite is present only in transgressive oolitic limestones. Similar to early calcite, siderite types A and B are also present in fluvial, transgressive and river-mouth to prodeltaic sandstones, where there was not much organic carbon. Siderite hemispheres are restricted to estuarine sandstones and intertidal to subtidal sandstones (4o, 5b). Pyrite is abundant (5 to 10 %) in tidal-estuary to fluvial, transgressive, and shoreface sandstones and in river-mouth to prodeltaic turbidites. The highest amounts of pyrite were found in samples lacking early calcite I and Fe-calcite I cements. No relationship between siderite and Fe-calcite I have been seen.

### ***5.2. Lateral consistency of diagenesis***

The summary of diagenetic minerals present in each well at different stratigraphic levels is shown in Table 7. The Cree Member sandstones were sampled in Panuke, Cohasset and Balmoral. Illite + chlorite and quartz overgrowths are present in the three wells. Kaolinite is more abundant in Panuke and Cohasset (proximal) than in Balmoral M-32. All siderite types are absent in Balmoral and are abundant in Cohasset. Ankerite is present only in Panuke. Grain-coating clays and Fe-Mg-calcite are present only in Cohasset. Sandstones from the Naskapi Member were sampled only in Panuke. Kaolinite, siderite B, siderite matrix, illite + chlorite, quartz overgrowths, calcite II and Fe-calcite II are the only cements present in those

sandstones.

Sandstones from the Upper Member of the Missisauga Formation were sampled in Como, Panuke, Cohasset and Lawrence. Kaolinite is absent in Lawrence (most distal) and is present only in small amount (1%) in the other wells. Pyrite is abundant in Lawrence (most marine) and is rare in Cohasset and Como (proximal) and is absent in Panuke. Grain-coating clays, chlorite rims, early calcite I, Mg-calcite and Fe-calcite I are present only in Panuke. Quartz overgrowth and late Fe-calcite II cements are present in all wells. However ankerite is present only in one sample from Panuke. Late calcite II cement is present only in Lawrence.

Sandstones from the Middle Member of the Missisauga Formation were sampled only in Como. The diagenetic cements present in these sandstones are kaolinite, pyrite, early calcite I, quartz overgrowths, late Fe-calcite II and ankerite.

Kaolinite is abundant only in the Cree Member sandstones of Cohasset and Panuke and suggests that this Member has had more meteoric water flux than the Upper Member of the Missisauga Formation.

In summary, data from the Como-Panuke-Cohasset-Balmoral-Lawrence transect suggests increasing marine influence from Como to Lawrence. Kaolinite is abundant in Como, Panuke and Cohasset, is rare (1%) in Balmoral, and is absent in Lawrence, whereas carbonate cements are rare (1%) in Como and are more abundant in Panuke, Cohasset, Balmoral and Lawrence.

### ***5.3. Patchy carbonate cement and its relationship to bioclastic limestones***

Late carbonates are the most abundant cements in the sandstones from the Logan Canyon and the Missisauga Formations. Table 8 shows that most of the samples with at least 10 % of late carbonate cement are near a bioclastic limestone. Only in Lawrence and Balmoral are there samples with 20 to 25 % of late-carbonate cement unrelated to any bioclastic limestones. However one unit with common shell fragments was recognized in each well, from 2275.76 to 2276.66 m in Lawrence and from 1969.1 to 1970.2 in Balmoral. Therefore, those bioclastic limestones or shell fragments are interpreted as the source of some of the Ca of the late carbonate cements. On the other hand, there are samples of sandstones lacking late carbonate cements in Panuke, Cohasset and Como that are near bioclastic limestones or units rich in shell fragments. For example, sample 2295.4 from Panuke is near a bioclastic limestone at 2295.95 m and does not have any late carbonate cements. Thus there is not a close correlation between patchy carbonate



cementation and bioclastic limestones or sandstones with abundant bioclasts. Bioclastic limestones are therefore not the only source of carbonates for the carbonate cement. Other potential sources for carbonates are normal marine water, aerobic oxidation of organic matter, sulphate reduction and microbial methanogenesis and decarboxylation in a burial environment (Curtis, 1987; Machent et al., 2007). In addition, clay mineral transformation and dehydration reactions are interpreted as providing  $\text{HCO}^{-3}$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$  and  $\text{Fe}^{2+}$  (Machent et al., 2007). Furthermore, decarboxylation and clay mineral transformation in adjacent mudstones are also recognized as the source of solutes for ankerite cement in buried sandstones from the Upper Jurassic Fulmar Formation, central North Sea (Hendry et al., 2000).

#### ***5.4. Comparison to Glenelg: similarities and differences in late diagenesis: influence of early diagenesis or lithofacies***

Sandstones in the Glenelg field (Karim et al., 2008, 2010) are from similar stratigraphic levels as sandstones from the Como-Panuke-Cohasset-Balmoral-Lawrence transect, but the lithofacies are very different. A comparison of diagenetic cements present in this transect and in the Glenelg field is shown in Table 9. In sandstones from the Cree Member, quartz overgrowths, illite, chlorite and (Fe)-calcite are present in all the wells in the transect and in the Glenelg field, whereas ankerite cement is present only in Panuke and in the Glenelg field. In sandstones from the Upper Member of the Missisauga Formation, as for the Logan Canyon sandstones, quartz overgrowths, chlorite, illite and late Fe-calcite are the major late cements in these sandstones. Ankerite is present in the Glenelg field and in only one sample from Panuke well.

In order to understand these differences, a summary of variation in diagenetic minerals with lithofacies has been made for Panuke and Cohasset and the Glenelg field (Table 10). The diagenetic minerals present in prodeltaic to shoreface (9, 0, 2) lithofacies are similar in Panuke, Cohasset and Glenelg. They are kaolinite, pyrite, grain-coating clays, siderite, quartz overgrowths, chlorite, illite, Fe-calcite I, calcite II, Fe-calcite II, Fe-Mg-calcite, and ankerite. However glauconite is present only in Panuke and Cohasset and it is absent in samples from the Glenelg field. This is probably because Panuke–Cohasset have a higher proportion of shoreface highstand sands than Glenelg.

Similar to lithofacies 0, 2 and 9, in fluvial, tidal-estuary, lagoon and intertidal (4, 5, 6, 8) lithofacies, the diagenetic minerals present are kaolinite, pyrite, siderite, quartz overgrowths,

illite, chlorite, calcite I, II, Fe-calcite I, II, and ankerite. However calcite II is abundant only in Panuke and is absent in Cohasset and Glenelg. Calcite II is present at Kegeshook G-67, where its presence was interpreted to be related to fluids derived from the underlying Abenaki carbonates (Karim et al. 2010), also present beneath the Panuke–Cohasset wells. Although the spatial distribution of late carbonate cements at Panuke–Cohasset suggests that they are in part related to bioclastic limestones, in the Glenelg field late carbonate cements are also abundant, but bioclastic limestones are very rare.

We have seen also that siderite is more abundant in prodeltaic to shoreface lithofacies (0, 2, 9) than in fluvial, tidal-estuary, lagoon and intertidal (4, 5, 6, 8) lithofacies (Table 10) and it is also more abundant in Glenelg field than in Panuke and Cohasset. The presence of early siderite is related to suboxic reduction of Fe during burial close to the seafloor, favoured by low organic carbon availability and/or by brackish water (Taylor and Curtis, 1995). These two factors are present principally in sandy lithofacies 9 and 0, which are proportionally more abundant at Glenelg than at Panuke–Cohasset. Siderite hemispheres were interpreted by Karim et al. (2010) as forming at fluctuating meteoric water table: this interpretation likely applies to the hemispheres found in this study.

Ankerite is also more abundant in Glenelg than in Panuke and it is absent in Cohasset. It is may be depth related. In Panuke and Cohasset samples may not reach the depth to form ankerite. Ankerite has been seen in other deep wells in the basin for example in Peskowsk A-99 (Pe-Piper et al., 2006).

## **6. Conclusions**

Kaolinite, pyrite, illite, chlorite, quartz overgrowths, early and late carbonates, including siderite, calcite I, II, Mg-calcite, Mg-Fe-calcite, Fe-calcite I, II, ankerite, are the diagenetic minerals cementing the Lower Cretaceous sandstones from a proximal to distal transect at Como-Panuke-Cohasset-Balmoral-Lawrence.

Lithofacies influence which diagenetic minerals are present. Kaolinite, early calcite I, Fe-calcite I, siderite A and B occur in fluvial and river-mouth to prodeltaic sandstones. These are lithofacies strongly influenced by meteoric water and with low organic carbon. Siderite hemispheres are restricted to estuary and intertidal to subtidal sandstones. Pyrite is abundant in tidal-estuary to fluvial sandstones, transgressive, shoreface sandstones, and in river-mouth to

prodeltaic turbidites. Quartz overgrowths occur in all lithofacies and are better developed in coarse sandstones. Late carbonate cements including Fe-calcite II and ankerite occur in most of the lithofacies, including tidal-estuary to fluvial sandstones, prodeltaic turbidites, sand flat-intertidal to subtidal, and in shoreface sandstones.

In the Como–Lawrence transect, the succession seems to become more marine from Como to Lawrence. Kaolinite is abundant in Como, Panuke and Cohasset and it is rare in Balmoral and absent in Lawrence, whereas carbonate cements are rare in Como and more abundant in Panuke, Cohasset, Balmoral and Lawrence. Limestones and bioclasts are the source of some of the calcium for the late carbonate cements. This study demonstrates that the distribution of diagenetic minerals and their impact on reservoir-quality evolution can be better elucidated when linked to lithofacies.

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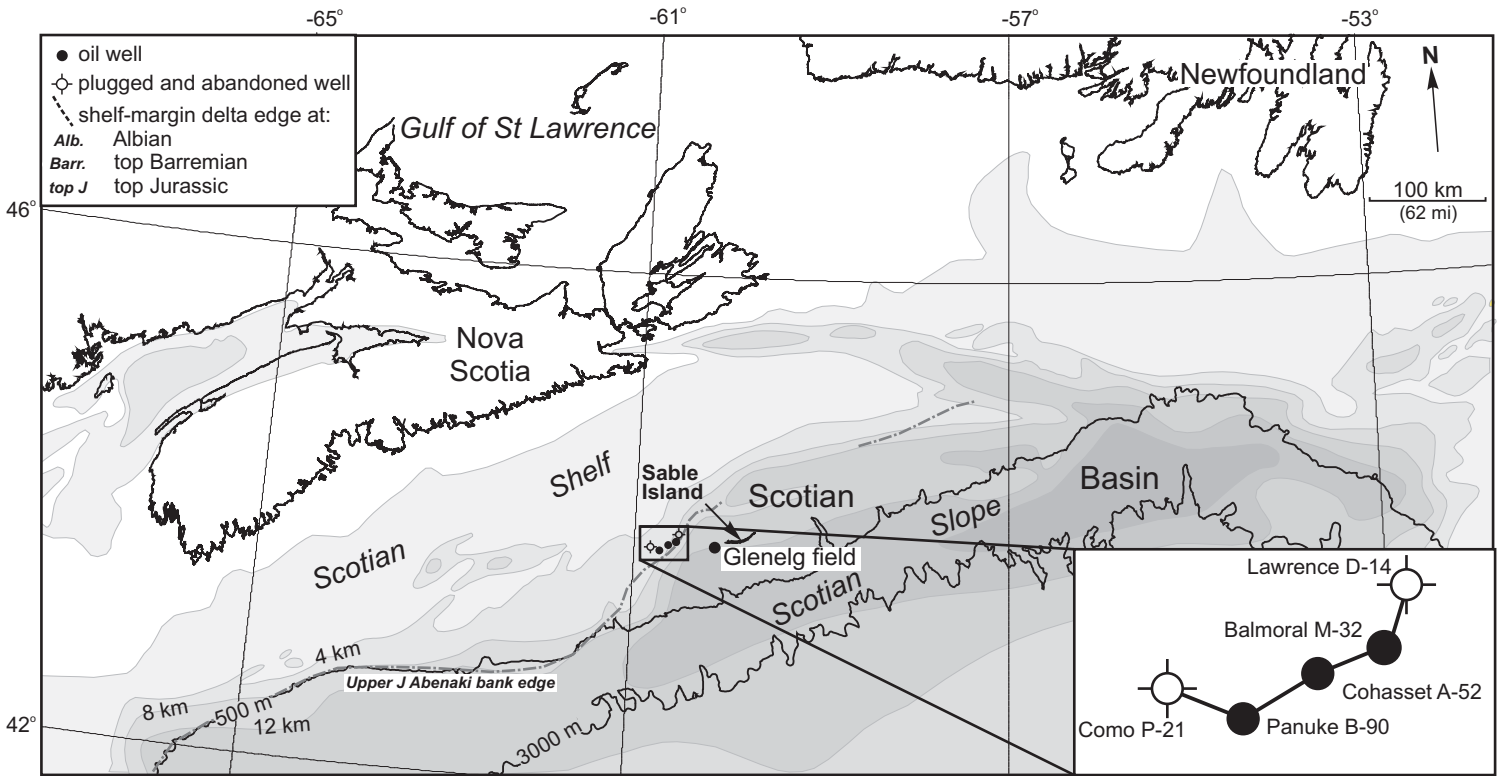


Figure 1: Map showing location of studied wells within the Sable Subbasin. Isopachs of Mesozoic to Cenozoic sediments in kilometres from MacLean & Wade (1992).

# Como P-21

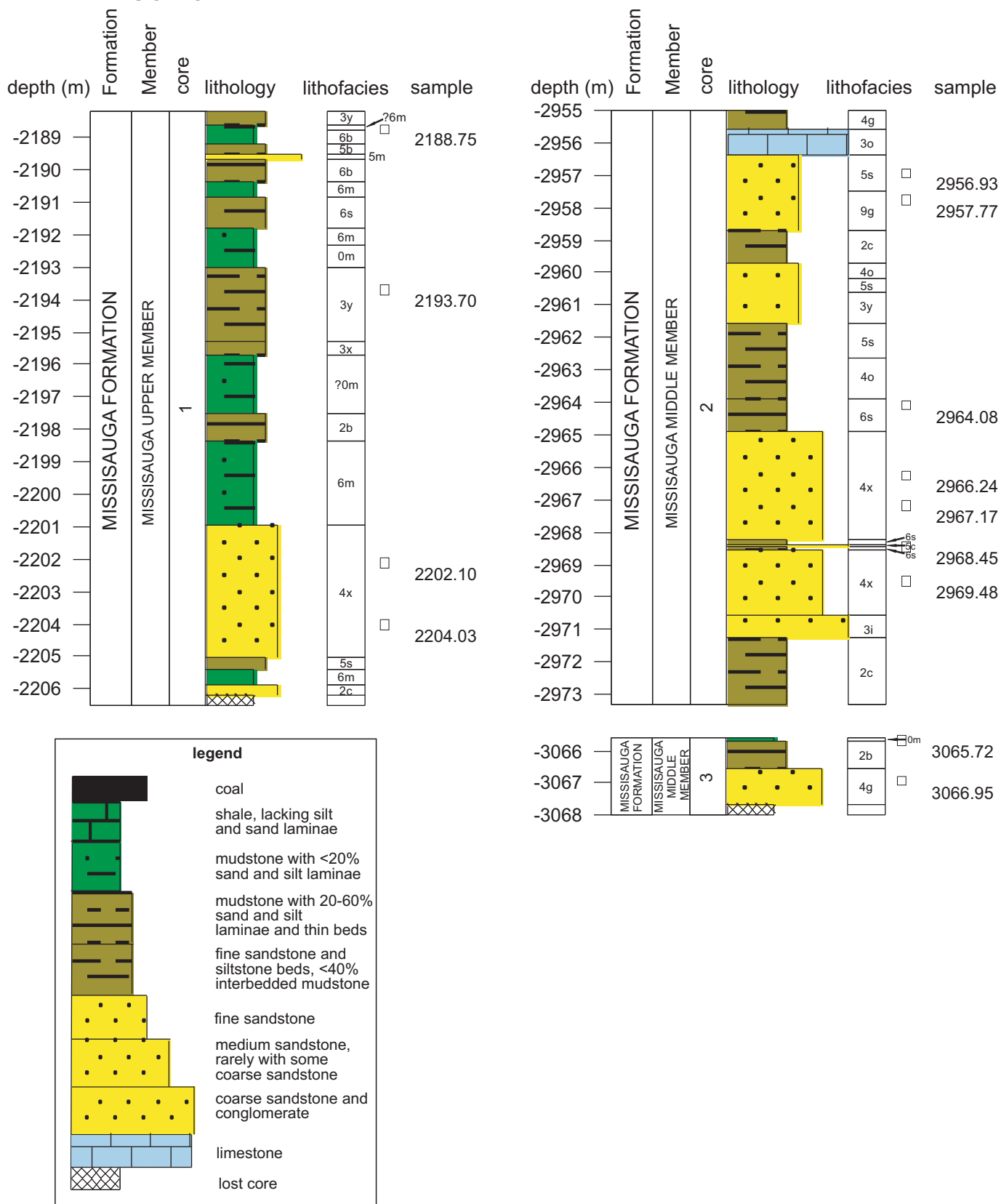


Figure 2: Summary log of conventional cores from Como P-21. Reproduced from Gould et al., (2010b).



# Panuke B-90

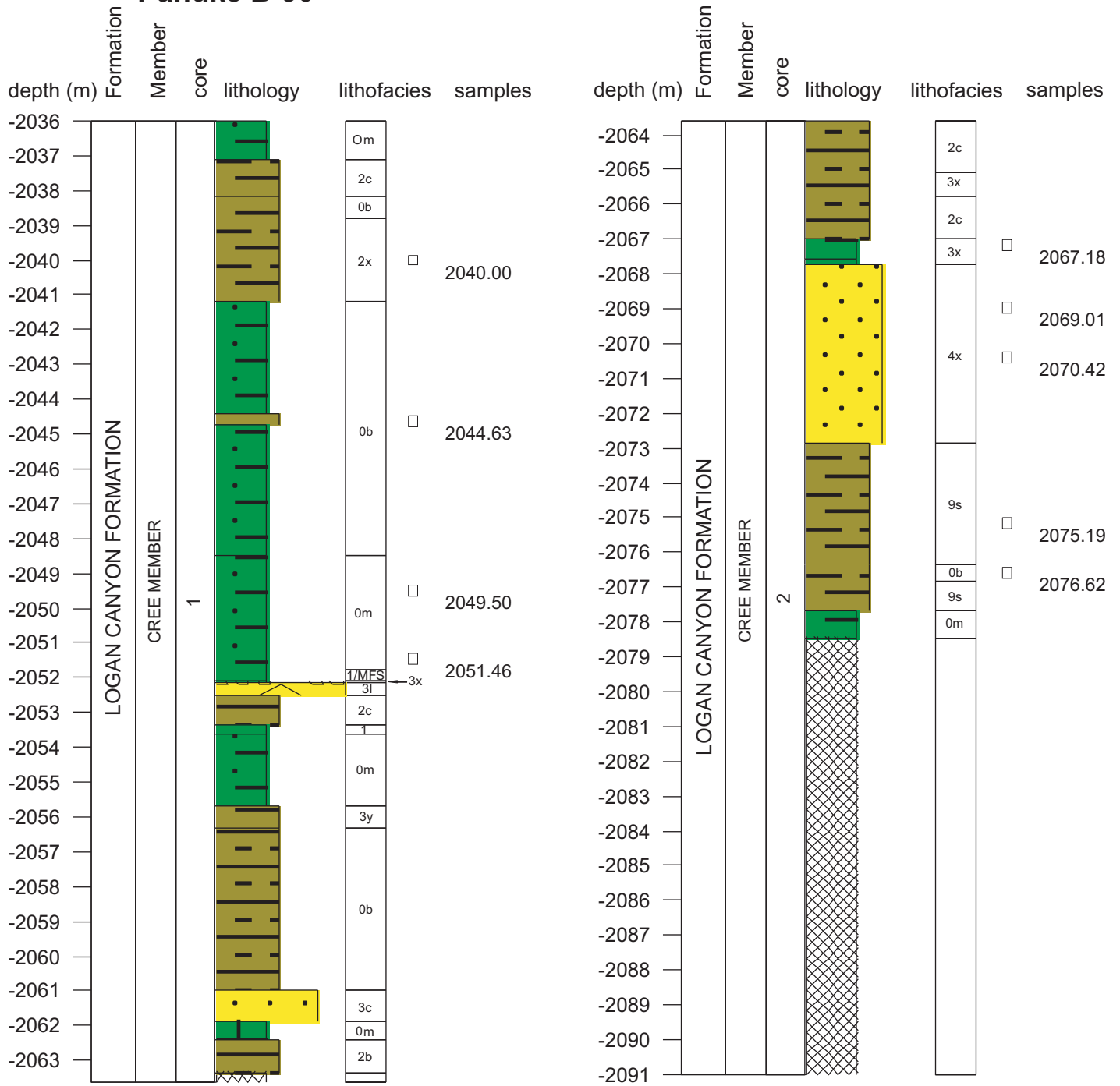


Figure 3A: Summary log of conventional cores 1 and 2 from Panuke B-90 well. Reproduced from Gould et al., (2010b).

# Panuke B-90

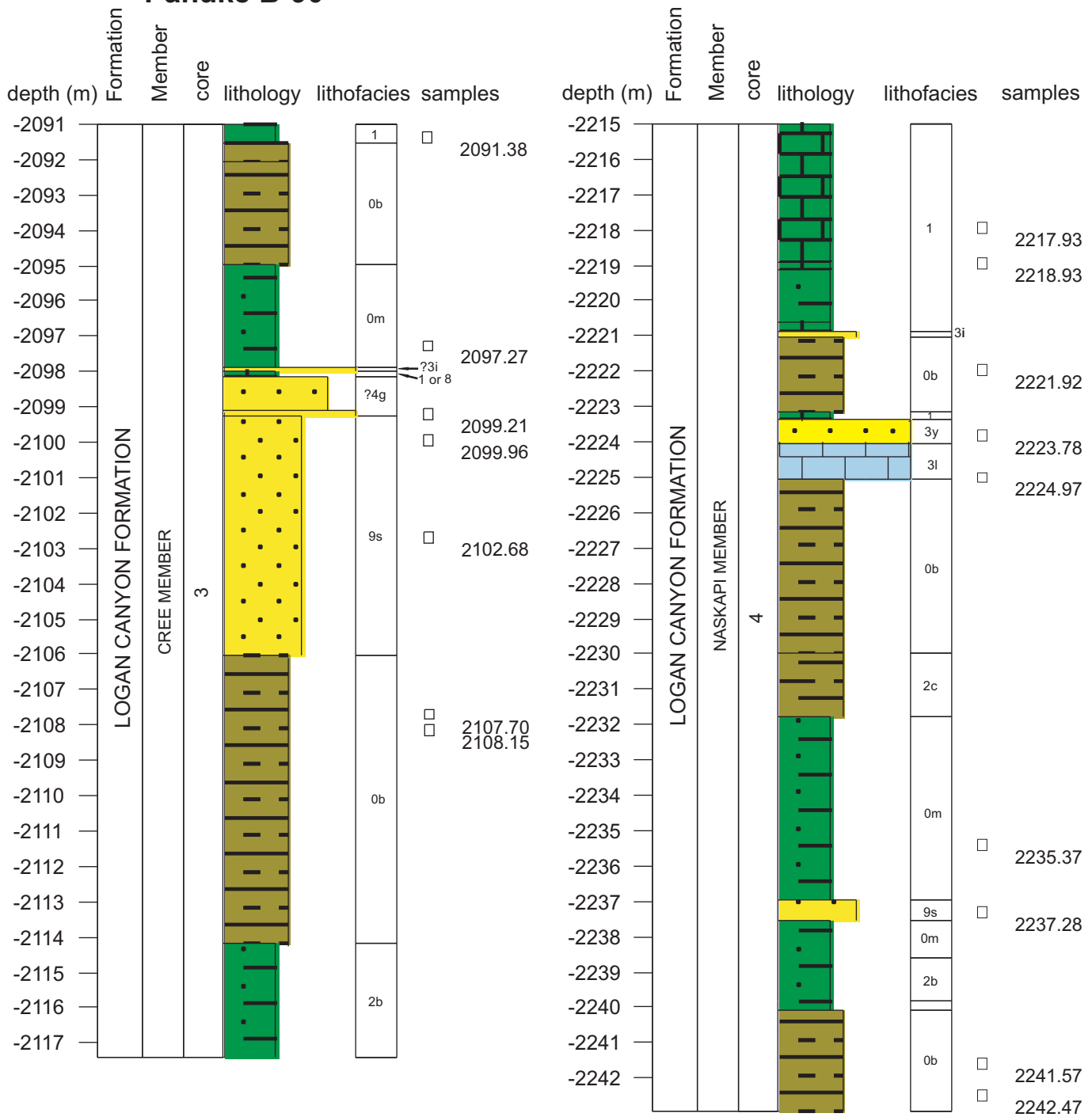


Figure 3B: Summary log of conventional cores 3 and 4 from Panuke B-90 well. Reproduced from Gould et al., (2010b).

# Panuke B-90

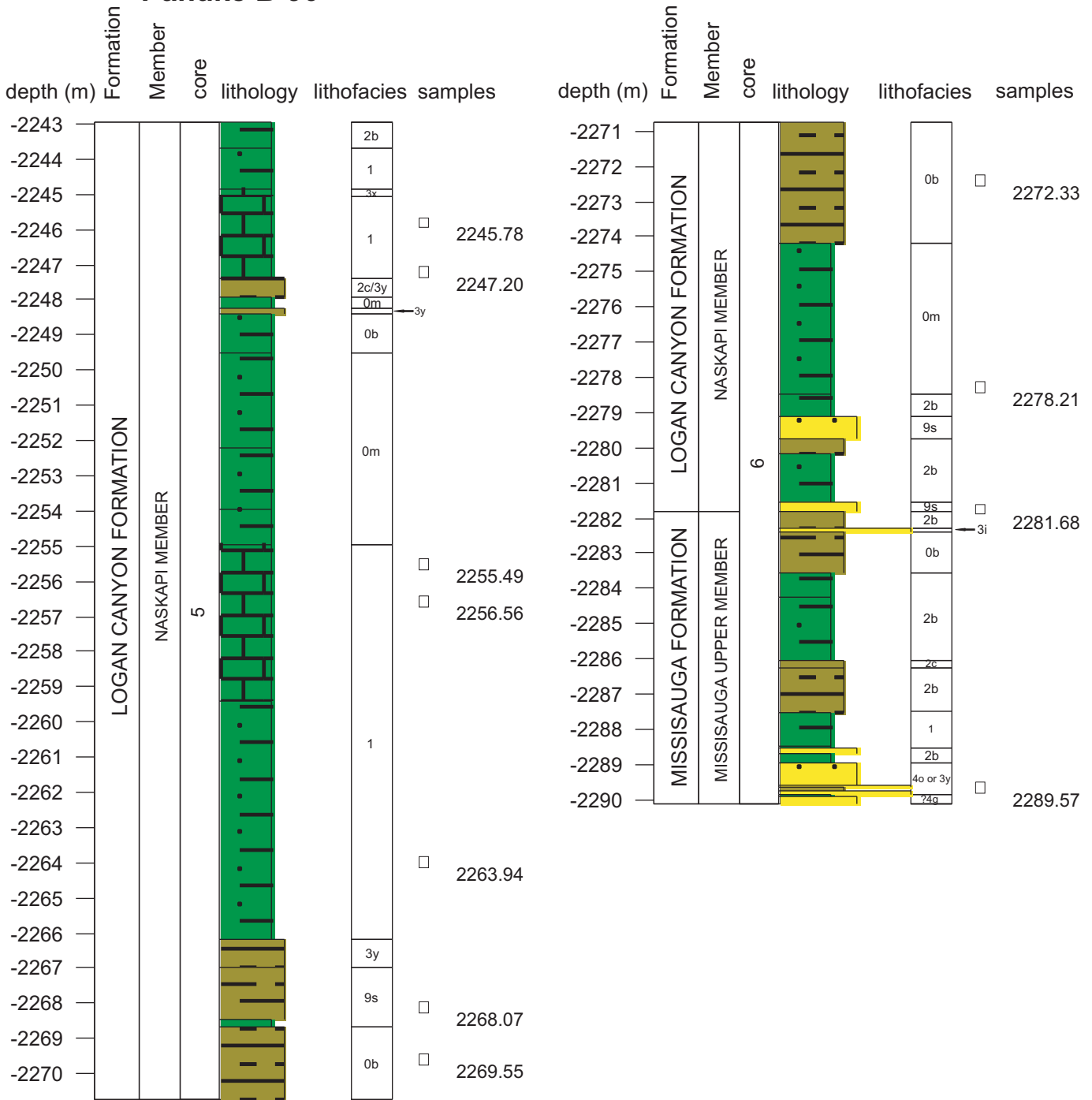


Figure 3C: Summary log of conventional cores 5 and 6 from Panuke B-90 well. Reproduced from Gould et al., (2010b).

# Panuke B-90

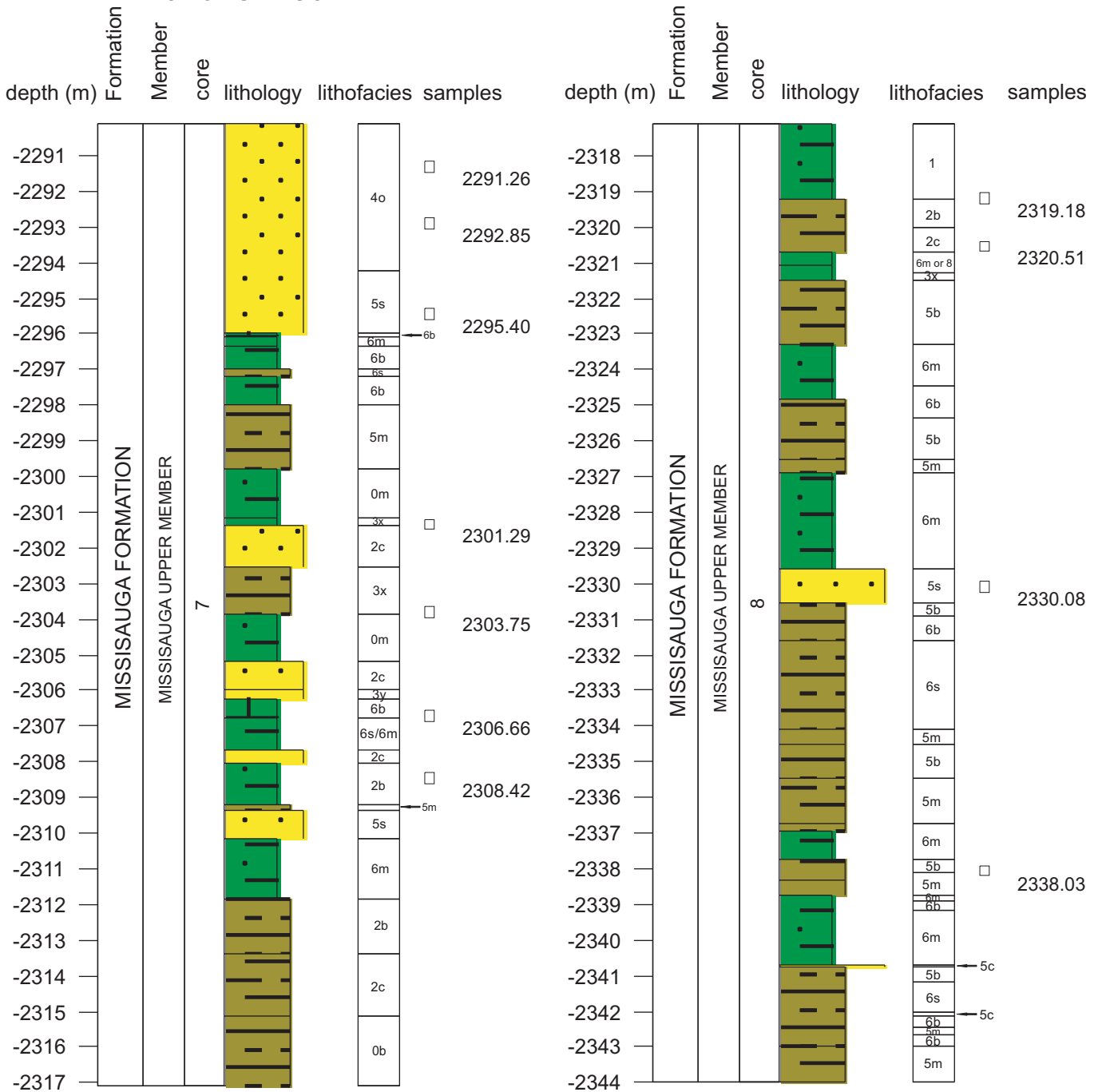


Figure 3D: Summary log of conventional cores 7 and 8 from Panuke B-90 well. Reproduced from Gould et al., (2010b).

# Panuke B-90

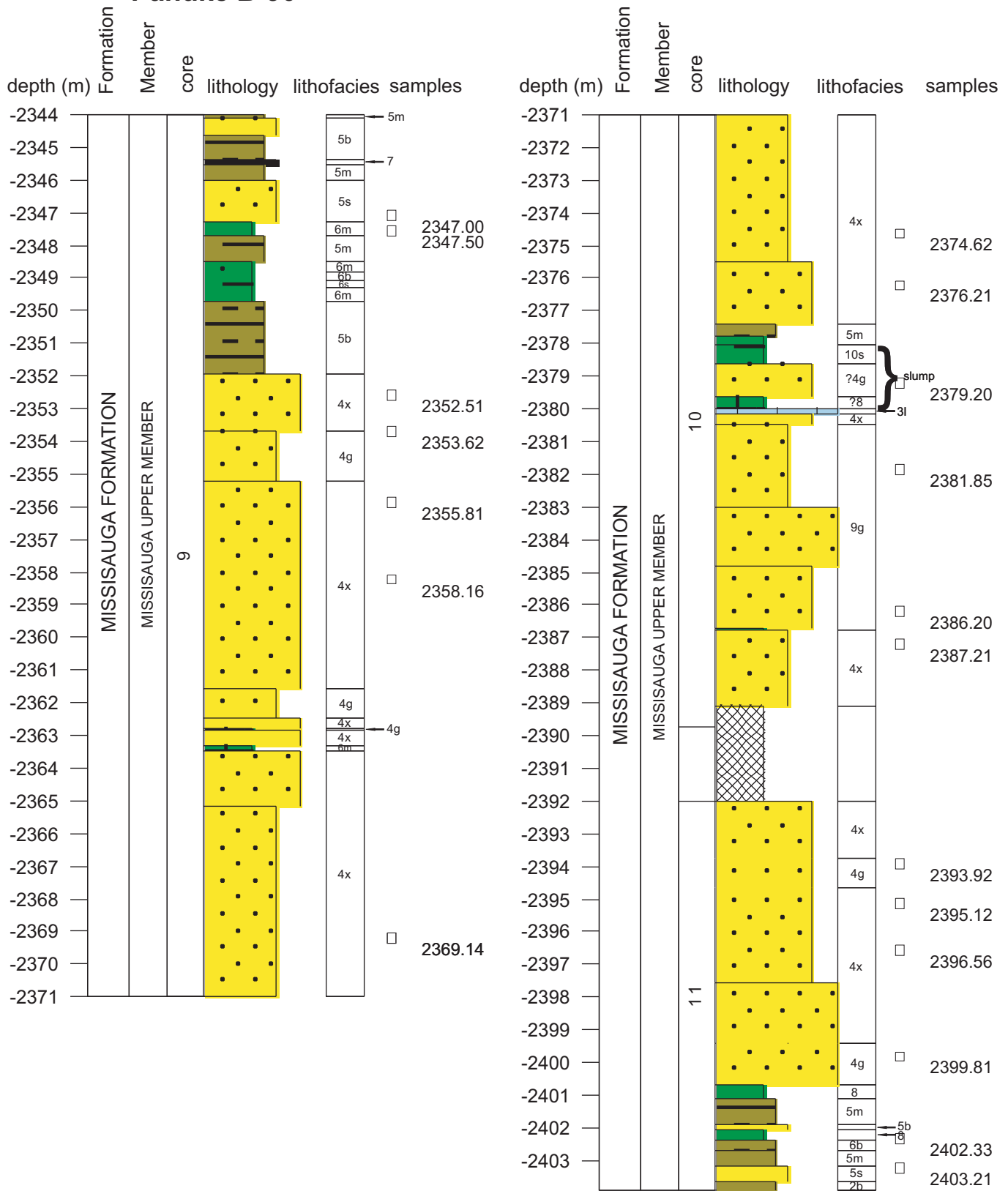


Figure 3E: Summary log of conventional cores 9 - 11 from Panuke B-90 well. Reproduced from Gould et al., (2010b).

# Panuke B-90

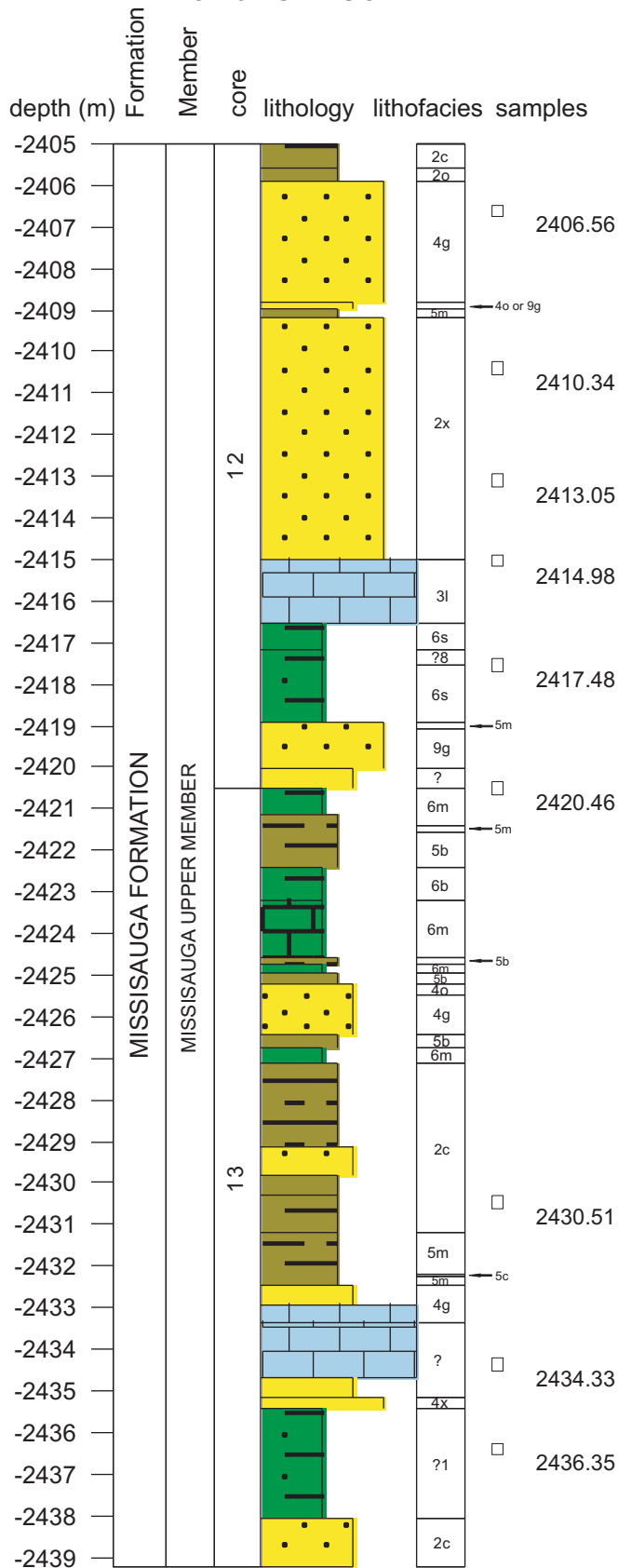


Figure 3F: Summary log of conventional cores 12 and 13 from Panuke B-90 well. Reproduced from Gould et al., (2010b).

# Cohasset A-52

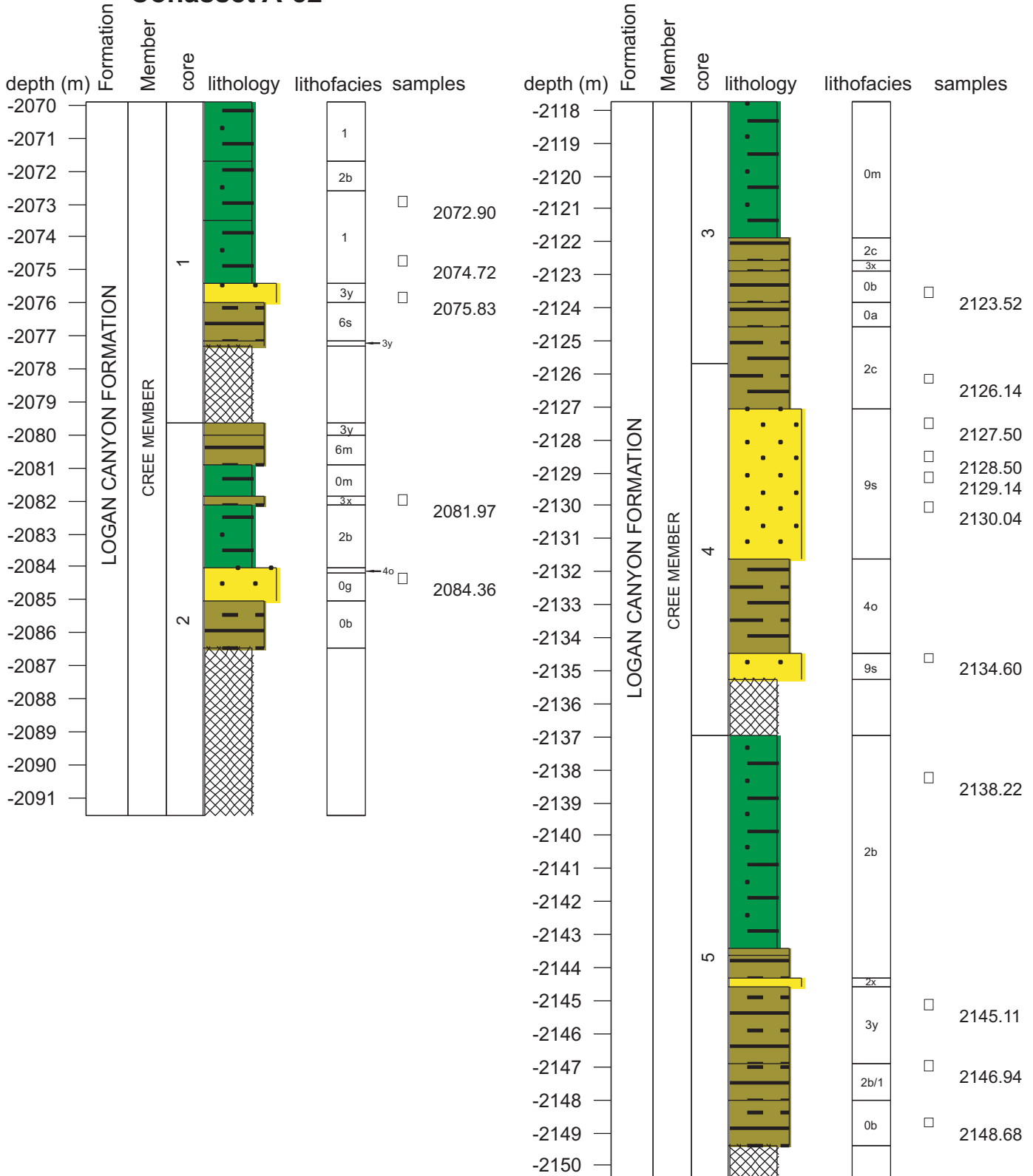


Figure 4A: Summary log of conventional cores 1 - 5 from Cohasset A-52 well. Reproduced from Gould et al., (2010b).

# Cohasset A-52

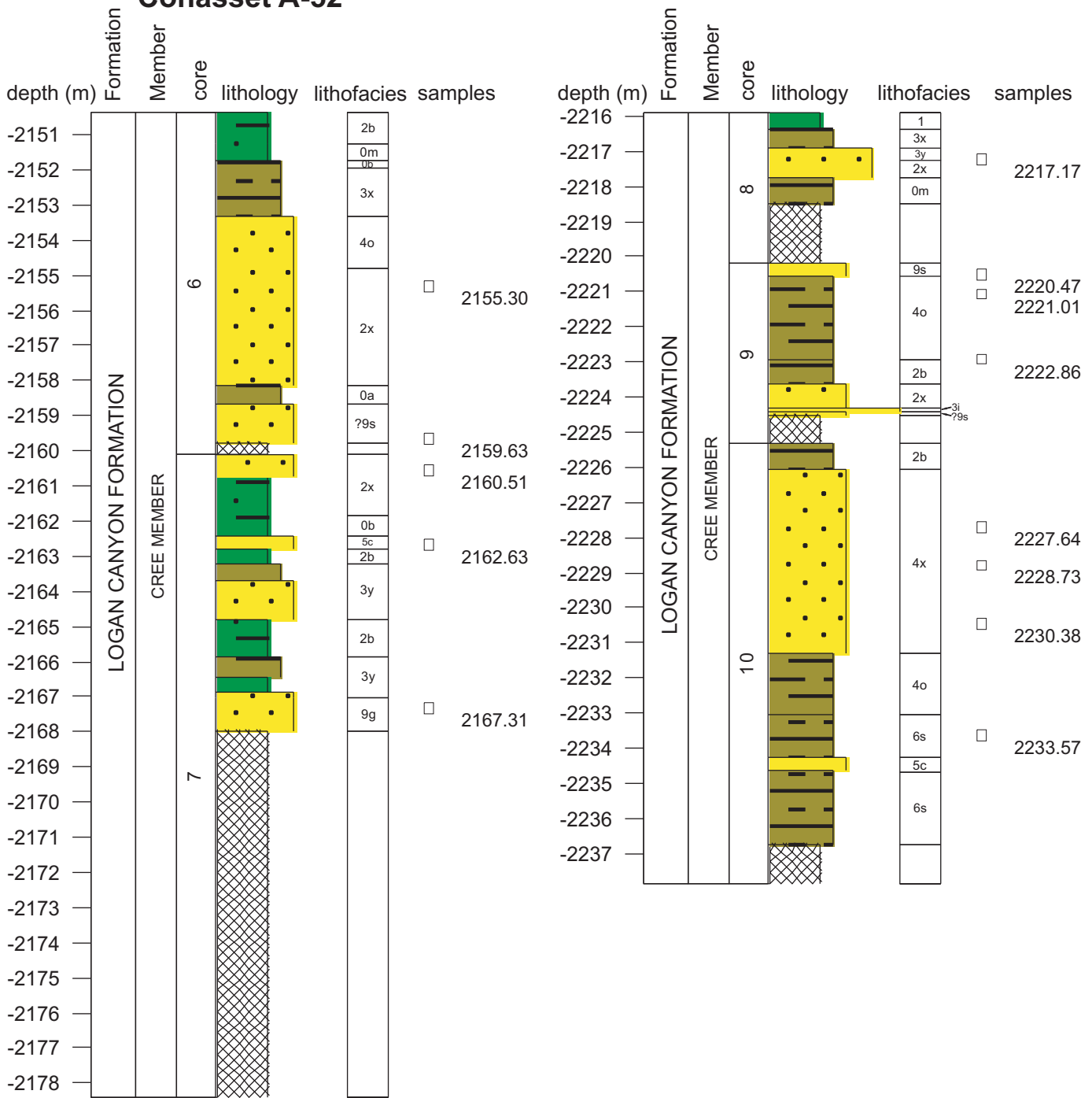


Figure 4B: Summary log of conventional cores 6 - 10 from Cohasset A-52 well. Reproduced from Gould et al., (2010b).



# Cohasset A-52

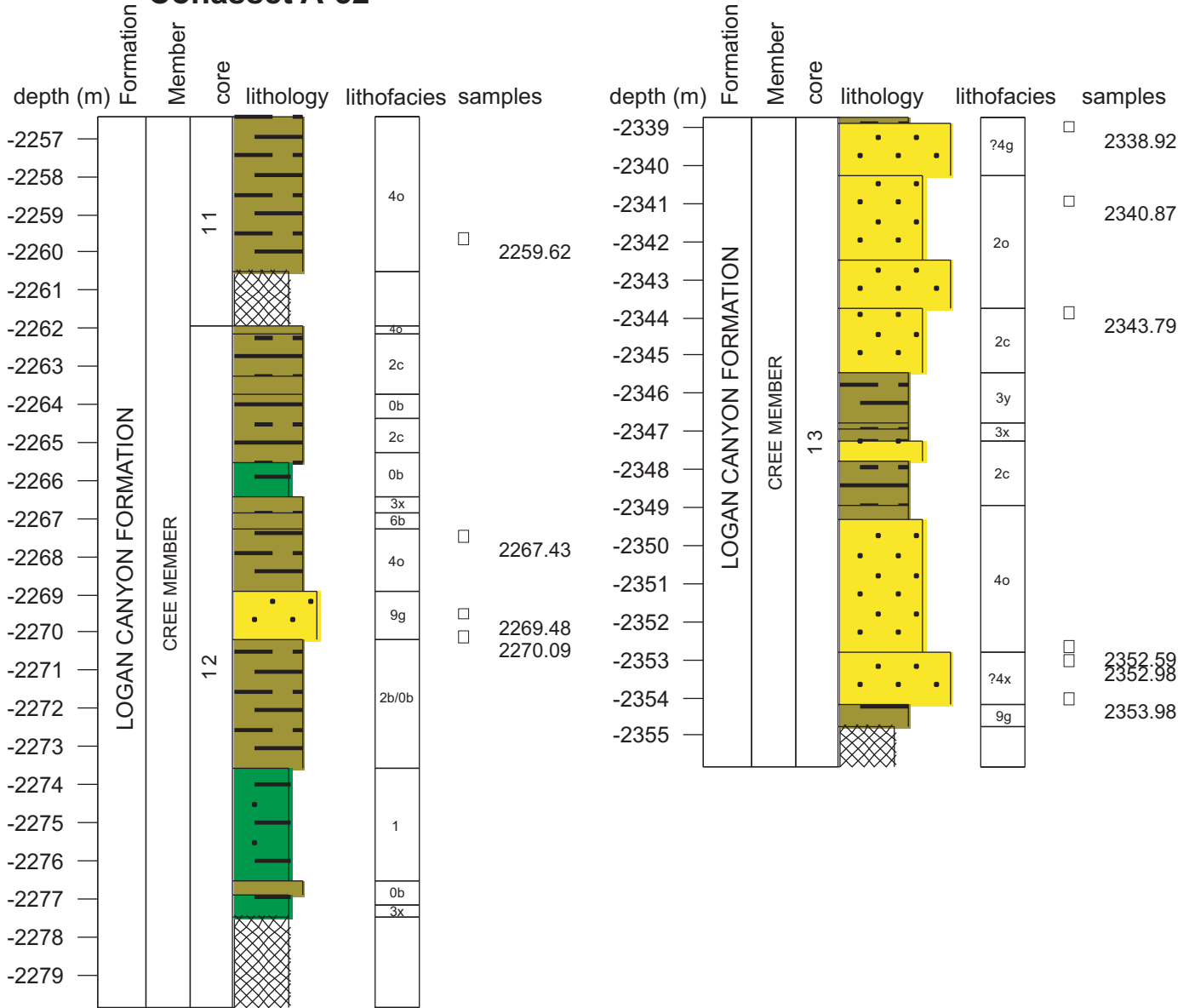


Figure 4C: Summary log of conventional cores 11 - 13 from Cohasset A-52 well. Reproduced from Gould et al., (2010b).

# Cohasset A-52

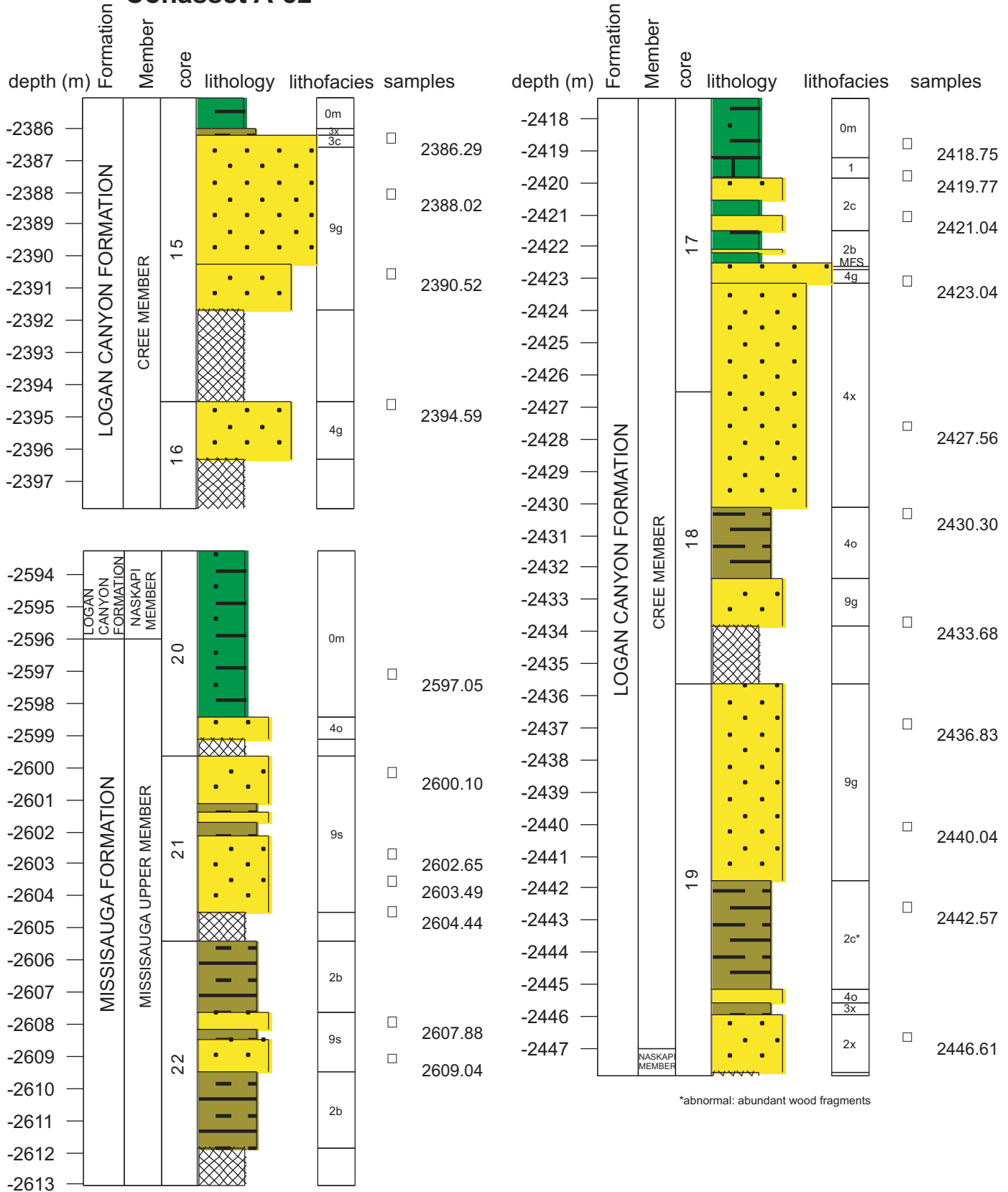


Figure 4D: Summary log of conventional cores 15 - 22 from Cohasset A-52 well. Reproduced from Gould et al., (2010b).

# Balmoral M-32

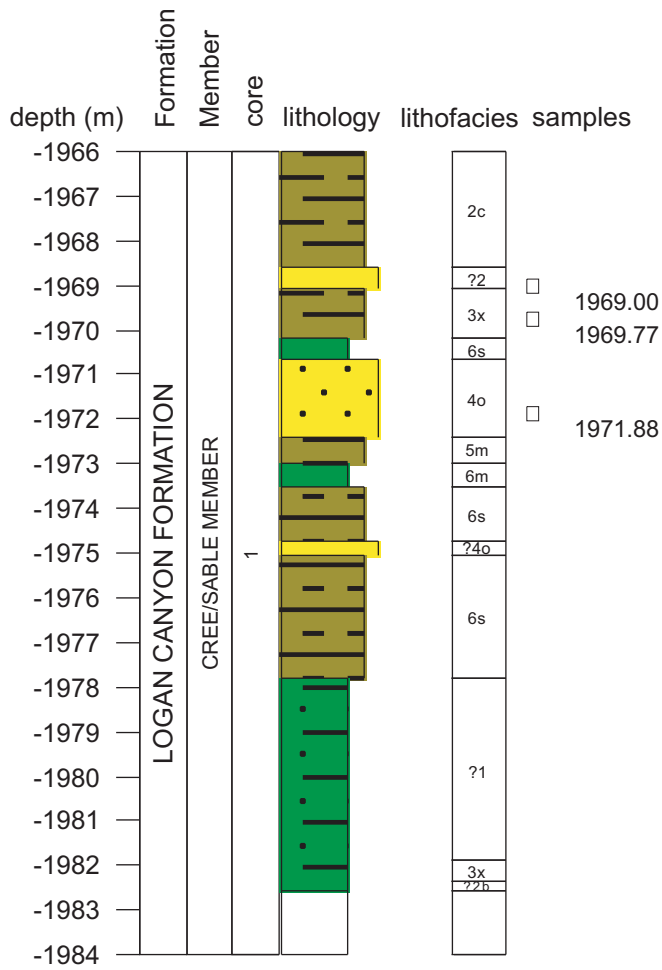


Figure 5: Summary log of conventional core 1 from Balmoral M-32 well. Reproduced from Gould et al., (2011).

# Lawrence D-14

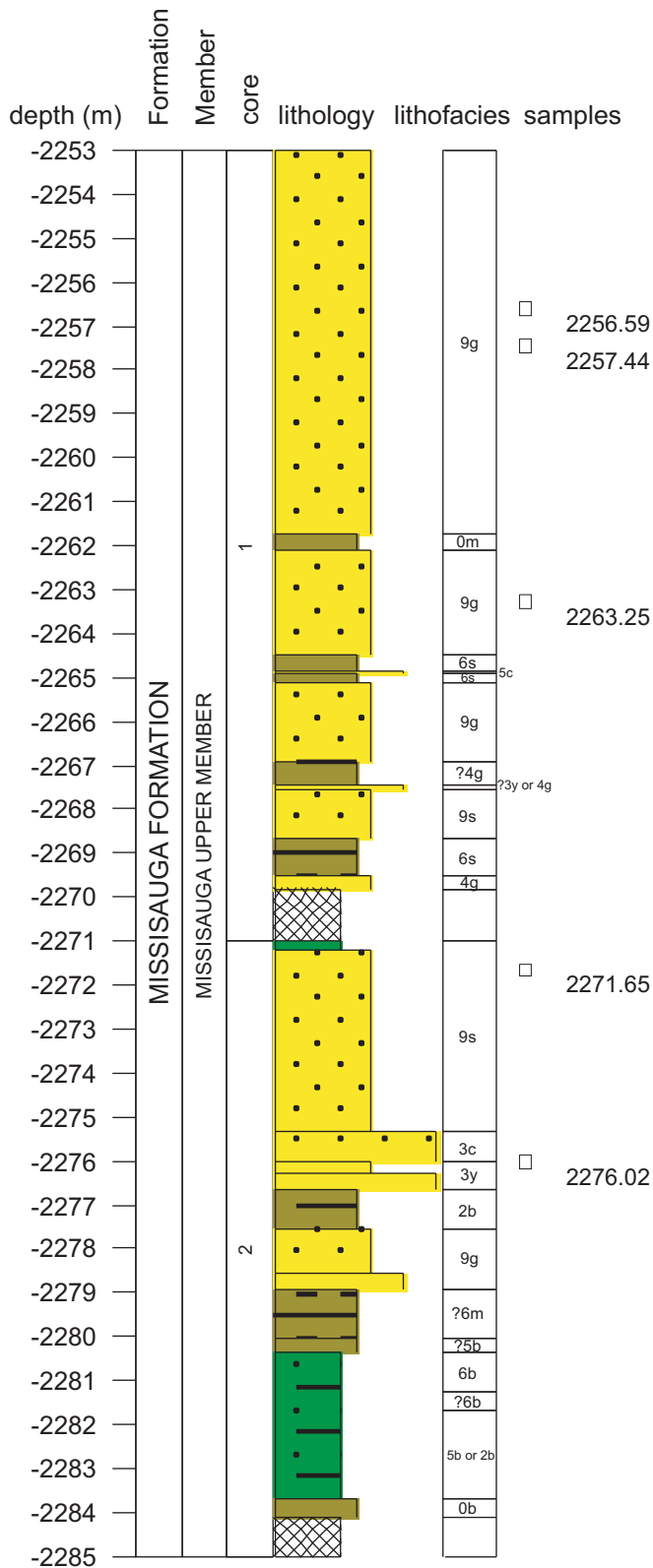


Figure 6: Summary log of conventional cores 1 and 2 from Lawrence D-14 well. Reproduced from Gould et al., (2011).

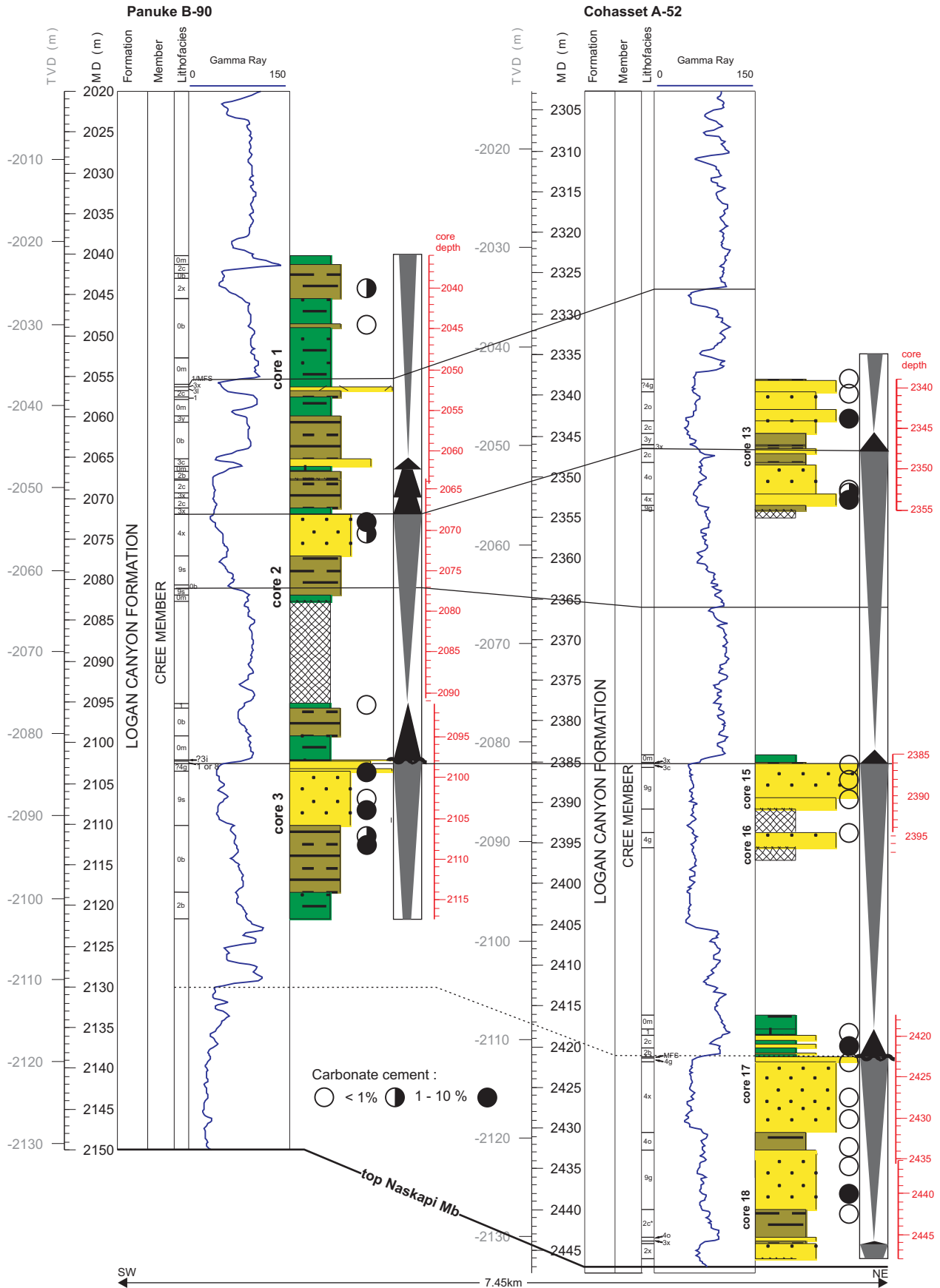


Figure 7A: Detailed correlation of gamma logs, lithologies and parasequences from the Logan Canyon Formation from Cohasset A-52 and Panuke B-90 wells. MD = measured depth; TVD = true vertical depth. Reproduced from Gould et al., (2011).

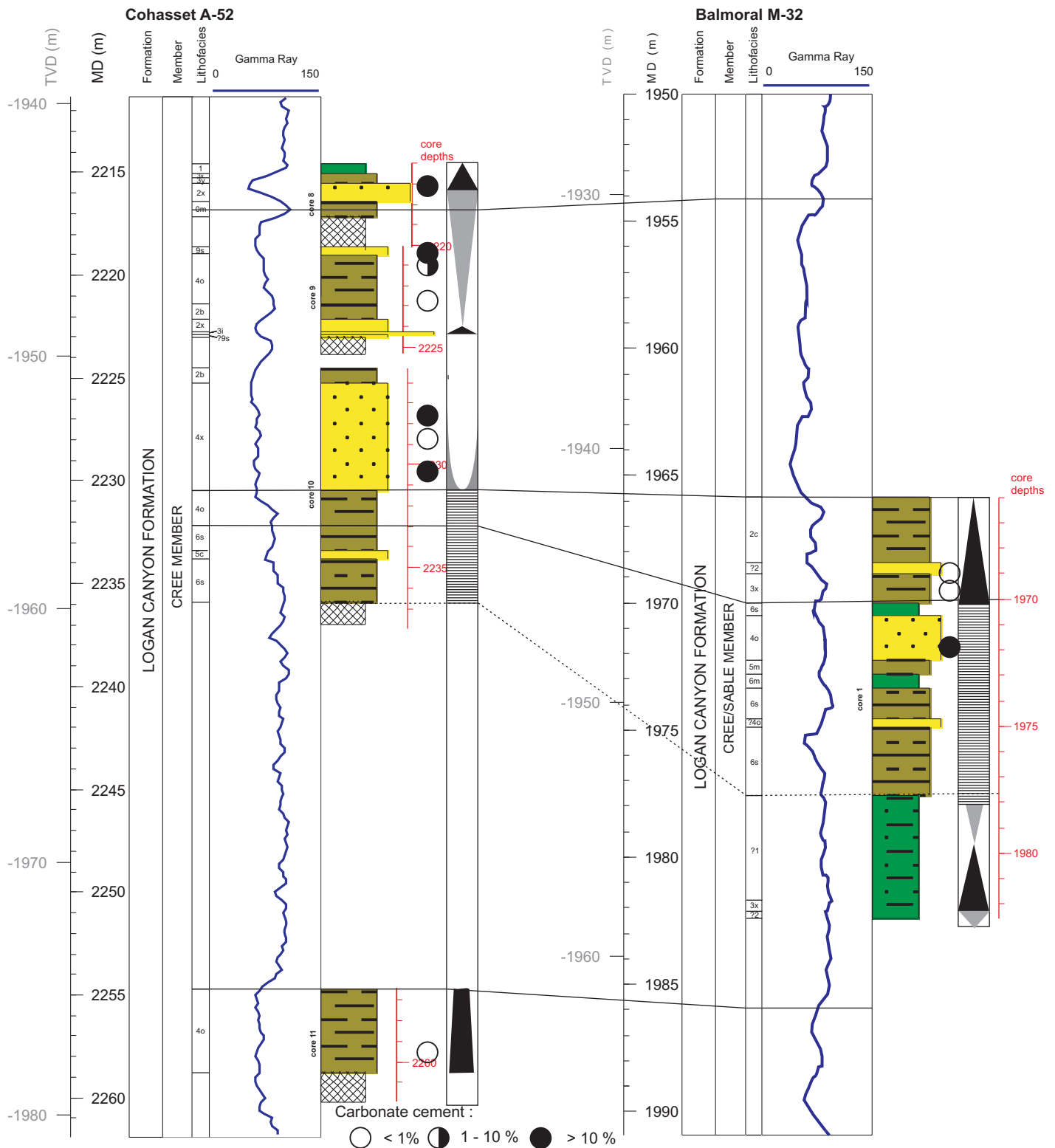


Figure 7B: Detailed correlation of gamma logs, lithologies and parasequences from the Logan Canyon Formation from Cohasset A-52 and Balmoral M-32 wells. MD = measured depth; TVD = true vertical depth. Reproduced from Gould et al., (2011).

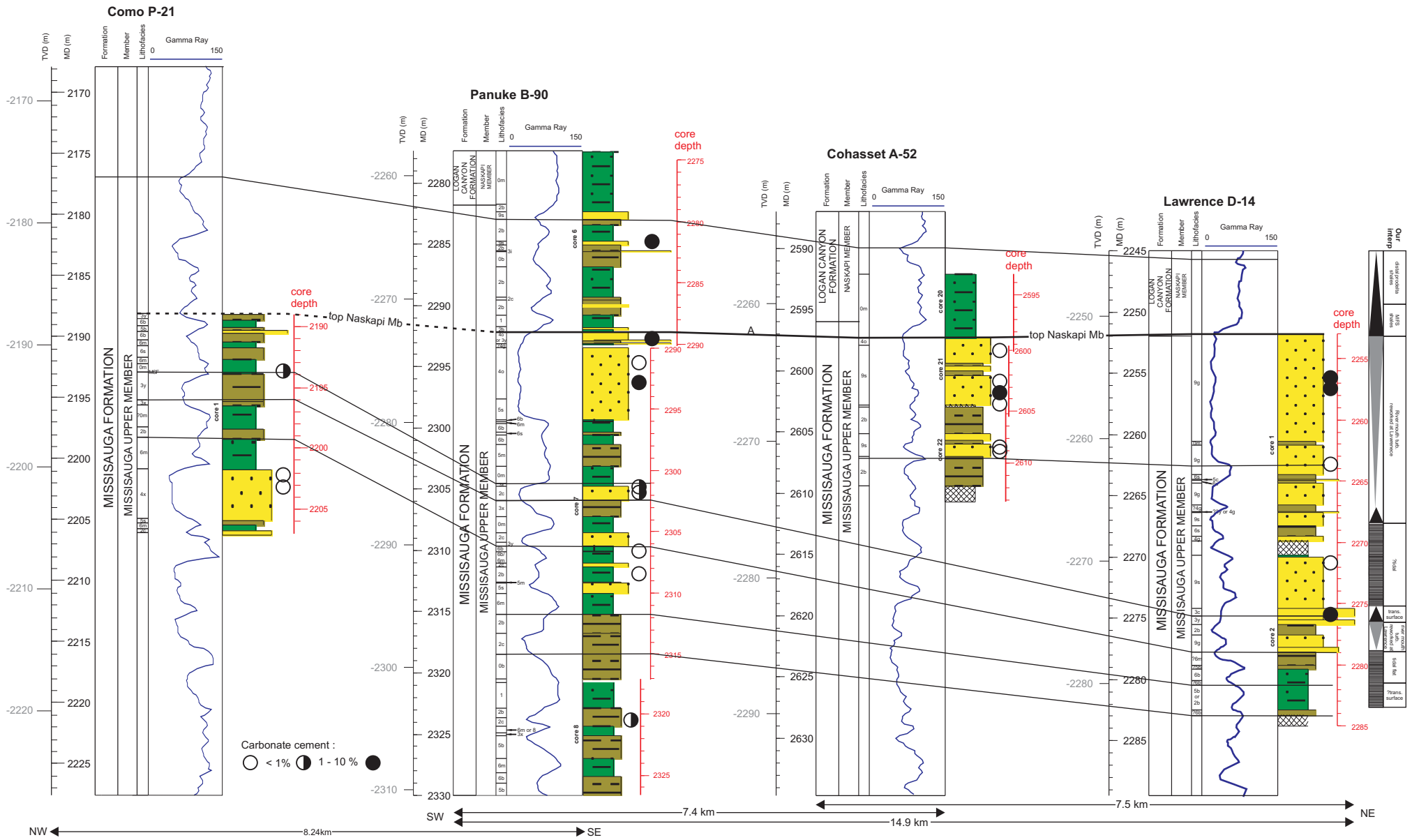


Figure 7C: Detailed correlation of gamma logs, lithologies and parasequences from the Missisauga Formation from Como P-21, Panuke B-90, Cohasset A-52 and Lawrence D-14 wells. MD = measured depth; TVD = true vertical depth. Reproduced from Gould et al., (2011).

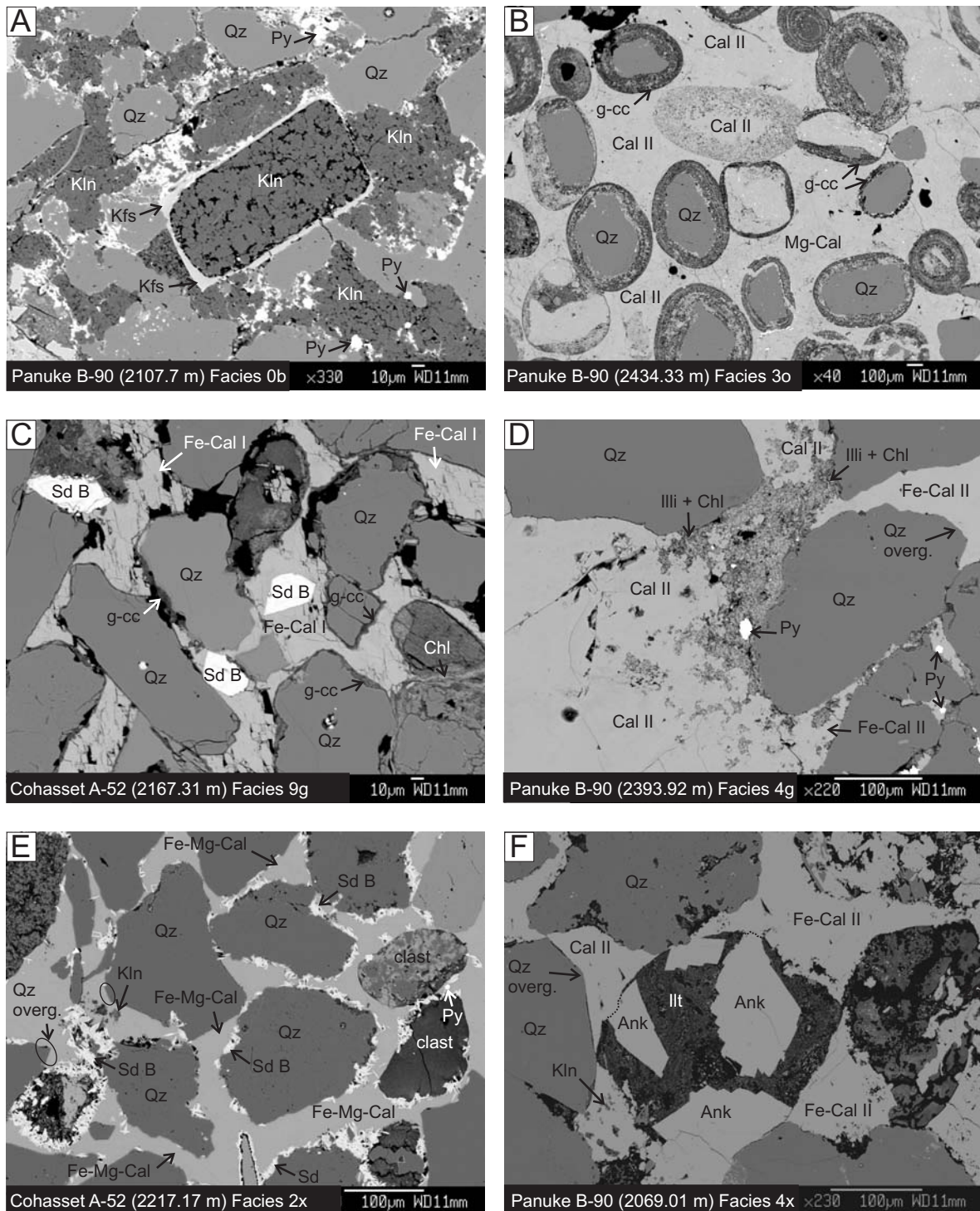


Figure 8: Back-scattered electron images showing the diagenetic minerals in the studied wells. A: Kaolinite (Kln) cement filling intergranular pores and replacing K-feldspar. Framboidal pyrite (Py) forms in contact with detrital quartz (Qz) and engulfed by kaolinite cement. B: Calcite II replaces Mg-calcite cementing large intergranular pores and replacing grain-coating clays (g-cc). Many of the framework grains are coated with clays and calcite. C: Fe-calcite I engulfs grain-coating clays (g-cc) and siderite B (Sd B) crystals and fills large pores. Chlorite (Chl) rims form in contact with Fe-rich clay. D: Illite + chlorite (Illi + Chl) fills intergranular pores and engulfs framboidal pyrite (Py); calcite II and Fe-calcite II engulfs and postdates quartz overgrowths (Qz overg.) and illite + chlorite. E: Fe-Mg-calcite fills most the intergranular pores and engulfs siderite type B(Sd B), kaolinite (Kln) and quartz overgrowths (Qz overg.). F: Calcite II and Fe-calcite II engulf and postdate quartz overgrowths. Ankerite (Ank) is in contact (dashed line) with calcite II (Cal II) and Fe-calcite (Fe-Cal II) and therefore, it was probably formed after these two cements. 40



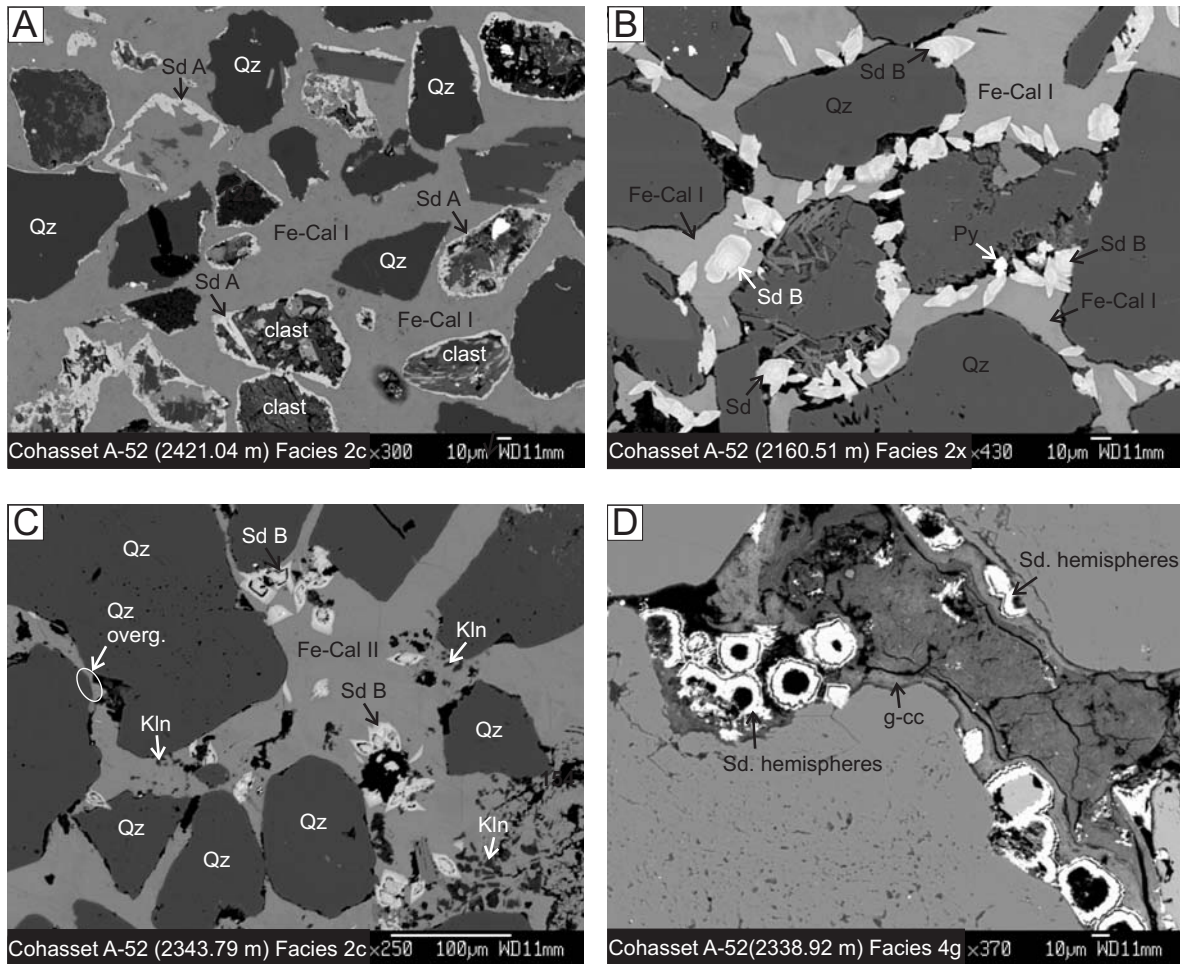


Figure 9. Back-scattered electron images showing different types of siderite and the other diagenetic minerals in the studied wells. A: Siderite rims (Sd A) forming in contact with detrital quartz (Qz) and around lithoclast. Fe-calcite I fills intergranular pores and engulfs siderite rims. B: Siderite B (Sd B) forms euhedral crystals in contact with detrital quartz and engulfed by Fe-calcite I. These siderite crystals show an alternation of bright and dark zones. C: Fe-calcite II fills large pores and engulfs kaolinite, siderite and quartz overgrowths. Siderite B crystals are partly dissolved. D: Siderite hemispheres form in contact with grain-coating clays (g-cc).

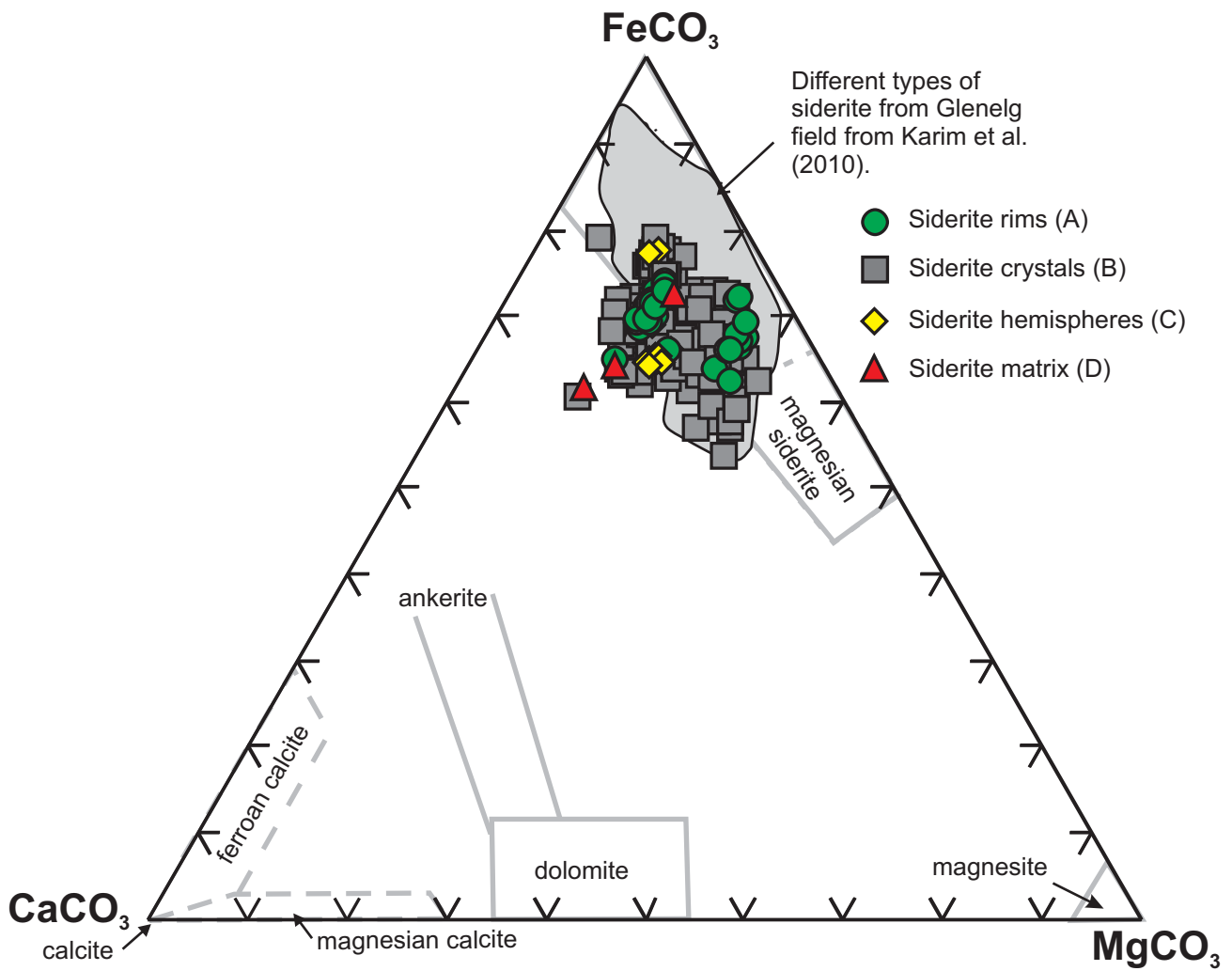


Figure 10: Diagram of chemical classification of siderites from the studied wells compared with the chemistry of siderites from Glenelg field. Fields were created using carbonate analyses from Chang et al. (1996).

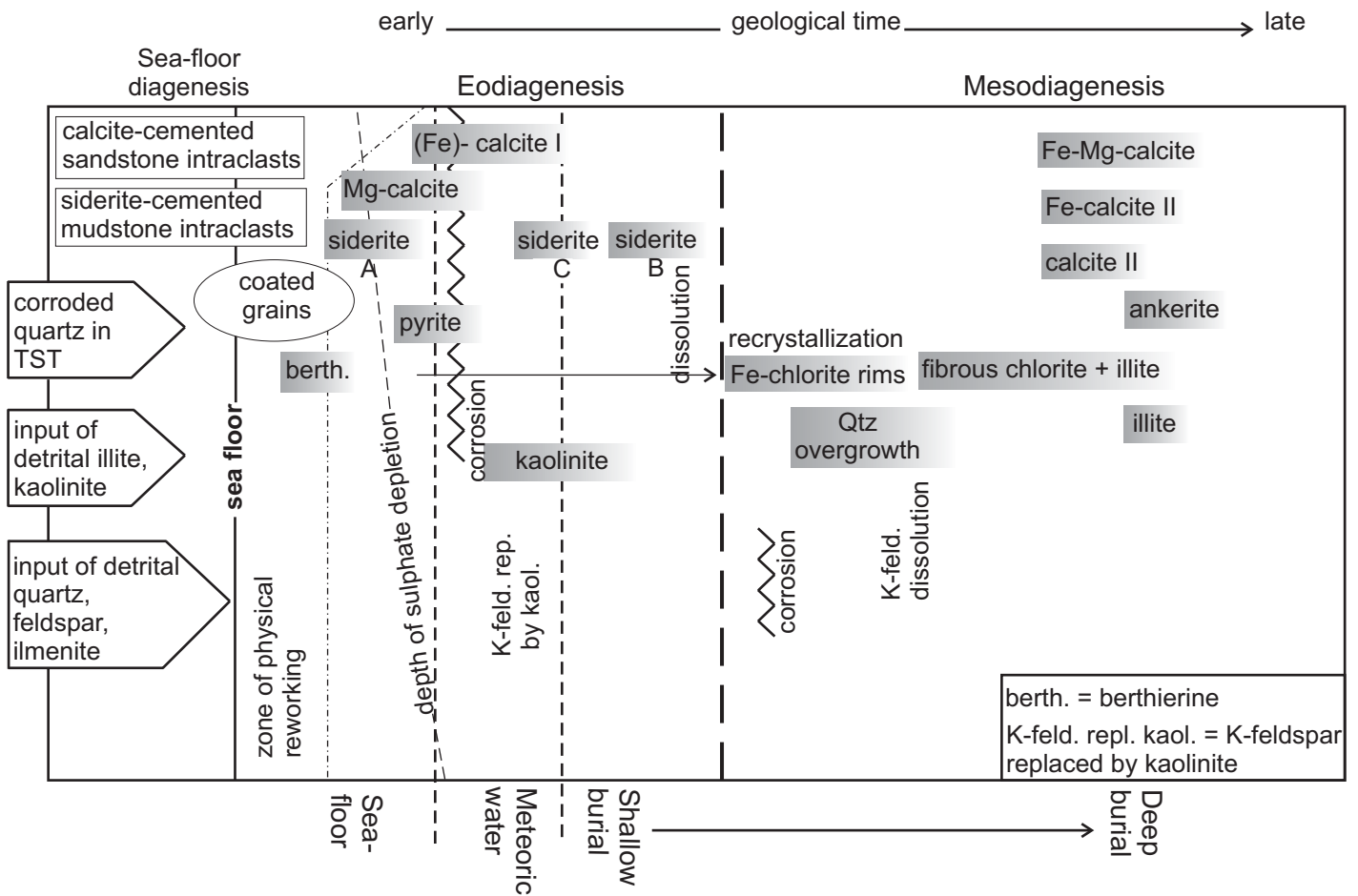


Figure 11: Paragenetic sequence deduced from mutual textural relationship in sandstones from the studied wells.

Table 1. Petrography of sandstones from the Como P-21 well.

Well	Member	Core	Depth (m)	Lithofacies	Rock name	mean GZ	Probe An	% of total rock						Other diagenetic notes	
								mud matrix	early cal	siderite	kaolinite	Qtz overg	chlorite + illite		Ank + Fe-cal
Como P-21	Upper Mb Missisauga	1	2193.7	3y	Fine sand	140	yes			10		1		1	5% porosity
	Upper Mb Missisauga	1	2202.1	4x	Fine sand	150				5	1	3			5% porosity, 1% pyrite, siderite nodule
	Upper Mb Missisauga	1	2204.03	4x	Fine sand	140					1	3			3% porosity
	Middle Mb Missisauga	2	2956.93	5s	Med sand	340	yes	1				5		15*	0.5% porosity, 3% late pyrite
	Middle Mb Missisauga	2	2957.77	9g	Fine sand	200		5	3 (dissol)			2		3	2% pyrite
	Middle Mb Missisauga	2	2964.08	6s	sand	100		5				1			3% pyrite, 5% muscovite, pyrite nodule
	Middle Mb Missisauga	2	2966.24	4x	Fine sand	220		2						0.1	7% porosity, 2% pyrite
	Middle Mb Missisauga	2	2967.17	4x	Fine sand	240						5		0.5	3% porosity, 0.5% pyrite, pyrite nodule
	Middle Mb Missisauga	2	2968.45	5c	Coarse sand	700		7	3		1	1			2% porosity, 7% pyrite, bioclats
	Middle Mb Missisauga	2	2969.48	4x	Med sand	400	yes		10		1	2		10	intraclasts, bioclats, 1% pyrite
	Middle Mb Missisauga	3	3066.95	4g	Med sand	350						1		1	very fractured, bioclats, 1% pyrite

\* : only Fe-calcite

NOTES:

In this and all subsequent tables the abbreviations used are as follows:

ank = ankerite; Biocl limes = bioclastic limestone; cal = calcite; chl rims = chlorite rims; dissol = dissolution; Fe-cal = Fe-calcite; Fluid inc = fluid inclusions; GZ = grain size; m = metre; Mb = member; Med = medium; Probe An = probe analyses; Qtz overg = quartz overgrowths; sand = sandstone; s-h = siderite hemispheres; V. coarse = very coarse; V. fine = very fine.

Table 2. Petrography of sandstones from the Panuke B-90 well.

Well	Member	Core	Depth (m)	Lithofacies	Rock name	mean GZ	Fluid inc.	Probe An	% of total rock						Other diagenetic notes	
									mud matrix	early cal	siderite	kaolinite	Qtz overg	chlorite + illite		Ank + Fe-cal
Panuke B-90	Cree Mb	1	2040	2x	Fine sand	100	no	no	7		2	3	3	7	2	
	Cree Mb	2	2067.18B	3x	Biocl limes		no	no	10							glauconite
	Cree Mb	2	2067.18A	3x	Biocl limes		no	no	10							7% glauconite
	Cree Mb	2	2070.42	4x	Fine sand	160	no	no				7	3		3	
	Cree Mb	1	2044.63	0b	V. fine sand	50	no	no	10		5		1	3	0.5	
	Cree Mb	2	2069.01	4x	Med. sand	200	no	yes	0.1			5	3		20	volcanic clasts
	Cree Mb	2	2075.19	9s	Fine sand	140	no	no	3		2	3	5	3	0.5	0.1% glauconite
	Cree Mb	2	2076.62	0b	Fine sand	140	no	no	5		1	3	0.5	1		10% pyrite
	Cree Mb	3	2091.38	1	Mudstone		no	no								
	Cree Mb	3	2099.21	?4g	Coarse sand	700	no	yes	1			1	7		15	volcanic clasts
	Cree Mb	3	2099.96	9s	Fine sand	160	no	yes			1	3	2		20	0.5% glauconite, fractured
	Cree Mb	3	2102.68	9s	Fine sand	140	no	no	10		2	1	3	1	0.5	
	Cree Mb	3	2107.7B	0b	Fine sand	120	no	no	0		3	7	2		1	5% pyrite, 0.1% glauconite, siderite intraclasts
	Cree Mb	3	2107.7A	0b	Fine to V. fine sand	120, 30	no	yes	20		1	10				5% pyrite
	Naskapi Mb	4	2108.15	0b	Fine sand	160	no	no	3		2	1	5	1	15	0.1% glauconite, intraclasts (mud, siderite, V. fine sand), Qtz fractured
	Naskapi Mb	4	2217.93	1	Mudstone		no	yes				5				calcite vein with kaolinite
	Naskapi Mb	4	2221.92	0b	Fine sand	100	no	no	5			1	3	1		bioclasts
	Naskapi Mb	4	2223.78B	3y	Med. sand	200	no	yes			10	1	7			10% porosity, bioclasts
	Naskapi Mb	4	2224.97	3l	Siderite nodule		no	yes								
	Naskapi Mb	4	2237.28	9s	V. fine sand	50	no	no		20			2		5	1% pyrite, 0.2% glauconite
	Naskapi Mb	4	2242.47B	0b	Mudstone		no	yes								
	Naskapi Mb	5	2268.07	9s	Fine sand	60	no	no	3				3	2		0.5% pyrite
	Naskapi Mb	5	2269.55	0b	V. fine sand	40	no	no	2				3			5% mica, 2% glauconite
	Naskapi Mb	6	2272.33	0b	V. fine sand	40	no	no	5				3			1% pyrite, 0.1% glauconite
	Naskapi Mb	6	2281.68	9s	Fine sand	70	no	yes	3	0.5			5		15*	bioclasts, 0.5% pyrite
	Upper Mb Missisauga	6	2289.57	4o or 3y	Med. sand	200	no	yes			0.5		3		20*	3% glauconite, large bioclats and large Qtz
	Upper Mb Missisauga	7	2291.26	4o	Med. sand	200	no	yes	2		5		3			bioclasts, barite
	Upper Mb Missisauga	7	2292.85	4o	Fine sand	150	no	yes	3	0.1			0.5		20*	bioclasts
	Upper Mb Missisauga	7	2295.4	5s	Fine sand	140	no	no	3				2			bioclasts, 7% porosity
	Upper Mb Missisauga	7	2301.29	3x	Med to fine sand	180	no	no	5		3		5	3	2	0.1% glauconite, large bioclasts
	Upper Mb Missisauga	7	2303.75A	3x	Coarse sand	600	no	no	20				0.5		1	0.1% glauconite, carbonate cement in fractures in Qtz
	Upper Mb Missisauga	7	2306.66	6b	V. fine sand	100	no	no	20							
	Upper Mb Missisauga	7	2308.42	2b	Mudstone / coarse sand		no	no	20			1	1			large bioclasts
	Upper Mb Missisauga	8	2320.51	2c	Coarse sand	400	yes	yes					3		10*	very fractured, bioclasts, 5% porosity
	Upper Mb Missisauga	8	2330.08	5s	Fine to Med sand	200	yes?	no	3				7			7% porosity
	Upper Mb Missisauga	9	2338.03	5b	Fine sand	160	no	no	10		2 s-h		0.5			hemispheres siderite?
	Upper Mb Missisauga	9	2347	5s	Med to coarse sand	500	yes?	no					7			7% porosity
	Upper Mb Missisauga	9	2352.51	4x	Coarse sand	600	no	no					3			granules, no cement
	Upper Mb Missisauga	9	2353.62	4x/4g	Coarse sand	600	no	no					3			granules, no cement
	Upper Mb Missisauga	9	2355.81	4x	Coarse sand	700	no	no					0.5			granules, no cement, mud intraclasts
	Upper Mb Missisauga	9	2358.16	4x	Coarse sand	700	no	no	5							0.1% pyrite
	Upper Mb Missisauga	7	2303.75B	3x	V. coarse sand	1000	no	no	20						0.5	0.2% glauconite, bioclasts

Well	Member	Core	Depth (m)	Lithofacies	Rock name	mean GZ	Fluid inc.	Probe An	% of total rock						Other diagenetic notes	
									mud matrix	early cal	siderite	kaolinite	Qtz overg	chlorite + illite		Ank + Fe-cal
	Upper Mb Missisauga	9	2369.14	4x	Med sand	200	no	yes	5				5			
	Upper Mb Missisauga	10	2379.2	4x	Coarse sand	500	no	yes	1	10			0.5		10*	7% porosity, large bioclasts
	Upper Mb Missisauga	10	2381.85	9g	Fine to Med sand	180	no	no	5				0.5	1		large bioclasts
	Upper Mb Missisauga	10	2386.2	9g	Coarse sand	600	no	no	2				2			5% porosity, fractured
	Upper Mb Missisauga	10	2387.21	4x	Fine sand	150	no	no	7				2			
	Upper Mb Missisauga	11	2393.92	4g	Coarse sand	500	yes ?	yes	0.5	10			2		10*	
	Upper Mb Missisauga	11	2395.12	4x	Med sand	300	no	no	5				5	5 % chl rims		5% porosity
	Upper Mb Missisauga	11	2399.81	4g	Med sand	180	no	no	1				3			7% porosity
	Upper Mb Missisauga	11	2403.21	5m/5s	Fine sand	160	no	yes		0.1		1	3		20*	
	Upper Mb Missisauga	12	2406.56	4g	Med sand	300	no	no	2				5		2	7% porosity
	Upper Mb Missisauga	12	2410.34B	2x	Fine sand	120	no	no	5				5		2	7% porosity, fractured
	Upper Mb Missisauga	12	2410.34A	2x	Fine sand	120	no	no	5	0/(20)			5		2/(20)	contact cal cemented and not cemented fine sand, 7% porosity
	Upper Mb Missisauga	12	2413.05	2x	Med sand	200	no	yes	3	0.1			0.5		20	no compaction
	Upper Mb Missisauga	12	2414.98A	3l	Fine sand	180	no	no		(15)			1		(15)	patches
	Upper Mb Missisauga	12	2414.98B	3l	Fine sand	140	no	no	3	(15)			3		(15)	
	Upper Mb Missisauga	12	2420.46	?6m	Fine to Med sand	160	no	yes					0.1		20*	no compaction
	Upper Mb Missisauga	13	2430.51	2c	Fine sand	120	no	no	20							
	Upper Mb Missisauga	13	2434.33	3o	Oolitic limestone	700	no	yes		25					0.1	no compaction

\* : only Fe-calcite

Table 3. Petrography of sandstones from the Cohasset A-52 well.

Well	Member	Core	Depth (m)	Lithofacies	Rock name	mean GZ	Fluid inc.	Probe An	% of total rock						Other diagenetic notes	
									mud matrix	early cal	siderite	kaolinite	Qtz overg.	chlorite + illite		Ank + Fe-cal
Cohasset A-52	Cree Mb	1	2075.83	3y	V. coarse sand	650	no	yes	5		15				7*	large bioclasts
	Cree Mb	2	2081.97	3x	Fine sand	160	no		10							green color 10% glauconite
	Cree Mb	2	2084.36	0q	Fine sand	80	no		5			0.5			2	
	Cree Mb	4	2126.14	2c	Fine sand	120	no	yes					2		20*	2% glauconite, bioclasts
	Cree Mb	4	2127.5	9s	Fine sand	120	no				5					1% glauconite, 15% porosity
	Cree Mb	4	2129.14	9s	Fine sand	210	no		2						5	0.2% glauconite, 7% porosity
	Cree Mb	4	2130.04	9s	Med. Sand	300	yes	yes		(20)			1		20*	0.2% glauconite, 7% porosity
	Cree Mb	4	2134.6	9s	Fine sand		no		5							0.1% glauconite, 5% porosity
	Cree Mb	5	2145.11	3y	Fine sand / biocl limes	100	no									0.1% glauconite, contact cal cemented fine sand and biocl limes
	Cree Mb	5	2146.94	2b/1	Fine sand	180	no		1	20						glauconite
	Cree Mb	5	2148.68	0b	V. Fine sand	50	no		20	7					7	7% porosity
	Cree Mb	6	2155.3	2x	Fine sand	140	no		2		3		2			glauconite, siderite hemispheres, 2% pyrite, 7% porosity
	Cree Mb	6	2159.63	29s	Fine sand	120	no			(20)			0.5		(20)	glauconite, 1% pyrite
	Cree Mb	7	2160.51	2x	Fine sand	100	no	yes		(15)	10				15*	glauconite
	Cree Mb	7	2162.63	5c	Fine sand	100	no			(20)			1		(20)	0.5% pyrite
	Cree Mb	7	2167.31	9g	Fine sand	120	no	yes				2	0.5		20*	glauconite
	Cree Mb	8	2217.17	2x	Fine sand	180	no	yes			5		1		20**	1% pyrite
	Cree Mb	9	2220.47	9s	Fine sand	100	no			(20)	15		0.1		(20)	0.1% pyrite, 0.1% glauconite
	Cree Mb	9	2221.01	4o	Fine sand	120	no			(7) patches			1			1% pyrite
	Cree Mb	9	2222.86	4o/2b	Fine sand	80	no		2			0.5	1			7% porosity
	Cree Mb	10	2227.64	4x	Fine sand	160	no			(20)	1		1		(20)	1% pyrite, 0.1% glauconite
	Cree Mb	10	2228.73	4x	Fine sand	140	no		2		1	2				0.5% pyrite
	Cree Mb	10	2230.38	4x	Fine sand	120	no	yes			7	1			20*	0.1% glauconite
	Cree Mb	11	2259.62	4o	Fine sand	160	no		10				0.5			
	Cree Mb	12	2267.43	4o	Fine sand	180	no		15		3		0.5		1	large bioclasts
	Cree Mb	12	2269.48	9g	Fine sand	120	no		3				2			3% porosity, 3% pyrite
	Cree Mb	12	2270.09	9g/2b/0b	Fine sand	110	no		15	(2)			0.5		(2)	5% pyrite
	Cree Mb	13	2338.92	74g	Med sand	360	no	yes	7		7 (s-h)	0.5	1			5% porosity
	Cree Mb	13	2340.87	2o	Fine sand	180	no				3	0.1	5			bioclasts, 3% pyrite
	Cree Mb	13	2343.79	2c	Fine sand	180	no	yes			2	2	3		20*	
	Cree Mb	13	2352.59	4o/4x	Fine sand	180	no		3			3	2			3% porosity, 3% pyrite
	Cree Mb	13	2352.98	74x	Fine sand	200	no		3			3	3		5	3% porosity, 3% pyrite
	Cree Mb	13	2353.98	4x	Fine sand	200	no	yes	3	0.1			7	3	20*	2% porosity
	Cree Mb	15	2388.02	9q	Coarse sand	680	no		0.5							
	Cree Mb	15	2390.52	9g	Fine sand	340	no		0.1				1			0.5% pyrite, 2% porosity
	Cree Mb	15	2386.29	3x/3c	Coarse sand	680	no	yes	15	0.5**	5		0.5			bioclasts, 3% porosity
	Cree Mb	16	2394.59	4g	Med sand	300	no		7				1			1% py, fractured
	Cree Mb	17	2419.77	1	Fine sand	100	no		5		3					30% glauconite, 2% porosity, 1% pyrite
	Cree Mb	17	2421.04	2c	Fine sand	80	no	yes	2		5				20*	3% glauconite, large bioclats, cal cemented intraclasts
	Cree Mb	17	2423.04	4g	Coarse sand	780	no		3				0.5			3% pyrite, cal cemented intraclasts
	Cree Mb	18	2427.56	4x	Fine sand	200	no					3	0.1	0.1		10% porosity, 1% pyrite
	Cree Mb	18	2430.3	4o	Fine sand	140	no		3			3	2			5% porosity, 0.5% pyrite
	Cree Mb	18	2433.68	9g	Fine sand	140	no		2		0.5	5	3		0.5	5% porosity, 0.5% pyrite
	Cree Mb	19	2436.83	9g	Fine sand	180	no		5			7	5			1% glauconite, 5% porosity, 0.5% pyrite
	Cree Mb	19	2440.04	9g	Fine sand	140	no	yes	2			5	5		20*	
	Cree Mb	19	2442.57	2c	Fine sand	120	no		7				2	5		3% porosity, 2% pyrite
	Upper Mb Missisauga	20	2597.05	0m	Shale rubble		no									
	Upper Mb Missisauga	21	2600.1	9s	Fine sand	100	no		5				1			7% porosity, 5% muscovite, 1% pyrite
	Upper Mb Missisauga	21	2602.65	9s	Fine sand	80	no	yes			5		2			7% porosity, 5% muscovite
	Upper Mb Missisauga	21	2603.49	9s	V. Fine sand	60	no	yes	1		7	1	2		20*	
	Upper Mb Missisauga	22	2607.88	9s	Fine sand	100	no		1				1			10% porosity
	Upper Mb Missisauga	22	2609.04	9s	Fine sand	80	no				3		0.5		0.1	3% glauconite, 10% porosity, 0.5% pyrite
	Upper Mb Missisauga	21	2604.44	9s	Fine sand	80	no						2			0.5% glauconite, 10% porosity

\* : only Fe-calcite

\*\* : only Fe-Mg-calcite

Table 4. Petrography of sandstones from the Balmoral M-32 well.

Well	Member	Core	Depth (m)	Lithofacies	Rock name	mean GZ	Probe An	% of total rock						Other diagenetic notes	
								mud matrix	early cal	siderite	kaolinite	Qtz overg.	chlorite + illite		Ank + Fe-cal
Balmoral M-32	Cree / Sable Mb	1	1969	2	Fine sand	140		2	5 (patches)		1	3			5% porosity, 7% pyrite
	Cree / Sable Mb	1	1969.77	3x	Fine sand	180		15				0.1			4% pyrite, bioclasts, coated grains of pyrite
	Cree / Sable Mb	1	1971.88	4o	Fine sand	120	yes		5		1	0.2	0.1	20*	4% pyrite, bioclasts

\* : only Fe-calcite



Table 5. Petrography of sandstones from the Lawrence D-14 well

Well	Member	Core	Depth (m)	Lithofacies	Rock name	mean GZ	Probe An	% of total rock						Other diagenetic notes	
								mud matrix	early cal	siderite	kaolinite	Qtz overg.	chlorite + illite		Ank + Fe-cal
Lawrence D-14	Upper Mb Missisauga	1	2256.59	9g	Fine to coarse sand	240	yes					0.5	0.1	25*	4% pyrite, large bioclasts
	Upper Mb Missisauga	1	2257.44	9g	Fine sand	240			(25)			0.5		(25)	2% pyrite, large bioclasts
	Upper Mb Missisauga	1	2263.25	9g	Fine sand	220						0.1			0.1% glauconite, 15% porosity
	Upper Mb Missisauga	2	2271.65	9s	Fine sand	80	yes	5		10		3			1% pyrite, 3% muscovite, 1% glauconite, 3% porosity
	Upper Mb Missisauga	2	2276.02	3c/3y	Med sand	500	yes					1		20*	2% pyrite, 0.1% glauconite, large Qtz grains (> 2 mm), fine sand

\* : only Fe-calcite

Table 6. Summary of variation in eodiagenetic minerals with lithofacies

<b>Eogenetic minerals</b>	<b>Lithofacies</b>
<b>kaolinite</b>	2x, 4x, 9s, 0b, 1, 2b, 5m/5s, 6m? 2c, 9g, 4o
<b>pyrite</b>	0b, 9s, 4x, 5m/5s, 6m? 2c, 9g, 4o
<b>Fe-calcite I</b>	9s, 4x, 2x, 9g, 2c, 3y
<b>calcite I</b>	4x, 5s, 4o, 3o
<b>Mg-calcite</b>	3o
<b>siderite A</b>	3y, 2c
<b>siderite B</b>	3y, 2x, 9g, 4x, 2c, 9s
<b>siderite C</b>	4g, 5b

Table 7. Summary of lateral variation in diagenetic minerals in the studied wells in different stratigraphic levels

	Como P-21 (proximal)	Panuke B-90	Cohasset A-52	Balmoral M-32	Lawrence D-14 (distal)
<b>Logan Canyon (Cree Member)</b>		kaolinite (1-10%), pyrite, glauconite, siderite B, calcite I, illite + chlorite, quartz overgrowths, calcite II, Fe-calcite II, ankerite	kaolinite (0.1 -7%), pyrite, grain-coating clays, glauconite, siderite A, B, C, Fe-calcite I, illite + chlorite, quartz overgrowths, Fe-Mg-calcite, Fe-calcite II	kaolinite (1%), pyrite (4-7%), illite + chlorite, calcite I, quartz overgrowths, Fe-calcite II	
<b>Logan Canyon (Naskapi Member)</b>		kaolinite (1-5 %), glauconite, siderite B, pyrite, siderite matrix, illite + chlorite, quartz overgrowths, calcite II, Fe-calcite II			
<b>Upper Member of Missisauga Formation</b>	kaolinite (1%), pyrite (1%), siderite B, quartz overgrowths, Fe-calcite II (1%)	kaolinite (1%), siderite B, grain-coating clay, glauconite, chlorite rims, illite + chlorite, calcite I, Fe-calcite I, Mg-calcite, quartz overgrowths, Fe-calcite II, ankerite (1 sample)	kaolinite (1% one sample), glauconite, siderite B, pyrite (0.1 - 1%), illite + chlorite, quartz overgrowths, Fe-calcite II		siderite B?, pyrite (1-4%), glauconite, chlorite fibrous (0.1 %), quartz overgrowths, calcite II, Fe-calcite II
<b>Middle Member of Missisauga Formation</b>	kaolinite (1%), pyrite (2-7%), calcite I, quartz overgrowths, Fe-calcite II (1%), ankerite				

Table 8. Relationship between abundant patchy carbonate cementation and the present or absence of limestones

Well	Depth (m)	Sample available	% of late carbonate cement	Distance (m) from bioclastic limestone	Note
Como P-21	2956.93	yes	15	0.27 and 1.82 below	sandstone rich in bioclasts at 2957.2 and 2958.75
	2959.75	no		0.95 below	section rich in bioclasts at 2960.7 to 2962.65
	2970.2	no		0.6 below	section rich in bioclasts at 2970.8 to 2971.26
Panuke B-90	2067.18	yes	bioclastic limestone		
	2069.01	yes	20	16.61 above	interval rich in bioclasts at 2052.4
	2099.92	yes	20		no bioclastic limestones around it
	2218.93		carbonate concretion	1.94 below	bioclastic limestone at 2220.87
	2248.21 to 2248.40	no	bioclastic limestone		
	2281.68	yes	15		no bioclastic limestone around it
	2289.57	yes	20	16.43 below	bioclastic limestone at 2306 to 2306.15
	2292.85	yes	20	13.15 below	bioclastic limestone at 2306 to 2306.15
	2306 to 2306.15	no	bioclastic limestone		
	2379.2	yes	10	0.35 above	section rich in bioclasts at 2378.85
	2393.92	yes	10		no bioclastic limestone around it
	2406.56	yes	2	8.45 below	bioclastic limestone at 2415.01
	2407.75	no			bioclastic limestone at 2415.01
	2409.9	no			bioclastic limestone at 2415.01
	2410.34	yes	20	4.67 below	bioclastic limestone at 2415.01
	2411.05	no		3.96 below	bioclastic limestone at 2415.01 to 2416.05
	2413.05	yes	20	1.96 below	bioclastic limestone at 2415.01 to 2416.05
	2413.85	no		1.16 below	bioclastic limestone at 2415.01 to 2416.05
	2414.98	yes	15	0.03 below	bioclastic limestone at 2415.01 to 2416.05
	2420.46	yes	20	5.45 above	bioclastic limestone at 2415.01 to 2416.05
	2429.1	no	bioclastic limestone		
2433.35	no	bioclastic limestone			
2434.33	yes	oolitic limestone		oolitic limestone	
2434.63 to 2435.09	no			limestone at 2429.1, at 2433.35 and at 2434.33	
2438.05 to 2439.23	no			sandy limestone	
Cohasset A-52	2126.14	yes	20	2.07 above	bioclastic limestone at 2124.07 to 2124.45
	2130.04	yes	20	5.97 above	bioclastic limestone at 2124.07 to 2124.45
	2145.11	yes	20	in contact with bioclastic limestone	in contact with bioclastic limestone at 2145.11
	2152.35 to 2153.25	no	oyster shells		
	2159.63	yes	20	3.57 below	bioclastic limestone at 2163.2 to 2164.8
	2162.63	yes	20	0.57 below	bioclastic limestone at 2163.2 to 2164.8
	2167.31	yes	20	0.89 above	bioclastic limestone at 2165.9 to 2166.42
	2217.17	yes	20	0.07 above	bioclastic limestone at 2217.1
	2230.38	yes	20		no bioclastic limestone around it
	2343.79	yes	20	1.59 below	bioclastic limestone at 2345.38 to 2345.9
	2353.98	yes	20		no bioclastic limestone around it, biocl lim at 2346.92 to 2347.25
	2421.04	yes	20		no bioclastic limestone around it, interval with abundant thick shell fragments at 2420.9 to 2421.02
	2440.04	yes	20		no bioclastic limestone around it, from sand with abundant plant fragments
2603.49	yes	20		no bioclastic limestone around it	
Balmoral M-32	1969	yes	patches	0.2 below	unit rich in bioclasts at 1969.1 to 1970.2
	1971.88	yes	20		no bioclastic limestone around it, mud unit rich in shell fragments at 1972.98 to 1973.52
	1974.74 to 1974.05	no			no bioclastic limestone around it, mud unit rich in shell fragments at 1975.04 to 1977.78
Lawrence D-14	2256.59	yes	25		no bioclastic limestone around it, but it is overlain by sand rich in plant fragments at 2256.5
	2257.44	yes	25		no bioclastic limestone around it
	2259.7	no			no bioclastic limestone around it, it is a sand rich in plant fragments
	2276.02	yes	20	0.26 below	unit with common shell fragments at 2275.76 to 2276.66

Table 9: Summary of diagenetic cements present in the Como-Panuke-Cohasset-Blemoral- Lawrence transect and in Glenelg field

	Como P-21	Panuke B-90	Cohasset A-52	Balmoral M-32	Lawrence D-14	Glenelg field
<b>Cree Member</b>		kaolinite (1-10%), pyrite, glauconite, siderite B, calcite I, illite + chlorite, quartz overgrowths, calcite II, Fe-calcite II, ankerite	kaolinite (0.1 -7%), pyrite, grain-coating clays, glauconite, siderite A, B, C, Fe-calcite I, illite + chlorite, quartz overgrowths, Fe-Mg-calcite, Fe-calcite II	kaolinite (1%), pyrite (4-7%), illite + chlorite, calcite I, quartz overgrowths, Fe-calcite II		kaolinite, pyrite, phosphates, grain-coating clays, quartz overgrowths, illite, chlorite, siderite, Mg-calcite, Fe-calcite, ankerite, K-feldspar overgrowths, rutile
<b>Naskapi Member</b>		kaolinite (1-5 %), glauconite, siderite B, pyrite, siderite matrix, illite + chlorite, quartz overgrowths, calcite II, Fe-calcite II				
<b>Upper Member of MF</b>	kaolinite (1%), pyrite (1%), siderite B, quartz overgrowths, Fe-calcite II (1%)	kaolinite (1%), glauconite, siderite B, grain-coating clay, chlorite rims, illite + chlorite, calcite I, Fe-calcite I, Mg-calcite, quartz overgrowths, Fe-calcite II, ankerite (1 sample)	kaolinite (1% one sample), glauconite, siderite B, pyrite (0.1 - 1%), illite + chlorite, quartz overgrowths, Fe-calcite II		siderite B?, pyrite (1-4%), glauconite, chlorite fibrous (0.1 %), quartz overgrowths, calcite II, Fe-calcite II	kaolinite, pyrite, phosphates, quartz overgrowths, illite, chlorite, siderite, calcite, Mg-calcite, Fe-calcite, ankerite, barite, rutile
<b>Middle Member of MF</b>	kaolinite (1%), pyrite (2-7%), calcite I, quartz overgrowths, Fe-calcite II (1%), ankerite					

Table 10. Summary of variation in diagenetic minerals with lithofacies in the Panuke B-90, Cohasset A-52 and Glenelg wells.

Lithofacies	Panuke B-90 well	Cohasset A-52 well	Glenelg field
<b>Lithofacies 9, 0, 2</b>	kaolinite, pyrite, glauconite, quartz overgrowths, illite + chlorite, siderite (nodule), calcite II, Fe-calcite II, ankerite	grain-coating clays, kaolinite, pyrite, glauconite, quartz overgrowths, siderite (A, B), dissolution of siderite B, Fe-calcite I, Fe-calcite II	kaolinite, pyrite, quartz overgrowths, illite + chlorite, chlorite, siderite (A, D, E, F, G, H, I), Fe-calcite II, ankerite, francolite, albite, rutile, barite
<b>Lithofacies 4, 5, 6, 8</b>	kaolinite, pyrite, quartz overgrowths, illite + chlorite, illite, calcite I, II, Fe-calcite I, II, ankerite	kaolinite, pyrite, glauconite (0.1%), quartz overgrowths, siderite (B, hemi), Fe-calcite II	kaolinite, pyrite, quartz overgrowths, siderite, carbonate cement, high porosity

Appendix 1A: Electron microprobe analyses of diagenetic minerals from representative samples from Como P-21 well.

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Como P-21	2193.7	8	siderite + clay	2.60	0.00	1.58	0.00	33.52	0.86	3.51	3.14	0.38	0.14	0.34	0.01	0.00	0.07	46.15
Como P-21	2193.7	9	siderite + clay	14.64	0.02	6.83	0.00	16.75	0.23	2.10	0.78	0.20	0.42	0.06	0.00	0.00	0.00	42.03
Como P-21	2193.7	10	siderite + clay	9.05	0.00	6.65	0.00	21.70	0.36	2.50	1.50	0.29	0.41	0.15	0.00	0.00	0.00	42.61
Como P-21	2193.7	11	siderite + clay	15.82	0.19	4.86	0.00	16.88	0.25	2.11	1.20	0.14	0.35	0.08	0.00	0.00	0.00	41.89
Como P-21	2193.7	12	siderite + clay	4.89	0.03	2.53	0.00	33.30	1.26	3.24	2.62	0.34	0.36	0.20	0.05	0.01	0.07	48.91
Como P-21	2193.7	13	siderite + clay	25.99	0.02	6.14	0.00	22.54	0.38	2.50	2.39	0.39	0.54	0.13	0.01	0.12	0.07	61.21
Como P-21	2193.7	14	clay	15.87	0.01	12.00	0.00	15.18	0.00	2.52	0.54	0.29	0.61	0.00	0.00	0.00	0.00	47.01
Como P-21	2193.7	15	siderite + clay	32.97	0.02	3.79	0.00	19.67	0.48	2.16	1.72	0.19	0.17	0.09	0.00	0.19	0.06	61.51
Como P-21	2956.93	13	Fe-calcite	0.00	0.00	0.01	0.02	1.86	0.68	0.67	55.03	0.06	0.03	0.04	0.03	0.00	0.00	58.43
Como P-21	2956.93	14	Fe-calcite	0.00	0.00	0.00	0.00	1.82	0.77	0.67	55.54	0.06	0.04	0.02	0.01	0.00	0.00	58.93
Como P-21	2956.93	15	Fe-calcite	0.00	0.00	0.00	0.00	1.11	0.31	0.56	48.75	0.02	0.03	0.05	0.00	0.00	0.00	50.81
Como P-21	2956.93	16	Fe-calcite	0.00	0.00	0.00	0.00	1.79	0.57	0.84	52.07	0.07	0.03	0.07	0.02	0.00	0.00	55.46
Como P-21	2956.93	17	Fe-calcite	0.00	0.00	0.13	0.00	1.15	0.28	0.48	48.54	0.04	0.04	0.04	0.00	0.01	0.00	50.70
Como P-21	2956.93	18	Fe-calcite	0.00	0.00	0.00	0.00	1.89	0.68	0.72	51.13	0.03	0.03	0.04	0.00	0.00	0.00	54.53
Como P-21	2956.93	19	Fe-calcite	0.00	0.00	0.02	0.00	1.65	0.32	0.50	57.32	0.03	0.02	0.00	0.02	0.03	0.00	59.91
Como P-21	2956.93	20	Fe-calcite	0.00	0.00	0.00	0.00	1.55	0.29	0.51	55.90	0.02	0.02	0.05	0.00	0.01	0.00	58.35
Como P-21	2956.93	21	Fe-calcite	0.00	0.00	0.01	0.00	1.34	0.28	0.50	51.12	0.00	0.03	0.02	0.00	0.00	0.00	53.30
Como P-21	2956.93	22	Fe-calcite	0.00	0.01	0.01	0.00	1.70	0.32	0.48	56.53	0.02	0.04	0.03	0.02	0.07	0.00	59.24
Como P-21	2956.93	23	Fe-calcite	0.00	0.00	0.00	0.00	1.16	0.33	0.43	51.19	0.03	0.04	0.04	0.01	0.01	0.00	53.25
Como P-21	2956.93	24	Fe-calcite	0.00	0.00	0.01	0.00	0.92	0.21	0.40	51.11	0.03	0.05	0.03	0.01	0.06	0.00	52.82
Como P-21	2956.93	25	Fe-calcite	0.00	0.00	0.00	0.00	1.91	0.75	0.67	56.73	0.02	0.04	0.08	0.02	0.00	0.00	60.23
Como P-21	2956.93	26	clay	24.22	0.80	13.84	0.00	0.89	0.03	0.81	14.64	0.29	3.87	0.01	0.00	0.00	0.00	59.40
Como P-21	2956.93	27	Fe-calcite	0.00	0.00	0.00	0.00	1.87	0.75	0.72	55.65	0.01	0.03	0.05	0.02	0.00	0.00	59.09
Como P-21	2956.93	28	ankerite	0.00	0.00	0.00	0.00	12.75	0.65	10.51	28.25	0.02	0.02	0.01	0.00	0.00	0.00	52.23
Como P-21	2956.93	29	ankerite	0.00	0.00	0.00	0.00	12.71	0.67	10.85	27.96	0.05	0.04	0.00	0.00	0.00	0.00	52.29
Como P-21	2956.93	30	Fe-calcite	0.00	0.00	0.00	0.00	1.80	0.76	0.74	55.71	0.02	0.03	0.04	0.01	0.00	0.00	59.12
Como P-21	2956.93	31	Fe-calcite	0.00	0.00	0.00	0.00	1.74	0.66	0.57	55.79	0.02	0.03	0.06	0.02	0.00	0.00	58.90
Como P-21	2956.93	32	calcite	0.00	0.00	0.00	0.00	0.66	0.32	0.32	48.43	0.04	0.04	0.03	0.00	0.01	0.00	49.85
Como P-21	2956.93	33	calcite	0.00	0.02	0.00	0.03	0.51	0.25	0.17	45.19	0.00	0.02	0.02	0.02	0.06	0.00	46.29
Como P-21	2956.93	34	Fe-calcite	0.00	0.03	0.00	0.04	1.79	0.34	0.52	55.29	0.00	0.03	0.03	0.07	0.04	0.00	58.19
Como P-21	2956.93	35	Fe-calcite	0.00	0.02	0.00	0.05	1.86	0.75	0.69	54.82	0.00	0.01	0.04	0.11	0.00	0.01	58.35
Como P-21	2956.93	36	Fe-calcite	0.00	0.01	0.00	0.04	1.95	0.71	0.60	52.87	0.00	0.03	0.02	0.08	0.00	0.02	56.33
Como P-21	2956.93	37	calcite	0.00	0.01	0.00	0.03	0.89	0.35	0.26	47.75	0.00	0.03	0.02	0.04	0.00	0.00	49.39

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Como P-21	2956.93	38	Fe-calcite	0.00	0.03	0.00	0.04	2.02	0.68	0.62	55.79	0.00	0.03	0.05	0.09	0.01	0.02	59.40
Como P-21	2956.93	39	Fe-calcite	0.00	0.03	0.01	0.04	1.73	0.35	0.52	51.33	0.00	0.03	0.00	0.07	0.05	0.01	54.17
Como P-21	2956.93	40	Fe-calcite	0.00	0.01	0.02	0.03	1.97	0.68	0.61	56.52	0.00	0.02	0.03	0.09	0.03	0.00	60.02
Como P-21	2956.93	41	Fe-calcite	0.00	0.02	0.00	0.04	1.63	0.51	0.48	55.68	0.00	0.02	0.04	0.10	0.03	0.00	58.55
Como P-21	2956.93	42	Fe-calcite	0.00	0.03	0.00	0.01	1.80	0.65	0.51	57.21	0.00	0.04	0.06	0.09	0.03	0.00	60.41
Como P-21	2956.93	43	calcite	0.00	0.00	0.00	0.02	0.83	0.32	0.27	45.82	0.00	0.03	0.03	0.01	0.01	0.00	47.33
Como P-21	2956.93	44	Fe-calcite	0.00	0.04	0.00	0.07	1.99	0.82	0.68	55.30	0.00	0.02	0.03	0.11	0.00	0.01	59.08
Como P-21	2956.93	45	Fe-calcite	0.00	0.00	0.01	0.03	1.21	0.34	0.33	57.16	0.02	0.03	0.02	0.08	0.00	0.00	59.23
Como P-21	2969.48	46	calcite	0.00	0.00	0.00	0.01	0.73	0.31	0.19	50.93	0.03	0.02	0.03	0.01	0.04	0.00	52.29
Como P-21	2969.48	47	calcite	0.00	0.00	0.00	0.01	0.51	0.24	0.08	50.14	0.02	0.03	0.03	0.00	0.00	0.00	51.05
Como P-21	2969.48	48	calcite	0.00	0.00	0.00	0.00	0.91	0.52	0.91	55.52	0.04	0.03	0.08	0.04	0.05	0.00	58.10
Como P-21	2969.48	49	Fe-calcite	0.00	0.00	0.00	0.00	2.69	0.68	14.83	41.44	0.04	0.01	0.21	0.00	0.04	0.00	59.94
Como P-21	2969.48	50	calcite	0.00	0.00	0.00	0.00	0.50	0.44	0.52	51.97	0.03	0.02	0.04	0.04	0.00	0.00	53.55
Como P-21	2969.48	51	ankerite	0.00	0.00	0.00	0.00	3.90	0.79	11.68	36.58	0.03	0.02	0.08	0.02	0.00	0.00	53.09
Como P-21	2969.48	52	calcite	0.00	0.00	0.01	0.00	0.78	0.47	0.50	56.35	0.04	0.03	0.06	0.03	0.04	0.00	58.32
Como P-21	2969.48	53	calcite	0.00	0.00	0.00	0.01	0.51	0.41	0.78	51.57	0.03	0.02	0.03	0.00	0.02	0.00	53.39
Como P-21	2969.48	54	calcite	0.00	0.00	0.00	0.03	0.90	0.32	0.20	56.82	0.02	0.04	0.04	0.04	0.01	0.07	58.50
Como P-21	2969.48	55	calcite	0.00	0.00	0.00	0.05	0.86	0.33	0.21	55.36	0.03	0.04	0.02	0.01	0.03	0.01	56.96
Como P-21	2969.48	56	chromite	0.00	0.24	14.66	54.08	18.67	0.35	10.46	0.04	0.06	0.04	0.03	0.28	0.23	0.18	99.32
Como P-21	2969.48	57	ankerite	0.00	0.00	0.00	0.02	12.56	1.80	9.16	28.67	0.05	0.01	0.02	0.03	0.00	0.01	52.33
Como P-21	2969.48	58	Mg-Fe-calcite	0.00	0.00	0.01	0.00	2.61	0.60	5.24	42.92	0.04	0.02	0.06	0.00	0.06	0.00	51.56
Como P-21	2969.48	59	ankerite	0.00	0.00	0.01	0.00	12.66	1.30	8.86	29.16	0.03	0.01	0.03	0.00	0.00	0.02	52.09
Como P-21	2969.48	60	Mg-Fe-calcite	0.00	0.00	0.02	0.00	1.83	0.12	4.02	46.84	0.10	0.01	0.08	0.00	0.14	0.00	53.17
Como P-21	2969.48	61	calcite	0.00	0.00	0.00	0.01	0.72	0.41	0.48	50.28	0.02	0.03	0.06	0.00	0.03	0.00	52.03
Como P-21	2969.48	62	Fe-calcite	0.00	0.00	0.00	0.03	1.26	0.57	0.34	55.75	0.02	0.03	0.04	0.06	0.09	0.02	58.21
Como P-21	2969.48	63	Fe-calcite	0.00	0.00	0.01	0.02	1.53	0.49	0.36	52.24	0.04	0.04	0.03	0.03	0.09	0.00	54.87
Como P-21	2969.48	64	Fe-calcite	0.00	0.00	0.01	0.01	0.98	0.46	0.26	51.28	0.04	0.02	0.05	0.04	0.08	0.03	53.25
Como P-21	2969.48	65	Fe-calcite	0.00	0.00	0.00	0.00	1.04	0.64	0.40	54.52	0.03	0.20	0.05	0.05	0.07	0.03	57.03
Como P-21	2969.48	66	Fe-calcite	0.00	0.00	0.02	0.00	1.30	0.58	0.33	58.43	0.05	0.02	0.03	0.00	0.14	0.07	60.98
Como P-21	2969.48	67	calcite	0.00	0.00	0.02	0.00	0.84	0.30	0.27	47.53	0.02	0.01	0.03	0.00	0.21	0.00	49.21
Como P-21	2969.48	68	calcite	0.00	0.00	0.02	0.00	0.78	0.47	0.25	49.23	0.05	0.01	0.04	0.00	0.02	0.00	50.85
Como P-21	2969.48	69	Fe-calcite	0.00	0.00	0.01	0.00	1.09	0.43	0.35	55.61	0.03	0.01	0.05	0.00	0.14	0.00	57.74
Como P-21	2969.48	70	Fe-calcite	0.00	0.00	0.02	0.00	1.16	0.71	0.31	57.10	0.03	0.01	0.05	0.01	0.05	0.00	59.45
Como P-21	2969.48	71	Fe-calcite	0.00	0.00	0.01	0.00	1.13	0.43	0.31	52.19	0.03	0.02	0.05	0.00	0.15	0.01	54.34
Como P-21	2969.48	72	Fe-calcite	0.00	0.00	0.01	0.00	1.26	0.43	0.56	55.32	0.03	0.01	0.08	0.00	0.07	0.00	57.77
Como P-21	2969.48	73	Fe-calcite	0.00	0.00	0.01	0.00	0.96	0.44	0.27	55.30	0.02	0.02	0.04	0.01	0.17	0.03	57.26



Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Como P-21	2969.48	74	calcite	0.00	0.01	0.01	0.00	0.86	0.46	0.30	54.07	0.03	0.01	0.22	0.00	0.05	0.02	56.03
Como P-21	2969.48	75	Fe-calcite	0.00	0.00	0.02	0.00	1.17	0.45	0.31	56.17	0.04	0.01	0.03	0.00	0.24	0.07	58.50
Como P-21	2969.48	76	Fe-calcite	0.00	0.00	0.02	0.00	1.25	0.48	0.37	51.46	0.04	0.02	0.04	0.00	0.10	0.04	53.81
Como P-21	2969.48	77	Fe-calcite	0.00	0.02	0.03	0.00	1.22	0.45	0.33	51.84	0.03	0.01	0.06	0.00	0.18	0.02	54.20
Como P-21	2969.48	78	Fe-calcite	0.00	0.00	0.00	0.00	1.19	0.55	0.37	51.84	0.02	0.04	0.02	0.00	0.06	0.00	54.08
Como P-21	2969.48	79	Fe-calcite	0.00	0.00	0.02	0.00	1.07	0.51	0.45	54.56	0.02	0.01	0.04	0.00	0.09	0.00	56.76
Como P-21	2969.48	80	Fe-calcite	0.00	0.00	0.01	0.00	1.10	0.35	0.72	48.88	0.02	0.01	0.04	0.00	0.08	0.00	51.22
Como P-21	2969.48	81	Fe-calcite	0.00	0.00	0.02	0.00	1.23	0.47	0.42	52.12	0.01	0.01	0.04	0.00	0.07	0.00	54.40
Como P-21	2969.48	82	calcite	0.00	0.01	0.02	0.00	0.84	0.35	0.42	47.92	0.03	0.00	0.04	0.00	0.07	0.00	49.70
Como P-21	2969.48	83	Fe-calcite	0.00	0.00	0.00	0.00	1.17	0.57	0.54	51.03	0.02	0.00	0.01	0.00	0.17	0.02	53.53
Como P-21	2969.48	84	Fe-calcite	0.00	0.00	0.01	0.00	1.12	0.45	0.46	49.64	0.02	0.01	0.04	0.00	0.10	0.00	51.84
Como P-21	2969.48	85	Fe-calcite	0.00	0.02	0.01	0.00	1.37	0.45	0.59	56.59	0.03	0.01	0.03	0.00	0.14	0.01	59.24
Como P-21	2969.48	86	Fe-calcite	0.00	0.00	0.02	0.02	1.20	0.55	0.30	50.03	0.01	0.01	0.01	0.00	0.04	0.00	52.20
Como P-21	2969.48	87	calcite	0.00	0.05	0.01	0.01	0.88	0.31	0.28	49.00	0.01	0.02	0.04	0.00	0.14	0.02	50.77

No.\* : number of analysis on the back-scattered images (Appendix 2).

Appendix 1B: Electron microprobe analyses of diagenetic minerals from representative samples from Panuke B-90 well.

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2069.01	11	Fe-calcite	0.00	0.00	0.00	0.00	1.46	0.27	0.37	53.82	0.02	0.01	0.04	0.00	0.16	0.00	56.13
Panuke B-90	2069.01	12	Fe-calcite	0.00	0.00	0.00	0.00	1.60	0.38	0.40	51.82	0.02	0.02	0.00	0.00	0.04	0.00	54.26
Panuke B-90	2069.01	13	Fe-calcite	0.00	0.00	0.00	0.00	1.05	0.24	0.23	53.62	0.02	0.02	0.02	0.00	0.16	0.00	55.34
Panuke B-90	2069.01	14	Fe-calcite	0.00	0.00	0.00	0.00	1.34	0.25	0.28	53.39	0.01	0.01	0.01	0.00	0.24	0.00	55.54
Panuke B-90	2069.01	15	Fe-calcite	0.00	0.00	0.00	0.00	1.48	0.28	0.34	52.77	0.02	0.01	0.00	0.00	0.22	0.00	55.11
Panuke B-90	2069.01	16	Fe-calcite	0.03	0.00	0.00	0.00	1.06	0.23	0.24	53.57	0.01	0.01	0.00	0.00	0.17	0.00	55.31
Panuke B-90	2069.01	17	calcite	0.00	0.00	0.00	0.00	0.39	0.11	0.07	55.77	0.00	0.02	0.00	0.00	0.25	0.00	56.61
Panuke B-90	2069.01	18	K-feldspar	63.62	0.01	18.56	0.00	0.00	0.01	0.00	0.00	0.82	15.76	0.00	0.00	0.00	0.55	99.34
Panuke B-90	2069.01	19	ankerite	0.88	0.00	0.30	0.00	13.18	0.55	9.85	27.42	0.01	0.20	0.06	0.00	0.00	0.00	52.46
Panuke B-90	2069.01	20	Fe-calcite	0.00	0.00	0.00	0.00	1.05	0.21	0.24	53.76	0.02	0.03	0.01	0.00	0.19	0.00	55.52
Panuke B-90	2069.01	21	ankerite	0.36	0.00	0.08	0.00	13.43	0.63	9.56	27.75	0.00	0.10	0.00	0.00	0.00	0.00	51.92
Panuke B-90	2069.01	22	calcite	0.00	0.00	0.00	0.00	0.48	0.11	0.10	55.27	0.01	0.02	0.02	0.00	0.32	0.00	56.33
Panuke B-90	2069.01	23	ankerite	0.80	0.00	0.38	0.00	13.02	0.47	9.53	27.19	0.02	0.20	0.10	0.00	0.00	0.00	51.71
Panuke B-90	2069.01	24	Fe-calcite	0.00	0.00	0.00	0.00	1.43	0.28	0.35	52.37	0.00	0.01	0.00	0.00	0.21	0.00	54.66
Panuke B-90	2069.01	25	K-feldspar	48.83	0.00	13.19	0.01	0.11	0.01	0.03	0.14	0.41	11.67	0.65	0.01	0.00	0.07	75.14
Panuke B-90	2069.01	26	Fe-calcite	0.03	0.01	0.00	0.05	1.56	0.39	0.41	52.70	0.01	0.05	0.08	0.07	0.06	0.00	55.42
Panuke B-90	2069.01	27	Fe-calcite	0.03	0.04	0.00	0.06	1.04	0.24	0.25	53.22	0.00	0.04	0.06	0.07	0.18	0.00	55.23
Panuke B-90	2069.01	28	calcite	0.05	0.02	0.00	0.06	0.42	0.11	0.12	53.53	0.00	0.03	0.05	0.08	0.34	0.00	54.81
Panuke B-90	2069.01	29	Fe-calcite	0.05	0.01	0.00	0.07	1.18	0.26	0.29	52.93	0.01	0.03	0.04	0.04	0.25	0.00	55.16
Panuke B-90	2069.01	30	Fe-calcite	0.03	0.04	0.00	0.08	1.64	0.32	0.37	51.99	0.00	0.03	0.06	0.06	0.26	0.00	54.88
Panuke B-90	2069.01	31	Fe-calcite	0.03	0.04	0.00	0.06	1.52	0.39	0.37	52.52	0.00	0.03	0.07	0.06	0.13	0.01	55.21
Panuke B-90	2069.01	32	Fe-calcite	0.04	0.01	0.00	0.08	1.54	0.40	0.41	51.94	0.01	0.04	0.05	0.05	0.09	0.00	54.66
Panuke B-90	2069.01	33	Fe-calcite	0.03	0.00	0.00	0.05	1.78	0.33	0.43	52.32	0.00	0.08	0.08	0.04	0.18	0.00	55.31
Panuke B-90	2069.01	34	siderite	0.05	0.07	0.00	0.14	44.67	0.91	1.90	6.60	0.10	0.06	0.59	0.10	0.00	0.09	55.27
Panuke B-90	2069.01	35	Fe-calcite	0.01	0.02	0.00	0.07	1.63	0.42	0.43	52.50	0.02	0.05	0.05	0.07	0.05	0.00	55.32
Panuke B-90	2069.01	36	calcite	0.01	0.00	0.00	0.07	0.62	0.19	0.15	55.24	0.00	0.04	0.06	0.06	0.26	0.00	56.69
Panuke B-90	2069.01	37	Fe-calcite	0.06	0.00	0.00	0.06	1.04	0.24	0.22	53.33	0.02	0.15	0.04	0.05	0.26	0.00	55.47
Panuke B-90	2069.01	38	calcite	0.00	0.00	0.01	0.00	0.89	0.15	0.19	58.09	0.00	0.02	0.02	0.02	0.22	0.00	59.61
Panuke B-90	2069.01	39	Fe-calcite	0.01	0.02	0.00	0.00	1.50	0.27	0.37	54.28	0.00	0.03	0.03	0.03	0.17	0.00	56.71
Panuke B-90	2069.01	40	calcite	0.01	0.00	0.00	0.01	0.85	0.16	0.19	55.64	0.00	0.01	0.02	0.02	0.25	0.00	57.17
Panuke B-90	2069.01	41	Fe-calcite	0.03	0.00	0.00	0.01	1.90	0.35	0.46	54.07	0.00	0.02	0.02	0.02	0.07	0.00	56.97
Panuke B-90	2069.01	42	Fe-calcite	0.00	0.00	0.00	0.00	1.10	0.19	0.26	54.63	0.00	0.02	0.01	0.01	0.11	0.00	56.32
Panuke B-90	2069.01	43	Fe-calcite	0.01	0.01	0.01	0.00	1.42	0.26	0.31	54.27	0.00	0.03	0.03	0.00	0.18	0.00	56.53
Panuke B-90	2069.01	44	Fe-calcite	0.00	0.03	0.00	0.00	1.31	0.23	0.30	54.22	0.00	0.04	0.01	0.02	0.12	0.02	56.29
Panuke B-90	2069.01	45	Fe-calcite	0.00	0.01	0.01	0.01	1.19	0.24	0.26	55.21	0.00	0.02	0.02	0.02	0.16	0.00	57.16
Panuke B-90	2069.01	46	calcite	0.00	0.00	0.00	0.01	0.94	0.19	0.22	54.98	0.00	0.05	0.04	0.02	0.24	0.00	56.69

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2069.01	47	calcite	0.00	0.00	0.00	0.00	0.93	0.19	0.17	55.68	0.00	0.02	0.01	0.00	0.19	0.00	57.19
Panuke B-90	2069.01	48	Fe-calcite	0.00	0.00	0.00	0.00	1.42	0.27	0.37	54.18	0.01	0.02	0.03	0.00	0.21	0.00	56.51
Panuke B-90	2069.01	49	calcite	0.04	0.00	0.00	0.00	0.83	0.19	0.19	53.10	0.00	0.02	0.01	0.00	0.11	0.00	54.49
Panuke B-90	2069.01	50	calcite	0.00	0.00	0.00	0.00	0.44	0.09	0.09	54.32	0.00	0.00	0.01	0.00	0.25	0.00	55.22
Panuke B-90	2069.01	51	calcite	0.00	0.00	0.00	0.00	0.68	0.15	0.14	53.40	0.03	0.01	0.00	0.00	0.21	0.00	54.62
Panuke B-90	2069.01	52	Fe-calcite	0.00	0.02	0.00	0.00	1.52	0.32	0.31	54.36	0.00	0.02	0.03	0.00	0.15	0.00	56.72
Panuke B-90	2069.01	53	Fe-calcite	0.01	0.02	0.00	0.00	1.67	0.28	0.38	50.80	0.03	0.01	0.02	0.00	0.25	0.00	53.47
Panuke B-90	2069.01	54	Fe-calcite	0.00	0.02	0.00	0.00	1.54	0.27	0.38	52.82	0.02	0.01	0.01	0.00	0.16	0.00	55.23
Panuke B-90	2069.01	55	Fe-calcite	0.03	0.02	0.00	0.00	1.29	0.23	0.28	52.57	0.00	0.03	0.00	0.00	0.21	0.00	54.65
Panuke B-90	2099.21	56	Fe-calcite	0.00	0.00	0.00	0.00	1.19	0.22	0.30	52.57	0.00	0.03	0.00	0.01	0.09	0.00	54.39
Panuke B-90	2099.21	57	Fe-calcite	0.00	0.01	0.00	0.00	1.27	0.22	0.29	53.29	0.00	0.01	0.01	0.00	0.01	0.00	55.11
Panuke B-90	2099.21	58	Fe-calcite	0.00	0.00	0.00	0.00	1.13	0.20	0.27	52.38	0.01	0.01	0.00	0.00	0.04	0.00	54.04
Panuke B-90	2099.21	59	Fe-calcite	0.00	0.00	0.00	0.00	1.04	0.17	0.23	54.01	0.01	0.01	0.00	0.00	0.00	0.00	55.48
Panuke B-90	2099.21	60	calcite	0.00	0.01	0.01	0.00	0.78	0.11	0.19	54.78	0.00	0.01	0.01	0.00	0.10	0.00	56.00
Panuke B-90	2099.21	61	Fe-calcite	0.00	0.00	0.00	0.00	1.21	0.23	0.30	53.36	0.01	0.02	0.00	0.00	0.05	0.00	55.17
Panuke B-90	2099.21	62	Fe-calcite	0.02	0.00	0.00	0.00	1.19	0.23	0.30	52.88	0.01	0.01	0.01	0.00	0.06	0.00	54.69
Panuke B-90	2099.21	63	ankerite	0.00	0.02	0.00	0.00	12.66	0.92	9.07	28.64	0.01	0.01	0.00	0.00	0.00	0.00	51.33
Panuke B-90	2099.21	64	ankerite	0.00	0.00	0.00	0.00	12.57	0.73	9.60	28.91	0.00	0.01	0.00	0.00	0.00	0.00	51.81
Panuke B-90	2099.21	65	Fe-calcite	0.00	0.00	0.00	0.00	1.30	0.22	0.31	55.16	0.01	0.01	0.00	0.00	0.06	0.00	57.07
Panuke B-90	2099.21	66	ankerite	0.00	0.00	0.00	0.00	12.41	0.82	9.42	28.58	0.00	0.01	0.00	0.00	0.00	0.00	51.23
Panuke B-90	2099.21	67	ankerite	0.00	0.00	0.00	0.00	12.45	0.65	9.36	28.58	0.00	0.00	0.00	0.00	0.00	0.00	51.04
Panuke B-90	2099.21	68	Fe-calcite	0.00	0.00	0.00	0.00	1.16	0.22	0.26	57.33	0.00	0.01	0.02	0.00	0.10	0.00	59.08
Panuke B-90	2099.21	69	Fe-calcite	0.00	0.00	0.00	0.00	1.27	0.25	0.30	53.86	0.02	0.01	0.01	0.01	0.05	0.00	55.77
Panuke B-90	2099.21	70	Fe-calcite	0.00	0.00	0.00	0.00	1.21	0.24	0.30	53.16	0.00	0.02	0.00	0.00	0.07	0.00	55.00
Panuke B-90	2099.21	71	calcite	0.00	0.00	0.00	0.00	0.71	0.15	0.13	54.22	0.00	0.02	0.00	0.00	0.02	0.00	55.26
Panuke B-90	2099.21	72	Fe-calcite	0.00	0.00	0.00	0.00	1.25	0.20	0.29	53.48	0.00	0.00	0.00	0.00	0.13	0.00	55.36
Panuke B-90	2099.21	73	ankerite	0.00	0.02	0.00	0.00	12.71	0.70	9.62	29.23	0.00	0.00	0.00	0.00	0.00	0.00	52.28
Panuke B-90	2099.21	74	Fe-calcite	0.00	0.00	0.00	0.00	1.12	0.21	0.24	54.05	0.00	0.01	0.00	0.00	0.10	0.00	55.73
Panuke B-90	2099.21	75	Fe-calcite	0.00	0.01	0.00	0.00	0.98	0.17	0.20	54.61	0.00	0.01	0.00	0.00	0.04	0.00	56.03
Panuke B-90	2099.21	76	Fe-calcite	0.00	0.01	0.00	0.00	1.15	0.21	0.27	54.28	0.00	0.00	0.02	0.00	0.01	0.00	55.96
Panuke B-90	2099.21	77	Fe-calcite	0.00	0.00	0.00	0.00	1.24	0.17	0.27	53.49	0.00	0.01	0.00	0.00	0.10	0.00	55.27
Panuke B-90	2099.21	78	Fe-calcite	0.00	0.00	0.00	0.00	1.28	0.24	0.27	54.58	0.00	0.01	0.00	0.00	0.05	0.00	56.44
Panuke B-90	2099.21	79	ankerite	0.00	0.00	0.00	0.00	12.53	0.89	9.13	28.95	0.00	0.00	0.01	0.00	0.00	0.00	51.52
Panuke B-90	2099.21	80	ankerite	0.00	0.00	0.00	0.00	13.12	0.94	9.21	29.11	0.00	0.01	0.00	0.00	0.00	0.00	52.38
Panuke B-90	2099.21	81	calcite	0.00	0.00	0.00	0.00	0.80	0.19	0.19	53.38	0.00	0.01	0.00	0.00	0.07	0.00	54.64
Panuke B-90	2099.21	82	calcite	0.00	0.00	0.01	0.00	1.24	0.20	0.32	53.22	0.02	0.01	0.04	0.00	0.10	0.00	55.16
Panuke B-90	2099.21	83	ankerite	0.00	0.00	0.00	0.00	12.90	0.84	9.53	28.65	0.00	0.01	0.00	0.00	0.00	0.00	51.93
Panuke B-90	2099.96	96	Fe-calcite	0.02	0.00	0.00	0.00	2.43	0.31	0.62	52.28	0.00	0.02	0.01	0.01	0.20	0.00	55.90
Panuke B-90	2099.96	97	Fe-calcite	0.02	0.00	0.00	0.00	2.05	0.30	0.53	51.49	0.01	0.03	0.04	0.00	0.18	0.00	54.65

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2099.96	98	Fe-calcite	0.00	0.00	0.00	0.02	2.15	0.29	0.56	51.93	0.00	0.02	0.06	0.00	0.19	0.00	55.23
Panuke B-90	2099.96	99	Fe-calcite	0.00	0.00	0.00	0.02	2.43	0.32	0.66	51.57	0.00	0.05	0.02	0.01	0.34	0.00	55.41
Panuke B-90	2099.96	100	Fe-calcite	0.00	0.00	0.01	0.01	2.54	0.29	0.67	52.17	0.01	0.03	0.03	0.02	0.39	0.01	56.16
Panuke B-90	2099.96	101	Fe-calcite	0.05	0.00	0.00	0.00	2.16	0.30	0.54	52.16	0.00	0.02	0.04	0.02	0.24	0.00	55.52
Panuke B-90	2099.96	102	ankerite	1.45	0.00	0.40	0.00	12.52	1.01	9.08	27.26	0.00	0.35	0.02	0.00	0.00	0.00	52.11
Panuke B-90	2099.96	103	Fe-calcite	0.01	0.00	0.00	0.00	1.68	0.22	0.38	52.44	0.00	0.03	0.05	0.01	0.47	0.00	55.29
Panuke B-90	2099.96	104	Fe-calcite	0.00	0.00	0.00	0.00	2.27	0.29	0.54	51.89	0.01	0.02	0.03	0.01	0.30	0.00	55.37
Panuke B-90	2099.96	105	Fe-calcite	0.01	0.00	0.00	0.00	2.32	0.30	0.55	53.62	0.02	0.03	0.04	0.00	0.24	0.00	57.13
Panuke B-90	2099.96	106	Fe-calcite	0.02	0.00	0.00	0.00	2.22	0.29	0.57	50.33	0.01	0.02	0.04	0.00	0.20	0.00	53.70
Panuke B-90	2099.96	107	Fe-calcite	0.05	0.00	0.00	0.00	2.16	0.28	0.54	50.47	0.01	0.01	0.05	0.00	0.30	0.00	53.87
Panuke B-90	2099.96	108	calcite	0.03	0.00	0.00	0.02	0.83	0.12	0.18	54.21	0.00	0.02	0.02	0.00	0.61	0.00	56.06
Panuke B-90	2099.96	109	Fe-calcite	0.00	0.00	0.00	0.00	1.92	0.22	0.48	53.64	0.00	0.02	0.01	0.00	0.48	0.00	56.77
Panuke B-90	2099.96	110	Fe-calcite	0.01	0.00	0.00	0.00	2.21	0.30	0.54	52.35	0.00	0.03	0.03	0.01	0.27	0.00	55.75
Panuke B-90	2099.96	111	Fe-calcite	0.00	0.00	0.00	0.00	2.25	0.29	0.58	51.88	0.02	0.06	0.06	0.00	0.32	0.00	55.47
Panuke B-90	2099.96	112	Fe-calcite	0.01	0.00	0.00	0.02	2.35	0.29	0.59	52.51	0.00	0.01	0.04	0.00	0.47	0.00	56.29
Panuke B-90	2099.96	113	Fe-calcite	0.02	0.00	0.01	0.00	2.12	0.31	0.58	50.96	0.01	0.05	0.02	0.00	0.18	0.00	54.25
Panuke B-90	2099.96	114	Fe-calcite	0.01	0.00	0.00	0.00	1.78	0.29	0.43	51.45	0.01	0.02	0.04	0.00	0.18	0.00	54.20
Panuke B-90	2099.96	115	Fe-calcite	0.01	0.00	0.00	0.00	1.90	0.29	0.51	51.13	0.01	0.04	0.03	0.00	0.09	0.00	54.01
Panuke B-90	2099.96	116	Fe-calcite	0.00	0.00	0.00	0.00	2.08	0.26	0.51	53.48	0.02	0.01	0.06	0.00	0.19	0.03	56.65
Panuke B-90	2099.96	117	Fe-calcite	0.00	0.00	0.00	0.00	2.06	0.24	0.55	50.39	0.01	0.01	0.05	0.01	0.30	0.00	53.61
Panuke B-90	2099.96	118	Fe-calcite	0.01	0.00	0.00	0.00	1.96	0.28	0.50	51.01	0.00	0.01	0.07	0.00	0.09	0.00	53.91
Panuke B-90	2099.96	119	Fe-calcite	0.00	0.00	0.01	0.00	2.05	0.27	0.52	50.74	0.00	0.01	0.07	0.00	0.21	0.04	53.91
Panuke B-90	2099.96	120	Fe-calcite	0.07	0.01	0.00	0.00	2.01	0.26	0.50	52.12	0.00	0.02	0.07	0.00	0.21	0.00	55.28
Panuke B-90	2099.96	121	Fe-calcite	0.00	0.00	0.00	0.00	2.16	0.27	0.55	50.41	0.01	0.01	0.07	0.00	0.19	0.00	53.66
Panuke B-90	2099.96	122	Fe-calcite	0.00	0.00	0.01	0.00	2.11	0.27	0.55	51.24	0.00	0.01	0.05	0.00	0.22	0.00	54.46
Panuke B-90	2099.96	123	Fe-calcite	0.00	0.01	0.01	0.00	2.11	0.25	0.52	50.95	0.01	0.02	0.07	0.00	0.22	0.00	54.16
Panuke B-90	2099.96	124	Fe-calcite	0.00	0.02	0.00	0.00	2.26	0.26	0.57	51.07	0.01	0.01	0.05	0.01	0.28	0.04	54.58
Panuke B-90	2099.96	125	Fe-calcite	0.02	0.00	0.01	0.00	2.08	0.26	0.54	50.87	0.00	0.09	0.03	0.01	0.21	0.00	54.13
Panuke B-90	2099.96	126	Fe-calcite	0.01	0.00	0.01	0.00	1.95	0.28	0.51	51.51	0.01	0.03	0.04	0.00	0.24	0.01	54.61
Panuke B-90	2099.96	127	Fe-calcite	0.00	0.02	0.00	0.00	2.02	0.26	0.53	51.37	0.00	0.01	0.05	0.00	0.20	0.01	54.47
Panuke B-90	2099.96	128	Fe-calcite	0.03	0.00	0.00	0.00	2.10	0.25	0.55	51.05	0.00	0.02	0.05	0.00	0.23	0.02	54.30
Panuke B-90	2099.96	129	Fe-calcite	0.00	0.00	0.00	0.00	2.15	0.32	0.58	50.85	0.01	0.02	0.04	0.00	0.20	0.02	54.18
Panuke B-90	2099.96	130	Fe-calcite	0.01	0.01	0.01	0.00	1.48	0.19	0.43	46.82	0.00	0.01	0.05	0.01	0.38	0.02	49.41
Panuke B-90	2107.7	131	K-feldspar	65.16	0.00	18.42	0.00	0.13	0.01	0.00	0.00	0.03	13.84	0.01	0.00	0.00	0.16	97.76
Panuke B-90	2107.7	132	K-feldspar	64.76	0.06	18.60	0.00	0.30	0.01	0.00	0.00	0.15	14.95	0.01	0.01	0.00	0.66	99.52
Panuke B-90	2217.93	133	siderite	0.63	0.08	0.37	0.06	36.85	1.30	4.75	9.32	0.13	0.07	0.60	0.05	0.00	0.10	54.32
Panuke B-90	2217.93	134	siderite	3.25	0.17	2.16	0.05	34.04	0.93	4.02	10.95	0.23	0.18	1.72	0.04	0.00	0.07	57.83
Panuke B-90	2223.78	135	siderite	0.38	0.08	0.17	0.08	43.21	1.03	7.29	2.57	0.01	0.19	0.08	0.09	0.00	0.10	55.27
Panuke B-90	2223.78	136	siderite	0.52	0.09	0.26	0.07	39.42	0.52	6.06	7.20	0.10	0.19	0.37	0.08	0.00	0.14	55.02

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2223.78	137	siderite	1.90	0.09	0.44	0.06	39.13	0.66	6.08	6.51	0.08	0.25	0.29	0.06	0.00	0.07	55.60
Panuke B-90	2223.78	138	siderite	0.57	0.06	0.23	0.05	36.77	0.42	5.29	9.44	0.06	0.06	0.38	0.04	0.00	0.13	53.49
Panuke B-90	2223.78	139	siderite	0.12	0.06	0.05	0.04	37.31	0.34	5.83	8.66	0.06	0.05	0.34	0.04	0.00	0.05	52.94
Panuke B-90	2223.78	140	siderite	0.29	0.06	0.12	0.05	38.31	0.43	6.72	6.57	0.10	0.04	0.37	0.04	0.00	0.19	53.28
Panuke B-90	2223.78	141	siderite	0.87	0.06	0.66	0.06	36.57	0.36	5.26	9.16	0.06	0.07	0.36	0.08	0.00	0.12	53.68
Panuke B-90	2223.78	142	siderite	0.74	0.06	0.23	0.07	37.96	0.41	6.98	6.89	0.16	0.04	0.36	0.05	0.00	0.11	54.05
Panuke B-90	2223.78	143	siderite	0.33	0.02	0.26	0.00	39.53	0.43	7.32	6.24	0.15	0.05	0.37	0.00	0.00	0.01	54.71
Panuke B-90	2223.78	144	siderite	1.38	0.03	0.49	0.00	39.65	0.64	5.29	6.89	0.12	0.09	0.32	0.00	0.00	0.00	54.90
Panuke B-90	2223.78	145	siderite	0.55	0.01	0.31	0.02	40.21	0.63	6.70	5.69	0.13	0.06	0.33	0.02	0.00	0.00	54.67
Panuke B-90	2223.78	146	siderite	2.09	0.06	0.36	0.00	42.72	0.83	5.13	5.95	0.07	0.08	0.30	0.00	0.00	0.01	57.61
Panuke B-90	2223.78	147	siderite	0.90	0.04	0.54	0.02	38.82	0.37	5.88	6.84	0.06	0.09	0.39	0.00	0.00	0.00	53.94
Panuke B-90	2223.78	148	pseudorutile	1.21	78.94	1.83	0.16	1.22	0.02	0.06	0.57	0.20	0.17	0.68	0.07	0.03	1.14	86.29
Panuke B-90	2223.78	149	siderite	0.67	0.06	0.43	0.02	39.36	0.49	6.00	7.03	0.09	0.07	0.29	0.00	0.00	0.00	54.52
Panuke B-90	2223.78	150	chlorite	23.58	0.05	19.53	0.00	27.61	0.00	3.90	0.38	0.05	0.29	0.00	0.01	0.03	0.00	75.42
Panuke B-90	2223.78	151	chlorite	23.30	0.05	18.76	0.00	25.47	0.00	3.46	0.38	0.09	0.50	0.02	0.00	0.00	0.00	72.05
Panuke B-90	2242.47	63	siderite	3.16	0.03	0.88	0.00	41.66	0.70	5.33	4.76	0.14	0.15	1.15	0.03	0.00	0.00	58.00
Panuke B-90	2242.47	64	siderite	1.70	0.01	0.92	0.00	41.66	0.76	4.58	6.81	0.19	0.19	1.52	0.03	0.00	0.00	58.37
Panuke B-90	2242.47	65	siderite	2.18	0.05	1.29	0.01	39.87	0.64	4.46	7.25	0.26	0.23	2.94	0.03	0.00	0.00	59.21
Panuke B-90	2242.47	66	siderite	2.34	0.00	1.51	0.01	42.21	0.61	4.88	4.71	0.17	0.31	1.01	0.05	0.00	0.00	57.80
Panuke B-90	2242.47	67	siderite	1.78	0.10	1.04	0.03	41.55	0.62	4.98	5.52	0.24	0.19	1.81	0.00	0.00	0.00	57.86
Panuke B-90	2242.47	68	quartz	95.64	0.00	0.25	0.00	0.34	0.02	0.05	0.31	0.00	0.06	0.00	0.00	0.43	0.00	97.10
Panuke B-90	2242.47	69	quartz	93.27	0.00	0.85	0.00	0.30	0.00	0.07	0.88	0.05	0.20	0.54	0.00	0.43	0.00	96.58
Panuke B-90	2242.47	70	K-feldspar	65.83	0.00	20.34	0.00	0.11	0.00	0.03	1.59	11.04	0.13	0.07	0.00	0.23	0.00	99.37
Panuke B-90	2242.47	71	quartz	99.29	0.00	0.05	0.01	0.07	0.00	0.00	0.19	0.01	0.04	0.00	0.00	0.39	0.00	100.04
Panuke B-90	2281.68	158	Fe-calcite	0.04	0.00	0.02	0.00	1.14	1.37	0.26	53.10	0.02	0.03	0.02	0.00	0.17	0.00	56.16
Panuke B-90	2281.68	159	calcite	0.03	0.00	0.00	0.00	0.73	0.77	0.13	51.02	0.00	0.01	0.01	0.02	0.21	0.00	52.93
Panuke B-90	2281.68	160	Fe-calcite	0.01	0.00	0.00	0.00	1.46	1.67	0.33	50.94	0.00	0.01	0.03	0.00	0.11	0.00	54.57
Panuke B-90	2281.68	161	Fe-calcite	0.01	0.00	0.01	0.00	1.33	1.50	0.30	51.74	0.00	0.02	0.02	0.01	0.10	0.00	55.03
Panuke B-90	2281.68	162	Fe-calcite	0.10	0.00	0.00	0.00	1.26	1.40	0.25	50.83	0.00	0.01	0.01	0.01	0.12	0.00	53.99
Panuke B-90	2281.68	163	calcite	0.04	0.00	0.02	0.00	0.84	1.08	0.15	53.02	0.00	0.02	0.03	0.00	0.15	0.00	55.35
Panuke B-90	2281.68	164	Fe-calcite	0.05	0.00	0.01	0.00	1.32	1.46	0.28	51.29	0.00	0.05	0.03	0.00	0.19	0.00	54.68
Panuke B-90	2281.68	165	Fe-calcite	0.05	0.00	0.01	0.00	1.49	1.54	0.31	51.45	0.00	0.02	0.02	0.01	0.12	0.02	55.03
Panuke B-90	2281.68	166	calcite	0.02	0.01	0.00	0.00	0.54	0.70	0.10	51.03	0.00	0.02	0.03	0.00	0.16	0.00	52.60
Panuke B-90	2281.68	167	Fe-calcite	0.00	0.00	0.00	0.00	1.01	1.17	0.19	49.36	0.00	0.01	0.01	0.00	0.09	0.00	51.86
Panuke B-90	2281.68	168	Fe-calcite	0.00	0.00	0.02	0.00	1.32	1.47	0.28	51.14	0.00	0.01	0.01	0.02	0.10	0.00	54.38
Panuke B-90	2281.68	169	Fe-calcite	0.09	0.01	0.00	0.00	1.31	1.47	0.29	50.75	0.00	0.01	0.03	0.02	0.17	0.00	54.15
Panuke B-90	2281.68	170	Fe-calcite	0.14	0.03	0.01	0.00	1.02	1.13	0.20	50.46	0.00	0.01	0.01	0.00	0.15	0.00	53.14
Panuke B-90	2281.68	171	Fe-calcite	0.10	0.01	0.00	0.00	1.33	1.45	0.27	52.30	0.00	0.01	0.02	0.01	0.19	0.00	55.70
Panuke B-90	2281.68	172	Fe-calcite	0.04	0.00	0.01	0.00	1.05	1.10	0.19	52.16	0.00	0.03	0.02	0.00	0.18	0.00	54.79

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2281.68	173	Fe-calcite	0.06	0.02	0.02	0.01	1.42	1.51	0.28	52.16	0.00	0.19	0.04	0.02	0.19	0.00	55.91
Panuke B-90	2281.68	174	Fe-calcite	0.03	0.00	0.01	0.00	1.35	1.33	0.25	51.16	0.00	0.02	0.03	0.00	0.14	0.00	54.32
Panuke B-90	2281.68	175	calcite	0.04	0.01	0.01	0.00	0.80	0.93	0.14	51.88	0.00	0.02	0.01	0.00	0.19	0.00	54.04
Panuke B-90	2281.68	176	Fe-calcite	0.03	0.00	0.01	0.00	1.32	1.47	0.29	49.94	0.00	0.01	0.03	0.00	0.13	0.00	53.23
Panuke B-90	2281.68	177	Fe-calcite	0.04	0.00	0.01	0.00	1.27	1.52	0.26	49.62	0.00	0.02	0.04	0.00	0.10	0.00	52.87
Panuke B-90	2281.68	178	Fe-calcite	0.03	0.02	0.01	0.00	1.69	1.62	0.34	50.23	0.01	0.03	0.04	0.00	0.15	0.00	54.17
Panuke B-90	2281.68	179	calcite	0.04	0.01	0.02	0.00	0.82	0.92	0.15	51.58	0.02	0.02	0.04	0.01	0.18	0.00	53.82
Panuke B-90	2281.68	180	calcite	0.06	0.02	0.02	0.00	0.43	0.52	0.06	52.57	0.01	0.05	0.01	0.00	0.17	0.00	53.92
Panuke B-90	2281.68	181	Fe-calcite	0.17	0.03	0.01	0.00	1.32	1.40	0.27	51.59	0.02	0.02	0.04	0.00	0.19	0.00	55.05
Panuke B-90	2281.68	182	Fe-calcite	0.06	0.03	0.02	0.00	1.34	1.45	0.30	51.70	0.03	0.02	0.06	0.00	0.16	0.00	55.17
Panuke B-90	2281.68	183	Fe-calcite	0.07	0.03	0.02	0.00	1.04	1.19	0.21	51.56	0.02	0.02	0.03	0.00	0.14	0.00	54.32
Panuke B-90	2281.68	184	calcite	0.14	0.00	0.02	0.00	0.78	1.05	0.17	52.97	0.02	0.01	0.03	0.00	0.18	0.00	55.39
Panuke B-90	2281.68	185	Fe-calcite	0.10	0.01	0.02	0.00	1.38	1.49	0.31	50.82	0.02	0.02	0.03	0.00	0.21	0.00	54.40
Panuke B-90	2281.68	186	Fe-calcite	0.06	0.02	0.01	0.00	1.28	1.46	0.27	52.50	0.03	0.02	0.02	0.00	0.18	0.01	55.86
Panuke B-90	2281.68	187	Fe-calcite	0.08	0.01	0.02	0.00	1.29	1.46	0.30	50.93	0.02	0.03	0.03	0.00	0.19	0.00	54.35
Panuke B-90	2281.68	188	Fe-calcite	0.05	0.01	0.02	0.00	1.38	1.49	0.31	51.38	0.02	0.02	0.05	0.00	0.13	0.00	54.88
Panuke B-90	2281.68	189	calcite	0.10	0.03	0.01	0.00	0.37	0.51	0.06	53.50	0.01	0.02	0.03	0.00	0.15	0.00	54.79
Panuke B-90	2281.68	190	Fe-calcite	0.11	0.04	0.02	0.00	1.20	1.41	0.28	52.14	0.01	0.01	0.02	0.00	0.18	0.01	55.40
Panuke B-90	2281.68	191	Fe-calcite	0.14	0.00	0.02	0.00	1.29	1.36	0.29	50.77	0.03	0.02	0.04	0.00	0.16	0.00	54.11
Panuke B-90	2281.68	192	Fe-calcite	0.12	0.00	0.00	0.00	1.34	1.44	0.29	53.37	0.02	0.01	0.03	0.02	0.15	0.00	56.80
Panuke B-90	2289.57	11	Fe-calcite	0.02	0.00	0.00	0.02	1.68	1.24	0.45	52.65	0.00	0.02	0.01	0.00	0.02	0.00	56.12
Panuke B-90	2289.57	12	Fe-calcite	0.04	0.00	0.00	0.01	1.62	0.83	0.42	52.21	0.00	0.02	0.03	0.00	0.10	0.02	55.30
Panuke B-90	2289.57	13	Fe-calcite	0.05	0.00	0.00	0.00	1.89	1.11	0.57	51.68	0.00	0.02	0.02	0.00	0.06	0.00	55.40
Panuke B-90	2289.57	14	Fe-calcite	0.06	0.00	0.00	0.01	1.38	0.93	0.34	53.15	0.00	0.06	0.00	0.00	0.05	0.00	55.97
Panuke B-90	2289.57	15	Fe-calcite	0.01	0.00	0.00	0.00	1.53	1.17	0.37	53.04	0.01	0.04	0.03	0.00	0.06	0.01	56.27
Panuke B-90	2289.57	16	Fe-calcite	0.04	0.00	0.00	0.00	1.99	0.95	0.64	53.39	0.00	0.02	0.02	0.00	0.02	0.00	57.06
Panuke B-90	2289.57	17	Fe-calcite	0.04	0.00	0.00	0.00	2.96	0.48	0.99	51.95	0.00	0.02	0.04	0.00	0.14	0.01	56.63
Panuke B-90	2289.57	18	Fe-calcite	0.04	0.00	0.01	0.00	1.51	1.22	0.43	52.70	0.00	0.04	0.07	0.00	0.00	0.01	56.03
Panuke B-90	2289.57	19	Fe-calcite	0.07	0.00	0.00	0.00	2.08	0.67	0.58	52.25	0.00	0.03	0.02	0.00	0.05	0.00	55.76
Panuke B-90	2289.57	20	Fe-calcite	0.05	0.00	0.00	0.00	2.95	0.43	0.85	52.88	0.01	0.03	0.06	0.00	0.05	0.00	57.32
Panuke B-90	2289.57	21	Fe-calcite	0.05	0.00	0.00	0.00	1.68	1.33	0.43	52.62	0.00	0.02	0.05	0.00	0.01	0.00	56.19
Panuke B-90	2289.57	22	Fe-calcite	0.01	0.00	0.00	0.00	1.50	0.89	0.35	53.66	0.00	0.03	0.04	0.00	0.13	0.00	56.62
Panuke B-90	2289.57	23	Fe-calcite	0.06	0.00	0.00	0.01	1.38	0.88	0.30	52.95	0.00	0.03	0.02	0.00	0.10	0.00	55.73
Panuke B-90	2289.57	24	Fe-calcite	0.02	0.00	0.00	0.00	1.21	0.93	0.29	54.59	0.00	0.02	0.04	0.00	0.02	0.00	57.12
Panuke B-90	2289.57	25	Fe-calcite	0.06	0.00	0.00	0.01	1.91	0.90	0.57	51.78	0.01	0.02	0.00	0.00	0.07	0.03	55.35
Panuke B-90	2289.57	26	Fe-calcite	0.72	0.00	0.32	0.00	1.81	1.09	0.38	51.74	0.00	0.05	0.02	0.00	0.19	0.00	56.31
Panuke B-90	2289.57	27	Fe-calcite	0.05	0.00	0.00	0.00	2.60	0.33	0.80	51.55	0.04	0.02	0.05	0.00	0.10	0.00	55.55

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2289.57	28	Fe-calcite	0.05	0.01	0.00	0.00	2.80	0.33	0.85	53.42	0.00	0.02	0.04	0.00	0.31	0.00	57.85
Panuke B-90	2289.57	29	Fe-calcite	0.08	0.00	0.00	0.01	2.74	0.34	0.86	52.92	0.00	0.02	0.04	0.00	0.25	0.00	57.26
Panuke B-90	2289.57	30	Fe-calcite	0.05	0.00	0.00	0.02	2.70	0.39	0.81	52.00	0.00	0.04	0.04	0.00	0.13	0.00	56.17
Panuke B-90	2289.57	31	Fe-calcite	0.11	0.00	0.06	0.00	1.80	0.25	0.51	53.30	0.04	0.01	0.05	0.00	0.26	0.00	56.39
Panuke B-90	2289.57	32	Fe-calcite	0.10	0.00	0.01	0.00	2.20	0.65	0.58	52.74	0.01	0.01	0.06	0.00	0.18	0.00	56.55
Panuke B-90	2289.57	33	Fe-calcite	0.05	0.00	0.00	0.00	1.37	1.19	0.36	53.56	0.02	0.01	0.03	0.00	0.14	0.00	56.73
Panuke B-90	2289.57	34	Fe-calcite	0.00	0.01	0.00	0.00	2.36	0.32	0.77	45.33	0.03	0.01	0.06	0.00	0.22	0.00	49.11
Panuke B-90	2289.57	35	Fe-calcite	0.13	0.00	0.00	0.00	2.01	0.28	0.58	53.84	0.01	0.02	0.04	0.00	0.34	0.02	57.29
Panuke B-90	2289.57	36	Fe-calcite	0.32	0.00	0.00	0.03	1.53	0.63	0.39	52.84	0.00	0.02	0.00	0.02	0.05	0.00	55.83
Panuke B-90	2292.85	37	Fe-calcite	0.03	0.00	0.00	0.00	2.30	1.66	0.44	52.11	0.02	0.01	0.03	0.00	0.29	0.00	56.90
Panuke B-90	2292.85	38	Fe-calcite	0.04	0.00	0.01	0.00	2.12	1.95	0.55	52.58	0.01	0.01	0.04	0.00	0.09	0.00	57.41
Panuke B-90	2292.85	39	Fe-calcite	0.11	0.00	0.00	0.00	1.18	1.01	0.22	53.88	0.00	0.01	0.04	0.00	0.30	0.00	56.75
Panuke B-90	2292.85	40	Fe-calcite	0.14	0.00	0.02	0.00	1.43	1.19	0.27	53.07	0.01	0.02	0.04	0.00	0.29	0.00	56.49
Panuke B-90	2292.85	41	Fe-calcite	0.05	0.00	0.02	0.00	1.71	1.39	0.37	51.84	0.00	0.02	0.06	0.00	0.30	0.00	55.76
Panuke B-90	2292.85	42	Fe-calcite	0.06	0.00	0.01	0.00	1.12	0.95	0.24	52.95	0.00	0.02	0.03	0.00	0.32	0.00	55.72
Panuke B-90	2292.85	43	Fe-calcite	0.06	0.00	0.01	0.00	1.65	1.26	0.34	51.35	0.00	0.00	0.06	0.00	0.30	0.00	55.03
Panuke B-90	2292.85	44	calcite	0.05	0.00	0.00	0.00	0.75	0.71	0.15	54.61	0.01	0.03	0.07	0.01	0.30	0.00	56.66
Panuke B-90	2292.85	45	Fe-calcite	0.02	0.00	0.00	0.00	1.53	1.39	0.35	53.19	0.01	0.02	0.06	0.00	0.24	0.00	56.82
Panuke B-90	2292.85	46	Fe-calcite	0.06	0.00	0.01	0.00	1.61	1.34	0.33	53.48	0.00	0.02	0.06	0.00	0.30	0.00	57.20
Panuke B-90	2292.85	47	Fe-calcite	0.07	0.00	0.01	0.00	1.49	1.24	0.31	53.67	0.00	0.01	0.06	0.00	0.32	0.00	57.19
Panuke B-90	2292.85	48	Fe-calcite	0.11	0.00	0.01	0.00	0.93	0.86	0.21	53.74	0.01	0.02	0.06	0.00	0.29	0.00	56.24
Panuke B-90	2292.85	49	Fe-calcite	0.10	0.00	0.02	0.01	2.12	1.65	0.43	52.04	0.00	0.01	0.05	0.00	0.34	0.00	56.79
Panuke B-90	2292.85	50	Fe-calcite	0.06	0.00	0.00	0.00	2.04	1.96	0.54	51.93	0.01	0.01	0.02	0.00	0.07	0.00	56.65
Panuke B-90	2292.85	51	Fe-calcite	0.09	0.00	0.03	0.01	1.98	1.60	0.41	52.36	0.00	0.01	0.08	0.00	0.31	0.00	56.88
Panuke B-90	2292.85	52	Fe-calcite	0.38	0.00	0.01	0.00	1.68	1.24	0.38	52.44	0.01	0.02	0.04	0.00	0.28	0.00	56.49
Panuke B-90	2292.85	53	Fe-calcite	0.26	0.00	0.02	0.01	1.85	1.47	0.39	51.69	0.02	0.01	0.04	0.00	0.34	0.00	56.12
Panuke B-90	2292.85	54	Fe-calcite	0.05	0.00	0.01	0.00	1.96	1.92	0.49	52.41	0.02	0.01	0.03	0.00	0.06	0.00	56.94
Panuke B-90	2292.85	55	Fe-calcite	0.03	0.00	0.01	0.00	1.63	1.31	0.32	53.05	0.04	0.03	0.10	0.00	0.31	0.00	56.83
Panuke B-90	2292.85	56	Fe-calcite	0.09	0.00	0.00	0.00	1.87	1.73	0.47	52.45	0.06	0.06	0.04	0.00	0.08	0.02	56.86
Panuke B-90	2292.85	57	Fe-calcite	0.06	0.00	0.01	0.00	1.99	1.84	0.49	51.56	0.03	0.02	0.02	0.00	0.07	0.00	56.09
Panuke B-90	2292.85	58	Fe-calcite	0.08	0.00	0.00	0.00	1.12	1.04	0.25	54.43	0.02	0.01	0.06	0.00	0.23	0.00	57.24
Panuke B-90	2292.85	59	Fe-calcite	0.03	0.00	0.00	0.00	1.89	1.87	0.50	50.02	0.01	0.01	0.01	0.00	0.03	0.00	54.37
Panuke B-90	2292.85	60	Fe-calcite	0.08	0.00	0.01	0.00	2.02	1.67	0.42	51.59	0.03	0.01	0.05	0.00	0.23	0.00	56.11
Panuke B-90	2292.85	61	Fe-calcite	0.03	0.00	0.02	0.00	2.01	1.57	0.43	51.45	0.01	0.01	0.04	0.00	0.25	0.00	55.82
Panuke B-90	2292.85	62	Fe-calcite	0.05	0.00	0.01	0.00	1.94	1.85	0.52	53.10	0.01	0.01	0.03	0.00	0.09	0.00	57.59

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2292.85	63	Fe-calcite	0.12	0.00	0.02	0.00	2.04	1.77	0.43	52.49	0.03	0.01	0.04	0.00	0.14	0.01	57.09
Panuke B-90	2292.85	64	Fe-calcite	0.21	0.00	0.01	0.00	2.06	1.62	0.42	51.43	0.03	0.01	0.01	0.00	0.26	0.00	56.05
Panuke B-90	2292.85	65	Fe-calcite	0.05	0.00	0.01	0.00	2.03	1.89	0.53	51.40	0.03	0.05	0.05	0.00	0.05	0.00	56.08
Panuke B-90	2292.85	66	Fe-calcite	0.07	0.00	0.01	0.00	1.17	1.08	0.22	52.78	0.02	0.01	0.04	0.00	0.28	0.00	55.67
Panuke B-90	2292.85	67	Fe-calcite	0.00	0.00	0.00	0.00	2.20	1.66	0.45	52.08	0.00	0.02	0.04	0.01	0.28	0.00	56.75
Panuke B-90	2292.85	68	Fe-calcite	0.06	0.00	0.01	0.00	1.90	1.56	0.34	52.94	0.00	0.02	0.07	0.00	0.31	0.00	57.20
Panuke B-90	2292.85	69	Fe-calcite	0.06	0.00	0.01	0.00	2.10	1.95	0.52	51.19	0.01	0.02	0.05	0.04	0.11	0.00	56.05
Panuke B-90	2292.85	70	calcite	0.10	0.00	0.00	0.00	0.77	0.63	0.15	50.47	0.02	0.06	0.03	0.00	0.29	0.00	52.52
Panuke B-90	2292.85	71	Fe-calcite	0.04	0.00	0.00	0.00	1.94	1.53	0.49	51.68	0.02	0.02	0.07	0.03	0.23	0.00	56.04
Panuke B-90	2320.51	72	Fe-calcite	0.00	0.00	0.01	0.00	0.86	1.71	0.23	54.46	0.00	0.01	0.06	0.00	0.05	0.00	57.39
Panuke B-90	2320.51	73	Fe-calcite	0.01	0.00	0.00	0.00	1.03	1.84	0.28	54.26	0.00	0.02	0.07	0.00	0.05	0.00	57.56
Panuke B-90	2320.51	74	Fe-calcite	0.02	0.00	0.01	0.00	1.11	1.72	0.29	53.20	0.01	0.01	0.09	0.00	0.03	0.00	56.48
Panuke B-90	2320.51	75	Fe-calcite	0.00	0.00	0.00	0.00	1.09	1.80	0.29	52.52	0.00	0.01	0.06	0.00	0.05	0.00	55.82
Panuke B-90	2320.51	76	Fe-calcite	0.02	0.00	0.02	0.01	1.02	1.84	0.28	52.97	0.00	0.02	0.06	0.00	0.02	0.00	56.27
Panuke B-90	2320.51	77	Fe-calcite	0.07	0.00	0.01	0.00	1.09	1.89	0.28	52.28	0.00	0.01	0.04	0.00	0.04	0.00	55.72
Panuke B-90	2320.51	78	Fe-calcite	0.00	0.00	0.01	0.00	0.90	1.75	0.27	52.28	0.01	0.01	0.08	0.00	0.02	0.00	55.32
Panuke B-90	2320.51	79	Fe-calcite	0.02	0.00	0.01	0.00	1.79	1.44	0.39	54.08	0.01	0.01	0.06	0.00	0.03	0.00	57.84
Panuke B-90	2320.51	80	Fe-calcite	0.00	0.00	0.01	0.00	1.50	0.70	0.39	53.04	0.00	0.02	0.06	0.00	0.11	0.00	55.82
Panuke B-90	2320.51	81	Fe-calcite	0.00	0.00	0.01	0.00	1.73	0.14	1.13	53.75	0.00	0.01	0.08	0.00	0.15	0.00	57.00
Panuke B-90	2320.51	82	Fe-calcite	0.05	0.00	0.01	0.00	1.07	0.26	0.44	52.30	0.01	0.02	0.08	0.00	0.19	0.00	54.43
Panuke B-90	2320.51	83	Fe-calcite	0.00	0.00	0.01	0.00	1.35	0.73	0.49	51.65	0.01	0.02	0.08	0.00	0.09	0.00	54.43
Panuke B-90	2320.51	84	Fe-calcite	0.00	0.00	0.01	0.00	1.03	0.12	0.43	54.05	0.00	0.01	0.09	0.00	0.20	0.00	55.94
Panuke B-90	2320.51	85	Fe-calcite	0.01	0.00	0.00	0.00	0.97	0.14	0.32	54.03	0.01	0.02	0.06	0.00	0.05	0.00	55.62
Panuke B-90	2320.51	86	Fe-calcite	0.00	0.00	0.00	0.00	1.12	1.84	0.31	52.96	0.00	0.01	0.03	0.00	0.05	0.00	56.34
Panuke B-90	2320.51	87	Fe-calcite	0.02	0.00	0.01	0.00	1.05	2.00	0.31	52.57	0.01	0.02	0.07	0.00	0.02	0.00	56.09
Panuke B-90	2320.51	88	Fe-calcite	0.00	0.00	0.03	0.00	1.24	1.85	0.34	52.75	0.01	0.01	0.07	0.00	0.07	0.00	56.38
Panuke B-90	2320.51	89	Fe-calcite	0.02	0.00	0.00	0.00	0.90	1.78	0.23	53.71	0.00	0.01	0.05	0.00	0.04	0.00	56.75
Panuke B-90	2320.51	90	Fe-calcite	0.06	0.00	0.02	0.00	1.11	2.06	0.32	53.02	0.02	0.01	0.05	0.00	0.01	0.00	56.69
Panuke B-90	2320.51	91	Fe-calcite	0.02	0.00	0.01	0.00	1.08	1.59	0.31	53.06	0.03	0.02	0.09	0.00	0.09	0.00	56.29
Panuke B-90	2320.51	92	Fe-calcite	0.01	0.00	0.01	0.00	1.05	1.72	0.26	54.72	0.00	0.02	0.03	0.01	0.00	0.00	57.83
Panuke B-90	2320.51	93	Fe-calcite	0.02	0.02	0.01	0.00	1.07	0.10	1.42	54.27	0.00	0.03	0.05	0.01	0.07	0.00	57.07
Panuke B-90	2320.51	94	Fe-calcite	0.01	0.00	0.01	0.00	1.08	1.88	0.30	51.28	0.00	0.03	0.03	0.01	0.05	0.00	54.66
Panuke B-90	2376.2	101	calcite	0.01	0.00	0.00	0.00	1.19	0.83	0.36	55.59	0.04	0.02	0.07	0.02	0.16	0.06	58.34
Panuke B-90	2376.2	102	Fe-calcite	0.00	0.00	0.00	0.00	1.28	1.17	0.69	54.16	0.15	0.01	0.06	0.02	0.11	0.00	57.64
Panuke B-90	2376.2	103	Fe-calcite	0.01	0.00	0.00	0.00	0.88	1.21	0.33	53.67	0.00	0.03	0.05	0.00	0.19	0.01	56.38



Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2376.2	104	Fe-calcite	0.07	0.00	0.00	0.00	1.23	0.96	0.42	52.97	0.01	0.01	0.07	0.01	0.16	0.04	55.95
Panuke B-90	2376.2	105	Fe-calcite	0.01	0.00	0.00	0.00	1.18	1.25	0.64	54.89	0.01	0.01	0.06	0.00	0.12	0.03	58.22
Panuke B-90	2376.2	106	Fe-calcite	0.02	0.00	0.00	0.00	1.24	0.84	0.37	54.43	0.03	0.02	0.07	0.03	0.18	0.04	57.27
Panuke B-90	2376.2	107	Fe-calcite	0.00	0.00	0.00	0.00	1.01	0.85	0.35	52.67	0.00	0.01	0.06	0.01	0.05	0.00	55.01
Panuke B-90	2376.2	108	Fe-calcite	0.02	0.00	0.00	0.00	1.13	1.28	0.44	53.56	0.01	0.01	0.04	0.02	0.04	0.00	56.56
Panuke B-90	2376.2	109	Fe-calcite	0.00	0.00	0.00	0.00	1.04	1.53	0.43	55.11	0.03	0.02	0.04	0.02	0.00	0.00	58.22
Panuke B-90	2376.2	110	Fe-calcite	0.00	0.00	0.00	0.00	0.94	1.25	0.38	54.23	0.00	0.02	0.08	0.00	0.08	0.02	56.99
Panuke B-90	2376.2	111	calcite	0.00	0.00	0.00	0.00	0.89	1.22	0.42	52.63	0.00	0.02	0.06	0.01	0.09	0.00	55.33
Panuke B-90	2376.2	112	Fe-calcite	0.00	0.00	0.00	0.00	0.16	0.19	0.05	57.18	0.00	0.02	0.01	0.01	0.07	0.00	57.69
Panuke B-90	2376.2	113	Fe-calcite	0.00	0.00	0.00	0.00	1.06	0.82	0.30	54.94	0.01	0.02	0.05	0.05	0.15	0.00	57.40
Panuke B-90	2376.2	114	Fe-calcite	0.00	0.00	0.00	0.00	0.98	1.64	0.41	52.62	0.01	0.02	0.05	0.00	0.00	0.00	55.72
Panuke B-90	2376.2	115	Fe-calcite	0.00	0.00	0.00	0.00	1.05	1.07	0.48	53.36	0.00	0.02	0.06	0.02	0.00	0.02	56.08
Panuke B-90	2376.2	116	Fe-calcite	0.01	0.00	0.00	0.00	1.27	1.41	0.55	51.73	0.01	0.01	0.06	0.01	0.00	0.04	55.10
Panuke B-90	2376.2	117	Fe-calcite	0.00	0.00	0.00	0.00	1.04	1.46	0.42	52.74	0.01	0.01	0.05	0.01	0.05	0.00	55.80
Panuke B-90	2376.2	118	Fe-calcite	0.00	0.00	0.00	0.00	1.15	1.26	0.44	52.04	0.02	0.01	0.03	0.02	0.02	0.01	55.00
Panuke B-90	2376.2	119	calcite	0.02	0.00	0.00	0.00	0.89	0.90	0.31	54.78	0.01	0.01	0.06	0.02	0.00	0.02	57.03
Panuke B-90	2376.2	120	Fe-calcite	0.00	0.00	0.01	0.00	0.71	1.02	0.33	54.79	0.01	0.02	0.06	0.03	0.00	0.01	56.97
Panuke B-90	2376.2	121	calcite	0.04	0.00	0.00	0.00	0.84	0.79	0.34	57.29	0.01	0.01	0.05	0.02	0.15	0.00	59.54
Panuke B-90	2376.2	122	Fe-calcite	0.01	0.00	0.00	0.00	0.99	1.09	0.40	54.68	0.00	0.00	0.03	0.00	0.12	0.00	57.31
Panuke B-90	2376.2	123	Fe-calcite	0.00	0.00	0.00	0.00	1.00	1.24	0.39	52.90	0.02	0.01	0.06	0.00	0.18	0.00	55.80
Panuke B-90	2376.2	124	Fe-calcite	0.03	0.00	0.01	0.00	1.06	0.60	0.40	53.23	0.02	0.01	0.04	0.00	0.14	0.00	55.54
Panuke B-90	2376.2	125	Fe-calcite	0.03	0.00	0.00	0.02	1.14	0.60	0.43	52.63	0.00	0.00	0.05	0.00	0.15	0.00	55.05
Panuke B-90	2376.2	126	calcite	0.02	0.00	0.01	0.00	0.88	1.19	0.42	53.90	0.02	0.00	0.04	0.00	0.14	0.00	56.62
Panuke B-90	2376.2	127	Fe-calcite	0.05	0.00	0.01	0.00	1.47	1.13	0.68	52.75	0.03	0.00	0.03	0.00	0.15	0.00	56.32
Panuke B-90	2393.92	11	Fe-calcite	0.02	0.01	0.02	0.01	1.14	1.70	0.49	54.27	0.01	0.02	0.04	0.00	0.00	0.00	57.74
Panuke B-90	2393.92	12	Fe-calcite	0.00	0.00	0.03	0.00	1.04	1.32	0.39	51.74	0.00	0.02	0.03	0.00	0.17	0.00	54.75
Panuke B-90	2393.92	13	Fe-calcite	0.03	0.01	0.02	0.02	1.02	1.31	0.47	53.28	0.02	0.02	0.04	0.00	0.16	0.00	56.39
Panuke B-90	2393.92	14	Fe-calcite	0.02	0.01	0.00	0.00	1.14	1.43	0.53	52.43	0.01	0.02	0.07	0.02	0.13	0.00	55.82
Panuke B-90	2393.92	15	Fe-calcite	0.01	0.00	0.02	0.00	1.11	1.70	0.52	52.31	0.01	0.01	0.05	0.00	0.00	0.00	55.75
Panuke B-90	2393.92	16	calcite	0.02	0.01	0.02	0.00	0.93	1.13	0.35	53.25	0.00	0.02	0.07	0.00	0.13	0.05	55.99
Panuke B-90	2393.92	17	Fe-calcite	0.03	0.00	0.02	0.00	0.95	1.32	0.44	52.79	0.01	0.01	0.05	0.00	0.09	0.02	55.75
Panuke B-90	2393.92	18	calcite	0.02	0.00	0.02	0.00	0.88	1.18	0.37	51.92	0.01	0.02	0.04	0.00	0.13	0.03	54.61
Panuke B-90	2393.92	19	calcite	0.02	0.00	0.01	0.00	0.82	1.15	0.37	54.83	0.01	0.02	0.02	0.00	0.08	0.00	57.32
Panuke B-90	2393.92	20	calcite	0.02	0.00	0.02	0.00	0.88	1.17	0.35	53.47	0.00	0.01	0.04	0.00	0.10	0.00	56.06
Panuke B-90	2393.92	21	Fe-calcite	0.02	0.00	0.01	0.01	0.94	1.31	0.45	52.71	0.00	0.01	0.05	0.01	0.07	0.01	55.61
Panuke B-90	2393.92	22	calcite	0.02	0.00	0.03	0.00	0.57	0.85	0.22	53.23	0.00	0.02	0.06	0.00	0.08	0.00	55.09

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2393.92	23	Fe-calcite	0.01	0.00	0.01	0.00	1.04	1.24	0.47	53.22	0.00	0.02	0.05	0.03	0.05	0.03	56.16
Panuke B-90	2393.92	24	Fe-calcite	0.01	0.00	0.02	0.00	0.99	1.22	0.33	52.83	0.00	0.02	0.06	0.00	0.16	0.00	55.64
Panuke B-90	2393.92	25	Fe-calcite	0.05	0.02	0.02	0.00	1.10	1.74	0.51	51.92	0.00	0.01	0.05	0.00	0.00	0.00	55.42
Panuke B-90	2393.92	26	Fe-calcite	0.01	0.00	0.01	0.00	1.06	1.35	0.45	52.63	0.01	0.02	0.03	0.00	0.11	0.00	55.69
Panuke B-90	2393.92	27	calcite	0.00	0.00	0.01	0.00	0.53	0.78	0.16	52.79	0.00	0.02	0.05	0.00	0.19	0.00	54.53
Panuke B-90	2393.92	28	Fe-calcite	0.02	0.00	0.02	0.00	1.15	1.39	0.43	52.70	0.00	0.00	0.07	0.00	0.10	0.00	55.87
Panuke B-90	2393.92	29	calcite	0.03	0.00	0.00	0.00	0.89	1.22	0.35	51.78	0.00	0.01	0.05	0.01	0.20	0.00	54.54
Panuke B-90	2393.92	30	calcite	0.05	0.00	0.03	0.00	0.62	0.77	0.26	50.47	0.01	0.02	0.02	0.03	0.16	0.01	52.43
Panuke B-90	2393.92	31	calcite	0.00	0.00	0.00	0.00	0.44	0.66	0.16	53.72	0.01	0.02	0.04	0.01	0.23	0.00	55.29
Panuke B-90	2393.92	32	Fe-calcite	0.00	0.00	0.00	0.01	1.10	1.28	0.45	54.44	0.02	0.02	0.01	0.02	0.14	0.01	57.48
Panuke B-90	2393.92	33	Fe-calcite	0.00	0.00	0.00	0.00	0.94	1.21	0.43	52.67	0.02	0.03	0.00	0.02	0.17	0.00	55.47
Panuke B-90	2393.92	34	Fe-calcite	0.00	0.00	0.00	0.00	1.02	1.28	0.36	52.20	0.02	0.03	0.03	0.00	0.19	0.00	55.13
Panuke B-90	2393.92	35	Fe-calcite	0.00	0.00	0.00	0.00	1.12	1.35	0.48	52.38	0.01	0.01	0.01	0.04	0.17	0.00	55.58
Panuke B-90	2393.92	36	calcite	0.00	0.00	0.00	0.00	0.83	1.16	0.33	53.15	0.02	0.03	0.04	0.00	0.22	0.00	55.78
Panuke B-90	2393.92	37	Fe-calcite	0.00	0.00	0.00	0.00	1.00	1.33	0.41	52.38	0.01	0.02	0.03	0.00	0.14	0.00	55.33
Panuke B-90	2393.92	38	calcite	0.00	0.00	0.00	0.00	0.75	1.06	0.33	53.66	0.02	0.02	0.00	0.00	0.18	0.00	56.02
Panuke B-90	2393.92	39	Fe-calcite	0.00	0.00	0.00	0.00	0.94	1.27	0.31	57.95	0.00	0.02	0.03	0.00	0.24	0.05	60.82
Panuke B-90	2393.92	40	Fe-calcite	0.11	0.01	0.00	0.00	1.30	1.68	0.45	53.21	0.00	0.04	0.06	0.03	0.19	0.00	57.08
Panuke B-90	2393.92	41	Fe-calcite	0.08	0.00	0.01	0.00	1.33	2.11	0.51	51.99	0.01	0.02	0.06	0.02	0.05	0.00	56.18
Panuke B-90	2393.92	42	calcite	0.03	0.00	0.01	0.00	0.58	0.75	0.18	53.34	0.01	0.04	0.06	0.01	0.27	0.00	55.27
Panuke B-90	2403.21	43	Fe-calcite	0.06	0.00	0.03	0.02	1.17	0.83	0.42	53.02	0.01	0.02	0.04	0.00	0.03	0.01	55.65
Panuke B-90	2403.21	44	Fe-calcite	0.04	0.00	0.01	0.01	1.32	0.85	0.43	53.03	0.00	0.02	0.05	0.00	0.05	0.08	55.90
Panuke B-90	2403.21	45	Fe-calcite	0.12	0.00	0.01	0.02	1.24	0.79	0.43	53.65	0.00	0.02	0.04	0.00	0.16	0.05	56.52
Panuke B-90	2403.21	46	calcite	0.04	0.00	0.01	0.00	0.91	0.69	0.30	52.50	0.00	0.02	0.06	0.00	0.03	0.09	54.66
Panuke B-90	2403.21	47	Fe-calcite	0.02	0.00	0.01	0.01	1.22	0.90	0.44	52.03	0.00	0.02	0.03	0.00	0.10	0.02	54.79
Panuke B-90	2403.21	48	Fe-calcite	0.04	0.00	0.00	0.00	0.98	0.73	0.40	50.86	0.00	0.02	0.04	0.00	0.07	0.05	53.17
Panuke B-90	2403.21	49	Fe-calcite	0.03	0.00	0.00	0.00	1.20	0.78	0.39	52.15	0.00	0.03	0.02	0.01	0.07	0.04	54.72
Panuke B-90	2403.21	50	Fe-calcite	0.01	0.01	0.01	0.01	1.05	0.79	0.36	51.10	0.00	0.02	0.05	0.00	0.08	0.00	53.48
Panuke B-90	2403.21	51	Fe-calcite	0.08	0.00	0.01	0.00	1.15	0.80	0.43	52.21	0.00	0.02	0.05	0.00	0.10	0.04	54.89
Panuke B-90	2403.21	52	Fe-calcite	0.03	0.00	0.01	0.01	1.28	0.79	0.42	51.22	0.00	0.01	0.02	0.00	0.14	0.00	53.92
Panuke B-90	2403.21	53	Fe-calcite	0.06	0.00	0.01	0.01	0.96	0.72	0.35	51.96	0.02	0.01	0.02	0.00	0.07	0.01	54.19
Panuke B-90	2403.21	54	Fe-calcite	0.04	0.00	0.02	0.00	1.24	0.83	0.39	51.95	0.00	0.02	0.02	0.00	0.07	0.03	54.60
Panuke B-90	2403.21	55	Fe-calcite	0.03	0.00	0.00	0.01	1.14	0.76	0.42	51.17	0.00	0.01	0.03	0.00	0.15	0.02	53.73
Panuke B-90	2403.21	56	Fe-calcite	0.02	0.00	0.00	0.00	1.21	0.84	0.43	50.49	0.01	0.03	0.05	0.00	0.04	0.04	53.16
Panuke B-90	2403.21	57	Fe-calcite	0.05	0.00	0.02	0.00	1.35	1.09	0.50	53.50	0.01	0.00	0.02	0.01	0.04	0.00	56.59
Panuke B-90	2403.21	58	Fe-calcite	0.05	0.00	0.00	0.00	1.11	0.75	0.35	53.28	0.01	0.00	0.03	0.01	0.09	0.00	55.69
Panuke B-90	2403.21	59	Fe-calcite	0.05	0.00	0.01	0.00	1.01	0.93	0.40	51.54	0.01	0.00	0.03	0.00	0.00	0.01	54.00
Panuke B-90	2403.21	60	Fe-calcite	0.03	0.00	0.00	0.00	1.16	0.77	0.39	51.00	0.02	0.00	0.01	0.00	0.07	0.00	53.45
Panuke B-90	2403.21	61	Fe-calcite	0.05	0.00	0.01	0.00	1.04	0.67	0.32	49.81	0.01	0.01	0.00	0.00	0.16	0.00	52.09

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2403.21	62	Fe-calcite	0.02	0.00	0.00	0.00	1.21	0.73	0.38	51.47	0.01	0.01	0.02	0.00	0.11	0.03	53.99
Panuke B-90	2403.21	63	Fe-calcite	0.05	0.00	0.01	0.00	1.12	0.78	0.39	48.56	0.01	0.00	0.03	0.00	0.10	0.00	51.05
Panuke B-90	2403.21	64	Fe-calcite	0.04	0.00	0.00	0.00	1.15	0.79	0.39	50.42	0.01	0.00	0.04	0.00	0.04	0.00	52.88
Panuke B-90	2403.21	65	Fe-calcite	0.03	0.00	0.01	0.00	1.17	0.76	0.41	49.44	0.01	0.01	0.00	0.00	0.07	0.00	51.90
Panuke B-90	2403.21	66	Fe-calcite	0.04	0.00	0.01	0.00	1.34	0.98	0.46	51.81	0.01	0.00	0.02	0.01	0.00	0.01	54.70
Panuke B-90	2403.21	67	Fe-calcite	0.03	0.00	0.00	0.00	1.04	0.73	0.38	51.30	0.02	0.00	0.02	0.05	0.07	0.01	53.63
Panuke B-90	2403.21	68	Fe-calcite	0.08	0.00	0.02	0.00	1.08	0.76	0.36	50.97	0.01	0.01	0.02	0.00	0.03	0.00	53.34
Panuke B-90	2413.05	11	Fe-calcite	0.03	0.00	0.01	0.00	1.29	0.26	0.44	54.70	0.08	0.02	0.19	0.00	0.01	0.00	57.02
Panuke B-90	2413.05	12	ankerite	0.00	0.00	0.01	0.00	6.80	0.26	14.18	33.01	0.06	0.01	0.16	0.00	0.00	0.02	54.51
Panuke B-90	2413.05	13	ankerite	0.00	0.00	0.00	0.00	6.87	0.24	13.99	32.63	0.07	0.01	0.18	0.00	0.01	0.00	54.02
Panuke B-90	2413.05	14	ankerite	0.00	0.00	0.01	0.00	10.25	0.37	11.19	29.76	0.07	0.03	0.15	0.00	0.00	0.00	51.84
Panuke B-90	2413.05	15	ankerite	0.00	0.00	0.00	0.00	10.10	0.48	11.61	29.29	0.07	0.04	0.17	0.00	0.00	0.00	51.74
Panuke B-90	2413.05	16	K-feldspar	63.14	0.00	18.20	0.00	0.05	0.00	0.02	0.04	0.86	15.24	0.06	0.00	0.00	0.25	97.87
Panuke B-90	2413.05	17	calcite (bio)	0.02	0.00	0.01	0.00	0.48	0.08	0.78	53.13	0.11	0.02	0.18	0.00	0.06	0.04	54.91
Panuke B-90	2413.05	18	ankerite	0.00	0.00	0.02	0.00	7.30	0.34	13.18	31.94	0.08	0.02	0.19	0.00	0.00	0.00	53.06
Panuke B-90	2413.05	19	Fe-calcite	0.03	0.00	0.00	0.00	1.08	0.18	0.36	54.61	0.07	0.02	0.14	0.00	0.14	0.00	56.64
Panuke B-90	2413.05	20	ankerite	0.02	0.00	0.00	0.00	7.61	0.30	14.05	31.64	0.09	0.01	0.18	0.00	0.02	0.00	53.92
Panuke B-90	2413.05	21	ankerite	0.00	0.00	0.00	0.00	9.18	0.31	12.01	30.35	0.07	0.03	0.15	0.00	0.00	0.01	52.10
Panuke B-90	2413.05	22	Fe-calcite	0.05	0.00	0.00	0.00	1.04	0.17	0.34	53.83	0.08	0.03	0.17	0.00	0.18	0.00	55.89
Panuke B-90	2413.05	23	ankerite	0.02	0.00	0.00	0.00	9.01	0.33	12.75	30.98	0.05	0.01	0.16	0.00	0.00	0.00	53.31
Panuke B-90	2413.05	24	Fe-calcite	0.04	0.00	0.01	0.00	1.30	0.28	0.43	55.40	0.04	0.01	0.12	0.00	0.02	0.05	57.71
Panuke B-90	2413.05	25	Fe-calcite	0.03	0.00	0.02	0.00	1.23	0.25	0.45	54.60	0.05	0.02	0.13	0.00	0.01	0.00	56.77
Panuke B-90	2413.05	26	ankerite	0.02	0.00	0.00	0.00	9.12	0.36	11.50	30.05	0.05	0.01	0.12	0.00	0.00	0.00	51.23
Panuke B-90	2413.05	27	Fe-calcite	0.01	0.00	0.01	0.00	1.15	0.18	0.38	55.80	0.07	0.03	0.14	0.00	0.12	0.00	57.89
Panuke B-90	2413.05	28	Fe-calcite	0.03	0.00	0.01	0.00	1.29	0.25	0.45	55.59	0.09	0.02	0.12	0.00	0.02	0.00	57.87
Panuke B-90	2413.05	29	Fe-calcite	0.02	0.00	0.01	0.00	1.02	0.17	0.33	53.46	0.06	0.03	0.16	0.00	0.07	0.02	55.35
Panuke B-90	2413.05	30	ankerite	0.02	0.00	0.01	0.00	9.64	0.40	11.76	30.51	0.06	0.02	0.15	0.00	0.00	0.00	52.57
Panuke B-90	2413.05	31	Fe-calcite	0.02	0.00	0.01	0.00	1.19	0.21	0.38	55.39	0.05	0.03	0.12	0.05	0.01	0.00	57.46
Panuke B-90	2413.05	32	Fe-calcite	0.02	0.00	0.00	0.00	1.08	0.23	0.41	55.38	0.08	0.02	0.12	0.03	0.09	0.02	57.47
Panuke B-90	2413.05	33	ankerite	0.03	0.00	0.00	0.00	9.62	0.33	12.01	30.44	0.07	0.02	0.12	0.00	0.00	0.00	52.64
Panuke B-90	2413.05	34	Fe-calcite	0.06	0.00	0.02	0.00	1.11	0.22	0.40	54.77	0.05	0.02	0.09	0.01	0.00	0.02	56.76
Panuke B-90	2413.05	35	ankerite	0.02	0.00	0.00	0.00	7.84	0.34	14.25	33.14	0.08	0.02	0.10	0.00	0.04	0.00	55.85
Panuke B-90	2413.05	36	Fe-calcite	0.06	0.00	0.03	0.02	1.15	0.21	0.40	54.93	0.09	0.02	0.16	0.04	0.06	0.00	57.17
Panuke B-90	2413.05	37	Fe-calcite	0.06	0.00	0.02	0.00	1.15	0.18	0.34	54.39	0.09	0.01	0.16	0.01	0.24	0.00	56.65
Panuke B-90	2413.05	38	ankerite	0.45	0.00	0.22	0.02	9.95	0.43	11.36	29.89	0.10	0.04	0.19	0.00	0.00	0.00	52.65
Panuke B-90	2413.05	39	Fe-calcite	0.05	0.00	0.03	0.04	1.28	0.24	0.41	52.71	0.07	0.01	0.15	0.01	0.02	0.00	55.02
Panuke B-90	2413.05	40	Fe-calcite	0.04	0.02	0.01	0.03	1.25	0.21	0.40	54.93	0.07	0.02	0.13	0.02	0.00	0.00	57.13
Panuke B-90	2413.05	41	Fe-calcite	0.04	0.00	0.03	0.02	1.29	0.26	0.41	53.96	0.06	0.01	0.12	0.03	0.00	0.00	56.23
Panuke B-90	2413.05	42	Fe-calcite	0.05	0.00	0.03	0.04	1.26	0.21	0.43	53.95	0.09	0.02	0.21	0.00	0.07	0.00	56.36

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2413.05	43	Fe-calcite	0.04	0.00	0.02	0.03	1.22	0.27	0.44	54.33	0.09	0.02	0.13	0.00	0.04	0.00	56.63
Panuke B-90	2413.05	44	ankerite	0.11	0.00	0.08	0.00	7.62	0.41	12.97	31.99	0.09	0.02	0.17	0.00	0.02	0.00	53.48
Panuke B-90	2413.05	45	ankerite	0.21	0.00	0.11	0.00	10.01	0.42	11.54	29.63	0.09	0.03	0.13	0.00	0.01	0.00	52.17
Panuke B-90	2413.05	46	Fe-calcite	0.09	0.00	0.01	0.05	1.01	0.14	0.34	56.21	0.09	0.03	0.16	0.02	0.25	0.00	58.40
Panuke B-90	2413.05	47	Fe-calcite	0.06	0.00	0.02	0.02	0.99	0.18	0.36	54.20	0.08	0.02	0.16	0.02	0.23	0.00	56.34
Panuke B-90	2413.05	48	Fe-calcite	0.03	0.00	0.01	0.00	1.07	0.22	0.37	51.64	0.11	0.02	0.25	0.01	0.00	0.00	53.73
Panuke B-90	2413.05	49	Fe-calcite	0.03	0.00	0.01	0.03	1.20	0.23	0.42	55.76	0.10	0.02	0.19	0.01	0.03	0.00	58.04
Panuke B-90	2413.05	50	Fe-calcite	0.06	0.00	0.03	0.02	1.32	0.24	0.44	55.69	0.10	0.02	0.14	0.04	0.01	0.01	58.12
Panuke B-90	2413.05	51	Fe-calcite	0.03	0.00	0.02	0.04	1.22	0.23	0.42	54.43	0.07	0.02	0.11	0.03	0.02	0.00	56.65
Panuke B-90	2413.05	52	Fe-calcite	0.06	0.00	0.01	0.04	1.11	0.16	0.32	56.38	0.07	0.02	0.11	0.02	0.12	0.00	58.42
Panuke B-90	2413.05	53	Fe-calcite	0.04	0.00	0.03	0.02	1.24	0.22	0.40	54.30	0.09	0.02	0.18	0.01	0.02	0.00	56.56
Panuke B-90	2413.05	54	Fe-calcite	0.04	0.00	0.03	0.03	1.33	0.23	0.41	51.51	0.09	0.01	0.14	0.02	0.03	0.00	53.87
Panuke B-90	2413.05	55	calcite	0.02	0.00	0.03	0.00	0.25	0.04	0.05	52.83	0.09	0.06	0.11	0.01	0.18	0.00	53.67
Panuke B-90	2413.05	56	Fe-calcite	0.03	0.00	0.02	0.00	1.22	0.22	0.40	53.58	0.08	0.02	0.12	0.00	0.00	0.03	55.74
Panuke B-90	2420.64	75	Fe-calcite	0.05	0.00	0.01	0.00	1.63	0.58	0.54	52.70	0.00	0.00	0.03	0.00	0.02	0.05	55.62
Panuke B-90	2420.64	76	Fe-calcite	0.02	0.00	0.01	0.00	1.65	0.58	0.54	51.51	0.01	0.01	0.00	0.00	0.00	0.01	54.34
Panuke B-90	2420.64	77	Fe-calcite	0.05	0.00	0.01	0.00	1.71	0.61	0.55	51.63	0.01	0.02	0.04	0.00	0.00	0.00	54.62
Panuke B-90	2420.64	78	Fe-calcite	0.03	0.00	0.00	0.00	1.64	0.60	0.53	51.39	0.00	0.01	0.01	0.00	0.00	0.00	54.22
Panuke B-90	2420.64	79	Fe-calcite	0.02	0.00	0.00	0.00	1.70	0.63	0.57	51.81	0.00	0.01	0.03	0.00	0.00	0.00	54.76
Panuke B-90	2420.64	80	Fe-calcite	0.03	0.00	0.00	0.00	0.99	0.35	0.29	48.86	0.01	0.03	0.00	0.00	0.20	0.03	50.79
Panuke B-90	2420.64	81	Fe-calcite	0.00	0.00	0.01	0.00	1.22	0.51	0.42	52.86	0.00	0.01	0.07	0.00	0.00	0.03	55.15
Panuke B-90	2420.64	82	Fe-calcite	0.00	0.00	0.00	0.00	1.48	0.47	0.43	51.25	0.01	0.01	0.04	0.00	0.13	0.00	53.83
Panuke B-90	2420.64	83	Fe-calcite	0.00	0.00	0.00	0.00	1.11	0.37	0.33	51.94	0.00	0.00	0.04	0.00	0.13	0.00	53.93
Panuke B-90	2420.64	84	Fe-calcite	0.03	0.00	0.01	0.00	1.58	0.58	0.55	52.66	0.02	0.02	0.05	0.00	0.01	0.00	55.50
Panuke B-90	2420.64	85	Fe-calcite	0.02	0.00	0.01	0.00	1.51	0.52	0.45	50.36	0.00	0.00	0.05	0.00	0.14	0.00	53.05
Panuke B-90	2420.64	86	Fe-calcite	0.00	0.00	0.01	0.00	1.53	0.48	0.44	52.92	0.00	0.02	0.05	0.00	0.15	0.00	55.59
Panuke B-90	2420.64	87	Fe-calcite	0.01	0.00	0.01	0.00	1.72	0.61	0.53	52.00	0.00	0.01	0.02	0.00	0.01	0.04	54.95
Panuke B-90	2420.64	88	Fe-calcite	0.01	0.00	0.00	0.00	1.74	0.48	0.46	52.26	0.00	0.00	0.01	0.00	0.13	0.05	55.14
Panuke B-90	2420.64	89	Fe-calcite	0.01	0.00	0.01	0.00	1.48	0.47	0.45	51.17	0.00	0.02	0.04	0.00	0.12	0.00	53.78
Panuke B-90	2420.64	90	Fe-calcite	0.02	0.00	0.02	0.00	0.94	0.33	0.27	54.05	0.00	0.01	0.04	0.00	0.20	0.01	55.89
Panuke B-90	2420.64	91	Fe-calcite	0.00	0.00	0.01	0.00	1.53	0.52	0.52	51.44	0.02	0.01	0.03	0.00	0.02	0.00	54.10
Panuke B-90	2420.64	92	Fe-calcite	0.03	0.00	0.02	0.00	1.52	0.53	0.46	52.95	0.00	0.01	0.03	0.00	0.03	0.00	55.58
Panuke B-90	2420.64	93	Fe-calcite	0.01	0.01	0.01	0.00	1.57	0.45	0.45	51.97	0.00	0.01	0.01	0.00	0.16	0.00	54.66
Panuke B-90	2420.64	94	Fe-calcite	0.04	0.00	0.00	0.00	1.81	0.58	0.56	51.09	0.03	0.02	0.03	0.00	0.02	0.00	54.18
Panuke B-90	2420.64	95	Fe-calcite	0.00	0.01	0.00	0.00	1.71	0.62	0.57	53.13	0.02	0.02	0.04	0.04	0.02	0.00	56.17
Panuke B-90	2420.64	96	Fe-calcite	0.00	0.00	0.01	0.01	1.65	0.57	0.51	51.56	0.01	0.02	0.01	0.01	0.04	0.00	54.40
Panuke B-90	2420.64	97	Fe-calcite	0.05	0.01	0.00	0.00	1.50	0.54	0.44	52.81	0.02	0.03	0.02	0.01	0.01	0.00	55.45
Panuke B-90	2420.64	98	Fe-calcite	0.01	0.00	0.00	0.00	1.16	0.39	0.37	49.59	0.00	0.02	0.02	0.01	0.17	0.00	51.75
Panuke B-90	2420.64	99	Fe-calcite	0.02	0.00	0.00	0.00	1.18	0.47	0.37	50.10	0.02	0.05	0.03	0.00	0.00	0.00	52.24

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2434.33	100	calcite	0.00	0.00	0.01	0.00	0.62	0.04	2.07	49.03	0.02	0.02	0.05	0.01	0.13	0.00	51.99
Panuke B-90	2434.33	101	calcite	0.00	0.00	0.01	0.00	0.61	0.05	1.79	47.03	0.00	0.03	0.07	0.01	0.07	0.00	49.67
Panuke B-90	2434.33	102	calcite	0.00	0.00	0.01	0.00	0.33	0.05	0.48	51.33	0.02	0.02	0.07	0.00	0.02	0.00	52.33
Panuke B-90	2434.33	103	calcite	0.00	0.00	0.00	0.00	0.52	0.03	0.94	54.55	0.02	0.03	0.03	0.04	0.13	0.00	56.29
Panuke B-90	2434.33	104	calcite	0.00	0.00	0.00	0.00	0.33	0.04	0.64	53.25	0.02	0.02	0.01	0.00	0.19	0.00	54.50
Panuke B-90	2434.33	105	Fe-calcite	0.00	0.00	0.00	0.00	1.06	0.11	0.33	50.15	0.01	0.03	0.02	0.00	0.08	0.00	51.79
Panuke B-90	2434.33	106	calcite	0.00	0.00	0.01	0.00	0.45	0.06	0.41	52.79	0.14	0.02	0.04	0.00	0.09	0.00	54.02
Panuke B-90	2434.33	107	calcite	0.00	0.00	0.00	0.00	0.48	0.05	0.46	52.01	0.01	0.03	0.04	0.01	0.06	0.00	53.15
Panuke B-90	2434.33	108	calcite	0.00	0.00	0.00	0.00	0.44	0.03	1.02	52.07	0.02	0.02	0.04	0.04	0.13	0.00	53.82
Panuke B-90	2434.33	109	Mg-calcite	0.00	0.00	0.01	0.00	0.31	0.04	1.47	50.42	0.06	0.02	0.03	0.00	0.12	0.00	52.47
Panuke B-90	2434.33	110	Mg-calcite	0.00	0.00	0.00	0.00	0.42	0.03	1.10	50.96	0.02	0.02	0.06	0.01	0.08	0.00	52.71
Panuke B-90	2434.33	111	calcite	0.00	0.00	0.00	0.00	0.34	0.00	0.40	49.86	0.01	0.02	0.04	0.02	0.05	0.00	50.73
Panuke B-90	2434.33	112	Fe-calcite	0.00	0.00	0.00	0.00	0.99	0.14	0.47	52.82	0.01	0.02	0.02	0.00	0.02	0.00	54.50
Panuke B-90	2434.33	113	calcite	0.00	0.00	0.01	0.00	0.83	0.07	0.30	50.09	0.00	0.01	0.02	0.02	0.07	0.00	51.44
Panuke B-90	2434.33	114	calcite	0.00	0.01	0.03	0.00	0.72	0.05	0.33	49.81	0.00	0.01	0.01	0.00	0.11	0.00	51.09
Panuke B-90	2434.33	115	calcite	0.00	0.00	0.00	0.00	0.01	0.01	0.57	55.01	0.00	0.01	0.00	0.00	0.00	0.00	55.61
Panuke B-90	2434.33	116	calcite	0.00	0.01	0.00	0.00	0.03	0.43	0.27	53.68	0.01	0.02	0.03	0.00	0.00	0.00	54.48
Panuke B-90	2434.33	117	calcite	0.02	0.05	0.00	0.00	0.85	0.10	0.34	49.88	0.00	0.02	0.03	0.00	0.17	0.00	51.45
Panuke B-90	2434.33	118	calcite	0.00	0.00	0.00	0.00	0.77	0.09	0.27	53.92	0.00	0.02	0.01	0.00	0.04	0.00	55.11
Panuke B-90	2434.33	119	Mg-calcite	0.00	0.00	0.00	0.00	0.46	0.04	1.19	52.31	0.01	0.02	0.02	0.00	0.16	0.00	54.22
Panuke B-90	2434.33	120	Mg-calcite	0.01	0.00	0.00	0.00	0.75	0.09	1.14	53.60	0.01	0.02	0.01	0.01	0.10	0.00	55.73

Appendix 1C: Electron microprobe analyses of diagenetic minerals from representative samples from Cohasset A-52 well.

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2075.83	72	siderite	0.24	0.01	0.14	0.00	39.23	0.92	4.94	9.60	0.10	0.04	0.19	0.00	0.00	0.03	55.42
Cohasset A-52	2075.83	73	siderite	0.04	0.01	0.02	0.01	41.53	0.77	5.18	7.40	0.07	0.03	0.36	0.01	0.00	0.00	55.40
Cohasset A-52	2075.83	74	Fe-Mg-calcite	0.04	0.00	0.02	0.00	4.35	0.64	1.03	50.75	0.01	0.01	0.06	0.00	0.33	0.00	57.22
Cohasset A-52	2075.83	75	siderite	0.68	0.02	0.52	0.01	41.55	0.89	5.06	6.94	0.08	0.08	0.32	0.00	0.00	0.02	56.18
Cohasset A-52	2075.83	76	siderite	0.79	0.05	0.51	0.00	42.15	0.98	4.90	6.60	0.12	0.09	0.36	0.00	0.00	0.01	56.56
Cohasset A-52	2075.83	77	Fe-calcite	0.14	0.00	0.03	0.00	4.19	0.79	0.91	52.02	0.04	0.03	0.05	0.00	0.16	0.00	58.35
Cohasset A-52	2075.83	78	siderite	0.55	0.06	0.38	0.03	40.74	0.71	5.05	7.54	0.08	0.06	0.31	0.03	0.00	0.04	55.59
Cohasset A-52	2075.83	79	siderite	0.36	0.01	0.23	0.01	42.15	0.92	5.08	6.48	0.10	0.03	0.36	0.00	0.02	0.05	55.79
Cohasset A-52	2075.83	80	siderite	0.05	0.00	0.03	0.03	41.97	0.75	5.39	6.53	0.08	0.02	0.41	0.01	0.00	0.01	55.27
Cohasset A-52	2075.83	81	siderite	0.05	0.00	0.03	0.00	42.40	0.83	4.96	7.70	0.09	0.02	0.34	0.00	0.00	0.01	56.44
Cohasset A-52	2075.83	82	siderite	0.46	0.01	0.28	0.02	42.36	0.93	5.04	6.51	0.08	0.06	0.43	0.00	0.00	0.00	56.17
Cohasset A-52	2075.83	83	siderite	0.06	0.01	0.04	0.00	42.85	0.79	4.91	6.43	0.06	0.04	0.41	0.00	0.00	0.00	55.60
Cohasset A-52	2075.83	84	siderite	0.39	0.00	0.25	0.01	43.48	1.08	4.94	5.76	0.17	0.07	0.41	0.01	0.00	0.00	56.56
Cohasset A-52	2075.83	85	siderite	0.89	0.00	0.63	0.00	41.58	0.91	5.11	6.60	0.11	0.07	0.35	0.01	0.00	0.00	56.25
Cohasset A-52	2075.83	86	siderite	0.27	0.00	0.17	0.00	43.00	0.90	5.13	6.07	0.12	0.04	0.39	0.00	0.00	0.00	56.09
Cohasset A-52	2075.83	87	siderite	1.20	0.00	0.74	0.04	43.53	1.25	4.94	5.11	0.12	0.12	0.38	0.01	0.00	0.00	57.45
Cohasset A-52	2075.83	88	siderite	0.21	0.00	0.10	0.01	42.67	0.82	4.98	6.14	0.12	0.05	0.40	0.01	0.00	0.03	55.53
Cohasset A-52	2075.83	89	siderite	0.45	0.00	0.29	0.00	41.83	0.81	5.11	6.39	0.10	0.09	0.43	0.00	0.00	0.00	55.50
Cohasset A-52	2075.83	90	siderite	0.51	0.00	0.25	0.00	42.67	1.01	5.03	6.34	0.21	0.07	0.35	0.01	0.00	0.00	56.47
Cohasset A-52	2075.83	91	Fe-calcite	0.01	0.00	0.02	0.00	3.21	0.51	0.79	50.62	0.04	0.02	0.06	0.00	0.27	0.00	55.55
Cohasset A-52	2075.83	92	siderite	0.04	0.00	0.01	0.00	42.40	0.75	4.99	6.27	0.09	0.03	0.47	0.01	0.00	0.00	55.07
Cohasset A-52	2075.83	93	Fe-calcite	0.28	0.00	0.18	0.00	3.78	0.78	0.89	48.94	0.04	0.05	0.06	0.00	0.11	0.00	55.11
Cohasset A-52	2075.83	94	siderite	0.53	0.00	0.38	0.00	41.34	0.81	5.02	6.97	0.12	0.07	0.37	0.02	0.00	0.00	55.63
Cohasset A-52	2075.83	95	siderite	1.76	0.00	1.04	0.00	41.55	1.27	5.00	5.23	0.14	0.11	0.65	0.01	0.00	0.00	56.75
Cohasset A-52	2075.83	96	Fe-calcite	0.04	0.00	0.01	0.00	3.12	0.69	0.59	51.64	0.04	0.02	0.06	0.00	0.22	0.00	56.44
Cohasset A-52	2075.83	97	siderite	1.41	0.00	0.91	0.01	43.08	1.42	5.00	5.15	0.21	0.14	0.32	0.02	0.00	0.00	57.68
Cohasset A-52	2075.83	98	calcite (biocl)	0.02	0.00	0.01	0.00	0.00	0.00	0.11	55.12	0.13	0.01	0.05	0.00	0.09	0.00	55.54
Cohasset A-52	2075.83	99	siderite	0.53	0.00	0.36	0.00	41.76	0.84	4.81	7.49	0.13	0.09	0.27	0.01	0.00	0.00	56.30
Cohasset A-52	2075.83	100	siderite	0.88	0.00	0.63	0.00	42.34	0.97	4.87	6.33	0.18	0.12	0.41	0.04	0.02	0.02	56.80
Cohasset A-52	2075.83	101	siderite	0.05	0.00	0.00	0.00	42.68	0.75	5.02	6.19	0.07	0.02	0.48	0.02	0.00	0.00	55.30
Cohasset A-52	2075.83	102	siderite	0.10	0.00	0.05	0.01	41.47	1.01	5.25	6.89	0.13	0.03	0.38	0.00	0.00	0.00	55.32
Cohasset A-52	2075.83	103	siderite	0.13	0.00	0.04	0.00	41.48	0.98	5.17	6.90	0.07	0.02	0.42	0.00	0.00	0.00	55.21
Cohasset A-52	2075.83	104	siderite	0.44	0.02	0.24	0.00	42.33	1.08	5.11	6.23	0.18	0.06	0.29	0.00	0.00	0.02	55.99

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2075.83	105	siderite	1.46	0.08	0.98	0.01	42.33	1.21	5.06	5.15	0.17	0.14	0.31	0.00	0.00	0.01	56.91
Cohasset A-52	2126.14	106	Fe-calcite	0.10	0.00	0.01	0.00	3.30	0.32	0.83	52.82	0.03	0.01	0.05	0.00	0.04	0.00	57.51
Cohasset A-52	2126.14	107	Fe-calcite	0.08	0.00	0.00	0.00	3.07	0.28	0.81	52.19	0.01	0.02	0.00	0.00	0.07	0.00	56.54
Cohasset A-52	2126.14	108	Fe-calcite	0.12	0.00	0.01	0.00	2.93	0.28	0.75	52.11	0.00	0.05	0.05	0.00	0.01	0.00	56.31
Cohasset A-52	2126.14	109	Fe-calcite	0.12	0.00	0.00	0.00	3.29	0.24	0.94	51.47	0.02	0.01	0.03	0.00	0.11	0.00	56.23
Cohasset A-52	2126.14	110	Fe-calcite	0.08	0.00	0.00	0.00	2.91	0.21	0.78	51.76	0.00	0.02	0.00	0.00	0.16	0.00	55.93
Cohasset A-52	2126.14	111	Fe-calcite	0.03	0.00	0.00	0.00	3.13	0.32	0.81	52.73	0.01	0.00	0.05	0.00	0.05	0.00	57.12
Cohasset A-52	2126.14	112	Fe-calcite	0.10	0.00	0.01	0.00	3.55	0.34	0.84	52.51	0.01	0.02	0.05	0.00	0.06	0.00	57.49
Cohasset A-52	2126.14	113	Fe-calcite	0.09	0.00	0.00	0.00	3.22	0.28	0.81	52.93	0.02	0.02	0.02	0.00	0.04	0.00	57.43
Cohasset A-52	2126.14	114	Fe-calcite	0.06	0.00	0.01	0.00	3.05	0.32	0.76	52.62	0.01	0.01	0.01	0.00	0.01	0.00	56.87
Cohasset A-52	2126.14	115	Fe-calcite	0.09	0.00	0.01	0.00	3.18	0.32	0.77	52.97	0.03	0.03	0.02	0.00	0.01	0.00	57.44
Cohasset A-52	2126.14	116	Fe-calcite	0.07	0.00	0.00	0.00	3.13	0.28	0.82	52.44	0.00	0.03	0.01	0.00	0.04	0.00	56.83
Cohasset A-52	2126.14	117	Fe-calcite	0.08	0.00	0.01	0.00	3.48	0.24	0.97	51.77	0.01	0.01	0.03	0.00	0.23	0.00	56.83
Cohasset A-52	2126.14	118	Fe-calcite	0.04	0.00	0.00	0.00	3.31	0.31	0.79	53.14	0.02	0.03	0.01	0.00	0.02	0.00	57.68
Cohasset A-52	2126.14	119	Fe-calcite	0.02	0.00	0.00	0.00	3.09	0.27	0.88	52.78	0.01	0.01	0.00	0.00	0.06	0.00	57.14
Cohasset A-52	2126.14	120	Fe-calcite	0.08	0.00	0.00	0.00	3.35	0.29	0.84	52.48	0.01	0.01	0.03	0.00	0.07	0.00	57.17
Cohasset A-52	2126.14	121	Fe-calcite	0.07	0.00	0.01	0.00	3.42	0.26	0.93	50.88	0.02	0.02	0.02	0.00	0.17	0.00	55.79
Cohasset A-52	2126.14	122	Fe-calcite	0.12	0.00	0.02	0.00	3.12	0.28	0.79	51.86	0.02	0.00	0.03	0.00	0.03	0.00	56.29
Cohasset A-52	2126.14	123	Fe-calcite	0.06	0.00	0.00	0.00	3.55	0.29	0.84	51.35	0.01	0.01	0.01	0.00	0.02	0.00	56.13
Cohasset A-52	2126.14	124	Fe-calcite	0.05	0.00	0.00	0.00	3.16	0.22	0.82	52.91	0.01	0.02	0.02	0.00	0.27	0.00	57.47
Cohasset A-52	2126.14	125	Fe-calcite	0.05	0.00	0.00	0.00	3.15	0.28	0.82	52.31	0.01	0.01	0.03	0.00	0.08	0.00	56.74
Cohasset A-52	2126.14	126	Fe-calcite	0.10	0.00	0.03	0.00	3.30	0.34	0.79	51.58	0.00	0.03	0.02	0.02	0.05	0.01	56.28
Cohasset A-52	2126.14	127	Fe-calcite	2.17	0.10	1.57	0.00	3.01	0.19	0.75	45.20	0.01	0.09	0.01	0.00	0.13	0.00	53.21
Cohasset A-52	2126.14	128	Fe-calcite	1.32	0.00	0.81	0.00	3.26	0.27	0.79	48.01	0.01	0.09	0.01	0.00	0.18	0.00	54.76
Cohasset A-52	2126.14	129	Fe-calcite	0.02	0.00	0.02	0.00	2.26	0.23	0.56	51.85	0.05	0.03	0.02	0.00	0.19	0.00	55.23
Cohasset A-52	2126.14	130	Fe-calcite	0.03	0.00	0.00	0.00	3.13	0.31	0.77	51.24	0.03	0.04	0.01	0.00	0.07	0.00	55.62
Cohasset A-52	2126.14	131	Fe-calcite	0.16	0.00	0.01	0.00	3.10	0.31	0.74	50.57	0.02	0.02	0.01	0.00	0.05	0.00	54.98
Cohasset A-52	2126.14	132	Fe-calcite	0.02	0.00	0.00	0.00	2.95	0.27	0.80	50.95	0.00	0.02	0.03	0.01	0.24	0.00	55.27
Cohasset A-52	2126.14	133	Fe-calcite	0.97	0.00	0.01	0.00	2.90	0.32	0.76	49.63	0.03	0.02	0.04	0.01	0.11	0.00	54.80
Cohasset A-52	2126.14	134	Fe-calcite	0.01	0.00	0.02	0.00	3.18	0.36	0.78	51.04	0.02	0.03	0.07	0.01	0.03	0.00	55.54
Cohasset A-52	2126.14	135	Fe-calcite	0.02	0.00	0.02	0.00	3.32	0.36	0.77	50.89	0.01	0.02	0.03	0.01	0.05	0.00	55.51
Cohasset A-52	2130.04	11	Fe-calcite	0.00	0.00	0.03	0.01	1.77	0.44	0.30	57.33	0.01	0.00	0.03	0.00	0.20	0.00	60.12
Cohasset A-52	2130.04	12	calcite	0.05	0.00	0.01	0.02	0.83	0.27	0.14	55.85	0.00	0.00	0.04	0.00	0.19	0.00	57.40
Cohasset A-52	2130.04	13	Fe-calcite	0.01	0.00	0.02	0.00	1.63	0.43	0.26	54.78	0.01	0.01	0.07	0.00	0.16	0.00	57.39
Cohasset A-52	2130.04	14	Fe-calcite	0.01	0.00	0.02	0.02	1.57	0.44	0.28	55.67	0.00	0.02	0.05	0.00	0.11	0.00	58.18
Cohasset A-52	2130.04	15	calcite	0.00	0.00	0.02	0.00	0.94	0.28	0.16	56.33	0.00	0.00	0.05	0.00	0.08	0.00	57.87

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2130.04	16	Fe-calcite	0.02	0.00	0.00	0.00	1.58	0.46	0.30	55.00	0.01	0.01	0.03	0.00	0.18	0.00	57.58
Cohasset A-52	2130.04	17	Fe-calcite	0.06	0.00	0.00	0.00	1.45	0.40	0.25	55.04	0.02	0.02	0.03	0.00	0.17	0.00	57.44
Cohasset A-52	2130.04	18	Fe-calcite	0.01	0.00	0.01	0.00	1.56	0.51	0.34	56.66	0.02	0.01	0.06	0.00	0.03	0.00	59.20
Cohasset A-52	2130.04	19	Fe-calcite	0.03	0.00	0.01	0.03	1.38	0.42	0.27	56.09	0.02	0.01	0.02	0.00	0.18	0.00	58.46
Cohasset A-52	2130.04	20	Fe-calcite	0.01	0.01	0.01	0.00	1.22	0.38	0.26	56.36	0.02	0.02	0.03	0.01	0.10	0.00	58.43
Cohasset A-52	2130.04	21	Fe-calcite	0.02	0.00	0.01	0.00	3.20	0.19	0.96	53.76	0.01	0.01	0.06	0.00	0.23	0.01	58.47
Cohasset A-52	2130.04	22	Fe-calcite	0.06	0.00	0.01	0.02	1.62	0.44	0.27	56.21	0.01	0.00	0.02	0.00	0.19	0.00	58.85
Cohasset A-52	2130.04	23	Fe-calcite	0.04	0.00	0.01	0.02	1.61	0.47	0.29	56.05	0.03	0.02	0.02	0.00	0.18	0.00	58.75
Cohasset A-52	2130.04	24	calcite	0.07	0.00	0.00	0.00	0.66	0.19	0.16	56.84	0.03	0.01	0.05	0.01	0.17	0.00	58.19
Cohasset A-52	2130.04	25	Fe-calcite	0.07	0.01	0.01	0.00	1.26	0.37	0.23	55.20	0.00	0.01	0.05	0.00	0.15	0.00	57.35
Cohasset A-52	2130.04	26	Fe-calcite	0.06	0.00	0.00	0.00	3.03	0.24	0.83	55.90	0.01	0.04	0.05	0.00	0.22	0.00	60.37
Cohasset A-52	2130.04	27	Fe-calcite	0.09	0.00	0.01	0.00	1.79	0.50	0.38	56.31	0.03	0.01	0.04	0.00	0.03	0.00	59.18
Cohasset A-52	2130.04	28	Fe-calcite	0.03	0.00	0.01	0.00	1.57	0.45	0.27	56.60	0.02	0.02	0.03	0.00	0.20	0.00	59.21
Cohasset A-52	2130.04	29	Fe-calcite	0.04	0.00	0.01	0.00	1.94	0.10	0.52	55.96	0.12	0.02	0.03	0.00	0.20	0.00	58.94
Cohasset A-52	2130.04	30	Fe-calcite	0.05	0.00	0.01	0.00	2.18	0.31	0.57	53.94	0.02	0.01	0.04	0.01	0.14	0.00	57.28
Cohasset A-52	2130.04	31	Fe-calcite	0.05	0.00	0.02	0.03	1.42	0.35	0.25	56.98	0.01	0.02	0.05	0.01	0.18	0.00	59.38
Cohasset A-52	2130.04	32	Fe-calcite	0.11	0.00	0.02	0.02	3.01	0.18	0.84	54.57	0.01	0.01	0.04	0.00	0.22	0.00	59.05
Cohasset A-52	2130.04	33	Fe-calcite	0.04	0.00	0.03	0.00	1.62	0.44	0.29	56.31	0.01	0.02	0.02	0.00	0.07	0.00	58.84
Cohasset A-52	2130.04	34	Fe-Mg-calcite	0.05	0.00	0.00	0.01	3.49	0.15	1.09	54.01	0.01	0.02	0.05	0.00	0.21	0.00	59.09
Cohasset A-52	2130.04	35	Fe-Mg-calcite	0.01	0.00	0.00	0.00	3.40	0.14	1.04	52.85	0.01	0.02	0.04	0.00	0.25	0.01	57.76
Cohasset A-52	2130.04	36	Fe-calcite	0.02	0.01	0.01	0.00	1.70	0.45	0.31	56.24	0.00	0.02	0.03	0.00	0.16	0.00	58.95
Cohasset A-52	2130.04	37	Fe-calcite	0.05	0.00	0.02	0.00	1.30	0.36	0.24	55.05	0.01	0.02	0.03	0.01	0.15	0.00	57.24
Cohasset A-52	2130.04	38	Fe-calcite	0.01	0.00	0.01	0.00	1.21	0.43	0.26	56.25	0.02	0.04	0.03	0.00	0.05	0.00	58.30
Cohasset A-52	2130.04	39	Fe-calcite	0.03	0.00	0.00	0.00	3.08	0.17	0.96	52.00	0.00	0.02	0.06	0.00	0.21	0.00	56.55
Cohasset A-52	2130.04	40	Fe-calcite	0.06	0.02	0.03	0.00	3.28	0.28	1.02	53.35	0.01	0.02	0.03	0.00	0.21	0.00	58.31
Cohasset A-52	2130.04	41	Fe-calcite	0.07	0.00	0.02	0.00	2.99	0.14	0.93	53.60	0.02	0.03	0.05	0.00	0.18	0.00	58.03
Cohasset A-52	2130.04	42	Fe-calcite	0.02	0.00	0.01	0.00	1.64	0.54	0.31	56.86	0.01	0.03	0.03	0.00	0.04	0.00	59.50
Cohasset A-52	2130.04	43	Fe-calcite	0.05	0.02	0.01	0.00	3.14	0.20	0.87	51.36	0.03	0.03	0.02	0.00	0.07	0.00	55.80
Cohasset A-52	2160.51	44	siderite	0.20	0.00	0.02	0.00	40.60	1.18	5.70	6.34	0.13	0.04	0.55	0.00	0.00	0.00	54.76
Cohasset A-52	2160.51	45	siderite	0.16	0.00	0.00	0.00	40.96	0.91	6.05	6.41	0.10	0.03	0.51	0.00	0.00	0.00	55.14
Cohasset A-52	2160.51	46	siderite	0.23	0.00	0.05	0.01	40.60	0.70	6.90	6.05	0.09	0.03	0.41	0.00	0.00	0.00	55.05
Cohasset A-52	2160.51	47	siderite	0.22	0.00	0.02	0.00	37.87	0.34	10.61	5.63	0.17	0.04	0.11	0.00	0.00	0.00	55.02
Cohasset A-52	2160.51	48	calcite	0.24	0.00	0.02	0.00	0.35	0.10	0.06	55.94	0.04	0.03	0.05	0.00	0.29	0.00	57.10
Cohasset A-52	2160.51	49	Fe-calcite	0.11	0.00	0.02	0.00	1.24	0.46	0.22	56.09	0.27	0.08	0.05	0.00	0.25	0.00	58.77
Cohasset A-52	2160.51	50	siderite	0.13	0.00	0.00	0.00	39.63	0.62	7.83	6.12	0.14	0.04	0.37	0.01	0.00	0.00	54.90
Cohasset A-52	2160.51	51	siderite	0.22	0.01	0.01	0.00	41.10	1.79	3.68	7.44	0.12	0.04	0.18	0.00	0.00	0.00	54.59



Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2160.51	52	siderite	0.11	0.00	0.01	0.00	38.16	0.47	9.76	6.74	0.06	0.02	0.04	0.00	0.00	0.00	55.36
Cohasset A-52	2160.51	53	Fe-calcite	0.06	0.00	0.00	0.00	1.75	0.64	0.31	54.13	0.02	0.02	0.03	0.00	0.25	0.00	57.21
Cohasset A-52	2160.51	54	siderite	0.21	0.00	0.02	0.01	40.61	1.77	3.83	7.87	0.12	0.03	0.23	0.00	0.00	0.00	54.70
Cohasset A-52	2160.51	55	siderite	0.09	0.00	0.00	0.01	37.19	0.40	10.80	6.34	0.05	0.02	0.08	0.00	0.00	0.00	54.98
Cohasset A-52	2160.51	56	Fe-calcite	0.15	0.00	0.00	0.00	1.85	0.63	0.33	54.70	0.01	0.02	0.05	0.00	0.25	0.00	57.98
Cohasset A-52	2160.51	57	siderite	0.18	0.00	0.03	0.00	40.81	0.85	6.47	6.02	0.10	0.03	0.46	0.00	0.00	0.00	54.96
Cohasset A-52	2160.51	58	siderite	0.09	0.00	0.00	0.00	36.99	0.37	10.95	6.42	0.05	0.02	0.07	0.00	0.00	0.00	54.98
Cohasset A-52	2160.51	59	Fe-calcite	0.14	0.00	0.01	0.00	1.84	0.65	0.34	53.04	0.02	0.03	0.05	0.00	0.19	0.00	56.31
Cohasset A-52	2160.51	60	siderite	0.29	0.00	0.13	0.00	41.07	1.12	5.73	6.66	0.10	0.07	0.49	0.00	0.00	0.00	55.66
Cohasset A-52	2160.51	61	Fe-calcite	0.06	0.00	0.02	0.00	1.06	0.40	0.15	54.65	0.01	0.01	0.04	0.00	0.24	0.00	56.65
Cohasset A-52	2160.51	62	siderite	0.05	0.00	0.00	0.00	37.36	0.47	9.70	8.32	0.04	0.01	0.05	0.00	0.00	0.00	56.00
Cohasset A-52	2160.51	63	Fe-calcite	0.07	0.00	0.03	0.00	1.54	0.55	0.24	54.65	0.02	0.00	0.06	0.00	0.27	0.00	57.43
Cohasset A-52	2160.51	64	siderite	0.51	0.00	0.22	0.00	40.51	1.12	5.89	6.54	0.15	0.02	0.52	0.00	0.00	0.00	55.48
Cohasset A-52	2160.51	65	siderite	0.15	0.00	0.04	0.00	40.12	0.33	10.78	3.71	0.03	0.09	0.08	0.00	0.00	0.00	55.33
Cohasset A-52	2160.51	66	siderite	0.14	0.00	0.04	0.00	41.31	1.59	4.06	6.98	0.09	0.04	0.31	0.00	0.00	0.00	54.57
Cohasset A-52	2160.51	67	calcite	0.16	0.00	0.02	0.00	0.41	0.07	0.07	54.87	0.01	0.09	0.04	0.00	0.26	0.00	55.99
Cohasset A-52	2160.51	68	siderite	0.11	0.00	0.05	0.00	40.26	1.57	4.67	7.27	0.10	0.05	0.39	0.01	0.00	0.00	54.48
Cohasset A-52	2160.51	69	siderite	0.07	0.00	0.03	0.00	41.44	1.50	4.28	7.10	0.09	0.04	0.38	0.00	0.00	0.00	54.93
Cohasset A-52	2160.51	70	siderite	0.07	0.00	0.04	0.00	38.23	0.34	10.18	5.45	0.04	0.04	0.15	0.00	0.00	0.00	54.54
Cohasset A-52	2160.51	71	siderite	0.11	0.00	0.03	0.00	40.34	0.44	7.92	5.91	0.07	0.03	0.37	0.00	0.00	0.00	55.23
Cohasset A-52	2160.51	72	Fe-calcite	0.13	0.00	0.02	0.00	1.60	0.52	0.28	54.66	0.02	0.02	0.02	0.00	0.24	0.00	57.51
Cohasset A-52	2160.51	73	Fe-calcite	0.07	0.00	0.01	0.00	1.75	0.54	0.24	53.68	0.01	0.01	0.05	0.00	0.20	0.00	56.55
Cohasset A-52	2160.51	74	siderite	0.08	0.00	0.03	0.00	40.60	0.39	7.51	5.92	0.11	0.03	0.41	0.00	0.00	0.00	55.08
Cohasset A-52	2160.51	75	siderite	0.09	0.00	0.03	0.00	38.10	0.39	10.72	5.58	0.10	0.02	0.16	0.00	0.00	0.00	55.19
Cohasset A-52	2160.51	76	siderite	0.37	0.00	0.15	0.03	41.35	1.21	5.10	6.02	0.17	0.03	0.45	0.01	0.00	0.00	54.88
Cohasset A-52	2160.51	77	Fe-calcite	0.17	0.00	0.02	0.00	1.61	0.59	0.26	55.39	0.06	0.02	0.03	0.00	0.25	0.00	58.39
Cohasset A-52	2160.51	78	Fe-calcite	0.09	0.00	0.02	0.00	1.73	0.58	0.27	55.16	0.05	0.02	0.04	0.00	0.20	0.00	58.17
Cohasset A-52	2160.51	79	siderite	0.15	0.00	0.01	0.00	42.17	0.42	7.97	4.97	0.06	0.03	0.00	0.00	0.00	0.00	55.78
Cohasset A-52	2160.51	80	siderite	0.14	0.00	0.03	0.00	41.28	1.05	5.64	6.31	0.11	0.03	0.56	0.00	0.00	0.00	55.16
Cohasset A-52	2160.51	81	siderite	0.05	0.00	0.01	0.00	40.38	0.38	8.60	5.20	0.13	0.03	0.35	0.00	0.00	0.00	55.14
Cohasset A-52	2160.51	82	Fe-calcite	0.03	0.00	0.02	0.00	1.74	0.60	0.27	55.95	0.04	0.01	0.04	0.00	0.19	0.00	58.89
Cohasset A-52	2160.51	83	siderite	0.19	0.00	0.04	0.00	41.54	1.58	4.15	6.68	0.15	0.05	0.28	0.00	0.00	0.00	54.65
Cohasset A-52	2167.31	90	Fe-calcite	0.09	0.00	0.03	0.00	2.28	0.23	0.54	51.13	0.01	0.03	0.06	0.04	0.32	0.00	54.76
Cohasset A-52	2167.31	91	Fe-calcite	0.13	0.00	0.05	0.00	2.43	0.23	0.62	52.76	0.01	0.03	0.05	0.01	0.24	0.00	56.58
Cohasset A-52	2167.31	92	calcite	0.08	0.00	0.01	0.00	0.94	0.13	0.22	47.65	0.01	0.05	0.05	0.00	0.30	0.00	49.42
Cohasset A-52	2167.31	93	Fe-calcite	0.08	0.00	0.02	0.00	2.60	0.29	0.64	51.39	0.02	0.04	0.05	0.00	0.12	0.00	55.25

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2167.31	94	Fe-calcite	0.06	0.00	0.02	0.00	1.97	0.19	0.52	48.92	0.01	0.04	0.04	0.00	0.22	0.00	52.00
Cohasset A-52	2167.31	95	Fe-calcite	0.15	0.00	0.02	0.00	2.64	0.21	0.62	52.55	0.01	0.12	0.07	0.02	0.30	0.00	56.72
Cohasset A-52	2167.31	96	Fe-calcite	0.08	0.00	0.01	0.00	2.78	0.27	0.70	51.98	0.03	0.04	0.05	0.00	0.13	0.00	56.07
Cohasset A-52	2167.31	97	Fe-calcite	0.06	0.00	0.01	0.00	2.13	0.43	0.44	53.56	0.03	0.03	0.04	0.04	0.24	0.02	57.02
Cohasset A-52	2167.31	98	Fe-calcite	0.07	0.00	0.02	0.00	2.08	0.19	0.55	50.96	0.01	0.02	0.05	0.01	0.25	0.00	54.22
Cohasset A-52	2167.31	99	Fe-calcite	0.06	0.00	0.02	0.00	2.71	0.31	0.69	51.70	0.02	0.02	0.02	0.00	0.11	0.00	55.66
Cohasset A-52	2167.31	100	Fe-calcite	0.07	0.00	0.01	0.00	2.68	0.24	0.65	50.97	0.01	0.04	0.03	0.03	0.26	0.00	55.01
Cohasset A-52	2167.31	101	Fe-calcite	0.07	0.00	0.01	0.00	2.50	0.32	0.61	51.93	0.02	0.02	0.05	0.02	0.07	0.00	55.64
Cohasset A-52	2167.31	102	Fe-calcite	0.06	0.00	0.02	0.00	2.24	0.22	0.54	52.60	0.03	0.03	0.07	0.03	0.18	0.00	56.00
Cohasset A-52	2167.31	103	Fe-calcite	0.11	0.00	0.02	0.00	0.93	0.10	0.20	53.37	0.02	0.01	0.06	0.02	0.32	0.00	55.14
Cohasset A-52	2167.31	104	Fe-calcite	0.10	0.00	0.02	0.00	1.80	0.20	0.44	53.97	0.01	0.04	0.09	0.01	0.33	0.00	57.00
Cohasset A-52	2167.31	105	Fe-calcite	0.18	0.00	0.01	0.00	2.59	0.26	0.60	47.75	0.02	0.03	0.07	0.00	0.06	0.00	51.57
Cohasset A-52	2167.31	106	siderite	0.17	0.05	0.02	0.06	40.97	0.97	4.85	7.02	0.07	0.03	0.19	0.06	0.00	0.08	54.54
Cohasset A-52	2167.31	107	siderite	0.16	0.05	0.03	0.07	42.28	0.94	4.91	6.20	0.11	0.03	0.33	0.05	0.00	0.06	55.21
Cohasset A-52	2167.31	108	siderite	0.20	0.00	0.03	0.06	41.33	0.96	4.59	6.68	0.09	0.04	0.24	0.05	0.00	0.07	54.33
Cohasset A-52	2167.31	109	Fe-calcite	0.13	0.00	0.01	0.01	2.80	0.32	0.66	49.58	0.01	0.03	0.05	0.02	0.09	0.00	53.70
Cohasset A-52	2167.31	110	Fe-calcite	0.03	0.00	0.01	0.00	1.35	0.14	0.29	57.31	0.01	0.02	0.04	0.00	0.41	0.00	59.60
Cohasset A-52	2167.31	111	siderite	0.12	0.03	0.00	0.09	40.92	0.89	4.70	7.01	0.07	0.02	0.28	0.04	0.00	0.03	54.21
Cohasset A-52	2167.31	112	Fe-calcite	0.09	0.00	0.00	0.00	2.45	0.21	0.62	45.84	0.00	0.02	0.04	0.00	0.15	0.00	49.42
Cohasset A-52	2167.31	113	Fe-calcite	0.09	0.00	0.00	0.01	2.42	0.22	0.55	51.63	0.02	0.02	0.05	0.01	0.25	0.00	55.28
Cohasset A-52	2167.31	114	Fe-calcite	0.05	0.00	0.01	0.00	2.34	0.21	0.53	52.61	0.00	0.03	0.06	0.00	0.28	0.00	56.11
Cohasset A-52	2167.31	115	Fe-calcite	0.13	0.00	0.00	0.00	2.23	0.28	0.57	46.35	0.01	0.02	0.04	0.00	0.03	0.00	49.65
Cohasset A-52	2167.31	116	Fe-calcite	0.06	0.00	0.02	0.00	2.52	0.24	0.59	51.10	0.00	0.03	0.05	0.00	0.35	0.00	54.94
Cohasset A-52	2167.31	11	Fe-calcite	0.07	0.00	0.00	0.00	2.91	0.29	0.73	53.55	0.00	0.03	0.07	0.00	0.17	0.00	57.82
Cohasset A-52	2167.31	12	Fe-calcite	0.30	0.00	0.00	0.00	1.65	0.15	0.37	55.02	0.00	0.02	0.05	0.00	0.26	0.00	57.82
Cohasset A-52	2167.31	13	Fe-calcite	0.09	0.00	0.00	0.00	2.34	0.25	0.64	52.48	0.00	0.06	0.06	0.00	0.05	0.00	55.97
Cohasset A-52	2167.31	14	Fe-calcite	0.09	0.00	0.00	0.00	2.43	0.26	0.62	48.96	0.01	0.03	0.06	0.00	0.08	0.00	52.55
Cohasset A-52	2167.31	15	Fe-calcite	0.08	0.00	0.00	0.00	2.57	0.28	0.65	53.42	0.01	0.07	0.07	0.00	0.12	0.00	57.27
Cohasset A-52	2167.31	16	Fe-calcite	0.08	0.00	0.00	0.01	2.65	0.26	0.70	52.52	0.00	0.03	0.07	0.00	0.18	0.00	56.51
Cohasset A-52	2217.17	12	Fe-Mg-calcite	0.08	0.00	0.00	0.00	3.84	0.17	1.28	52.11	0.01	0.01	0.06	0.00	0.38	0.00	57.94
Cohasset A-52	2217.17	13	Fe-Mg-calcite	0.08	0.00	0.01	0.00	3.17	0.12	1.03	51.52	0.01	0.01	0.05	0.00	0.39	0.02	56.42
Cohasset A-52	2217.17	14	siderite	0.49	0.04	0.12	0.05	43.82	1.53	7.88	2.21	0.06	0.01	0.06	0.00	0.00	0.06	56.33
Cohasset A-52	2217.17	15	siderite	0.13	0.01	0.02	0.02	34.60	0.48	11.26	7.64	0.08	0.03	0.11	0.00	0.00	0.01	54.39
Cohasset A-52	2217.17	16	Fe-Mg-calcite	0.05	0.00	0.01	0.00	3.37	0.24	0.97	52.31	0.03	0.01	0.06	0.00	0.16	0.00	57.21
Cohasset A-52	2217.17	17	Fe-Mg-calcite	0.09	0.00	0.00	0.00	3.65	0.15	1.18	50.55	0.00	0.01	0.05	0.00	0.37	0.00	56.07
Cohasset A-52	2217.17	18	siderite	0.26	0.04	0.08	0.03	37.84	0.37	5.19	9.55	0.19	0.04	0.45	0.00	0.00	0.06	54.09

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2217.17	19	siderite	0.12	0.03	0.03	0.05	38.07	0.39	8.34	7.16	0.11	0.03	0.35	0.00	0.00	0.07	54.74
Cohasset A-52	2217.17	20	Fe-Mg-calcite	0.04	0.00	0.00	0.00	3.28	0.16	1.03	51.71	0.02	0.03	0.04	0.00	0.44	0.00	56.75
Cohasset A-52	2217.17	21	siderite	0.19	0.02	0.06	0.06	39.20	0.45	7.45	6.94	0.18	0.03	0.42	0.00	0.00	0.03	55.03
Cohasset A-52	2217.17	22	Fe-Mg-calcite	0.05	0.00	0.00	0.00	3.48	0.16	1.16	51.98	0.00	0.00	0.06	0.00	0.40	0.00	57.30
Cohasset A-52	2217.17	23	Fe-Mg-calcite	0.10	0.00	0.00	0.00	3.36	0.15	1.01	52.34	0.01	0.02	0.05	0.00	0.41	0.00	57.45
Cohasset A-52	2217.17	24	siderite	0.57	0.05	0.17	0.04	40.00	0.44	4.73	8.34	0.13	0.03	0.52	0.00	0.01	0.02	55.05
Cohasset A-52	2217.17	25	Fe-Mg-calcite	0.02	0.00	0.00	0.00	3.54	0.16	1.02	52.66	0.02	0.00	0.07	0.00	0.22	0.00	57.71
Cohasset A-52	2217.17	26	siderite	0.56	0.03	0.29	0.05	39.62	0.50	4.87	8.72	0.13	0.05	0.43	0.00	0.00	0.02	55.28
Cohasset A-52	2217.17	27	Fe-Mg-calcite	0.06	0.00	0.00	0.00	3.58	0.22	1.03	52.60	0.02	0.02	0.08	0.00	0.18	0.00	57.80
Cohasset A-52	2217.17	28	Fe-Mg-calcite	0.04	0.00	0.00	0.00	3.49	0.15	1.12	51.42	0.00	0.03	0.02	0.00	0.37	0.00	56.63
Cohasset A-52	2217.17	29	Fe-Mg-calcite	0.04	0.00	0.00	0.00	3.83	0.23	1.03	51.44	0.00	0.04	0.07	0.00	0.13	0.00	56.82
Cohasset A-52	2217.17	30	Fe-Mg-calcite	0.02	0.00	0.00	0.00	3.32	0.21	0.99	51.87	0.03	0.01	0.05	0.00	0.14	0.00	56.63
Cohasset A-52	2217.17	31	Fe-Mg-calcite	0.10	0.00	0.00	0.00	3.13	0.18	0.97	50.98	0.01	0.01	0.03	0.00	0.25	0.00	55.68
Cohasset A-52	2217.17	32	siderite	0.53	0.00	0.19	0.00	39.47	0.45	4.96	8.84	0.13	0.03	0.44	0.02	0.00	0.03	55.09
Cohasset A-52	2217.17	33	Fe-Mg-calcite	0.12	0.00	0.01	0.00	3.41	0.19	0.98	51.31	0.04	0.01	0.03	0.00	0.13	0.00	56.23
Cohasset A-52	2217.17	34	siderite	0.49	0.00	0.26	0.01	41.36	0.45	9.87	3.61	0.10	0.08	0.05	0.02	0.00	0.00	56.29
Cohasset A-52	2217.17	35	Fe-Mg-calcite	0.06	0.00	0.01	0.00	3.58	0.19	1.04	51.09	0.04	0.01	0.09	0.01	0.19	0.00	56.32
Cohasset A-52	2217.17	36	Fe-Mg-calcite	0.10	0.00	0.00	0.00	3.28	0.13	0.97	51.01	0.04	0.01	0.09	0.01	0.08	0.00	55.72
Cohasset A-52	2217.17	37	Fe-Mg-calcite	0.10	0.00	0.03	0.00	3.30	0.16	0.99	51.41	0.03	0.01	0.05	0.00	0.13	0.00	56.20
Cohasset A-52	2217.17	38	siderite	0.45	0.00	0.08	0.02	37.92	0.39	7.13	7.67	0.18	0.04	0.38	0.02	0.00	0.00	54.27
Cohasset A-52	2217.17	39	Fe-Mg-calcite	0.10	0.00	0.02	0.00	3.61	0.16	1.13	51.11	0.01	0.02	0.03	0.00	0.31	0.00	56.49
Cohasset A-52	2217.17	40	Fe-Mg-calcite	0.04	0.00	0.00	0.01	3.56	0.17	1.10	49.93	0.00	0.03	0.03	0.00	0.29	0.00	55.15
Cohasset A-52	2217.17	41	Fe-Mg-calcite	0.05	0.01	0.01	0.01	3.52	0.19	1.08	49.89	0.00	0.03	0.02	0.00	0.38	0.00	55.21
Cohasset A-52	2217.17	42	Fe-Mg-calcite	0.04	0.01	0.00	0.01	3.51	0.19	1.05	50.32	0.02	0.01	0.05	0.00	0.24	0.00	55.47
Cohasset A-52	2217.17	43	siderite	0.35	0.00	0.12	0.01	40.03	0.36	5.39	7.70	0.19	0.03	0.52	0.00	0.00	0.00	54.69
Cohasset A-52	2217.17	44	Fe-Mg-calcite	0.03	0.00	0.00	0.00	3.70	0.24	0.96	50.23	0.00	0.04	0.08	0.00	0.14	0.00	55.42
Cohasset A-52	2217.17	45	siderite	0.47	0.11	0.23	0.01	36.46	0.57	10.10	6.79	0.09	0.08	0.20	0.00	0.00	0.08	55.19
Cohasset A-52	2217.17	46	Fe-Mg-calcite	0.08	0.00	0.02	0.00	3.34	0.27	0.97	51.36	0.00	0.03	0.05	0.01	0.14	0.00	56.28
Cohasset A-52	2217.17	48	Fe-Mg-calcite	0.04	0.00	0.00	0.00	3.67	0.19	1.15	50.63	0.01	0.02	0.03	0.00	0.33	0.06	56.13
Cohasset A-52	2217.17	49	siderite	0.41	0.03	0.26	0.04	39.23	0.47	10.13	4.96	0.07	0.03	0.13	0.00	0.00	0.06	55.83
Cohasset A-52	2217.17	50	Fe-Mg-calcite	0.08	0.00	0.01	0.00	3.60	0.19	1.18	50.17	0.01	0.03	0.06	0.00	0.40	0.00	55.73
Cohasset A-52	2217.17	51	siderite	0.28	0.05	0.10	0.04	39.74	0.41	6.97	6.55	0.18	0.02	0.63	0.00	0.00	0.09	55.06
Cohasset A-52	2217.17	52	Fe-Mg-calcite	0.03	0.00	0.03	0.00	3.44	0.21	1.11	50.19	0.00	0.01	0.06	0.00	0.28	0.00	55.35
Cohasset A-52	2217.17	53	Fe-Mg-calcite	0.06	0.00	0.01	0.00	3.63	0.18	1.23	50.64	0.03	0.06	0.05	0.00	0.33	0.00	56.22
Cohasset A-52	2217.17	54	siderite	0.72	0.04	0.41	0.02	35.31	0.78	4.18	11.97	0.13	0.17	0.27	0.00	0.00	0.11	54.12
Cohasset A-52	2217.17	55	Fe-Mg-calcite	0.05	0.00	0.01	0.00	3.33	0.23	1.00	51.04	0.02	0.03	0.06	0.00	0.16	0.00	55.93

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2217.17	56	Fe-Mg-calcite	0.03	0.00	0.03	0.00	3.30	0.15	1.11	50.79	0.01	0.02	0.03	0.00	0.32	0.00	55.80
Cohasset A-52	2217.17	57	Fe-calcite	0.15	0.00	0.01	0.00	2.79	0.15	0.85	50.63	0.02	0.01	0.07	0.01	0.38	0.00	55.07
Cohasset A-52	2217.17	58	siderite	0.21	0.02	0.07	0.03	37.16	0.43	6.15	9.10	0.13	0.02	0.42	0.01	0.00	0.07	53.83
Cohasset A-52	2217.17	59	Fe-Mg-calcite	0.10	0.00	0.03	0.00	3.21	0.15	1.05	51.13	0.01	0.02	0.05	0.00	0.39	0.00	56.14
Cohasset A-52	2217.17	60	siderite	0.22	0.06	0.17	0.05	39.38	0.38	4.73	8.74	0.16	0.04	0.54	0.02	0.01	0.12	54.61
Cohasset A-52	2217.17	61	Fe-calcite	0.06	0.00	0.01	0.00	2.43	0.16	0.66	51.03	0.01	0.02	0.07	0.00	0.31	0.00	54.76
Cohasset A-52	2230.38	62	Fe-calcite	0.02	0.03	0.00	0.00	2.39	0.22	0.53	56.39	0.00	0.01	0.05	0.00	0.31	0.00	59.95
Cohasset A-52	2230.38	63	siderite	0.05	0.09	0.01	0.03	41.95	0.53	5.06	6.20	0.06	0.03	0.51	0.00	0.00	0.05	54.57
Cohasset A-52	2230.38	64	Fe-calcite	0.01	0.00	0.01	0.00	1.83	0.23	0.39	54.86	0.00	0.02	0.01	0.00	0.34	0.00	57.69
Cohasset A-52	2230.38	65	siderite	0.05	0.03	0.03	0.02	41.90	0.39	5.23	5.85	0.11	0.03	0.55	0.00	0.00	0.03	54.22
Cohasset A-52	2230.38	66	Fe-calcite	0.02	0.06	0.00	0.00	2.64	0.35	0.64	53.89	0.03	0.03	0.05	0.00	0.15	0.00	57.87
Cohasset A-52	2230.38	67	Fe-calcite	0.02	0.00	0.01	0.00	2.87	0.32	0.62	53.59	0.00	0.01	0.02	0.00	0.35	0.00	57.83
Cohasset A-52	2230.38	68	siderite	0.03	0.06	0.03	0.04	41.87	0.38	5.12	5.84	0.05	0.01	0.54	0.00	0.00	0.08	54.03
Cohasset A-52	2230.38	69	Fe-calcite	0.02	0.00	0.03	0.00	1.95	0.19	0.38	55.65	0.00	0.02	0.02	0.00	0.36	0.00	58.62
Cohasset A-52	2230.38	70	Fe-calcite	0.05	0.00	0.03	0.00	2.70	0.35	0.63	54.27	0.01	0.02	0.03	0.00	0.08	0.00	58.16
Cohasset A-52	2230.38	71	siderite	0.18	0.07	0.00	0.02	41.06	0.81	5.02	7.19	0.08	0.03	0.13	0.01	0.00	0.03	54.64
Cohasset A-52	2230.38	72	Fe-calcite	0.13	0.00	0.01	0.00	1.65	0.20	0.34	55.17	0.01	0.01	0.04	0.00	0.39	0.00	57.96
Cohasset A-52	2230.38	73	Fe-calcite	0.08	0.02	0.02	0.00	2.87	0.29	0.60	53.19	0.00	0.02	0.03	0.00	0.36	0.00	57.48
Cohasset A-52	2230.38	74	Fe-calcite	0.07	0.01	0.00	0.00	2.06	0.26	0.51	54.40	0.00	0.02	0.03	0.00	0.26	0.00	57.60
Cohasset A-52	2230.38	75	siderite	0.08	0.06	0.01	0.03	42.48	0.40	5.00	5.72	0.09	0.03	0.62	0.00	0.00	0.05	54.55
Cohasset A-52	2230.38	76	siderite	0.08	0.04	0.03	0.02	41.99	0.58	5.15	5.94	0.08	0.02	0.44	0.00	0.00	0.04	54.42
Cohasset A-52	2230.38	77	Fe-calcite	0.17	0.03	0.02	0.00	1.16	0.13	0.23	55.29	0.02	0.01	0.05	0.00	0.40	0.00	57.52
Cohasset A-52	2230.38	78	Fe-calcite	0.02	0.01	0.02	0.00	2.57	0.37	0.64	54.08	0.01	0.02	0.02	0.00	0.06	0.00	57.81
Cohasset A-52	2230.38	79	Fe-calcite	0.12	0.00	0.00	0.00	2.14	0.25	0.47	56.33	0.03	0.03	0.04	0.00	0.35	0.03	59.78
Cohasset A-52	2230.38	80	Fe-calcite	0.03	0.00	0.02	0.00	1.79	0.21	0.37	54.73	0.01	0.02	0.07	0.00	0.36	0.00	57.61
Cohasset A-52	2230.38	81	Fe-calcite	0.03	0.00	0.01	0.00	2.78	0.38	0.68	53.47	0.00	0.01	0.07	0.00	0.17	0.02	57.62
Cohasset A-52	2230.38	82	Fe-calcite	0.16	0.01	0.06	0.00	1.34	0.28	0.24	54.26	0.00	0.05	0.07	0.00	0.05	0.00	56.51
Cohasset A-52	2230.38	83	siderite	0.12	0.05	0.03	0.03	42.19	0.67	5.37	6.01	0.08	0.03	0.25	0.00	0.00	0.07	54.90
Cohasset A-52	2230.38	84	Fe-calcite	0.03	0.00	0.00	0.00	2.74	0.38	0.67	53.86	0.01	0.03	0.05	0.00	0.06	0.00	57.84
Cohasset A-52	2230.38	85	Fe-calcite	0.05	0.01	0.01	0.00	2.35	0.24	0.51	53.67	0.00	0.02	0.03	0.00	0.36	0.00	57.25
Cohasset A-52	2230.38	86	siderite	0.06	0.04	0.01	0.04	41.80	0.55	5.03	6.52	0.09	0.02	0.45	0.01	0.00	0.06	54.68
Cohasset A-52	2230.38	87	siderite	0.17	0.05	0.06	0.05	41.41	0.63	5.39	6.13	0.08	0.05	0.37	0.00	0.00	0.07	54.45
Cohasset A-52	2230.38	88	Fe-calcite	0.01	0.00	0.00	0.00	2.11	0.26	0.54	54.54	0.01	0.02	0.04	0.00	0.21	0.00	57.74
Cohasset A-52	2230.38	89	Fe-calcite	0.14	0.00	0.02	0.01	2.54	0.31	0.64	53.06	0.01	0.02	0.06	0.00	0.24	0.02	57.08
Cohasset A-52	2230.38	90	Fe-calcite	0.03	0.01	0.01	0.00	1.90	0.22	0.37	54.43	0.00	0.03	0.05	0.00	0.35	0.03	57.41
Cohasset A-52	2230.38	91	siderite	0.42	0.07	0.13	0.05	39.29	0.92	5.01	7.52	0.09	0.04	0.08	0.00	0.00	0.08	53.69

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2230.38	92	Fe-calcite	0.67	85.70	2.67	0.22	1.02	0.05	0.08	0.76	0.47	0.15	0.52	0.02	0.07	1.30	93.70
Cohasset A-52	2230.38	93	Fe-calcite	0.04	0.08	0.01	0.00	1.59	0.22	0.35	55.50	0.01	0.01	0.05	0.00	0.24	0.01	58.11
Cohasset A-52	2230.38	94	Fe-calcite	0.13	0.01	0.03	0.00	1.68	0.18	0.34	54.75	0.01	0.02	0.05	0.00	0.35	0.00	57.55
Cohasset A-52	2230.38	95	Fe-calcite	0.09	0.10	0.01	0.00	2.03	0.22	0.45	54.06	0.01	0.03	0.06	0.00	0.33	0.00	57.38
Cohasset A-52	2230.38	96	Fe-calcite	0.09	0.10	0.03	0.01	2.53	0.26	0.55	52.28	0.01	0.06	0.04	0.00	0.35	0.02	56.31
Cohasset A-52	2230.38	97	siderite	0.42	0.09	0.06	0.06	45.02	0.57	4.58	5.46	0.19	0.10	0.58	0.04	0.00	0.09	57.25
Cohasset A-52	2230.38	98	siderite	0.12	0.06	0.03	0.06	42.73	0.50	4.58	5.54	0.10	0.03	0.64	0.01	0.00	0.06	54.46
Cohasset A-52	2230.38	99	Fe-calcite	0.44	0.06	0.06	0.00	2.87	0.34	0.65	54.17	0.02	0.04	0.03	0.00	0.12	0.00	58.80
Cohasset A-52	2230.38	100	Fe-calcite	0.28	0.03	0.11	0.00	1.45	0.26	0.30	54.57	0.02	0.10	0.03	0.00	0.09	0.00	57.25
Cohasset A-52	2230.38	101	Fe-calcite	0.03	0.02	0.02	0.00	1.76	0.24	0.38	54.33	0.02	0.03	0.00	0.00	0.33	0.00	57.15
Cohasset A-52	2230.38	102	siderite	0.05	0.07	0.00	0.06	41.77	0.55	5.13	6.04	0.08	0.02	0.48	0.00	0.00	0.07	54.34
Cohasset A-52	2230.38	103	Fe-calcite	0.05	0.00	0.00	0.00	2.65	0.29	0.55	52.73	0.01	0.03	0.03	0.00	0.31	0.00	56.66
Cohasset A-52	2230.38	104	Fe-calcite	0.04	0.03	0.01	0.00	2.11	0.25	0.47	53.97	0.02	0.02	0.01	0.00	0.34	0.00	57.26
Cohasset A-52	2230.38	105	Fe-calcite	0.07	0.02	0.01	0.00	2.72	0.32	0.52	52.92	0.01	0.04	0.03	0.00	0.35	0.02	57.04
Cohasset A-52	2230.38	106	siderite	0.14	0.05	0.00	0.05	41.28	0.75	5.16	6.60	0.06	0.03	0.08	0.00	0.00	0.06	54.28
Cohasset A-52	2230.38	107	Fe-calcite	0.03	0.02	0.00	0.00	1.93	0.25	0.45	53.00	0.02	0.02	0.00	0.00	0.29	0.00	56.02
Cohasset A-52	2230.38	108	Fe-calcite	0.04	0.02	0.00	0.00	2.64	0.30	0.55	52.70	0.02	0.02	0.02	0.00	0.35	0.00	56.67
Cohasset A-52	2230.38	109	siderite	0.13	0.01	0.01	0.06	42.05	0.65	5.34	6.20	0.09	0.03	0.27	0.00	0.00	0.10	54.94
Cohasset A-52	2230.38	110	Fe-calcite	0.10	0.00	0.00	0.00	1.69	0.25	0.33	54.66	0.01	0.01	0.01	0.00	0.30	0.00	57.36
Cohasset A-52	2230.38	111	Fe-calcite	0.09	0.00	0.00	0.01	1.71	0.22	0.39	53.33	0.01	0.02	0.00	0.00	0.23	0.00	56.00
Cohasset A-52	2230.38	112	Fe-calcite	0.05	0.01	0.00	0.00	2.64	0.37	0.63	52.77	0.00	0.02	0.02	0.00	0.07	0.00	56.57
Cohasset A-52	2230.38	113	Fe-calcite	0.01	0.00	0.00	0.00	2.12	0.25	0.45	52.83	0.00	0.03	0.02	0.00	0.35	0.00	56.07
Cohasset A-52	2230.38	114	Fe-calcite	0.08	0.00	0.01	0.00	1.79	0.24	0.40	53.73	0.00	0.01	0.04	0.00	0.26	0.00	56.56
Cohasset A-52	2230.38	115	Fe-calcite	0.06	0.02	0.01	0.00	1.80	0.30	0.40	54.36	0.02	0.04	0.02	0.00	0.27	0.00	57.28
Cohasset A-52	2230.38	116	siderite	0.23	0.07	0.03	0.05	42.30	0.42	5.01	5.47	0.11	0.06	0.62	0.00	0.00	0.07	54.44
Cohasset A-52	2230.38	117	Fe-calcite	0.04	0.04	0.00	0.00	1.87	0.25	0.41	54.21	0.00	0.02	0.01	0.00	0.32	0.00	57.19
Cohasset A-52	2230.38	118	siderite	0.12	0.05	0.02	0.04	41.44	0.59	5.14	6.18	0.06	0.03	0.37	0.00	0.00	0.09	54.12
Cohasset A-52	2338.92	17	siderite	0.23	0.03	0.02	0.05	38.59	0.36	6.20	8.08	0.11	0.05	0.12	0.00	0.00	0.04	53.88
Cohasset A-52	2338.92	18	siderite	0.30	0.02	0.04	0.05	39.11	0.34	6.22	7.61	0.08	0.04	0.13	0.01	0.00	0.03	53.97
Cohasset A-52	2338.92	19	siderite	0.35	0.06	0.02	0.06	38.63	0.35	6.28	7.72	0.15	0.02	0.15	0.00	0.00	0.05	53.85
Cohasset A-52	2338.92	20	siderite	0.29	0.03	0.04	0.08	39.09	0.36	6.36	7.50	0.16	0.05	0.12	0.00	0.00	0.05	54.14
Cohasset A-52	2338.92	21	siderite	0.21	0.05	0.05	0.05	38.79	0.33	5.99	7.91	0.18	0.03	0.11	0.00	0.00	0.05	53.75
Cohasset A-52	2338.92	22	siderite	0.28	0.03	0.04	0.05	38.86	0.34	6.19	7.53	0.10	0.03	0.12	0.00	0.00	0.05	53.63
Cohasset A-52	2338.92	23	siderite	0.48	0.00	0.04	0.04	38.21	0.36	5.89	8.16	0.15	0.04	0.10	0.00	0.00	0.02	53.49
Cohasset A-52	2338.92	24	siderite	0.36	0.03	0.01	0.02	37.97	0.35	5.82	7.98	0.14	0.07	0.10	0.00	0.00	0.00	52.85
Cohasset A-52	2338.92	25	siderite	0.17	0.03	0.03	0.05	38.84	0.34	6.55	7.44	0.08	0.05	0.09	0.00	0.00	0.00	53.66

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2338.92	26	siderite	0.17	0.05	0.04	0.04	38.88	0.31	6.49	7.52	0.12	0.03	0.11	0.00	0.00	0.07	53.83
Cohasset A-52	2338.92	27	siderite	0.25	0.01	0.04	0.01	38.28	0.33	5.92	7.77	0.15	0.06	0.07	0.00	0.00	0.00	52.88
Cohasset A-52	2338.92	28	siderite	0.17	0.00	0.03	0.02	39.21	0.30	6.24	8.03	0.13	0.02	0.08	0.02	0.00	0.01	54.26
Cohasset A-52	2338.92	29	siderite	0.25	0.00	0.03	0.02	39.69	0.32	6.64	6.67	0.12	0.04	0.10	0.00	0.00	0.01	53.88
Cohasset A-52	2338.92	30	siderite	0.19	0.00	0.05	0.00	38.10	0.28	6.08	7.72	0.12	0.03	0.05	0.00	0.00	0.00	52.61
Cohasset A-52	2338.92	31	siderite	0.18	0.00	0.03	0.02	39.00	0.33	6.13	7.85	0.14	0.09	0.09	0.00	0.00	0.00	53.87
Cohasset A-52	2338.92	32	siderite	0.38	0.00	0.07	0.00	37.59	0.32	6.09	7.58	0.16	0.05	0.07	0.00	0.04	0.00	52.35
Cohasset A-52	2338.92	33	siderite	0.20	0.03	0.07	0.00	39.29	0.31	6.52	7.22	0.10	0.01	0.10	0.00	0.00	0.02	53.88
Cohasset A-52	2338.92	34	siderite	0.17	0.01	0.05	0.02	38.93	0.30	6.36	7.44	0.10	0.02	0.06	0.00	0.00	0.03	53.48
Cohasset A-52	2338.92	35	siderite	0.28	0.00	0.15	0.02	41.00	0.37	5.37	6.87	0.26	0.06	0.22	0.01	0.01	0.00	54.62
Cohasset A-52	2338.92	36	siderite	0.10	0.00	0.06	0.01	39.04	0.31	6.36	7.56	0.10	0.02	0.06	0.00	0.00	0.00	53.63
Cohasset A-52	2338.92	37	siderite	0.20	0.00	0.04	0.02	38.69	0.31	6.06	8.16	0.10	0.03	0.06	0.01	0.00	0.03	53.73
Cohasset A-52	2338.92	38	siderite	0.14	0.00	0.04	0.01	38.96	0.30	6.24	7.66	0.10	0.05	0.07	0.00	0.00	0.00	53.56
Cohasset A-52	2338.92	39	siderite	0.24	0.00	0.04	0.01	39.39	0.31	6.42	7.47	0.10	0.03	0.10	0.00	0.00	0.00	54.11
Cohasset A-52	2343.79	133	Fe-calcite	0.13	0.00	0.01	0.00	2.41	0.03	0.66	52.21	0.02	0.02	0.04	0.00	0.44	0.00	55.96
Cohasset A-52	2343.79	134	Fe-calcite	0.14	0.00	0.00	0.00	2.07	0.02	0.61	51.53	0.01	0.06	0.08	0.00	0.49	0.00	55.01
Cohasset A-52	2343.79	135	Fe-calcite	0.20	0.00	0.01	0.00	1.70	0.00	0.48	52.15	0.02	0.15	0.08	0.00	0.46	0.00	55.26
Cohasset A-52	2343.79	136	Fe-calcite	0.08	0.00	0.00	0.00	2.58	0.06	0.78	51.46	0.01	0.03	0.05	0.00	0.21	0.00	55.26
Cohasset A-52	2343.79	137	Fe-calcite	0.11	0.00	0.00	0.00	2.63	0.04	0.81	51.26	0.02	0.03	0.05	0.00	0.21	0.00	55.18
Cohasset A-52	2343.79	138	Fe-calcite	0.18	0.00	0.01	0.00	2.78	0.03	0.76	50.46	0.00	0.03	0.10	0.00	0.47	0.00	54.82
Cohasset A-52	2343.79	139	Fe-calcite	0.08	0.00	0.00	0.00	2.51	0.03	0.76	51.27	0.04	0.03	0.08	0.00	0.24	0.00	55.04
Cohasset A-52	2343.79	140	Fe-calcite	0.10	0.00	0.01	0.00	2.44	0.04	0.72	51.63	0.04	0.02	0.07	0.00	0.14	0.00	55.20
Cohasset A-52	2343.79	141	Fe-calcite	0.11	0.00	0.01	0.00	2.45	0.05	0.73	51.81	0.02	0.02	0.06	0.00	0.19	0.00	55.44
Cohasset A-52	2343.79	142	Fe-calcite	0.05	0.00	0.00	0.01	2.27	0.08	0.58	53.89	0.04	0.03	0.03	0.03	0.57	0.02	57.61
Cohasset A-52	2343.79	143	Fe-calcite	0.00	0.00	0.00	0.00	2.51	0.07	0.77	51.16	0.05	0.02	0.06	0.01	0.23	0.00	54.89
Cohasset A-52	2343.79	144	Fe-calcite	0.05	0.00	0.00	0.00	2.65	0.09	0.80	50.42	0.03	0.04	0.03	0.00	0.44	0.00	54.56
Cohasset A-52	2343.79	145	Fe-calcite	0.00	0.00	0.00	0.00	2.42	0.06	0.76	50.74	0.01	0.02	0.04	0.00	0.39	0.00	54.45
Cohasset A-52	2343.79	146	Fe-calcite	0.03	0.00	0.00	0.00	2.46	0.09	0.76	51.09	0.01	0.02	0.02	0.00	0.18	0.00	54.66
Cohasset A-52	2343.79	147	siderite	1.10	0.00	0.41	0.05	41.21	0.55	6.69	6.21	0.09	0.05	0.05	0.02	0.00	0.09	56.53
Cohasset A-52	2343.79	148	Fe-calcite	0.00	0.00	0.00	0.00	2.62	0.07	0.74	50.66	0.01	0.03	0.05	0.00	0.41	0.00	54.57
Cohasset A-52	2343.79	149	siderite	0.18	0.02	0.01	0.05	41.53	0.59	6.13	6.97	0.09	0.03	0.03	0.04	0.00	0.04	55.71
Cohasset A-52	2343.79	150	siderite	0.30	0.01	0.03	0.04	40.22	0.47	6.84	7.05	0.09	0.04	0.04	0.01	0.00	0.07	55.21
Cohasset A-52	2343.79	151	Fe-calcite	0.00	0.00	0.00	0.00	2.72	0.09	0.86	50.93	0.01	0.03	0.03	0.03	0.34	0.00	55.04
Cohasset A-52	2343.79	152	Fe-calcite	0.01	0.00	0.00	0.00	1.82	0.06	0.51	52.46	0.03	0.07	0.04	0.04	0.34	0.01	55.39
Cohasset A-52	2343.79	153	Fe-calcite	0.00	0.00	0.00	0.00	2.49	0.07	0.76	49.35	0.03	0.02	0.05	0.00	0.14	0.00	52.92
Cohasset A-52	2343.79	154	Fe-calcite	0.00	0.00	0.00	0.00	2.60	0.06	0.77	48.52	0.00	0.00	0.04	0.00	0.36	0.00	52.35

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2343.79	155	siderite	1.75	0.09	0.63	0.06	47.57	0.65	4.56	5.46	0.21	0.06	0.19	0.04	0.00	0.12	61.39
Cohasset A-52	2343.79	156	siderite	0.07	0.03	0.01	0.05	39.50	0.25	6.12	9.18	0.10	0.00	0.26	0.00	0.00	0.07	55.64
Cohasset A-52	2343.79	157	siderite	0.53	0.02	0.27	0.03	41.45	0.41	7.56	6.14	0.07	0.04	0.05	0.00	0.00	0.01	56.57
Cohasset A-52	2343.79	158	Fe-calcite	0.09	0.00	0.00	0.00	2.39	0.10	0.77	49.29	0.03	0.03	0.04	0.00	0.18	0.00	52.91
Cohasset A-52	2343.79	159	Fe-calcite	0.00	0.00	0.00	0.00	2.12	0.08	0.62	49.73	0.02	0.02	0.06	0.00	0.45	0.00	53.09
Cohasset A-52	2343.79	160	Fe-calcite	0.00	0.00	0.00	0.00	1.73	0.04	0.43	50.26	0.01	0.03	0.03	0.00	0.41	0.00	52.95
Cohasset A-52	2343.79	161	siderite	0.71	0.01	0.26	0.05	41.52	0.94	5.53	6.80	0.10	0.15	0.05	0.01	0.00	0.08	56.24
Cohasset A-52	2343.79	162	siderite	1.13	0.02	0.59	0.02	42.12	0.52	7.19	5.67	0.14	0.10	0.09	0.00	0.00	0.00	57.59
Cohasset A-52	2343.79	163	siderite	0.15	0.00	0.05	0.02	39.82	0.27	6.14	8.01	0.15	0.10	0.29	0.00	0.00	0.00	54.99
Cohasset A-52	2343.79	164	Fe-calcite	0.11	0.00	0.00	0.00	1.53	0.01	0.42	51.18	0.02	0.01	0.02	0.00	0.54	0.00	53.85
Cohasset A-52	2343.79	165	Fe-calcite	0.13	0.00	0.00	0.00	2.13	0.02	0.65	49.72	0.03	0.02	0.05	0.00	0.12	0.00	52.87
Cohasset A-52	2343.79	166	Fe-calcite	0.08	0.00	0.00	0.00	1.43	0.00	0.39	50.04	0.03	0.01	0.05	0.00	0.55	0.00	52.59
Cohasset A-52	2353.98	46	Fe-calcite	0.00	0.00	0.01	0.00	2.00	0.30	0.53	55.50	0.03	0.02	0.03	0.00	0.08	0.00	58.49
Cohasset A-52	2353.98	47	Fe-calcite	0.02	0.00	0.00	0.00	1.84	0.24	0.39	54.94	0.01	0.02	0.02	0.00	0.32	0.01	57.81
Cohasset A-52	2353.98	48	Fe-calcite	0.01	0.00	0.03	0.00	1.49	0.22	0.31	54.16	0.01	0.02	0.05	0.00	0.37	0.00	56.67
Cohasset A-52	2353.98	49	calcite	0.06	0.00	0.03	0.00	0.13	0.02	0.01	55.29	0.01	0.16	0.02	0.00	0.49	0.00	56.22
Cohasset A-52	2353.98	50	calcite	0.00	0.00	0.01	0.00	0.59	0.09	0.09	55.73	0.01	0.01	0.03	0.00	0.44	0.04	57.04
Cohasset A-52	2353.98	51	Fe-calcite	0.00	0.00	0.00	0.00	1.14	0.15	0.26	54.88	0.00	0.02	0.05	0.00	0.33	0.00	56.83
Cohasset A-52	2353.98	52	Fe-calcite	0.00	0.00	0.00	0.00	2.10	0.33	0.56	55.11	0.01	0.02	0.02	0.00	0.06	0.03	58.24
Cohasset A-52	2353.98	53	Fe-calcite	0.01	0.02	0.00	0.00	1.94	0.33	0.50	55.08	0.02	0.02	0.02	0.00	0.04	0.01	58.00
Cohasset A-52	2353.98	54	Fe-calcite	0.04	0.00	0.00	0.00	2.06	0.30	0.55	53.53	0.00	0.01	0.02	0.00	0.08	0.00	56.60
Cohasset A-52	2353.98	55	Fe-calcite	0.00	0.00	0.00	0.00	1.86	0.25	0.44	56.20	0.01	0.01	0.02	0.00	0.31	0.00	59.10
Cohasset A-52	2353.98	56	Fe-calcite	0.00	0.00	0.02	0.00	1.88	0.30	0.49	55.37	0.00	0.01	0.02	0.00	0.07	0.00	58.16
Cohasset A-52	2353.98	57	Fe-calcite	0.01	0.00	0.00	0.00	2.05	0.30	0.54	54.98	0.01	0.02	0.02	0.00	0.08	0.00	58.01
Cohasset A-52	2353.98	58	Fe-calcite	0.00	0.00	0.00	0.00	2.16	0.23	0.47	54.69	0.00	0.01	0.04	0.00	0.32	0.00	57.92
Cohasset A-52	2353.98	59	Fe-calcite	0.00	0.00	0.01	0.00	1.61	0.31	0.40	55.11	0.02	0.03	0.04	0.00	0.02	0.00	57.54
Cohasset A-52	2353.98	60	Fe-calcite	0.00	0.00	0.00	0.00	2.26	0.34	0.56	53.20	0.01	0.02	0.03	0.00	0.05	0.00	56.48
Cohasset A-52	2353.98	61	Fe-calcite	0.00	0.00	0.01	0.00	2.45	0.30	0.51	53.35	0.01	0.02	0.01	0.00	0.33	0.07	57.06
Cohasset A-52	2353.98	62	Fe-calcite	0.03	0.00	0.01	0.00	2.34	0.33	0.60	54.47	0.01	0.08	0.07	0.00	0.19	0.03	58.15
Cohasset A-52	2353.98	63	Fe-calcite	0.00	0.00	0.00	0.00	2.02	0.30	0.54	54.63	0.00	0.03	0.04	0.00	0.09	0.00	57.65
Cohasset A-52	2353.98	64	Fe-calcite	0.00	0.00	0.00	0.00	2.19	0.29	0.47	53.68	0.01	0.02	0.04	0.00	0.35	0.00	57.06
Cohasset A-52	2353.98	65	Fe-calcite	0.00	0.00	0.00	0.00	1.33	0.19	0.28	55.56	0.02	0.03	0.02	0.00	0.45	0.00	57.87
Cohasset A-52	2353.98	66	Fe-calcite	0.03	0.00	0.00	0.00	1.64	0.21	0.37	54.89	0.00	0.04	0.07	0.01	0.31	0.00	57.55
Cohasset A-52	2353.98	67	K-feldspar	65.90	0.00	17.94	0.00	0.01	0.00	0.01	0.07	0.07	13.30	0.00	0.00	0.00	0.00	97.30
Cohasset A-52	2353.98	68	K-feldspar	64.26	0.07	18.64	0.00	0.04	0.00	0.01	0.00	1.29	14.59	0.00	0.00	0.00	0.93	99.84
Cohasset A-52	2353.98	69	calcite	0.08	0.00	0.00	0.00	0.73	0.10	0.14	56.11	0.01	0.02	0.03	0.00	0.40	0.00	57.62

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2353.98	70	Fe-calcite	0.03	0.00	0.00	0.00	1.78	0.24	0.39	54.59	0.00	0.02	0.05	0.01	0.33	0.00	57.45
Cohasset A-52	2353.98	71	Fe-calcite	0.00	0.00	0.01	0.00	2.03	0.29	0.51	55.26	0.00	0.03	0.05	0.01	0.12	0.00	58.29
Cohasset A-52	2353.98	72	Fe-calcite	0.03	0.00	0.01	0.00	1.97	0.25	0.45	54.38	0.00	0.05	0.07	0.00	0.33	0.00	57.54
Cohasset A-52	2353.98	73	Fe-calcite	0.02	0.00	0.00	0.00	2.18	0.26	0.46	54.76	0.00	0.05	0.05	0.01	0.36	0.00	58.16
Cohasset A-52	2353.98	74	Fe-calcite	0.06	0.00	0.00	0.00	1.95	0.29	0.53	55.65	0.00	0.21	0.06	0.03	0.06	0.00	58.83
Cohasset A-52	2353.98	75	Fe-calcite	0.04	0.00	0.01	0.00	1.80	0.19	0.40	55.11	0.01	0.04	0.04	0.00	0.36	0.00	58.01
Cohasset A-52	2353.98	76	Fe-calcite	0.05	0.00	0.00	0.00	1.98	0.32	0.53	56.15	0.00	0.01	0.03	0.02	0.05	0.00	59.14
Cohasset A-52	2353.98	77	Fe-calcite	0.00	0.00	0.01	0.00	1.70	0.23	0.39	52.77	0.00	0.03	0.05	0.00	0.33	0.00	55.50
Cohasset A-52	2353.98	78	Fe-calcite	0.00	0.00	0.00	0.00	1.84	0.27	0.51	52.78	0.01	0.02	0.05	0.00	0.04	0.00	55.51
Cohasset A-52	2353.98	79	Fe-calcite	0.03	0.00	0.00	0.00	2.05	0.31	0.60	52.32	0.01	0.02	0.08	0.01	0.05	0.00	55.50
Cohasset A-52	2386.29	13	siderite	1.88	0.03	1.46	0.00	39.28	0.31	4.94	6.19	0.37	0.13	0.25	0.00	0.00	0.01	54.83
Cohasset A-52	2386.29	14	siderite	1.27	0.00	0.72	0.00	34.77	0.22	4.15	6.75	0.36	0.15	0.19	0.00	0.00	0.00	48.58
Cohasset A-52	2386.29	15	Fe-Mg-calcite	0.17	0.00	0.49	0.00	3.06	1.35	1.29	45.49	0.09	0.02	0.47	0.00	0.16	0.00	52.60
Cohasset A-52	2386.29	16	Fe-Mg-calcite	0.18	0.00	0.11	0.00	3.49	1.29	1.41	46.93	0.09	0.03	0.17	0.00	0.07	0.00	53.77
Cohasset A-52	2386.29	17	Fe-Mg-calcite	0.22	0.00	0.29	0.00	1.51	1.26	1.27	47.78	0.07	0.02	0.22	0.00	0.10	0.00	52.74
Cohasset A-52	2386.29	18	Fe-Mg-calcite	0.13	0.00	0.32	0.00	1.39	0.85	1.14	50.31	0.09	0.03	0.22	0.00	0.13	0.00	54.61
Cohasset A-52	2421.04	93	Fe-calcite	0.05	0.00	0.00	0.00	2.80	0.35	0.68	52.56	0.00	0.02	0.05	0.00	0.36	0.00	56.89
Cohasset A-52	2421.04	94	siderite + Qtz	35.07	2.52	2.51	0.07	30.74	0.30	4.13	1.62	0.05	0.69	0.01	0.00	0.10	0.06	77.85
Cohasset A-52	2421.04	95	Fe-calcite	0.03	0.00	0.02	0.01	2.71	0.26	0.78	52.53	0.02	0.03	0.04	0.01	0.48	0.01	56.94
Cohasset A-52	2421.04	96	Fe-calcite	0.02	0.00	0.00	0.02	2.80	0.29	0.76	50.77	0.01	0.03	0.01	0.00	0.28	0.00	55.00
Cohasset A-52	2421.04	97	pseudorutile	2.94	94.04	0.68	0.08	0.51	0.06	0.14	1.18	0.16	0.16	0.01	0.07	0.00	1.16	101.17
Cohasset A-52	2421.04	98	Mg-calcite (bioc)	0.00	0.00	0.00	0.00	0.05	0.01	1.50	48.20	0.27	0.03	0.01	0.00	0.04	0.00	50.11
Cohasset A-52	2421.04	99	Fe-calcite	0.03	0.00	0.00	0.00	1.96	0.26	0.49	52.22	0.00	0.05	0.07	0.00	0.36	0.00	55.44
Cohasset A-52	2421.04	100	Fe-calcite	0.00	0.00	0.00	0.00	3.08	0.34	0.85	51.66	0.01	0.02	0.04	0.00	0.19	0.00	56.19
Cohasset A-52	2421.04	101	siderite	0.03	0.03	0.00	0.05	42.76	1.75	9.48	3.55	0.01	0.04	0.04	0.00	0.00	0.07	57.82
Cohasset A-52	2421.04	102	Fe-calcite	0.57	0.00	0.34	0.00	2.93	0.18	0.74	50.51	0.01	0.04	0.01	0.01	0.44	0.00	55.77
Cohasset A-52	2421.04	103	Fe-calcite	0.00	0.00	0.00	0.00	3.53	0.55	0.76	50.61	0.02	0.00	0.12	0.03	0.09	0.01	55.73
Cohasset A-52	2421.04	104	siderite	0.03	0.07	0.01	0.08	43.04	2.62	9.46	2.94	0.00	0.02	0.00	0.04	0.00	0.09	58.41
Cohasset A-52	2421.04	105	calcite	0.08	0.00	0.01	0.01	0.72	0.38	0.11	54.29	0.03	0.05	0.03	0.00	0.00	0.02	55.73
Cohasset A-52	2421.04	106	siderite	0.03	0.08	0.00	0.06	43.28	1.92	9.39	3.45	0.00	0.04	0.00	0.01	0.00	0.06	58.31
Cohasset A-52	2421.04	107	Fe-calcite	0.00	0.02	0.00	0.00	2.73	0.30	0.63	51.78	0.01	0.02	0.02	0.01	0.40	0.00	55.89
Cohasset A-52	2421.04	108	Fe-calcite	0.00	0.00	0.00	0.00	2.92	0.30	0.68	52.94	0.00	0.03	0.03	0.00	0.34	0.00	57.24
Cohasset A-52	2421.04	109	siderite	1.53	0.08	0.38	0.06	43.06	1.38	9.07	3.39	0.08	0.17	0.03	0.01	0.00	0.09	59.33
Cohasset A-52	2421.04	110	Fe-calcite	0.01	0.04	0.00	0.01	3.32	0.19	0.98	52.09	0.04	0.09	0.06	0.00	0.12	0.00	56.95
Cohasset A-52	2421.04	111	siderite	1.97	0.23	0.50	0.05	40.97	0.46	9.04	5.48	0.29	0.17	0.09	0.00	0.00	0.10	59.35
Cohasset A-52	2421.04	112	Fe-calcite	0.03	0.04	0.00	0.00	2.98	0.32	0.83	51.73	0.00	0.02	0.07	0.00	0.17	0.02	56.21



Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2421.04	113	Fe-calcite	0.00	0.01	0.00	0.00	2.81	0.32	0.72	51.74	0.00	0.02	0.06	0.01	0.32	0.00	56.01
Cohasset A-52	2421.04	114	Fe-calcite	0.00	0.00	0.01	0.00	3.24	0.33	0.82	52.94	0.00	0.04	0.04	0.02	0.31	0.00	57.76
Cohasset A-52	2421.04	115	siderite + Qtz	10.97	0.05	3.10	0.06	35.22	0.92	5.28	6.05	0.03	2.86	0.05	0.01	0.00	0.07	64.68
Cohasset A-52	2421.04	116	siderite	0.01	0.08	0.01	0.08	41.18	0.46	10.18	5.26	0.01	0.03	0.01	0.03	0.00	0.08	57.42
Cohasset A-52	2421.04	117	Fe-calcite	0.01	0.02	0.00	0.00	3.00	0.43	0.78	50.62	0.02	0.01	0.02	0.01	0.22	0.00	55.14
Cohasset A-52	2421.04	118	siderite	2.30	0.07	0.93	0.07	44.59	1.67	8.10	2.45	0.40	0.06	0.02	0.04	0.00	0.06	60.75
Cohasset A-52	2421.04	119	Fe-calcite	0.00	0.01	0.00	0.00	2.86	0.34	0.73	50.49	0.00	0.01	0.06	0.00	0.31	0.00	54.81
Cohasset A-52	2421.04	120	siderite	3.39	0.10	1.24	0.06	44.35	1.56	8.10	2.00	1.15	0.02	0.00	0.03	0.00	0.09	62.09
Cohasset A-52	2421.04	121	siderite	6.91	0.08	2.35	0.05	39.27	0.45	8.43	4.00	0.97	0.39	0.00	0.02	0.00	0.06	62.98
Cohasset A-52	2421.04	122	siderite	1.87	0.13	1.27	0.00	42.22	0.78	9.17	4.15	0.10	0.12	0.03	0.00	0.00	0.00	59.86
Cohasset A-52	2421.04	123	Fe-calcite	0.06	0.00	0.00	0.00	2.61	0.32	0.67	50.73	0.02	0.02	0.05	0.00	0.30	0.00	54.79
Cohasset A-52	2421.04	124	Fe-calcite	0.41	0.00	0.19	0.00	2.76	0.42	0.67	50.12	0.03	0.04	0.07	0.00	0.33	0.00	55.04
Cohasset A-52	2421.04	125	Fe-calcite	0.08	0.00	0.01	0.00	1.00	0.56	0.22	53.92	0.02	0.06	0.03	0.00	0.01	0.00	55.92
Cohasset A-52	2421.04	126	siderite	0.12	0.02	0.01	0.00	44.64	1.43	9.12	2.61	0.03	0.04	0.03	0.00	0.00	0.00	58.05
Cohasset A-52	2421.04	127	Fe-calcite	0.03	0.00	0.00	0.00	2.87	0.25	0.84	51.05	0.04	0.03	0.08	0.00	0.25	0.00	55.43
Cohasset A-52	2421.04	128	Fe-calcite	0.08	0.00	0.00	0.00	2.60	0.29	0.67	51.24	0.02	0.03	0.03	0.00	0.37	0.00	55.33
Cohasset A-52	2421.04	129	Fe-calcite	0.05	0.00	0.01	0.00	2.58	0.31	0.58	53.03	0.03	0.03	0.05	0.00	0.35	0.00	57.02
Cohasset A-52	2421.04	130	siderite	1.02	0.11	0.54	0.00	41.24	1.45	6.76	7.01	0.08	0.10	0.06	0.01	0.00	0.03	58.39
Cohasset A-52	2421.04	131	Fe-calcite	0.07	0.00	0.00	0.00	2.63	0.24	0.66	52.29	0.01	0.02	0.08	0.00	0.40	0.00	56.41
Cohasset A-52	2421.04	132	Fe-calcite	0.05	0.00	0.01	0.00	2.60	0.36	0.72	52.46	0.02	0.03	0.07	0.00	0.31	0.00	56.61
Cohasset A-52	2440.04	39	Fe-calcite	0.03	0.01	0.00	0.00	2.42	0.19	0.58	51.94	0.03	0.03	0.05	0.02	0.32	0.00	55.61
Cohasset A-52	2440.04	40	Fe-calcite	0.06	0.02	0.02	0.00	2.16	0.17	0.59	51.33	0.04	0.03	0.04	0.02	0.28	0.02	54.77
Cohasset A-52	2440.04	41	Fe-calcite	0.12	0.03	0.00	0.00	2.19	0.17	0.58	51.10	0.05	0.05	0.05	0.04	0.34	0.02	54.73
Cohasset A-52	2440.04	42	Fe-calcite	0.04	0.03	0.00	0.00	2.32	0.18	0.61	50.97	0.03	0.03	0.05	0.00	0.33	0.00	54.60
Cohasset A-52	2440.04	43	Fe-calcite	0.02	0.00	0.00	0.00	2.20	0.18	0.56	52.56	0.04	0.03	0.04	0.02	0.34	0.00	56.00
Cohasset A-52	2440.04	44	Fe-calcite	1.26	0.02	0.88	0.00	1.89	0.17	0.51	49.83	0.02	0.06	0.04	0.00	0.30	0.00	54.98
Cohasset A-52	2440.04	45	Fe-calcite	0.06	0.00	0.00	0.01	2.29	0.20	0.59	51.31	0.02	0.03	0.04	0.01	0.30	0.00	54.85
Cohasset A-52	2440.04	46	Fe-calcite	0.00	0.01	0.00	0.00	1.39	0.13	0.35	51.49	0.00	0.04	0.03	0.03	0.32	0.00	53.80
Cohasset A-52	2440.04	47	Fe-calcite	0.04	0.00	0.00	0.00	2.19	0.20	0.53	52.52	0.00	0.05	0.06	0.01	0.33	0.00	55.92
Cohasset A-52	2440.04	48	Fe-calcite	0.31	0.00	0.17	0.00	1.98	0.19	0.50	51.90	0.01	0.08	0.05	0.00	0.31	0.00	55.50
Cohasset A-52	2440.04	49	Fe-calcite	0.07	0.00	0.01	0.00	2.27	0.20	0.58	51.84	0.00	0.06	0.05	0.00	0.33	0.00	55.40
Cohasset A-52	2440.04	50	Fe-calcite	0.06	0.00	0.00	0.00	2.39	0.19	0.62	50.86	0.00	0.03	0.08	0.02	0.29	0.00	54.54
Cohasset A-52	2440.04	51	Fe-calcite	0.03	0.00	0.00	0.00	2.20	0.20	0.56	53.47	0.01	0.04	0.04	0.02	0.23	0.02	56.81
Cohasset A-52	2440.04	53	Fe-calcite	0.04	0.01	0.00	0.00	2.38	0.18	0.65	52.48	0.00	0.01	0.02	0.00	0.34	0.00	56.13
Cohasset A-52	2440.04	54	Fe-calcite	0.03	0.01	0.01	0.00	2.24	0.17	0.55	52.08	0.00	0.02	0.06	0.00	0.32	0.00	55.48
Cohasset A-52	2440.04	55	Fe-calcite	0.02	0.00	0.01	0.03	2.11	0.17	0.69	52.18	0.00	0.02	0.04	0.00	0.11	0.01	55.39

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2440.04	56	Fe-calcite	0.11	0.00	0.02	0.01	2.37	0.19	0.63	52.15	0.00	0.03	0.07	0.00	0.30	0.00	55.87
Cohasset A-52	2440.04	57	Fe-calcite	2.34	0.00	0.62	0.00	1.76	0.13	0.46	48.02	0.04	0.46	0.02	0.00	0.29	0.00	54.15
Cohasset A-52	2440.04	58	Fe-calcite	0.05	0.00	0.00	0.00	2.37	0.19	0.63	53.64	0.00	0.02	0.02	0.00	0.29	0.00	57.22
Cohasset A-52	2440.04	59	Fe-calcite	0.11	0.00	0.00	0.00	2.65	0.20	0.71	51.74	0.00	0.03	0.02	0.00	0.39	0.00	55.85
Cohasset A-52	2440.04	60	Fe-calcite	0.05	0.00	0.00	0.00	2.23	0.17	0.59	53.12	0.00	0.03	0.04	0.00	0.31	0.00	56.54
Cohasset A-52	2440.04	61	Fe-calcite	0.09	0.00	0.01	0.00	2.34	0.18	0.65	52.27	0.00	0.32	0.03	0.00	0.28	0.00	56.18
Cohasset A-52	2440.04	62	Fe-calcite	0.12	0.00	0.00	0.00	2.55	0.19	0.65	54.08	0.01	0.02	0.05	0.00	0.37	0.00	58.04
Cohasset A-52	2440.04	63	Fe-calcite	0.72	0.00	0.28	0.00	2.20	0.16	0.57	52.63	0.02	0.07	0.05	0.00	0.27	0.00	56.96
Cohasset A-52	2440.04	64	Fe-calcite	0.15	0.00	0.03	0.00	2.32	0.20	0.58	52.49	0.02	0.02	0.04	0.00	0.39	0.00	56.23
Cohasset A-52	2440.04	65	Fe-calcite	1.20	0.00	0.62	0.01	2.20	0.19	0.61	49.64	0.02	0.07	0.04	0.00	0.33	0.00	54.91
Cohasset A-52	2440.04	66	Fe-calcite	0.21	0.00	0.01	0.00	2.35	0.18	0.64	51.39	0.02	0.03	0.05	0.00	0.28	0.00	55.16
Cohasset A-52	2440.04	67	Fe-calcite	0.10	0.00	0.01	0.01	2.53	0.19	0.72	49.90	0.02	0.02	0.03	0.00	0.41	0.00	53.95
Cohasset A-52	2440.04	68	Fe-calcite	0.17	0.00	0.00	0.00	2.33	0.19	0.66	52.64	0.03	0.04	0.04	0.00	0.36	0.00	56.45
Cohasset A-52	2440.04	69	Fe-calcite	0.08	0.00	0.00	0.00	2.61	0.18	0.70	52.52	0.01	0.02	0.03	0.00	0.34	0.00	56.50
Cohasset A-52	2440.04	70	Fe-calcite	0.07	0.00	0.00	0.02	2.78	0.21	0.76	50.86	0.02	0.02	0.04	0.00	0.35	0.02	55.15
Cohasset A-52	2440.04	71	Fe-calcite	0.06	0.00	0.00	0.00	2.24	0.19	0.64	52.86	0.03	0.03	0.05	0.00	0.26	0.00	56.36
Cohasset A-52	2440.04	72	Fe-calcite	0.08	0.00	0.00	0.01	2.29	0.22	0.64	51.96	0.02	0.03	0.03	0.00	0.30	0.00	55.58
Cohasset A-52	2440.04	73	Fe-calcite	0.07	0.00	0.00	0.01	2.54	0.17	0.69	52.20	0.03	0.09	0.01	0.00	0.33	0.00	56.14
Cohasset A-52	2440.04	74	Fe-calcite	0.02	0.00	0.01	0.00	2.19	0.15	0.62	53.17	0.01	0.06	0.03	0.00	0.44	0.00	56.69
Cohasset A-52	2440.04	75	Fe-calcite	0.10	0.00	0.00	0.00	2.59	0.18	0.69	52.34	0.02	0.04	0.04	0.00	0.36	0.00	56.35
Cohasset A-52	2440.04	76	Fe-calcite	0.06	0.00	0.00	0.01	2.42	0.17	0.64	51.78	0.02	0.03	0.03	0.00	0.29	0.00	55.46
Cohasset A-52	2440.04	77	Fe-calcite	0.12	0.00	0.01	0.02	2.68	0.20	0.75	51.78	0.02	0.13	0.03	0.00	0.36	0.00	56.09
Cohasset A-52	2440.04	78	Fe-calcite	0.07	0.00	0.01	0.00	2.43	0.20	0.69	52.03	0.01	0.03	0.02	0.00	0.28	0.00	55.77
Cohasset A-52	2440.04	79	Fe-calcite	0.59	0.00	0.49	0.00	2.45	0.20	0.71	51.19	0.03	0.08	0.07	0.00	0.28	0.00	56.08
Cohasset A-52	2440.04	80	Fe-calcite	0.08	0.00	0.00	0.00	2.28	0.19	0.63	52.84	0.02	0.03	0.03	0.00	0.32	0.00	56.41
Cohasset A-52	2440.04	81	chlorite ?	30.53	0.02	18.52	0.00	12.38	0.00	3.96	2.13	0.22	0.74	0.00	0.00	0.00	0.00	68.51
Cohasset A-52	2440.04	82	Fe-calcite	0.80	0.00	0.36	0.00	2.11	0.16	0.60	51.05	0.01	0.05	0.06	0.00	0.23	0.00	55.44
Cohasset A-52	2440.04	83	kaolinite	44.75	0.00	34.70	0.00	0.08	0.00	0.05	1.95	0.05	0.03	0.00	0.00	0.08	0.00	81.69
Cohasset A-52	2440.04	84	Fe-calcite	0.17	0.00	0.07	0.00	2.49	0.23	0.70	50.86	0.06	0.05	0.04	0.00	0.28	0.00	54.95
Cohasset A-52	2440.04	85	Fe-calcite	0.06	0.01	0.01	0.00	2.44	0.20	0.64	50.98	0.03	0.04	0.05	0.00	0.26	0.00	54.72
Cohasset A-52	2440.04	86	Fe-calcite	0.07	0.00	0.00	0.00	2.36	0.20	0.66	50.89	0.01	0.05	0.02	0.00	0.31	0.02	54.59
Cohasset A-52	2440.04	87	Fe-calcite	0.10	0.00	0.01	0.00	2.24	0.20	0.62	51.18	0.02	0.03	0.07	0.00	0.27	0.00	54.74
Cohasset A-52	2440.04	88	Fe-calcite	0.06	0.00	0.02	0.00	2.49	0.22	0.68	51.12	0.03	0.03	0.02	0.00	0.29	0.00	54.96
Cohasset A-52	2440.04	89	Fe-calcite	0.07	0.00	0.00	0.02	2.41	0.22	0.61	52.89	0.02	0.12	0.06	0.00	0.25	0.00	56.68
Cohasset A-52	2440.04	90	Fe-calcite	0.11	0.00	0.01	0.00	2.49	0.21	0.67	51.97	0.04	0.14	0.03	0.00	0.31	0.00	55.98
Cohasset A-52	2440.04	91	Fe-calcite	0.11	0.00	0.00	0.00	2.39	0.19	0.63	52.56	0.03	0.03	0.03	0.00	0.30	0.00	56.29

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2440.04	92	Fe-calcite	0.37	0.00	0.02	0.00	2.27	0.19	0.62	52.08	0.02	0.02	0.05	0.00	0.26	0.00	55.90
Cohasset A-52	2602.65	19	siderite	0.14	0.00	0.03	0.03	45.48	0.78	4.62	4.50	0.07	0.03	0.37	0.02	0.00	0.03	56.11
Cohasset A-52	2602.65	20	siderite	0.16	0.08	0.04	0.03	45.87	0.76	4.72	4.37	0.07	0.04	0.50	0.00	0.00	0.01	56.65
Cohasset A-52	2602.65	21	siderite	1.02	0.01	0.52	0.03	45.81	0.85	4.46	4.05	0.07	0.11	0.41	0.00	0.00	0.02	57.37
Cohasset A-52	2602.65	22	siderite	0.06	0.00	0.05	0.03	45.99	0.76	4.21	4.21	0.11	0.07	0.54	0.00	0.00	0.02	56.04
Cohasset A-52	2602.65	23	siderite	0.04	0.01	0.03	0.02	45.67	0.54	5.11	3.52	0.09	0.09	0.43	0.00	0.00	0.02	55.56
Cohasset A-52	2602.65	24	siderite	0.12	0.16	0.06	0.02	43.97	0.46	6.95	4.05	0.09	0.05	0.31	0.00	0.00	0.00	56.26
Cohasset A-52	2602.65	25	siderite	0.09	0.00	0.03	0.00	45.71	0.90	4.05	4.78	0.10	0.04	0.50	0.00	0.00	0.03	56.23
Cohasset A-52	2602.65	26	siderite	0.08	0.00	0.03	0.01	43.09	0.61	8.18	3.93	0.04	0.03	0.09	0.00	0.00	0.00	56.07
Cohasset A-52	2602.65	27	siderite	0.08	0.00	0.03	0.00	45.80	0.87	4.04	4.43	0.12	0.03	0.53	0.00	0.00	0.01	55.94
Cohasset A-52	2602.65	28	siderite	0.29	0.00	0.21	0.03	43.16	0.56	8.14	4.08	0.06	0.05	0.11	0.00	0.00	0.00	56.69
Cohasset A-52	2602.65	29	siderite	0.06	0.00	0.01	0.00	41.04	0.67	9.21	4.69	0.02	0.04	0.02	0.00	0.00	0.00	55.77
Cohasset A-52	2602.65	30	siderite	0.05	0.01	0.03	0.02	42.99	0.65	8.14	4.02	0.05	0.04	0.07	0.00	0.00	0.00	56.07
Cohasset A-52	2602.65	31	siderite	0.05	0.00	0.02	0.06	41.77	0.51	9.40	4.51	0.11	0.02	0.13	0.01	0.00	0.00	56.59
Cohasset A-52	2602.65	32	siderite	0.00	0.00	0.03	0.07	44.18	0.58	7.89	3.95	0.04	0.03	0.10	0.00	0.00	0.00	56.89
Cohasset A-52	2602.65	33	siderite	0.05	0.01	0.01	0.00	45.91	0.89	4.01	4.64	0.10	0.07	0.55	0.00	0.00	0.00	56.24
Cohasset A-52	2602.65	34	siderite	0.07	0.06	0.02	0.00	46.36	0.78	4.26	4.26	0.06	0.03	0.44	0.01	0.00	0.00	56.35
Cohasset A-52	2602.65	35	siderite	0.14	0.00	0.01	0.00	43.35	0.55	8.48	3.80	0.04	0.01	0.12	0.00	0.00	0.00	56.49
Cohasset A-52	2602.65	36	siderite	0.10	0.04	0.01	0.00	43.60	0.34	7.46	4.01	0.07	0.03	0.34	0.00	0.00	0.00	56.01
Cohasset A-52	2602.65	37	siderite	0.12	0.11	0.02	0.00	46.51	0.85	3.73	4.30	0.13	0.02	0.61	0.00	0.00	0.00	56.39
Cohasset A-52	2602.65	38	siderite	0.05	0.02	0.02	0.00	42.64	0.67	8.49	4.36	0.04	0.10	0.06	0.00	0.00	0.00	56.46
Cohasset A-52	2603.49	80	Fe-calcite	0.00	0.00	0.00	0.00	1.71	0.26	0.44	46.94	0.01	0.02	0.03	0.00	0.12	0.00	49.54
Cohasset A-52	2603.49	81	Fe-calcite	0.03	0.00	0.00	0.00	1.09	0.15	0.23	52.91	0.01	0.07	0.03	0.02	0.38	0.00	54.91
Cohasset A-52	2603.49	82	calcite	0.04	0.00	0.00	0.00	0.31	0.03	0.06	52.43	0.01	0.01	0.04	0.00	0.47	0.00	53.40
Cohasset A-52	2603.49	83	Fe-calcite	0.03	0.00	0.00	0.00	2.76	0.56	0.62	53.06	0.01	0.03	0.06	0.00	0.05	0.00	57.17
Cohasset A-52	2603.49	84	siderite	0.09	0.05	0.00	0.06	44.53	0.57	4.03	4.44	0.07	0.02	0.65	0.02	0.00	0.06	54.59
Cohasset A-52	2603.49	85	siderite	0.32	0.09	0.05	0.06	45.56	0.91	3.97	5.01	0.14	0.06	0.52	0.02	0.00	0.08	56.78
Cohasset A-52	2603.49	86	siderite	0.11	0.00	0.03	0.00	39.08	0.78	9.04	5.51	0.05	0.03	0.06	0.01	0.00	0.00	54.69
Cohasset A-52	2603.49	87	Fe-calcite	0.11	0.00	0.02	0.00	2.84	0.49	0.68	52.33	0.02	0.01	0.03	0.00	0.15	0.00	56.68
Cohasset A-52	2603.49	88	siderite	0.22	0.03	0.09	0.02	41.45	0.59	7.93	4.41	0.04	0.02	0.09	0.00	0.01	0.00	54.89
Cohasset A-52	2603.49	89	Fe-calcite	0.05	0.00	0.01	0.00	1.69	0.89	0.35	56.34	0.02	0.02	0.00	0.00	0.09	0.00	59.46
Cohasset A-52	2603.49	90	siderite	0.04	0.00	0.01	0.00	43.93	0.52	4.95	4.78	0.07	0.03	0.55	0.00	0.01	0.00	54.89
Cohasset A-52	2603.49	91	siderite	0.03	0.00	0.01	0.00	40.72	0.45	8.28	5.14	0.05	0.02	0.18	0.00	0.00	0.00	54.89
Cohasset A-52	2603.49	92	Fe-calcite	0.06	0.00	0.01	0.00	2.03	0.62	0.47	56.22	0.02	0.01	0.02	0.00	0.17	0.00	59.63
Cohasset A-52	2603.49	93	calcite	0.04	0.00	0.01	0.00	0.17	0.00	0.41	54.29	0.05	0.01	0.02	0.00	0.16	0.00	55.16
Cohasset A-52	2603.49	94	siderite	0.06	0.03	0.02	0.03	42.80	0.58	4.83	5.83	0.06	0.03	0.34	0.00	0.01	0.00	54.62

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2603.49	95	siderite	0.12	0.01	0.08	0.01	41.69	0.59	7.79	4.51	0.06	0.04	0.17	0.00	0.01	0.00	55.08
Cohasset A-52	2603.49	96	siderite	0.16	0.00	0.09	0.00	43.72	0.69	4.86	5.30	0.05	0.02	0.41	0.01	0.01	0.00	55.32
Cohasset A-52	2603.49	97	Fe-calcite	0.05	0.00	0.03	0.00	1.58	0.96	0.34	53.84	0.00	0.09	0.00	0.00	0.07	0.00	56.97
Cohasset A-52	2603.49	98	siderite	0.15	0.03	0.04	0.01	44.36	0.54	4.06	4.67	0.10	0.03	0.62	0.00	0.06	0.00	54.68
Cohasset A-52	2603.49	99	Fe-calcite	0.08	0.00	0.02	0.00	3.13	0.56	0.76	54.11	0.01	0.05	0.03	0.00	0.17	0.00	58.92
Cohasset A-52	2603.49	100	Fe-calcite	0.11	0.00	0.02	0.00	3.16	0.54	0.76	53.59	0.03	0.01	0.01	0.00	0.18	0.00	58.42
Cohasset A-52	2603.49	101	pseudo-rutile	1.37	84.10	1.39	0.42	2.96	0.35	0.09	0.57	0.34	0.12	0.13	0.02	0.18	0.95	92.98
Cohasset A-52	2603.49	102	Fe-calcite	0.05	0.00	0.00	0.00	2.76	0.52	0.66	54.42	0.01	0.12	0.02	0.00	0.14	0.00	58.70
Cohasset A-52	2603.49	103	Fe-calcite	0.10	0.06	0.02	0.00	2.87	0.55	0.73	53.26	0.02	0.16	0.03	0.00	0.15	0.00	57.94
Cohasset A-52	2603.49	104	Fe-calcite	0.16	0.24	0.05	0.00	2.74	0.52	0.68	50.24	0.01	0.02	0.04	0.00	0.13	0.00	54.82
Cohasset A-52	2603.49	105	siderite	0.17	0.16	0.06	0.00	39.35	0.62	8.29	6.25	0.05	0.02	0.13	0.00	0.00	0.00	55.10
Cohasset A-52	2603.49	106	siderite	0.12	0.13	0.00	0.00	40.42	0.65	4.17	8.78	0.08	0.03	0.36	0.00	0.00	0.00	54.76
Cohasset A-52	2603.49	107	Fe-calcite	0.11	0.00	0.02	0.00	1.37	0.74	0.30	54.57	0.01	0.01	0.02	0.00	0.13	0.00	57.27
Cohasset A-52	2603.49	108	Fe-calcite	0.06	0.12	0.00	0.00	2.88	0.56	0.71	53.59	0.02	0.01	0.02	0.00	0.12	0.00	58.08
Cohasset A-52	2603.49	109	Fe-calcite	0.07	0.08	0.00	0.00	1.60	1.11	0.38	52.97	0.01	0.01	0.01	0.00	0.03	0.00	56.26
Cohasset A-52	2603.49	110	Fe-calcite	0.10	0.00	0.00	0.00	1.25	0.90	0.25	54.55	0.00	0.02	0.00	0.00	0.03	0.00	57.12
Cohasset A-52	2603.49	111	Fe-calcite	0.08	0.00	0.00	0.00	2.99	0.58	0.67	54.07	0.02	0.01	0.04	0.00	0.11	0.00	58.58
Cohasset A-52	2603.49	112	siderite	0.10	0.01	0.04	0.01	42.84	0.48	6.76	4.33	0.08	0.01	0.44	0.00	0.00	0.02	55.12
Cohasset A-52	2603.49	113	siderite	0.02	0.00	0.00	0.00	39.50	0.60	8.89	5.73	0.02	0.00	0.09	0.00	0.00	0.01	54.86
Cohasset A-52	2603.49	114	Fe-calcite	0.09	0.00	0.00	0.00	2.07	0.34	0.51	53.59	0.02	0.01	0.02	0.00	0.23	0.00	56.88
Cohasset A-52	2603.49	115	siderite	0.13	0.01	0.05	0.00	44.02	0.59	4.84	5.16	0.10	0.02	0.48	0.02	0.00	0.05	55.46
Cohasset A-52	2603.49	116	siderite	0.36	0.04	0.11	0.00	43.76	0.66	4.81	4.83	0.06	0.04	0.63	0.01	0.00	0.01	55.33
Cohasset A-52	2603.49	117	Fe-calcite	0.05	0.00	0.00	0.00	2.93	0.54	0.72	52.49	0.03	0.01	0.00	0.00	0.11	0.00	56.88
Cohasset A-52	2603.49	118	siderite	0.02	0.01	0.00	0.00	40.39	0.62	8.62	4.99	0.04	0.01	0.13	0.03	0.00	0.00	54.87
Cohasset A-52	2603.49	119	Fe-calcite	0.09	0.00	0.00	0.00	3.10	0.54	0.73	53.19	0.01	0.02	0.02	0.00	0.12	0.00	57.83
Cohasset A-52	2603.49	120	siderite	0.05	0.00	0.00	0.00	40.99	0.47	8.59	4.92	0.06	0.01	0.10	0.01	0.00	0.00	55.20
Cohasset A-52	2603.49	121	Fe-calcite	0.15	0.00	0.00	0.00	1.31	0.75	0.29	53.73	0.01	0.01	0.00	0.00	0.10	0.00	56.35
Cohasset A-52	2603.49	122	siderite	0.48	0.03	0.24	0.00	43.30	0.51	6.00	4.23	0.09	0.03	0.30	0.00	0.00	0.00	55.22
Cohasset A-52	2603.49	123	Fe-calcite	0.25	0.00	0.03	0.00	3.37	0.53	0.77	54.11	0.02	0.01	0.04	0.00	0.15	0.00	59.28
Cohasset A-52	2603.49	124	siderite	0.28	0.00	0.17	0.00	42.62	0.61	4.80	5.52	0.09	0.03	0.38	0.00	0.00	0.00	54.50
Cohasset A-52	2603.49	125	Fe-calcite	0.03	0.00	0.00	0.00	3.19	0.54	0.74	54.50	0.03	0.01	0.02	0.00	0.13	0.00	59.21
Cohasset A-52	2603.49	126	siderite	0.28	0.00	0.18	0.00	41.58	0.55	6.62	4.95	0.07	0.04	0.35	0.00	0.00	0.00	54.63
Cohasset A-52	2603.49	127	Fe-calcite	0.17	0.00	0.01	0.00	1.94	0.83	0.44	54.47	0.01	0.01	0.01	0.00	0.06	0.00	57.95
Cohasset A-52	2603.49	128	siderite	0.05	0.00	0.00	0.00	43.71	0.58	3.99	5.33	0.07	0.03	0.59	0.00	0.00	0.00	54.35
Cohasset A-52	2603.49	129	siderite	0.04	0.00	0.01	0.00	40.49	0.58	8.19	5.01	0.04	0.02	0.10	0.01	0.00	0.00	54.49
Cohasset A-52	2603.49	130	Fe-calcite	0.08	0.00	0.01	0.00	1.40	0.79	0.31	54.88	0.03	0.02	0.01	0.00	0.05	0.00	57.58

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>i</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2603.49	131	siderite	0.07	0.00	0.04	0.00	40.27	0.61	9.10	5.14	0.06	0.03	0.08	0.00	0.00	0.00	55.38
Cohasset A-52	2603.49	132	siderite	0.21	0.01	0.11	0.00	44.20	0.59	4.00	5.15	0.09	0.04	0.88	0.00	0.00	0.00	55.26
Cohasset A-52	2603.49	133	siderite	0.11	0.00	0.01	0.00	40.08	0.58	9.01	5.09	0.04	0.02	0.05	0.00	0.00	0.00	55.00
Cohasset A-52	2603.49	134	Fe-calcite	0.11	0.00	0.02	0.00	2.92	0.54	0.68	53.97	0.02	0.02	0.03	0.00	0.09	0.00	58.41
Cohasset A-52	2603.49	135	Fe-calcite	0.15	0.00	0.01	0.00	1.21	0.69	0.31	53.70	0.00	0.02	0.02	0.00	0.08	0.00	56.19
Cohasset A-52	2603.49	136	siderite	0.25	0.05	0.05	0.00	44.44	0.55	4.05	4.92	0.11	0.03	0.61	0.00	0.00	0.00	55.07
Cohasset A-52	2603.49	137	siderite	0.35	0.01	0.15	0.00	43.69	0.59	5.02	4.30	0.12	0.04	0.59	0.00	0.00	0.00	54.85
Cohasset A-52	2603.49	138	Fe-calcite	0.09	0.00	0.01	0.00	3.07	0.58	0.79	52.24	0.03	0.02	0.02	0.00	0.15	0.00	56.99
Cohasset A-52	2603.49	139	siderite	3.96	0.01	0.04	0.00	40.19	0.54	7.78	4.58	0.07	0.02	0.20	0.00	0.00	0.00	57.40
Cohasset A-52	2603.49	140	Fe-calcite	0.10	0.00	0.01	0.00	1.42	0.75	0.32	54.95	0.02	0.02	0.02	0.00	0.10	0.00	57.71

No.\* : number of analysis on the back-scattered images (Appendix 2).

Appendix 1D: Electron microprobe analyses of diagenetic minerals from representative samples from Balmoral M-32 well.

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Balmoral M-32	1971.88	72	Fe-calcite	0.02	0.00	0.01	0.00	2.37	0.25	0.71	46.92	0.00	0.03	0.04	0.00	0.31	0.00	50.65
Balmoral M-32	1971.88	73	Fe-calcite	0.07	0.00	0.02	0.00	3.29	0.27	0.85	53.22	0.00	0.07	0.06	0.00	0.36	0.00	58.22
Balmoral M-32	1971.88	74	Fe-calcite	0.05	0.00	0.00	0.00	2.85	0.27	0.69	50.21	0.00	0.05	0.03	0.00	0.34	0.00	54.48
Balmoral M-32	1971.88	75	Fe-calcite	0.09	0.00	0.02	0.00	3.18	0.30	0.78	52.88	0.01	0.02	0.06	0.01	0.15	0.00	57.51
Balmoral M-32	1971.88	76	Fe-calcite	0.25	0.00	0.07	0.00	3.03	0.20	0.77	53.12	0.00	0.03	0.05	0.00	0.35	0.00	57.86
Balmoral M-32	1971.88	77	Fe-calcite	0.12	0.00	0.00	0.00	3.34	0.33	0.85	54.22	0.00	0.02	0.04	0.00	0.12	0.00	59.05
Balmoral M-32	1971.88	78	Fe-calcite	0.04	0.00	0.01	0.00	1.12	0.37	0.28	44.55	0.01	0.02	0.04	0.00	0.12	0.00	46.57
Balmoral M-32	1971.88	79	Fe-calcite	0.04	0.00	0.00	0.00	2.77	0.26	0.80	48.33	0.00	0.02	0.06	0.00	0.36	0.00	52.65
Balmoral M-32	1971.88	80	Fe-calcite	0.00	0.00	0.02	0.02	1.27	0.47	0.35	48.08	0.01	0.01	0.04	0.00	0.10	0.00	50.37
Balmoral M-32	1971.88	81	clay	19.07	0.14	8.85	0.10	13.52	0.19	1.75	13.90	0.23	0.43	0.05	0.01	0.02	0.00	58.27
Balmoral M-32	1971.88	82	Fe-calcite	0.00	0.00	0.00	0.00	1.03	0.36	0.26	43.65	0.01	0.01	0.02	0.00	0.10	0.00	45.43
Balmoral M-32	1971.88	83	Fe-calcite	0.00	0.00	0.00	0.00	3.63	0.27	1.03	54.36	0.01	0.05	0.03	0.07	0.26	0.00	59.72
Balmoral M-32	1971.88	84	Fe-calcite	0.00	0.00	0.00	0.00	0.99	0.50	0.25	44.50	0.00	0.03	0.01	0.00	0.02	0.00	46.30
Balmoral M-32	1971.88	85	Fe-calcite	0.00	0.00	0.00	0.02	3.49	0.30	0.89	50.92	0.01	0.02	0.03	0.02	0.26	0.01	55.98
Balmoral M-32	1971.88	86	Fe-calcite	0.00	0.01	0.00	0.00	1.25	0.43	0.31	47.18	0.02	0.04	0.04	0.00	0.07	0.00	49.36
Balmoral M-32	1971.88	87	Fe-calcite	0.00	0.00	0.00	0.01	3.14	0.33	0.82	48.95	0.03	0.01	0.05	0.01	0.15	0.01	53.51
Balmoral M-32	1971.88	88	calcite	0.00	0.00	0.00	0.00	0.81	0.33	0.18	43.83	0.01	0.08	0.03	0.00	0.04	0.00	45.30
Balmoral M-32	1971.88	89	Fe-calcite	0.00	0.00	0.00	0.00	1.07	0.42	0.24	44.63	0.00	0.02	0.04	0.00	0.14	0.00	46.57
Balmoral M-32	1971.88	90	Fe-calcite	0.00	0.00	0.00	0.00	1.26	0.45	0.32	46.00	0.02	0.02	0.03	0.00	0.08	0.00	48.19
Balmoral M-32	1971.88	91	calcite	0.00	0.00	0.00	0.00	0.78	0.30	0.25	43.16	0.02	0.01	0.02	0.00	0.05	0.01	44.61
Balmoral M-32	1971.88	92	Fe-calcite	0.00	0.03	0.00	0.03	3.41	0.27	0.96	50.08	0.00	0.07	0.06	0.02	0.27	0.01	55.22
Balmoral M-32	1971.88	93	Fe-calcite	0.00	0.02	0.00	0.00	2.40	0.40	0.58	51.01	0.02	0.01	0.04	0.04	0.26	0.04	54.80
Balmoral M-32	1971.88	94	calcite	0.00	0.12	0.00	0.00	0.76	0.36	0.31	40.74	0.07	0.01	0.02	0.00	0.00	0.01	42.41
Balmoral M-32	1971.88	95	Fe-calcite	0.00	0.00	0.00	0.01	1.15	0.46	0.27	47.68	0.00	0.01	0.04	0.00	0.05	0.00	49.68
Balmoral M-32	1971.88	96	Fe-calcite	0.00	0.00	0.00	0.02	1.24	0.43	0.34	49.00	0.00	0.02	0.06	0.00	0.04	0.00	51.15
Balmoral M-32	1971.88	97	Fe-calcite	0.00	0.01	0.00	0.00	2.54	0.19	0.94	44.77	0.05	0.02	0.04	0.00	0.32	0.00	48.89
Balmoral M-32	1971.88	98	Fe-calcite	0.00	0.01	0.00	0.00	1.73	0.54	0.38	50.20	0.03	0.02	0.03	0.00	0.03	0.02	52.99
Balmoral M-32	1971.88	99	calcite	0.00	0.02	0.00	0.00	0.52	0.19	0.17	42.13	0.01	0.01	0.03	0.00	0.19	0.01	43.28
Balmoral M-32	1971.88	100	Fe-calcite	0.00	0.00	0.00	0.00	2.40	0.54	0.49	52.49	0.02	0.02	0.06	0.00	0.11	0.00	56.13
Balmoral M-32	1971.88	101	Fe-calcite	0.00	0.00	0.00	0.00	1.47	0.42	0.28	54.28	0.01	0.02	0.06	0.00	0.13	0.00	56.67
Balmoral M-32	1971.88	102	Fe-calcite	0.00	0.00	0.00	0.01	3.42	0.28	0.95	51.03	0.00	0.02	0.09	0.01	0.38	0.00	56.18
Balmoral M-32	1971.88	103	Fe-calcite	0.00	0.00	0.01	0.00	1.13	0.37	0.26	45.19	0.02	0.02	0.03	0.00	0.11	0.00	47.15
Balmoral M-32	1971.88	104	Fe-calcite	0.00	0.01	0.00	0.00	3.60	0.35	0.90	53.44	0.03	0.04	0.08	0.02	0.12	0.00	58.58

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> C	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Balmoral M-32	1971.88	105	Fe-calcite	0.00	0.00	0.00	0.00	1.33	0.40	0.32	46.25	0.00	0.02	0.06	0.00	0.09	0.00	48.49
Balmoral M-32	1971.88	106	K-feldspar	63.54	0.00	18.08	0.00	0.02	0.00	0.00	0.00	0.38	15.45	0.00	0.00	0.00	0.16	97.63
Balmoral M-32	1971.88	107	albite	68.06	0.00	19.30	0.00	0.00	0.00	0.00	0.00	12.35	0.07	0.00	0.00	0.38	0.00	100.17
Balmoral M-32	1971.88	108	K-feldspar	64.21	0.00	18.22	0.00	0.03	0.00	0.00	0.12	0.78	15.51	0.03	0.00	0.00	0.06	98.96

No.\* : number of analysis on the back-scattered images (Appendix 2).

Appendix 1E: Electron microprobe analyses of diagenetic minerals from representative samples from Lawrence D-14 well.

Well	Sample	No. *	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Lawrence D-14	2256.59	7	Fe-calcite	0.00	0.00	0.02	0.00	1.11	0.65	0.22	50.71	0.00	0.03	0.02	0.00	0.10	0.00	52.86
Lawrence D-14	2256.59	8	Fe-calcite	0.00	0.00	0.02	0.00	1.44	0.74	0.27	57.27	0.01	0.02	0.04	0.06	0.10	0.00	59.96
Lawrence D-14	2256.59	9	Fe-calcite	0.00	0.01	0.02	0.00	1.45	0.68	0.25	57.06	0.00	0.02	0.01	0.03	0.10	0.00	59.64
Lawrence D-14	2256.59	10	Fe-calcite	0.00	0.02	0.03	0.00	1.48	0.65	0.25	57.07	0.01	0.03	0.06	0.06	0.11	0.00	59.76
Lawrence D-14	2256.59	11	Fe-calcite	0.00	0.00	0.03	0.00	1.41	0.65	0.26	56.52	0.02	0.02	0.06	0.02	0.11	0.00	59.09
Lawrence D-14	2256.59	12	Fe-calcite	0.00	0.02	0.02	0.00	1.40	0.70	0.26	56.74	0.01	0.02	0.03	0.06	0.12	0.00	59.38
Lawrence D-14	2256.59	13	Fe-calcite	0.00	0.02	0.03	0.00	1.30	0.65	0.23	55.38	0.01	0.03	0.05	0.05	0.13	0.00	57.87
Lawrence D-14	2256.59	14	Fe-calcite	0.00	0.05	0.02	0.00	1.31	0.60	0.22	57.45	0.01	0.02	0.04	0.07	0.13	0.00	59.93
Lawrence D-14	2256.59	15	Fe-calcite	0.00	0.00	0.02	0.00	1.32	0.58	0.24	56.74	0.00	0.03	0.00	0.04	0.16	0.00	59.15
Lawrence D-14	2256.59	16	K-feldspar	63.39	0.00	18.26	0.00	0.04	0.00	0.01	0.02	0.59	15.98	0.39	0.01	0.00	0.02	98.71
Lawrence D-14	2256.59	17	Fe-calcite	0.00	0.00	0.02	0.00	1.12	0.61	0.22	53.56	0.01	0.02	0.06	0.05	0.13	0.00	55.80
Lawrence D-14	2256.59	18	Fe-calcite	0.00	0.00	0.03	0.00	1.42	0.62	0.24	53.91	0.03	0.02	0.06	0.06	0.12	0.00	56.50
Lawrence D-14	2256.59	19	Fe-calcite	0.00	0.01	0.02	0.00	1.38	0.62	0.26	55.90	0.02	0.03	0.04	0.06	0.10	0.00	58.43
Lawrence D-14	2256.59	20	Fe-calcite	0.00	0.04	0.04	0.00	1.47	0.53	0.27	56.32	0.01	0.02	0.04	0.09	0.13	0.01	58.98
Lawrence D-14	2256.59	21	Fe-calcite	0.00	0.02	0.05	0.00	1.28	0.65	0.24	56.79	0.01	0.02	0.02	0.08	0.12	0.00	59.26
Lawrence D-14	2256.59	22	Fe-calcite	0.00	0.00	0.03	0.00	1.23	0.49	0.20	56.52	0.02	0.03	0.04	0.08	0.13	0.00	58.78
Lawrence D-14	2256.59	23	Fe-calcite	0.00	0.03	0.03	0.00	1.43	0.68	0.33	56.35	0.02	0.02	0.04	0.05	0.11	0.01	59.09
Lawrence D-14	2256.59	24	calcite	0.00	0.00	0.01	0.00	0.42	0.30	0.10	46.69	0.03	0.02	0.04	0.00	0.15	0.00	47.76
Lawrence D-14	2256.59	25	Fe-calcite	0.00	0.00	0.02	0.00	1.56	0.78	0.28	56.90	0.02	0.03	0.04	0.07	0.10	0.00	59.80
Lawrence D-14	2256.59	26	Fe-calcite	0.00	0.01	0.03	0.00	1.14	0.65	0.20	53.51	0.02	0.02	0.03	0.03	0.07	0.00	55.72
Lawrence D-14	2256.59	27	Fe-calcite	0.00	0.00	0.01	0.00	1.49	0.69	0.27	54.34	0.00	0.01	0.04	0.00	0.12	0.00	56.97
Lawrence D-14	2256.59	28	Fe-calcite	0.00	0.00	0.01	0.00	1.03	0.54	0.19	49.79	0.00	0.01	0.02	0.00	0.12	0.00	51.71
Lawrence D-14	2256.59	29	Fe-calcite	0.00	0.00	0.01	0.00	1.39	0.68	0.25	54.22	0.00	0.02	0.06	0.03	0.05	0.00	56.72
Lawrence D-14	2256.59	30	Fe-calcite	0.00	0.00	0.02	0.00	1.49	0.74	0.29	56.26	0.01	0.01	0.04	0.00	0.05	0.03	58.94
Lawrence D-14	2256.59	31	chlorite	19.56	0.07	15.75	0.00	22.96	0.04	4.39	2.46	0.36	0.34	0.00	0.00	0.06	0.00	65.99
Lawrence D-14	2256.59	32	chlorite	17.06	0.11	10.97	0.00	17.71	0.01	3.50	1.46	0.23	0.23	0.01	0.00	0.00	0.00	51.29
Lawrence D-14	2256.59	33	chlorite	20.71	0.03	16.42	0.00	23.68	0.06	4.49	0.89	0.17	0.33	0.00	0.00	0.00	0.00	66.78
Lawrence D-14	2256.59	34	quartz	95.71	0.00	0.47	0.00	0.10	0.00	0.03	0.05	0.02	0.35	0.00	0.00	0.56	0.00	97.30
Lawrence D-14	2256.59	35	Fe-calcite	0.00	0.00	0.01	0.00	1.38	0.67	0.28	54.86	0.01	0.03	0.03	0.00	0.08	0.01	57.36
Lawrence D-14	2256.59	36	Fe-calcite	0.00	0.00	0.02	0.00	1.23	0.53	0.23	56.20	0.02	0.01	0.04	0.00	0.09	0.01	58.37
Lawrence D-14	2256.59	37	Fe-calcite	0.00	0.00	0.01	0.00	1.39	0.50	0.26	53.54	0.00	0.01	0.04	0.00	0.12	0.00	55.87
Lawrence D-14	2256.59	38	Fe-calcite	0.00	0.00	0.02	0.00	1.44	0.63	0.28	56.02	0.03	0.02	0.02	0.00	0.10	0.02	58.58
Lawrence D-14	2256.59	39	calcite	0.00	0.00	0.02	0.00	0.48	0.30	0.11	49.05	0.07	0.01	0.04	0.00	0.12	0.00	50.20



Well	Sample	No. *	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Lawrence D-14	2256.59	40	Fe-calcite	0.00	0.00	0.02	0.00	1.51	0.66	0.32	56.12	0.02	0.01	0.04	0.00	0.06	0.02	58.79
Lawrence D-14	2256.59	41	Fe-calcite	0.00	0.00	0.04	0.00	1.51	0.79	0.31	55.87	0.01	0.00	0.03	0.03	0.00	0.00	58.58
Lawrence D-14	2256.59	42	Fe-calcite	0.00	0.01	0.01	0.00	1.46	0.61	0.26	56.25	0.04	0.01	0.04	0.00	0.11	0.00	58.79
Lawrence D-14	2256.59	43	Fe-calcite	0.00	0.01	0.02	0.00	1.34	0.59	0.27	56.43	0.04	0.01	0.03	0.00	0.10	0.01	58.85
Lawrence D-14	2256.59	44	Fe-calcite	0.00	0.00	0.02	0.00	1.45	0.66	0.31	56.45	0.05	0.02	0.01	0.00	0.11	0.01	59.09
Lawrence D-14	2256.59	45	chlorite	27.92	0.03	13.00	0.00	18.80	0.02	3.32	0.79	0.41	0.28	0.01	0.00	0.05	0.00	64.64
Lawrence D-14	2256.59	46	Qtz + clay	77.82	0.00	4.62	0.00	7.01	0.01	1.20	0.38	0.21	0.08	0.00	0.00	0.45	0.00	91.77
Lawrence D-14	2256.59	47	Qtz + clay	55.11	0.12	1.50	0.10	3.34	0.08	1.22	2.41	1.22	0.17	0.03	0.02	0.30	0.00	65.61
Lawrence D-14	2256.59	48	Fe-calcite	0.11	0.04	0.00	0.10	1.53	0.59	0.28	56.23	0.05	0.04	0.07	0.13	0.18	0.07	59.41
Lawrence D-14	2256.59	49	clay ?	9.75	0.07	7.48	0.12	11.92	0.34	2.25	27.58	0.30	0.11	0.07	0.11	0.09	0.07	60.29
Lawrence D-14	2256.59	50	Fe-calcite	0.03	0.06	0.00	0.11	1.27	0.76	0.26	53.70	0.01	0.05	0.07	0.12	0.12	0.07	56.62
Lawrence D-14	2256.59	51	Fe-calcite	0.00	0.05	0.00	0.10	1.46	0.72	0.26	55.90	0.02	0.04	0.10	0.13	0.14	0.09	59.02
Lawrence D-14	2256.59	52	Fe-calcite	0.00	0.04	0.00	0.10	1.58	2.55	0.43	54.39	0.02	0.05	0.04	0.10	0.20	0.06	59.56
Lawrence D-14	2256.59	53	Fe-calcite	0.01	0.02	0.00	0.12	1.19	0.66	0.22	56.29	0.02	0.04	0.06	0.10	0.15	0.09	58.98
Lawrence D-14	2256.59	54	Fe-calcite	0.14	0.05	0.02	0.11	1.46	0.79	0.36	56.20	0.04	0.04	0.08	0.13	0.17	0.08	59.67
Lawrence D-14	2256.59	55	Fe-calcite	0.03	0.04	0.00	0.10	1.24	0.65	0.24	55.94	0.03	0.05	0.06	0.11	0.14	0.08	58.73
Lawrence D-14	2256.59	56	calcite	0.02	0.04	0.00	0.08	0.39	0.38	0.15	43.81	0.04	0.03	0.05	0.04	0.18	0.07	45.30
Lawrence D-14	2256.59	57	Fe-calcite	0.01	0.06	0.00	0.12	1.42	0.75	0.28	56.41	0.03	0.04	0.07	0.10	0.11	0.07	59.46
Lawrence D-14	2256.59	58	calcite	0.01	0.02	0.00	0.08	0.44	0.32	0.15	43.38	0.03	0.03	0.10	0.03	0.25	0.11	44.97
Lawrence D-14	2256.59	59	Fe-calcite	0.00	0.06	0.00	0.10	1.23	0.71	0.25	50.64	0.00	0.04	0.08	0.12	0.09	0.04	53.33
Lawrence D-14	2256.59	60	clay + Qtz	52.25	0.09	8.05	0.08	14.03	0.09	2.20	1.00	0.09	0.17	0.07	0.07	0.28	0.05	78.50
Lawrence D-14	2256.59	61	chlorite	22.78	0.09	17.25	0.09	23.76	0.09	4.48	1.15	0.17	0.36	0.01	0.10	0.05	0.07	70.45
Lawrence D-14	2256.59	62	chlorite	17.99	0.07	14.27	0.07	21.00	0.11	3.87	3.20	0.14	0.29	0.04	0.08	0.00	0.01	61.15
Lawrence D-14	2271.65	49	siderite + clay	17.62	0.06	13.84	0.02	20.29	0.03	3.97	0.17	0.70	0.33	0.00	0.00	0.09	0.00	57.13
Lawrence D-14	2271.65	50	siderite + clay	28.02	0.13	19.73	0.03	18.21	0.07	3.53	0.24	0.86	1.91	0.00	0.02	0.07	0.03	72.83
Lawrence D-14	2271.65	51	siderite + clay	2.98	0.07	2.14	0.08	36.25	0.76	7.05	3.41	0.55	0.09	0.14	0.06	0.07	0.05	53.69
Lawrence D-14	2271.65	52	siderite + clay	10.41	0.06	2.23	0.09	37.60	0.61	6.31	3.27	0.09	0.06	0.11	0.03	0.14	0.06	61.08
Lawrence D-14	2271.65	53	siderite + clay	33.77	0.06	0.20	0.06	31.34	0.50	4.10	2.90	0.07	0.04	0.11	0.06	0.25	0.07	73.52
Lawrence D-14	2271.65	54	siderite + clay	2.12	0.06	0.86	0.07	37.72	0.65	6.89	3.44	0.18	0.08	0.18	0.07	0.11	0.04	52.46
Lawrence D-14	2271.65	55	siderite + clay	16.32	0.06	0.27	0.05	35.65	0.73	6.01	3.18	0.18	0.05	0.16	0.06	0.21	0.04	62.95
Lawrence D-14	2271.65	56	siderite + clay	2.55	0.04	1.82	0.07	35.49	0.65	6.67	4.25	0.14	0.08	0.23	0.04	0.05	0.06	52.13
Lawrence D-14	2271.65	57	siderite + clay	2.77	0.07	1.37	0.05	35.30	0.70	6.38	3.07	0.21	0.10	0.19	0.05	0.06	0.04	50.37
Lawrence D-14	2271.65	58	siderite + clay	2.52	0.07	1.40	0.09	37.30	0.68	7.26	4.36	0.20	0.07	0.23	0.06	0.04	0.05	54.32
Lawrence D-14	2271.65	59	clay	22.70	0.11	17.74	0.06	24.43	0.07	4.34	0.13	0.24	0.71	0.00	0.04	0.10	0.00	70.69
Lawrence D-14	2271.65	60	siderite + clay	7.12	0.10	0.99	0.01	36.13	0.51	7.21	3.22	1.09	0.21	0.23	0.00	0.00	0.03	56.85
Lawrence D-14	2271.65	61	siderite + Qtz	4.66	0.00	0.53	0.00	36.67	0.64	6.01	3.07	0.77	0.10	0.17	0.03	0.00	0.00	52.65

Well	Sample	No. *	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Lawrence D-14	2271.65	62	siderite + Qtz	1.71	0.00	0.53	0.00	37.49	0.50	7.17	3.66	0.48	0.07	0.21	0.01	0.00	0.04	51.88
Lawrence D-14	2271.65	63	siderite + Qtz	39.95	0.00	0.40	0.00	25.17	0.43	3.50	2.30	0.14	0.05	0.10	0.00	0.17	0.01	72.22
Lawrence D-14	2271.65	64	siderite + Qtz	1.52	0.06	0.11	0.03	44.63	0.56	7.04	3.12	0.15	0.05	0.40	0.03	0.00	0.13	57.83
Lawrence D-14	2271.65	65	siderite + Qtz	24.36	0.01	0.20	0.00	36.44	0.53	5.59	3.14	0.13	0.04	0.23	0.03	0.11	0.00	70.80
Lawrence D-14	2271.65	66	siderite + Qtz	17.41	0.62	0.47	0.03	38.72	0.70	5.72	3.09	0.14	0.09	0.30	0.05	0.09	0.03	67.46
Lawrence D-14	2271.65	67	siderite	0.66	0.03	0.42	0.03	41.25	0.85	7.43	5.16	0.22	0.05	0.23	0.03	0.00	0.01	56.37
Lawrence D-14	2271.65	68	siderite + Qtz	1.11	0.03	0.85	0.04	43.81	0.65	8.36	3.59	0.30	0.04	0.23	0.06	0.00	0.12	59.20
Lawrence D-14	2271.65	69	siderite	0.47	0.02	0.07	0.01	41.78	0.76	7.34	5.04	0.22	0.04	0.26	0.06	0.00	0.10	56.17
Lawrence D-14	2271.65	70	siderite + Qtz	4.07	0.00	0.84	0.00	37.38	0.56	5.68	3.27	0.25	0.06	0.20	0.00	0.00	0.00	52.34
Lawrence D-14	2271.65	71	siderite + Qtz	8.00	0.04	4.41	0.01	38.43	0.62	5.95	3.09	0.36	0.28	0.32	0.00	0.00	0.04	61.53
Lawrence D-14	2276.02	12	Fe-calcite	0.00	0.00	0.00	0.00	1.10	3.15	0.66	55.40	0.00	0.02	0.10	0.00	0.00	0.00	60.43
Lawrence D-14	2276.02	13	Fe-calcite	0.00	0.00	0.00	0.00	0.96	2.23	0.79	55.94	0.00	0.02	0.09	0.00	0.00	0.00	60.04
Lawrence D-14	2276.02	14	calcite	0.00	0.00	0.00	0.00	0.83	0.76	0.39	50.47	0.00	0.02	0.03	0.00	0.01	0.00	52.51
Lawrence D-14	2276.02	15	calcite	0.00	0.00	0.01	0.00	0.81	2.24	0.52	55.28	0.00	0.01	0.04	0.00	0.00	0.00	58.92
Lawrence D-14	2276.02	16	calcite	0.00	0.00	0.00	0.00	0.39	2.24	0.83	55.23	0.02	0.04	0.10	0.00	0.00	0.00	58.85
Lawrence D-14	2276.02	17	calcite	0.00	0.00	0.00	0.00	0.78	1.36	0.48	55.78	0.01	0.02	0.04	0.00	0.02	0.00	58.49
Lawrence D-14	2276.02	18	Fe-calcite	0.00	0.00	0.00	0.00	1.71	0.81	0.39	54.19	0.01	0.02	0.04	0.00	0.14	0.00	57.30
Lawrence D-14	2276.02	19	calcite	0.00	0.00	0.00	0.00	0.74	1.38	0.76	55.88	0.02	0.03	0.04	0.00	0.00	0.00	58.85
Lawrence D-14	2276.02	20	calcite	0.00	0.00	0.00	0.00	0.57	2.22	0.76	55.56	0.02	0.02	0.07	0.00	0.00	0.00	59.23
Lawrence D-14	2276.02	21	calcite	0.00	0.00	0.00	0.00	0.91	1.41	0.70	56.16	0.01	0.02	0.05	0.00	0.00	0.00	59.26
Lawrence D-14	2276.02	22	calcite	0.02	0.00	0.22	0.00	0.57	1.06	0.11	49.28	0.00	0.02	0.05	0.00	0.00	0.00	51.33
Lawrence D-14	2276.02	23	calcite	0.00	0.00	0.13	0.00	0.59	0.63	0.16	45.60	0.00	0.01	0.03	0.00	0.03	0.00	47.19
Lawrence D-14	2276.02	24	Fe-calcite	0.03	0.00	0.29	0.00	2.56	0.59	0.50	53.92	0.00	0.03	0.01	0.00	0.20	0.00	58.13
Lawrence D-14	2276.02	25	calcite	0.00	0.00	0.20	0.00	0.57	0.65	0.13	46.86	0.01	0.01	0.03	0.00	0.01	0.00	48.46
Lawrence D-14	2276.02	26	calcite	0.00	0.00	0.08	0.00	0.46	0.71	0.13	44.98	0.01	0.00	0.06	0.00	0.02	0.00	46.45
Lawrence D-14	2276.02	27	calcite	0.03	0.00	0.20	0.00	0.58	0.91	0.12	52.03	0.01	0.02	0.06	0.00	0.00	0.00	53.98
Lawrence D-14	2276.02	28	Fe-calcite	0.00	0.00	0.00	0.00	1.00	0.83	0.31	50.71	0.01	0.01	0.03	0.00	0.12	0.00	53.01
Lawrence D-14	2276.02	29	calcite	0.22	0.00	0.45	0.00	0.86	1.38	0.20	54.95	0.00	0.02	0.06	0.00	0.00	0.00	58.13
Lawrence D-14	2276.02	30	Fe-calcite	0.00	0.00	0.00	0.00	2.31	0.69	0.45	54.43	0.03	0.02	0.02	0.00	0.16	0.00	58.11
Lawrence D-14	2276.02	31	calcite	0.00	0.00	0.06	0.00	0.79	1.26	0.17	56.96	0.00	0.02	0.04	0.00	0.00	0.00	59.31
Lawrence D-14	2276.02	32	calcite	0.00	0.02	0.05	0.00	0.67	0.92	0.18	49.31	0.01	0.02	0.04	0.00	0.06	0.06	51.33
Lawrence D-14	2276.02	33	calcite	0.00	0.00	0.02	0.02	0.90	0.68	0.27	49.77	0.01	0.01	0.03	0.01	0.05	0.00	51.78
Lawrence D-14	2276.02	34	Fe-calcite	0.00	0.01	0.00	0.02	1.16	1.12	0.30	55.75	0.01	0.03	0.04	0.02	0.10	0.02	58.58
Lawrence D-14	2276.02	35	Fe-calcite	0.00	0.02	0.00	0.02	1.14	0.74	0.32	49.89	0.01	0.03	0.04	0.01	0.09	0.00	52.32
Lawrence D-14	2276.02	36	Fe-calcite	0.00	0.01	0.02	0.02	1.13	1.05	0.31	56.34	0.02	0.02	0.06	0.05	0.16	0.02	59.19
Lawrence D-14	2276.02	37	Fe-calcite	0.00	0.02	0.01	0.02	1.30	1.15	0.34	51.88	0.02	0.02	0.04	0.02	0.14	0.00	54.97

Well	Sample	No. *	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Lawrence D-14	2276.02	38	Fe-calcite	0.00	0.03	0.02	0.03	1.11	0.89	0.31	54.48	0.03	0.03	0.07	0.04	0.16	0.00	57.19
Lawrence D-14	2276.02	39	Fe-calcite	0.00	0.02	0.02	0.02	1.41	1.49	0.42	56.76	0.01	0.02	0.06	0.05	0.08	0.01	60.37
Lawrence D-14	2276.02	40	Fe-calcite	0.00	0.02	0.01	0.02	1.31	0.81	0.34	53.52	0.01	0.03	0.06	0.06	0.14	0.00	56.33
Lawrence D-14	2276.02	41	Fe-calcite	0.00	0.00	0.01	0.04	1.02	0.85	0.35	48.53	0.04	0.03	0.07	0.00	0.07	0.00	51.00
Lawrence D-14	2276.02	42	calcite	0.00	0.11	0.00	0.00	0.06	0.09	0.12	42.51	0.02	0.01	0.02	0.00	0.12	0.09	43.15
Lawrence D-14	2276.02	43	Fe-calcite	0.00	0.00	0.01	0.00	0.93	0.70	0.28	48.71	0.02	0.02	0.07	0.00	0.07	0.00	50.81
Lawrence D-14	2276.02	44	Fe-calcite	0.00	0.01	0.01	0.05	0.99	0.78	0.28	47.73	0.00	0.02	0.04	0.00	0.13	0.00	50.05
Lawrence D-14	2276.02	45	Fe-calcite	0.00	0.00	0.01	0.01	0.95	0.77	0.33	47.87	0.01	0.02	0.05	0.00	0.12	0.00	50.15
Lawrence D-14	2276.02	46	Fe-calcite	0.00	0.00	0.01	0.03	1.00	0.71	0.27	51.27	0.03	0.02	0.05	0.01	0.18	0.01	53.58
Lawrence D-14	2276.02	47	Fe-calcite	0.00	0.02	0.01	0.01	1.28	1.05	0.34	50.52	0.01	0.02	0.05	0.00	0.09	0.02	53.43
Lawrence D-14	2276.02	48	Fe-calcite	0.00	0.04	0.02	0.00	1.30	1.09	0.35	55.16	0.02	0.02	0.04	0.03	0.12	0.01	58.20

No.\* : number of analysis on the back-scattered images (Appendix 2).

Appendix 2 : Back-scattered electron (BSE) images for the sandstones  
from the studied wells studied by electron microprobe

A: Como P-21

B: Panuke B-90

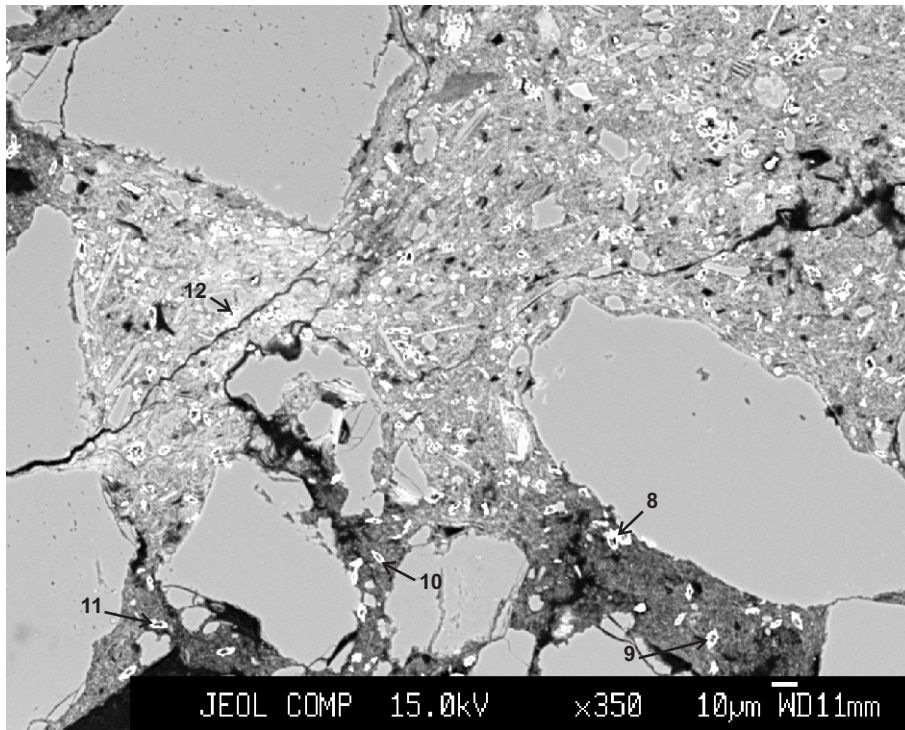
C: Cohasset A-52

D: Balmoral M-32

E: Lawrence D-14

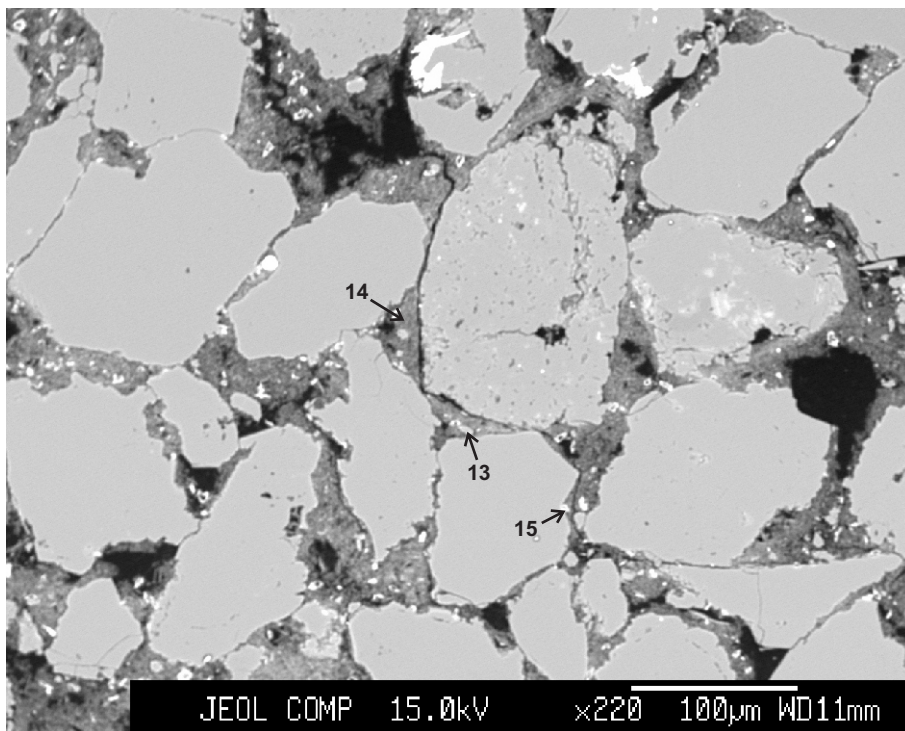
Note: Mineral symbols after Whitney and Evans (2010)

Appendix 2A : Back-scattered electron (BSE) images for the Como P-21 sandstones studied by electron microprobe



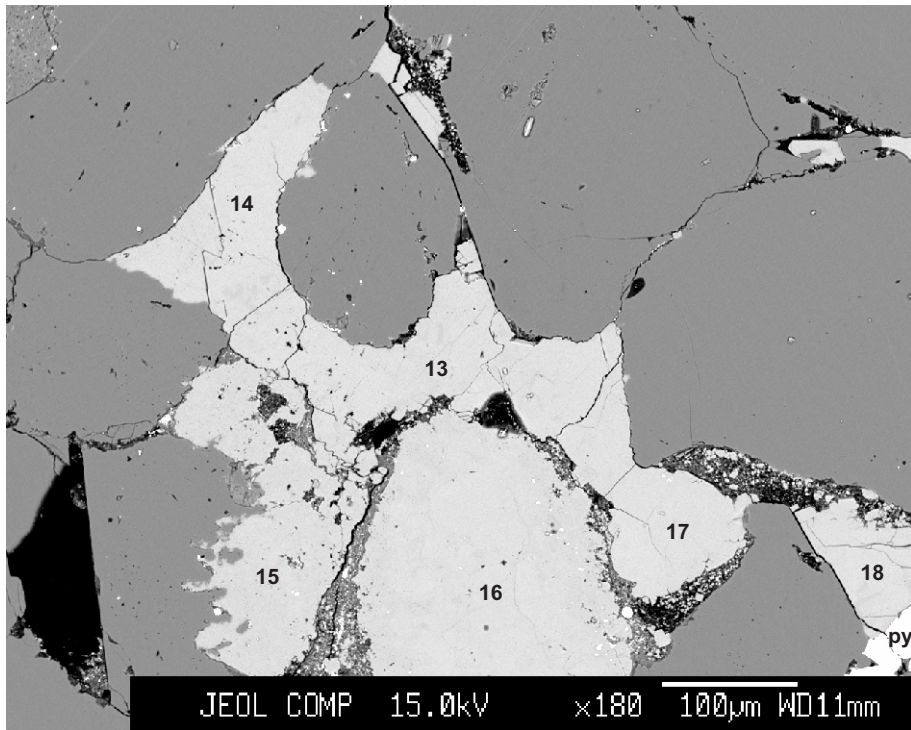
- 8: siderite + clay
- 9: siderite + clay
- 10: siderite + clay
- 11: siderite + clay
- 12: siderite + clay

Figure 1: Como P-21-2193.7



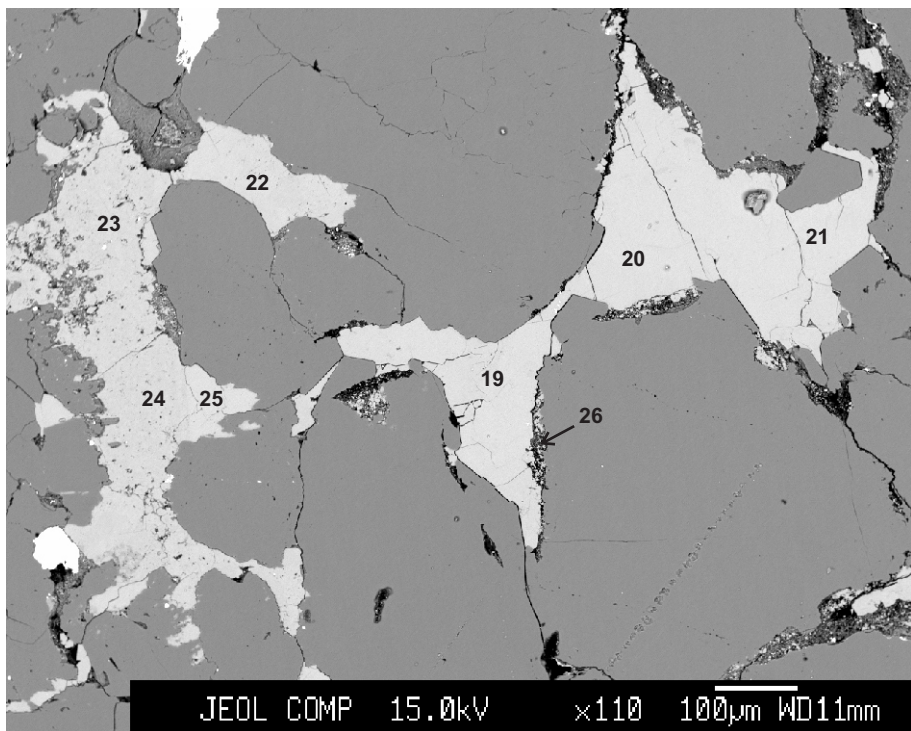
- 13: siderite + clay
- 14: clay
- 15: siderite + clay

Figure 2: Como P-21-2193.7



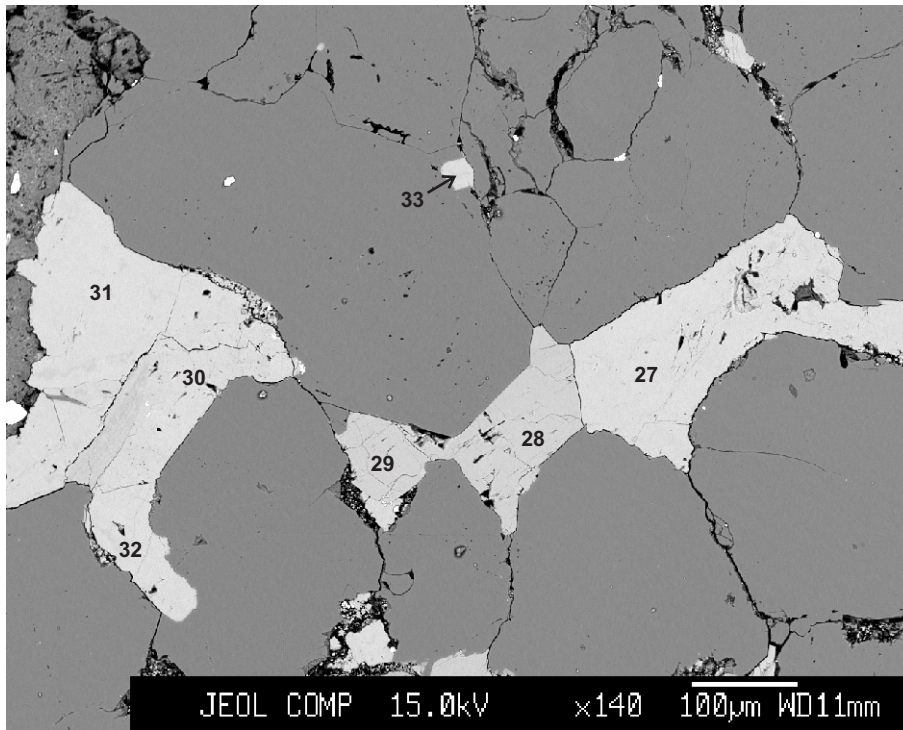
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite
- 17: Fe-calcite
- 18: Fe-calcite

Figure 3: Como P-21-2956.93



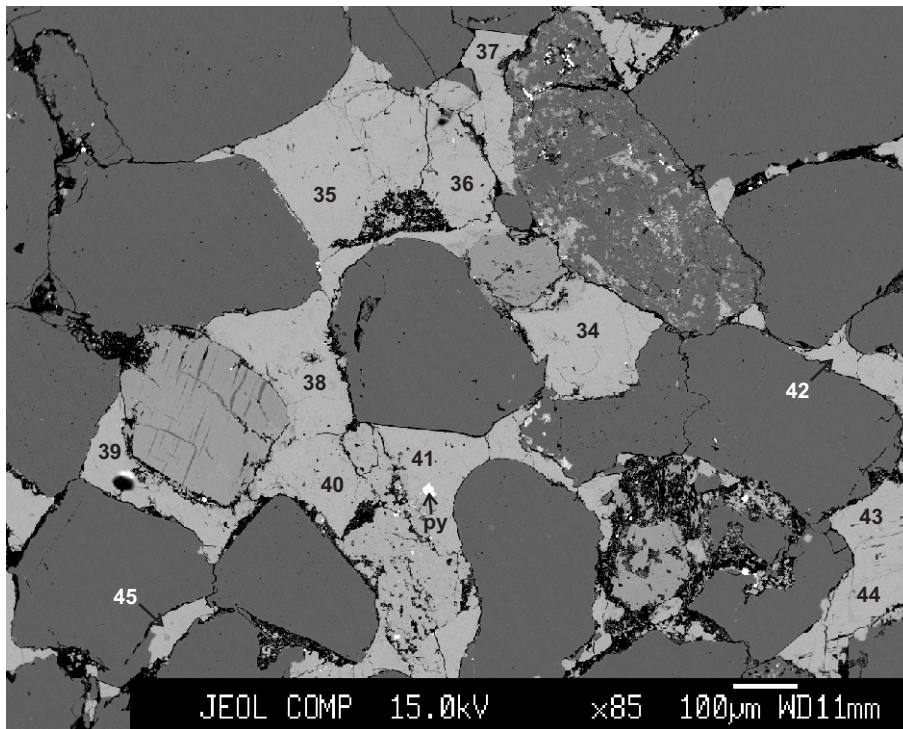
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: clay

Figure 4: Como P-21-2956.93



- 27: Fe-calcite
- 28: ankerite
- 29: ankerite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: calcite
- 33: calcite

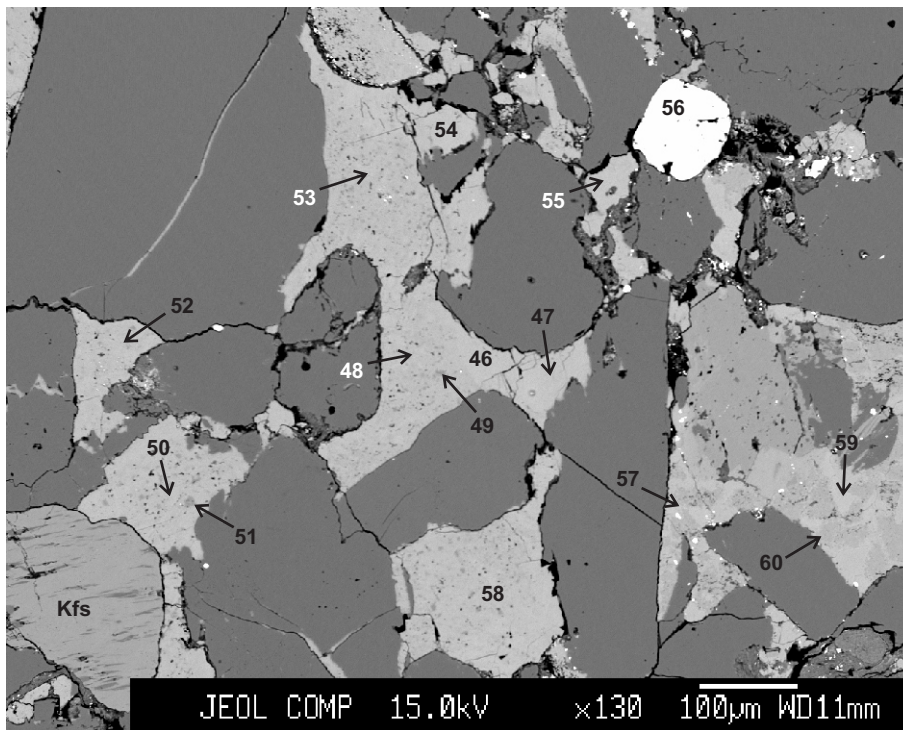
Figure 5: Como P-21-2956.93



- 34: Fe-calcite
- 35: Fe-calcite
- 36: Fe-calcite
- 37: calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: calcite
- 44: Fe-calcite
- 45: Fe-calcite

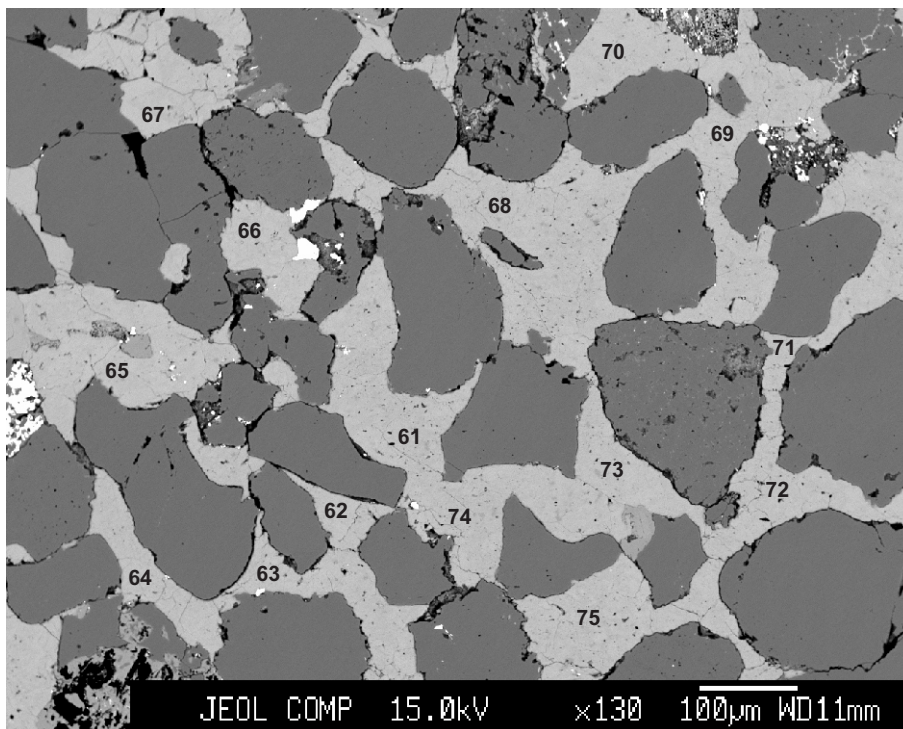
Figure 6: Como P-21-2956.93





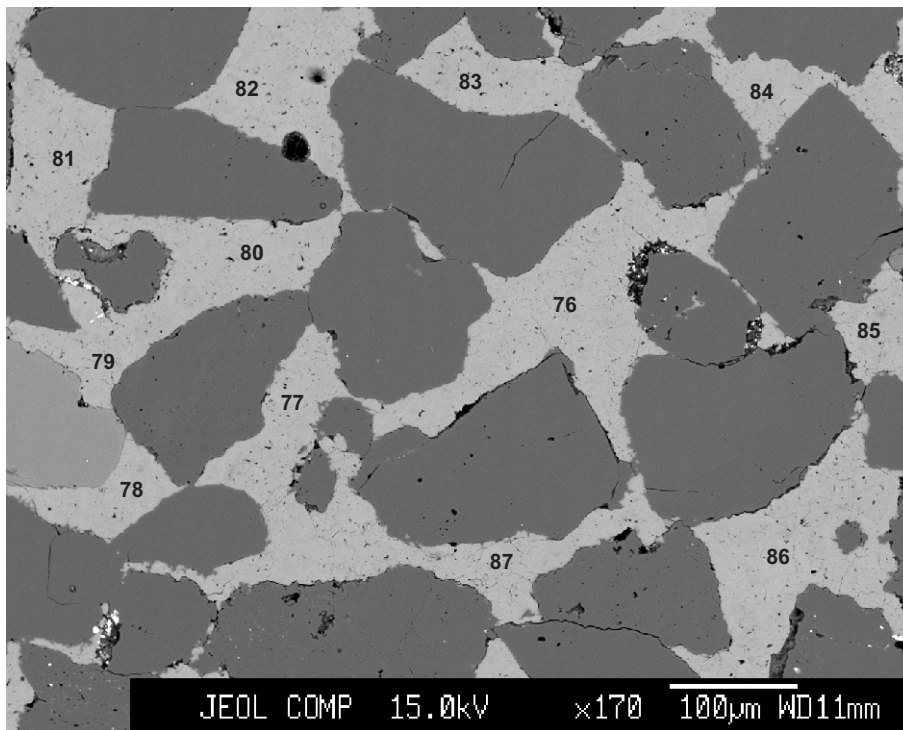
- 46: calcite
- 47: calcite
- 48: calcite
- 49: ankerite
- 50: calcite
- 51: ankerite
- 52: calcite
- 53: calcite
- 54: calcite
- 55: calcite
- 56: chromite
- 57: ankerite
- 58: Fe-Mg-calcite
- 59: ankerite
- 60: Fe-Mg-calcite

Figure 7: Como P-21-2969.48



- 61: calcite
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: calcite
- 68: calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: calcite
- 75: Fe-calcite

Figure 8: Como P-21-2969.48



- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite

Figure 9: Como P-21-2969.48

Appendix 2 : Back-scattered electron (BSE) images for the sandstones  
from the studied wells studied by electron microprobe

A: Como P-21

B: Panuke B-90

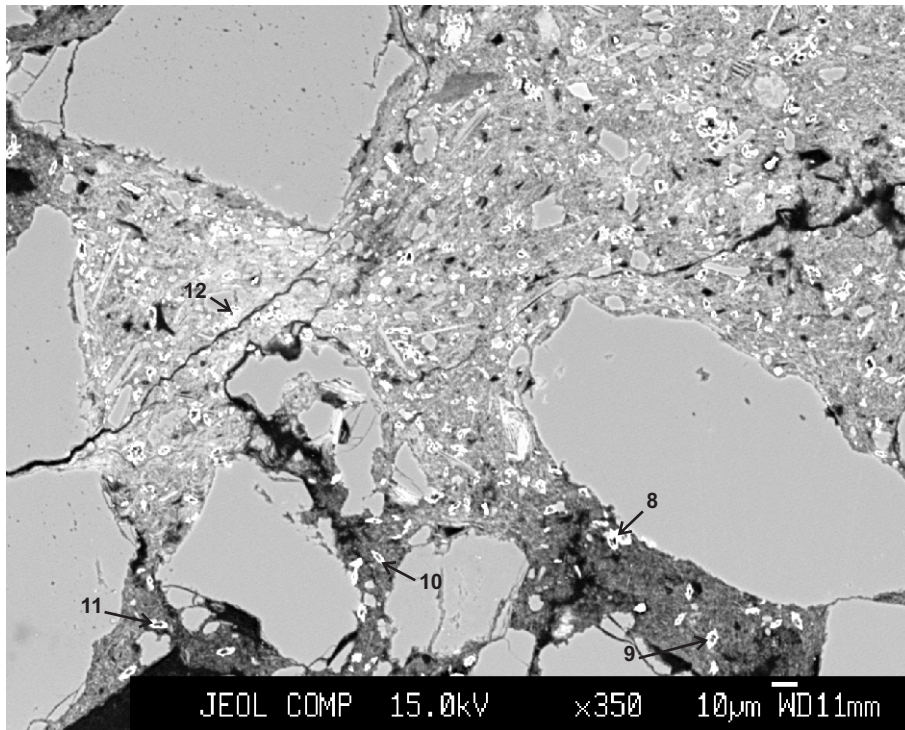
C: Cohasset A-52

D: Balmoral M-32

E: Lawrence D-14

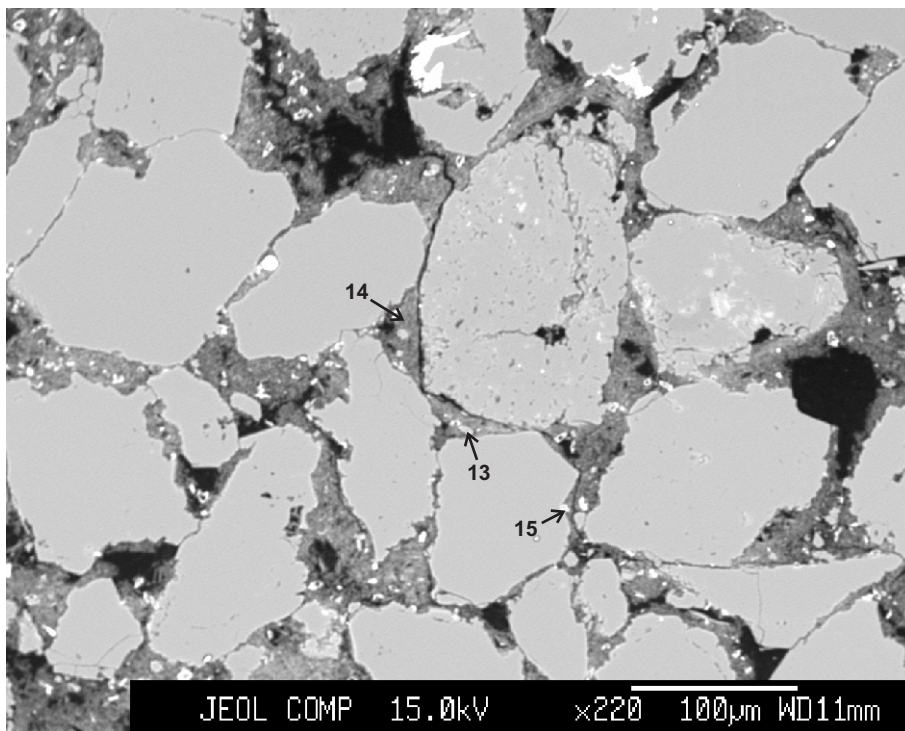
Note: Mineral symbols after Whitney and Evans (2010)

Appendix 2A : Back-scattered electron (BSE) images for the Como P-21 sandstones studied by electron microprobe



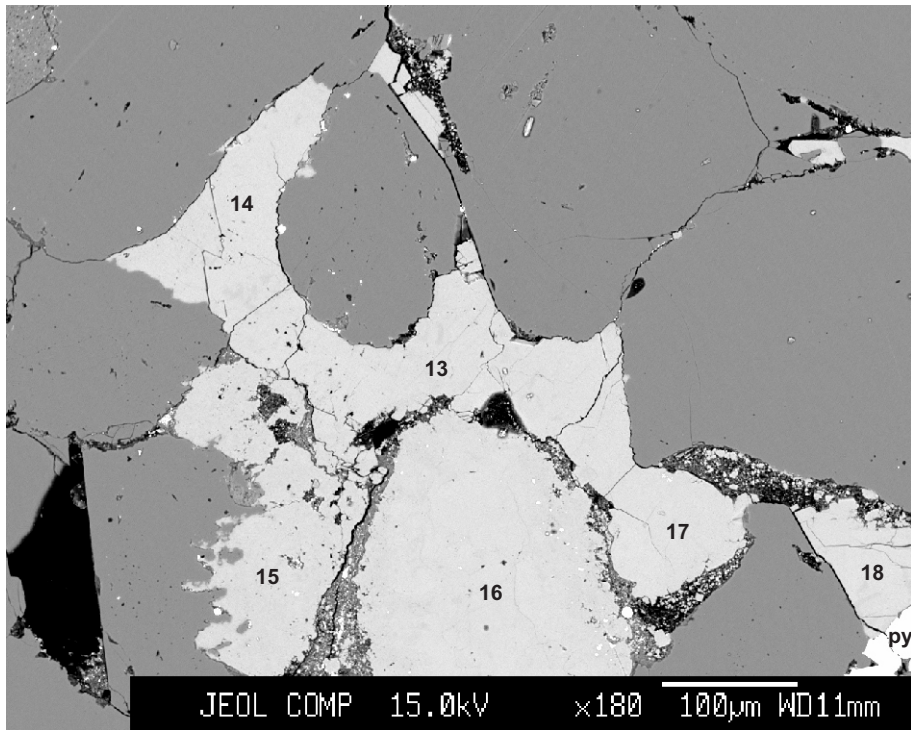
- 8: siderite + clay
- 9: siderite + clay
- 10: siderite + clay
- 11: siderite + clay
- 12: siderite + clay

Figure 1: Como P-21-2193.7



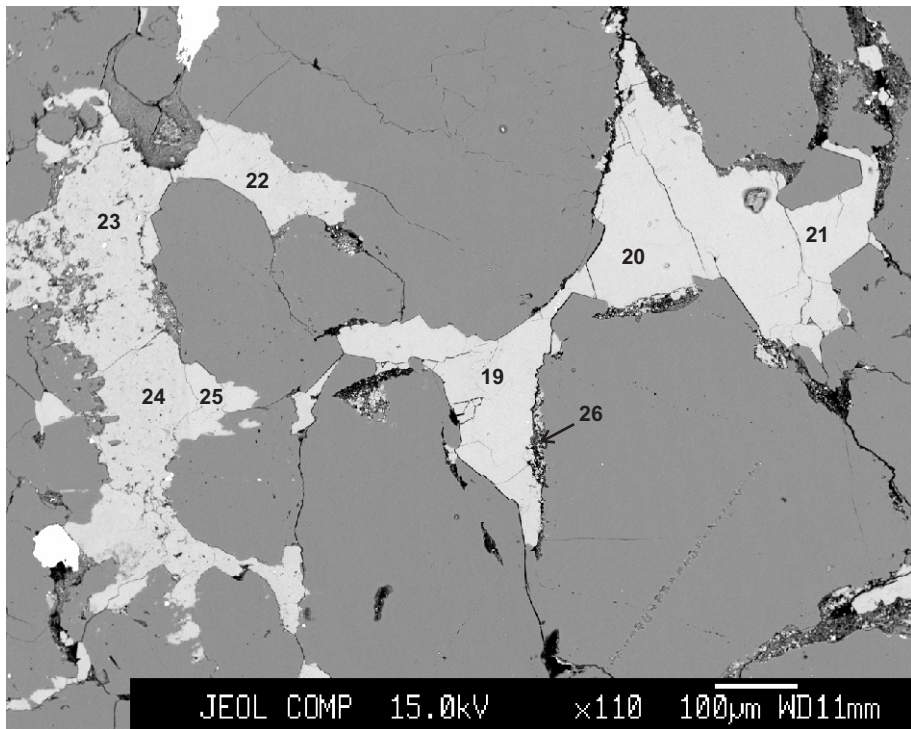
- 13: siderite + clay
- 14: clay
- 15: siderite + clay

Figure 2: Como P-21-2193.7



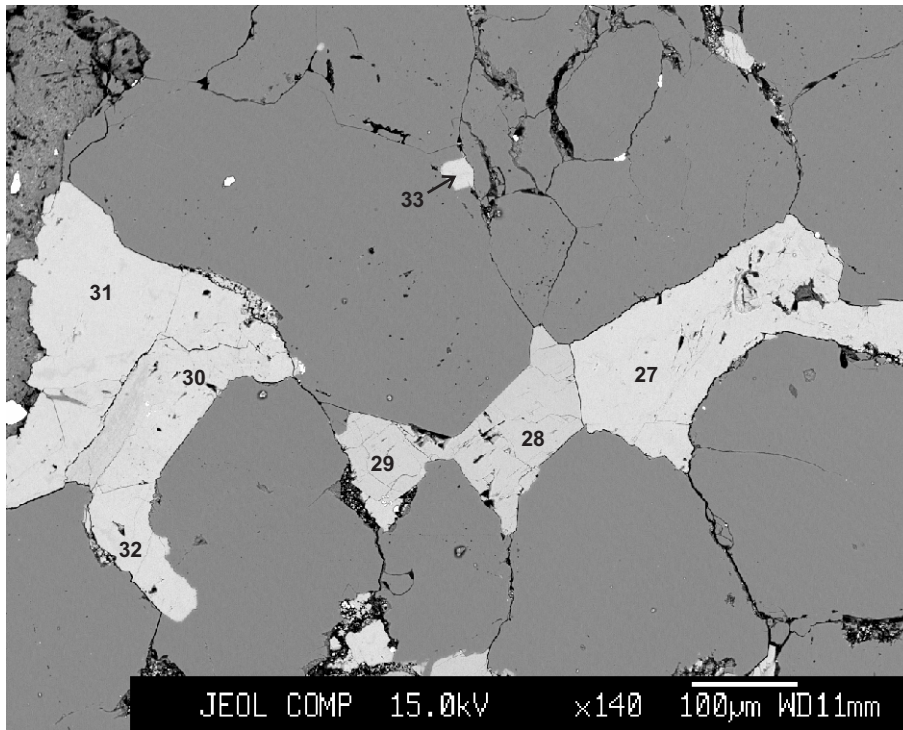
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite
- 17: Fe-calcite
- 18: Fe-calcite

Figure 3: Como P-21-2956.93



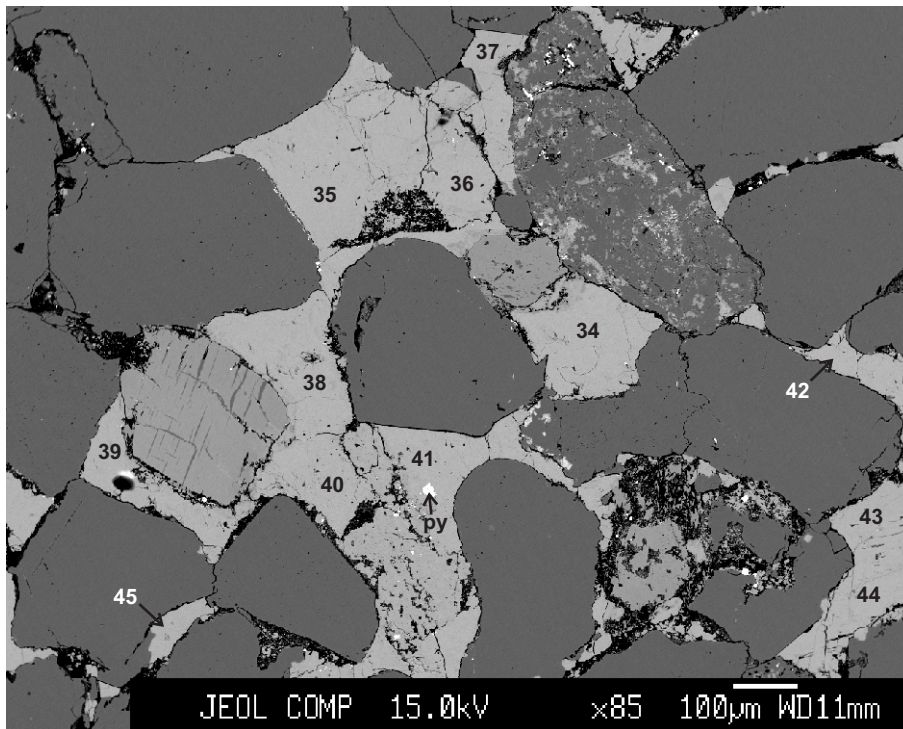
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: clay

Figure 4: Como P-21-2956.93



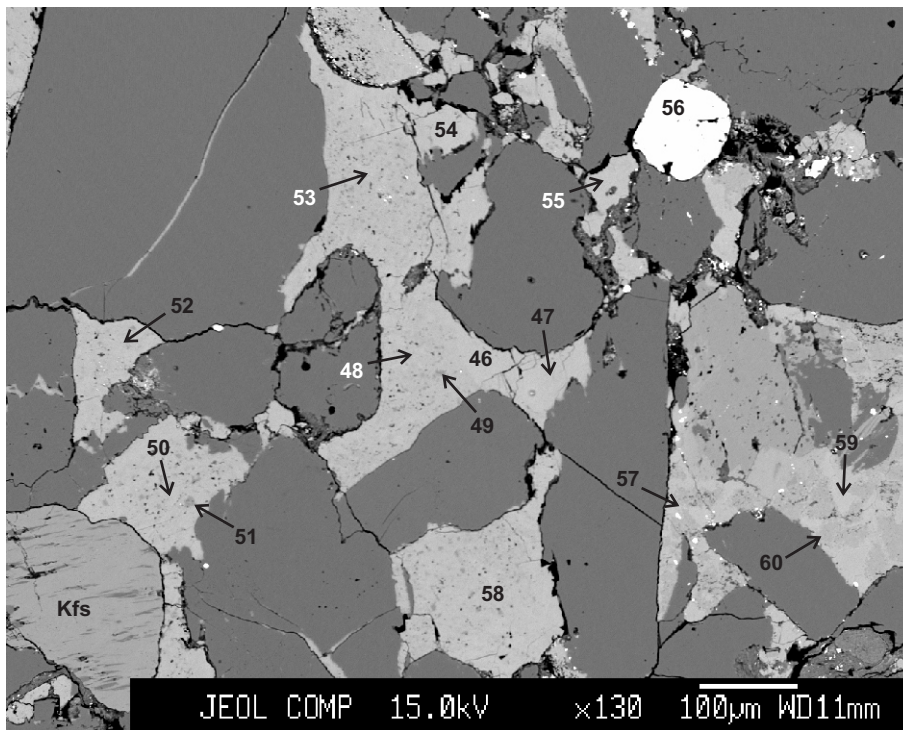
- 27: Fe-calcite
- 28: ankerite
- 29: ankerite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: calcite
- 33: calcite

Figure 5: Como P-21-2956.93



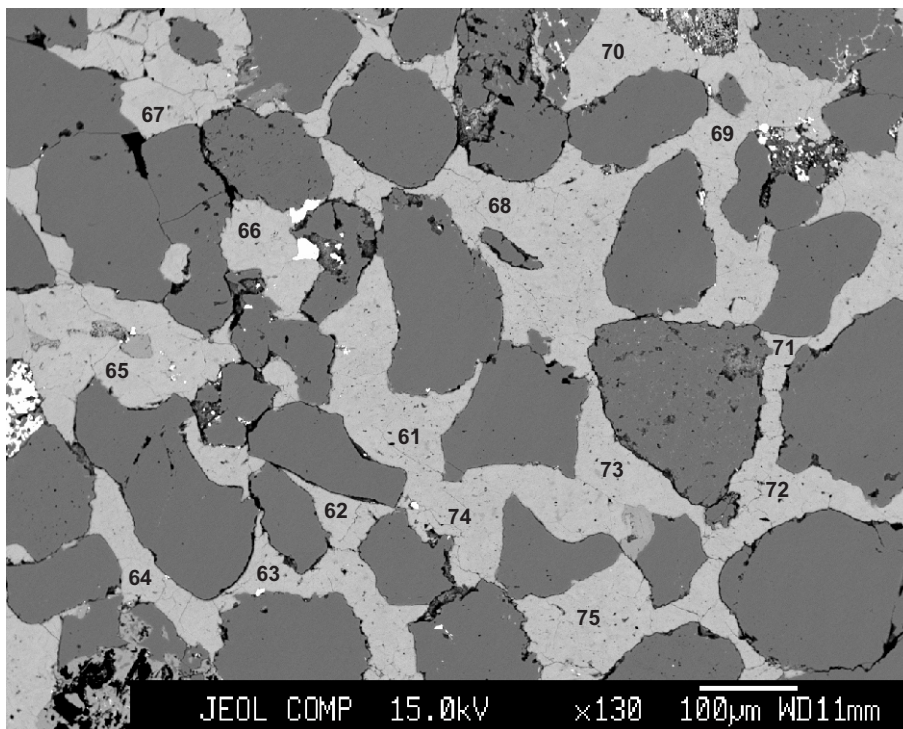
- 34: Fe-calcite
- 35: Fe-calcite
- 36: Fe-calcite
- 37: calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: calcite
- 44: Fe-calcite
- 45: Fe-calcite

Figure 6: Como P-21-2956.93



- 46: calcite
- 47: calcite
- 48: calcite
- 49: ankerite
- 50: calcite
- 51: ankerite
- 52: calcite
- 53: calcite
- 54: calcite
- 55: calcite
- 56: chromite
- 57: ankerite
- 58: Fe-Mg-calcite
- 59: ankerite
- 60: Fe-Mg-calcite

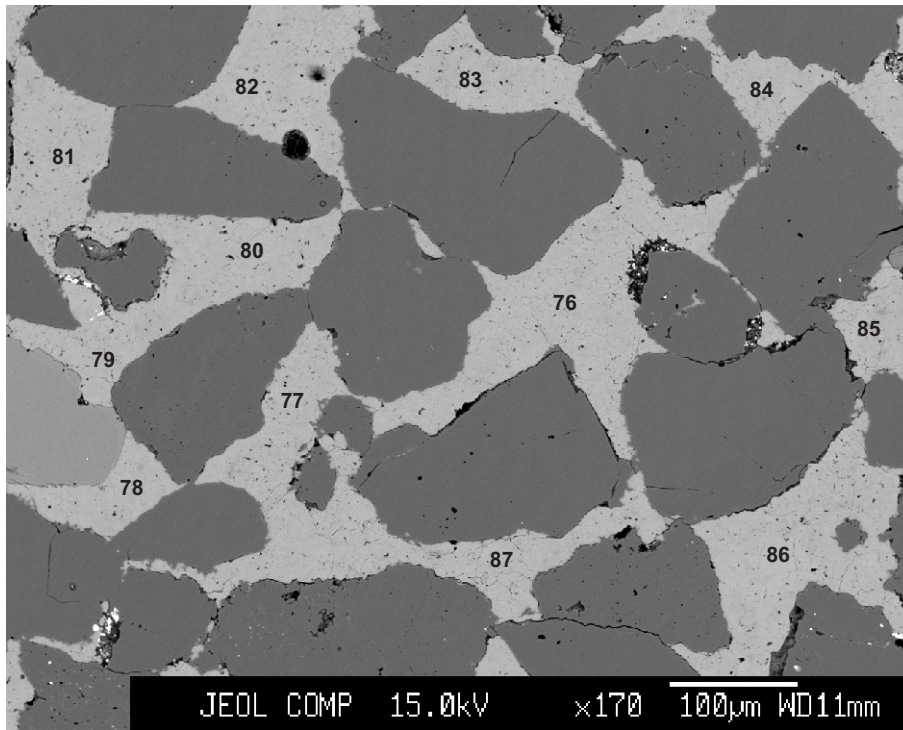
Figure 7: Como P-21-2969.48



- 61: calcite
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: calcite
- 68: calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: calcite
- 75: Fe-calcite

Figure 8: Como P-21-2969.48

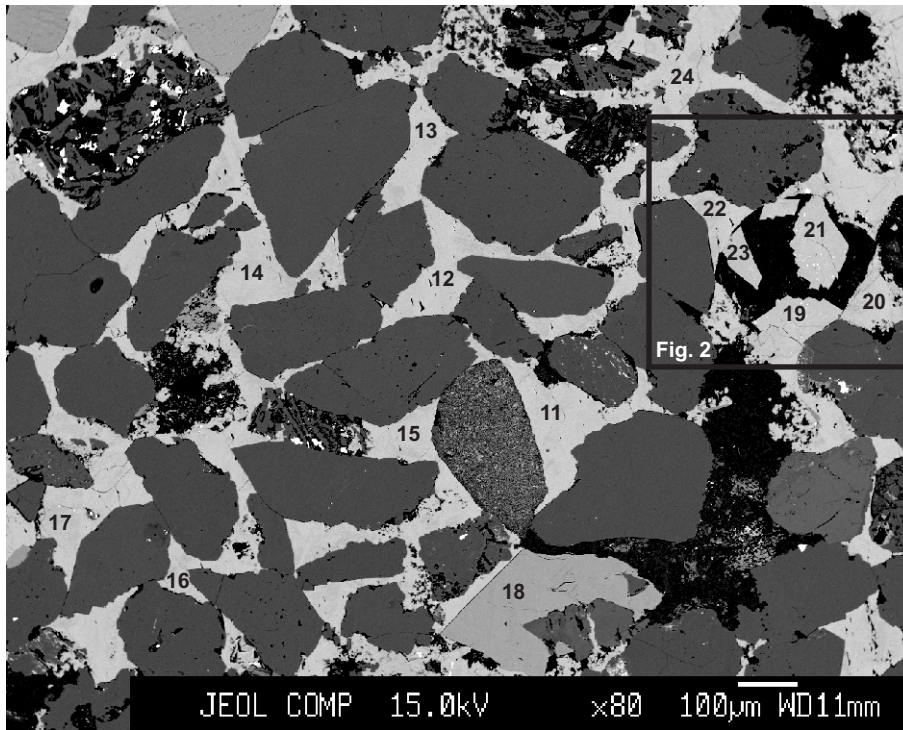




- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite

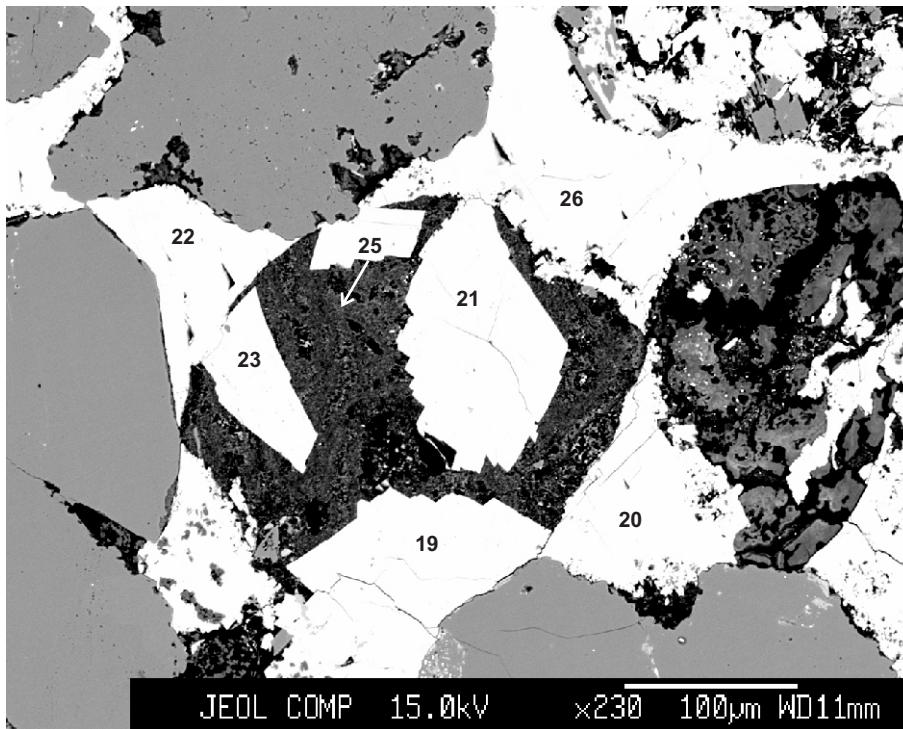
Figure 9: Como P-21-2969.48

Appendix 2B : Back-scattered electron (BSE) images for the Panuke  
B-90 sandstones studied by electron microprobe



- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite
- 17: calcite
- 18: K-feldspar
- 19: ankerite
- 20: Fe-calcite
- 21: ankerite
- 22: calcite
- 23: ankerite
- 24: Fe-calcite

Figure 1: Panuke B-90-2069.01



- 19: ankerite
- 20: Fe-calcite
- 21: ankerite
- 22: calcite
- 23: ankerite
- 24: Fe-calcite
- 25: illite
- 26: Fe-calcite

Figure 2: Panuke B-90-2069.01

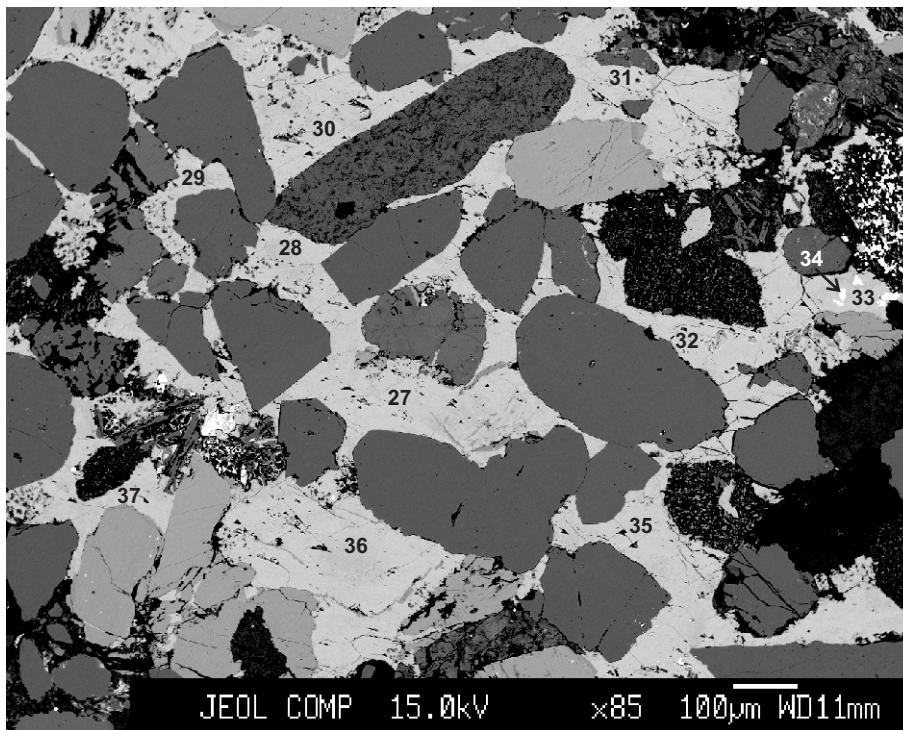


Figure 3: Panuke B-90-2069.01

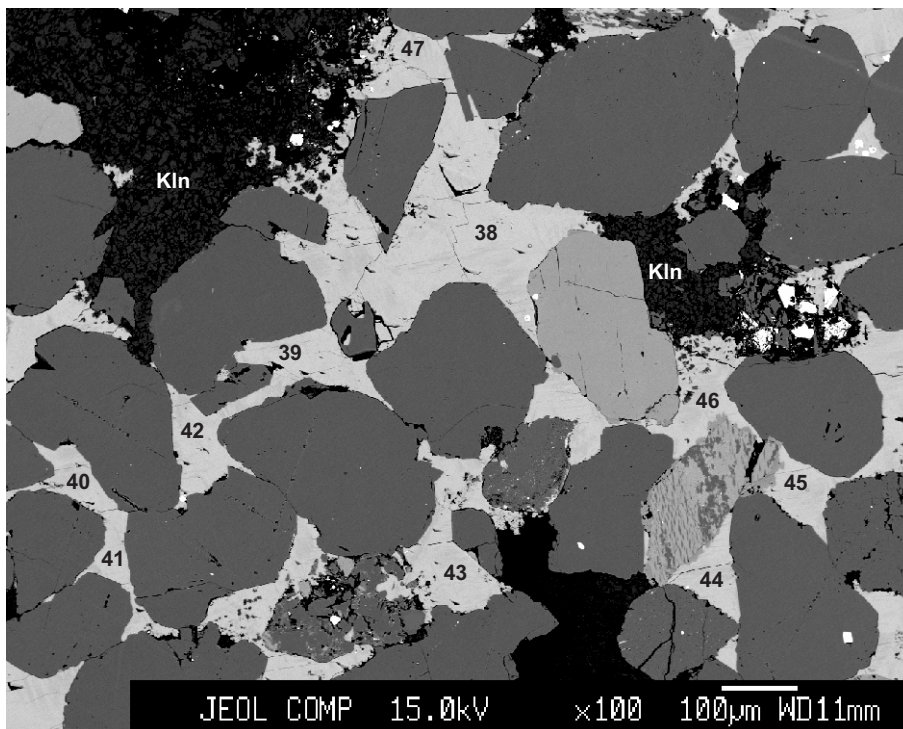


Figure 4: Panuke B-90-2069.01

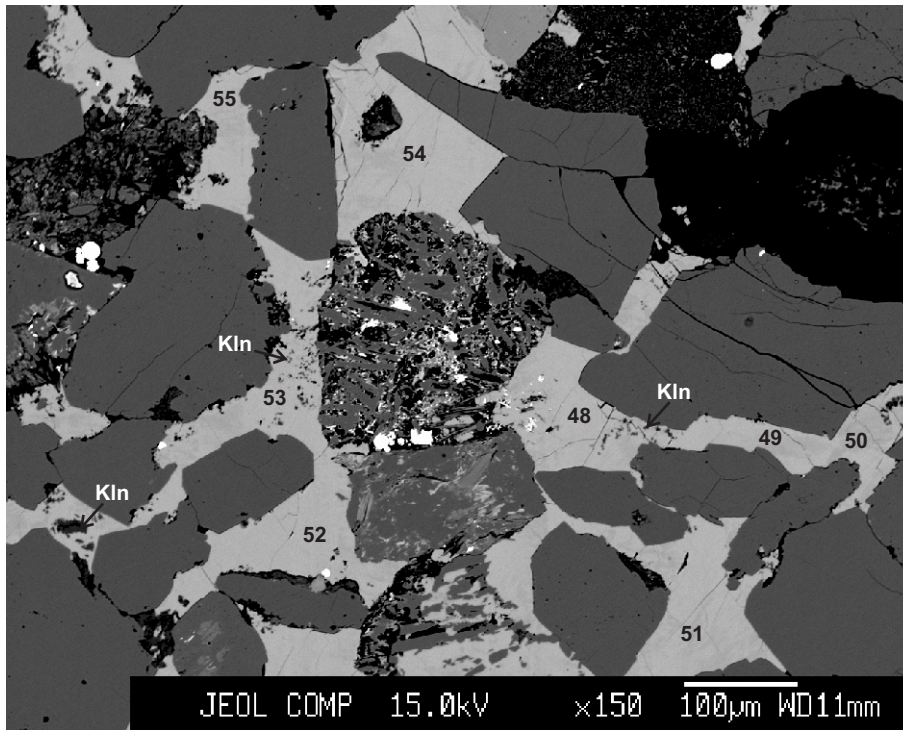


Figure 5: Panuke B-90-2069.01

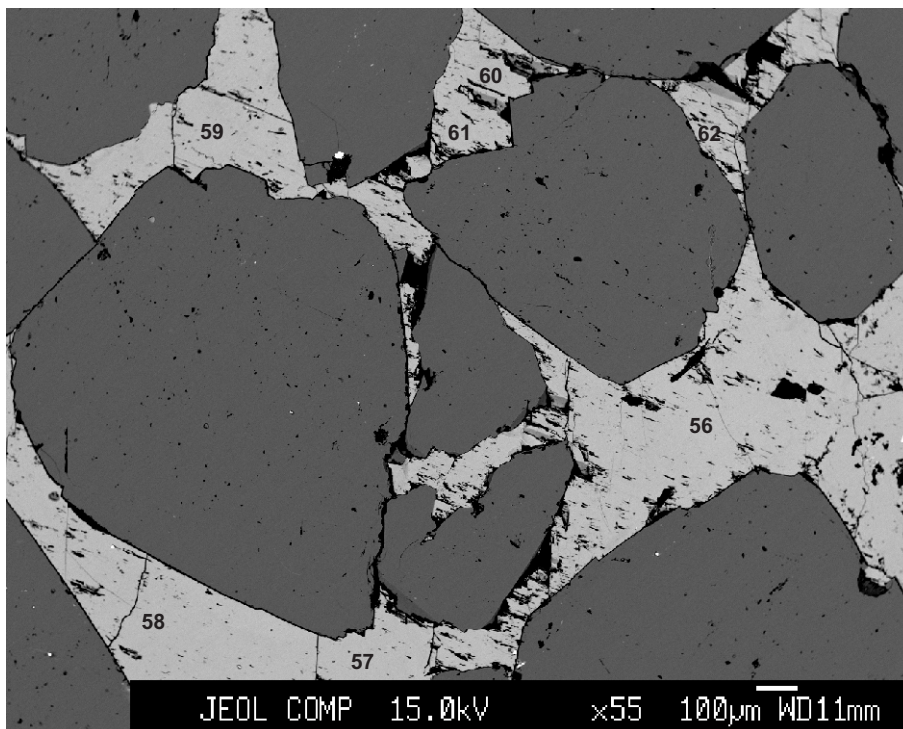
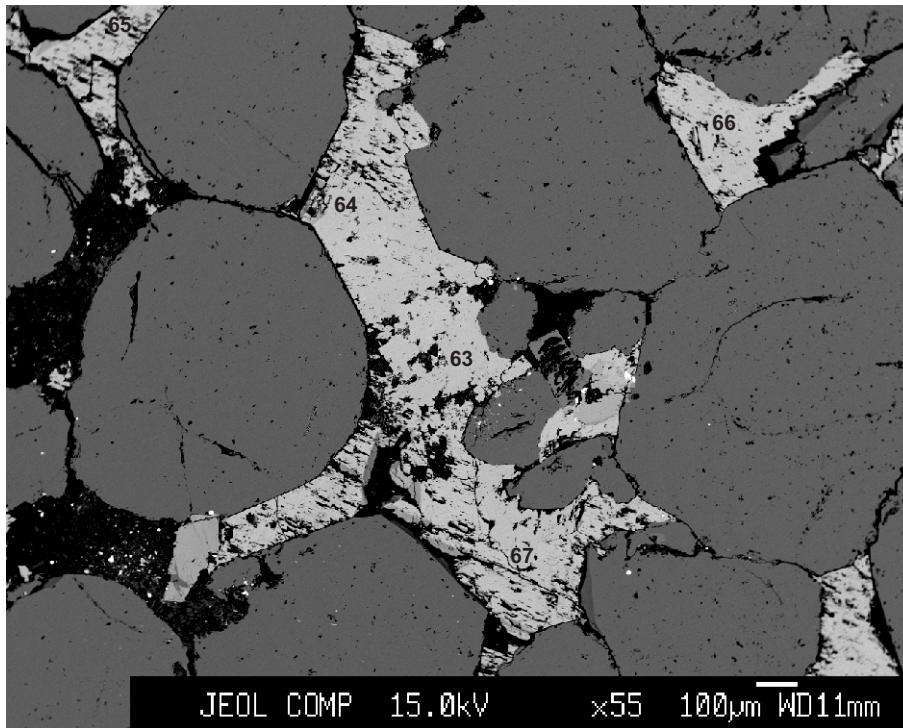
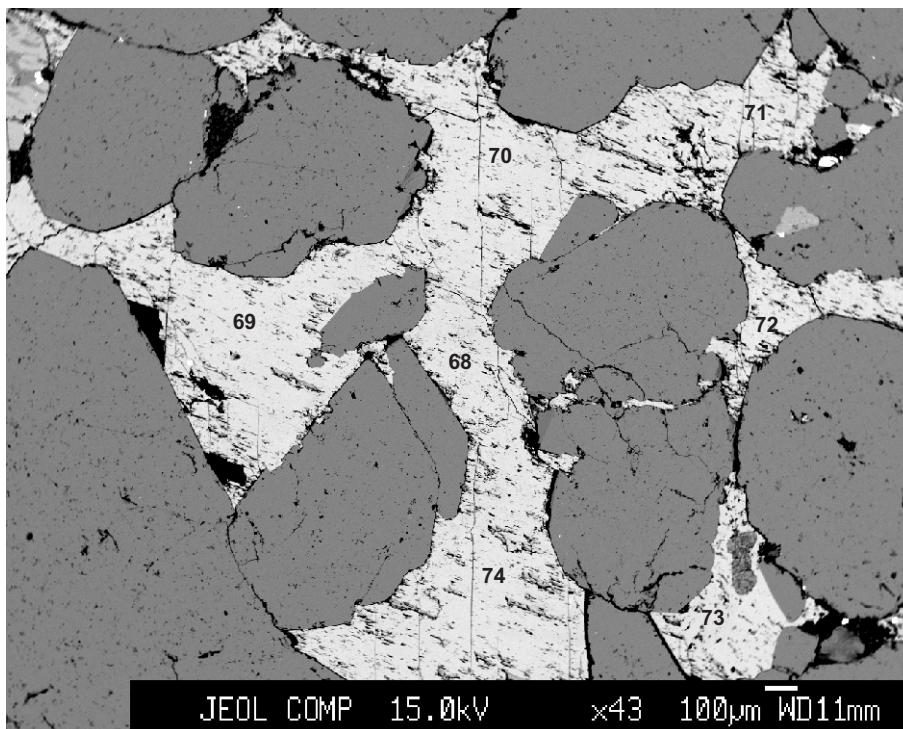


Figure 6: Panuke B-90-2099.21



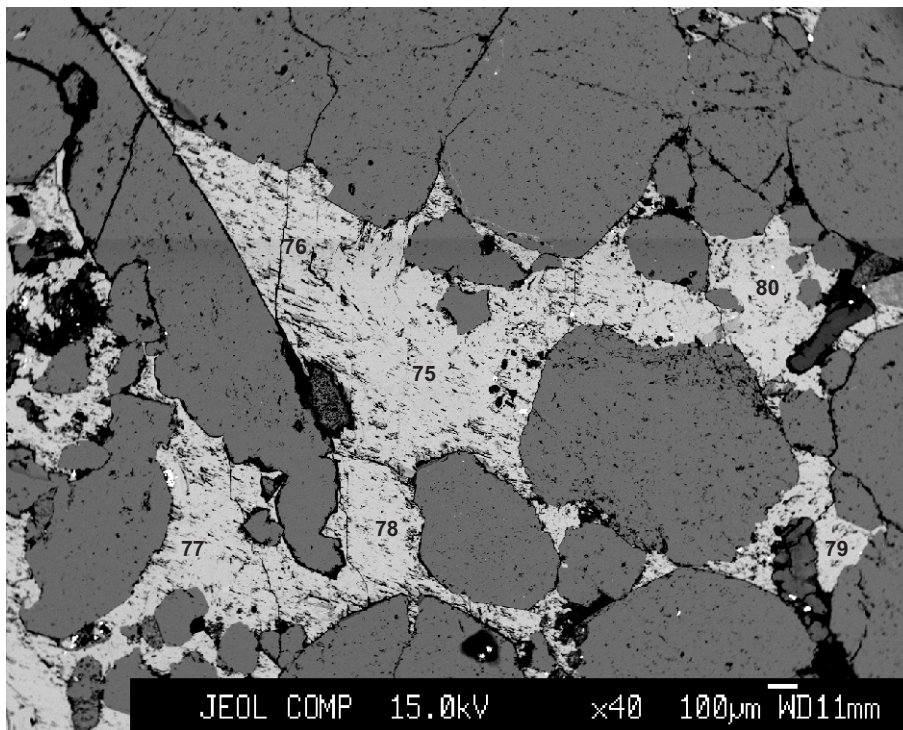
- 63: ankerite
- 64: ankerite
- 65: Fe-calcite
- 66: ankerite
- 67: ankerite

Figure 7: Panuke B-90-2099.21



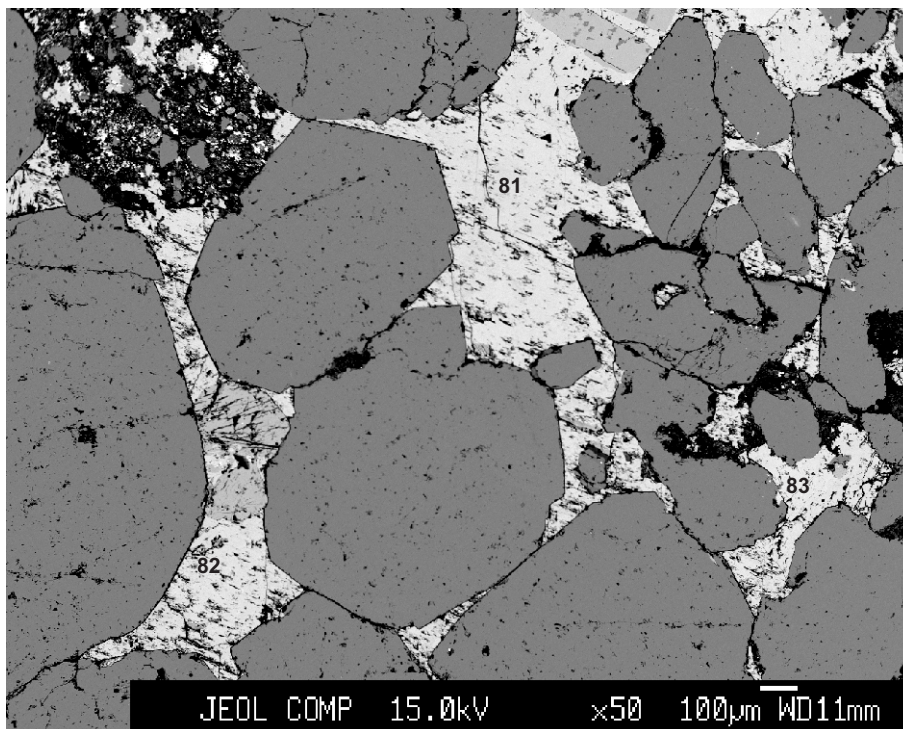
- 68: Fe-calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: ankerite
- 74: Fe-calcite

Figure 8: Panuke B-90-2099.21



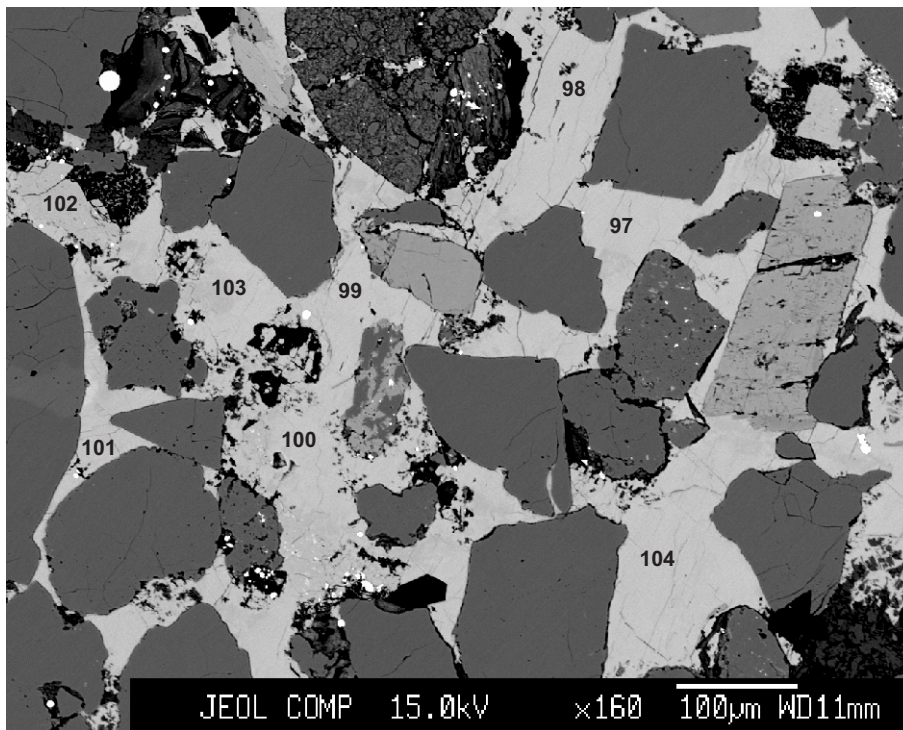
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: ankerite
- 80: ankerite

Figure 9: Panuke B-90-2099.21



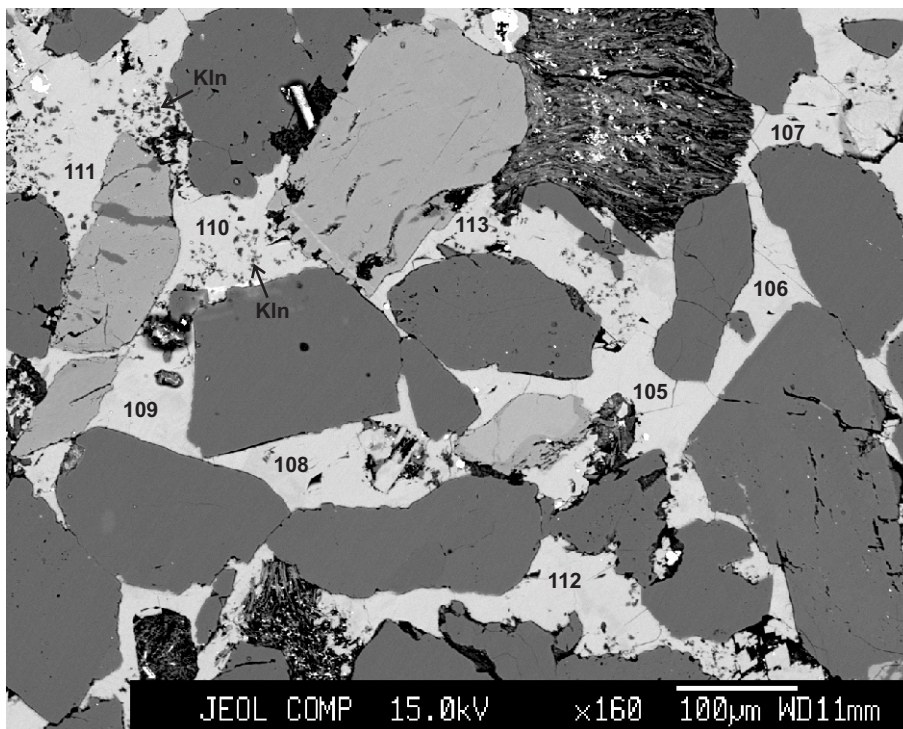
- 81: Fe-calcite
- 82: Fe-calcite
- 83: ankerite

Figure 10: Panuke B-90-2099.21



- 96: Fe-calcite
- 97: Fe-calcite
- 98: Fe-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: Fe-calcite
- 102: ankerite
- 103: Fe-calcite
- 104: Fe-calcite

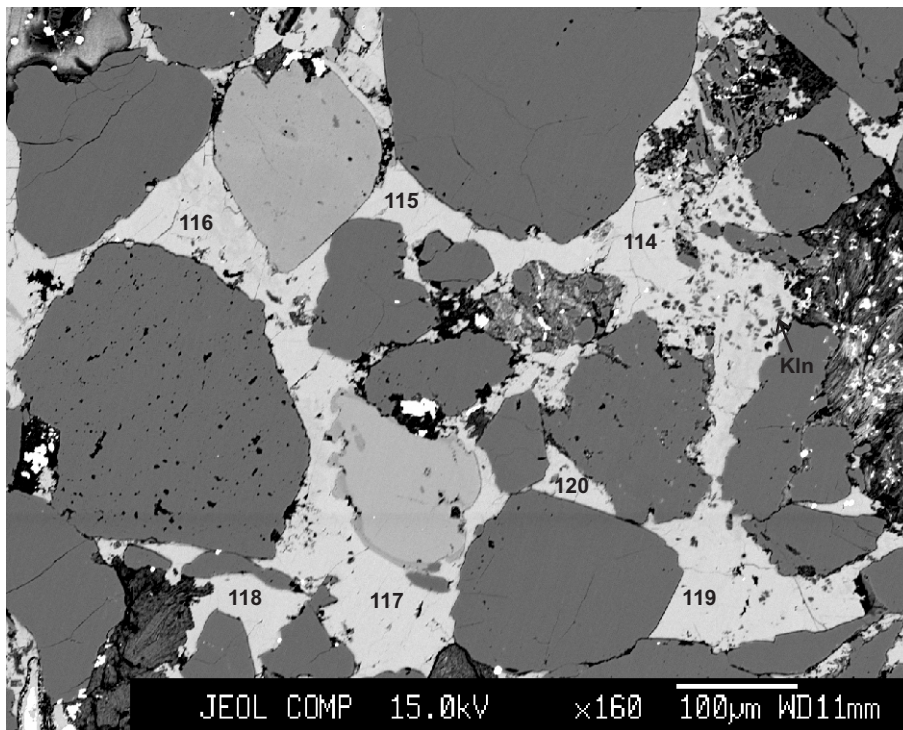
Figure 11: Panuke B-90-2099.69



- 105: Fe-calcite
- 106: Fe-calcite
- 107: Fe-calcite
- 108: calcite
- 109: Fe-calcite
- 110: Fe-calcite
- 111: Fe-calcite
- 112: Fe-calcite
- 113: Fe-calcite

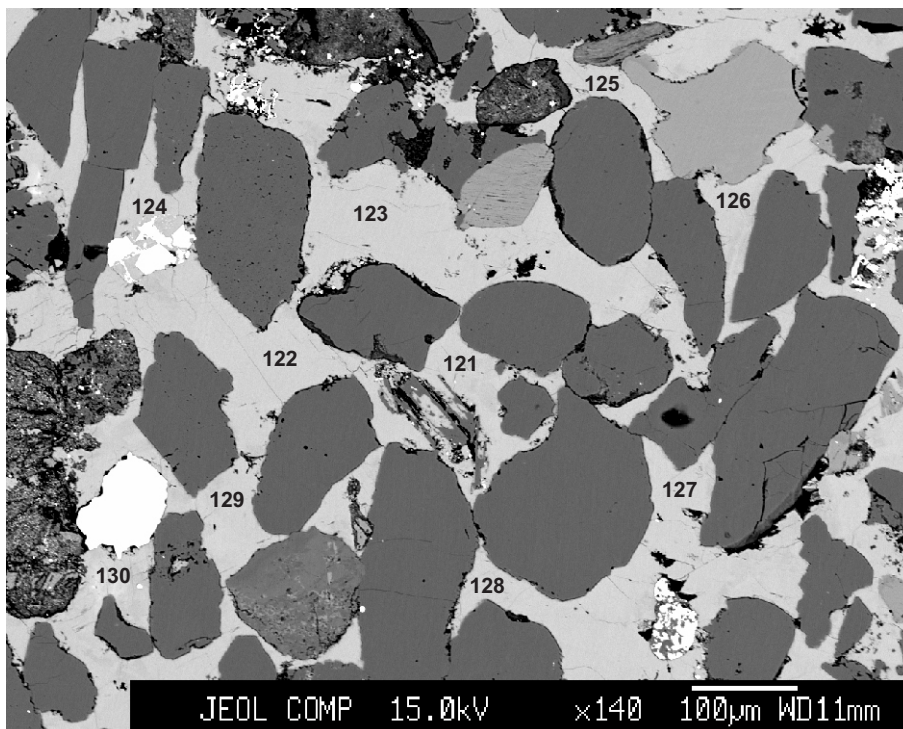
Figure 12: Panuke B-90-2099.69





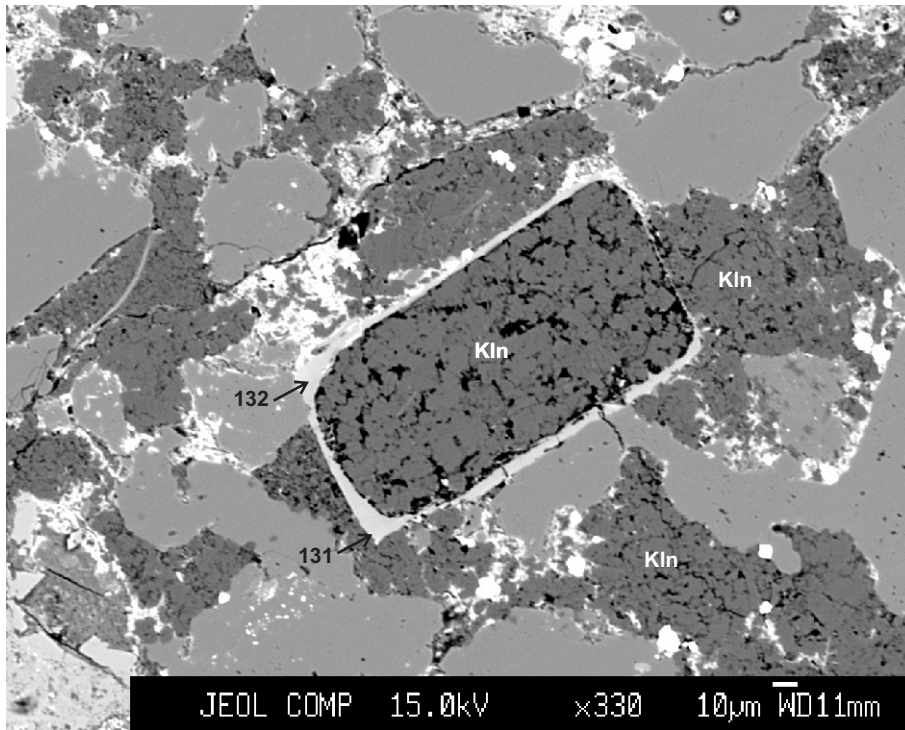
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite
- 119: Fe-calcite
- 120: ankerite

Figure 13: Panuke B-90-2099.69



- 121: Fe-calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: Fe-calcite
- 127: Fe-calcite
- 128: Fe-calcite
- 129: Fe-calcite
- 130: Fe-calcite

Figure 14: Panuke B-90-2099.69



131: K-feldspar  
115: K-feldspar

Figure 15: Panuke B-90-2107.7

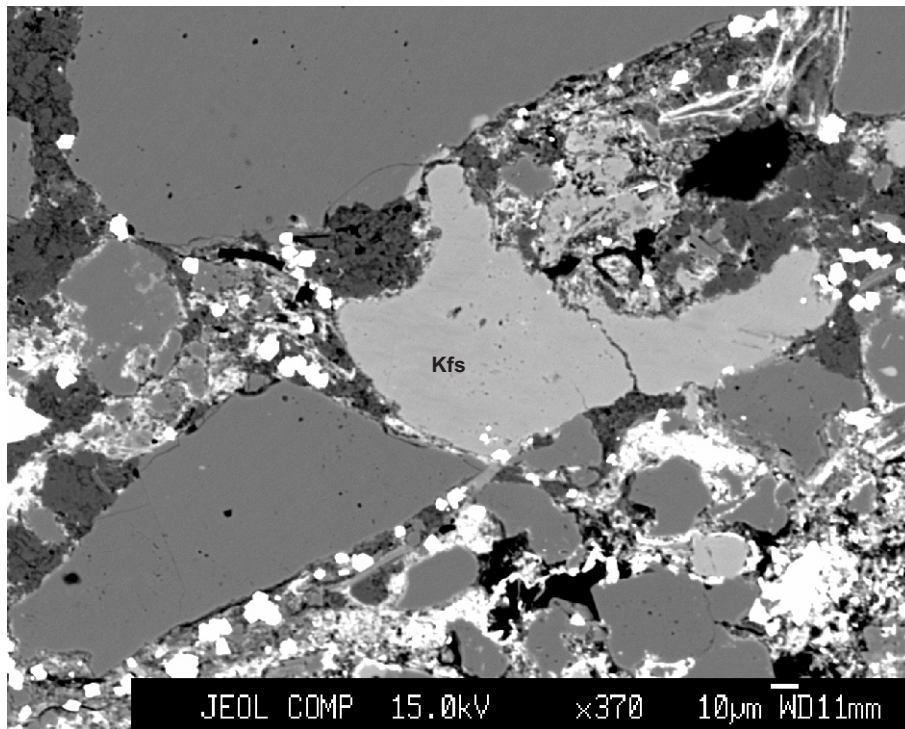
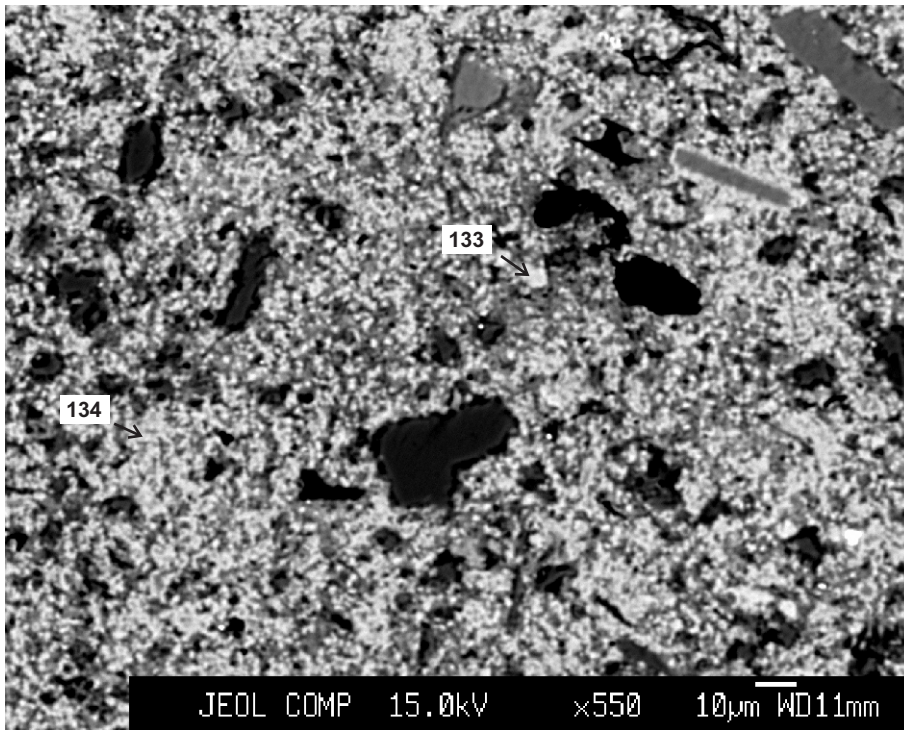
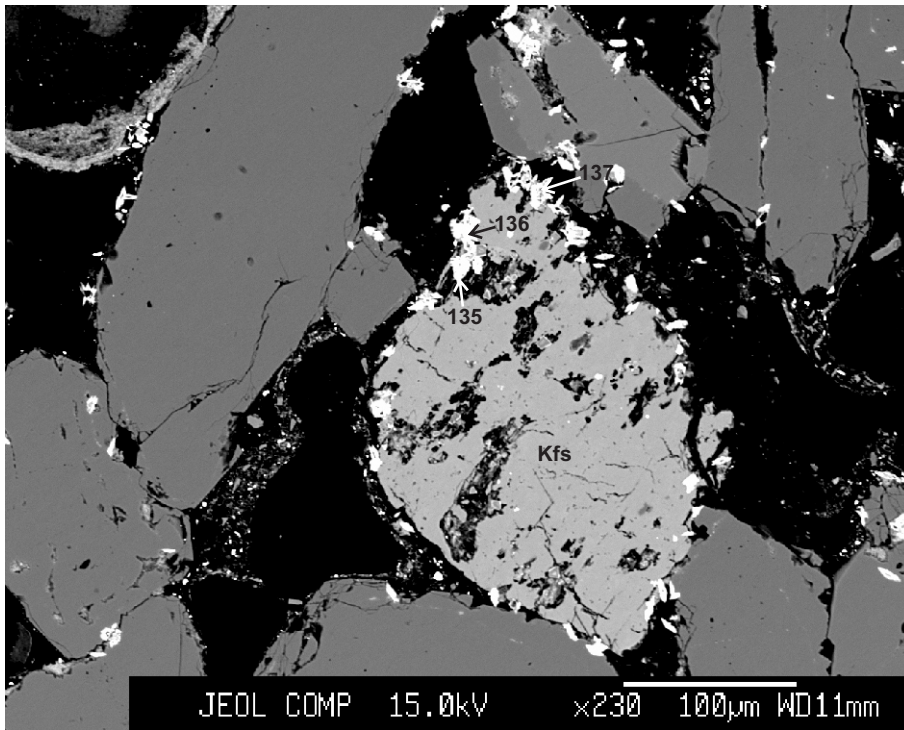


Figure 16: Panuke B-90-2107.7



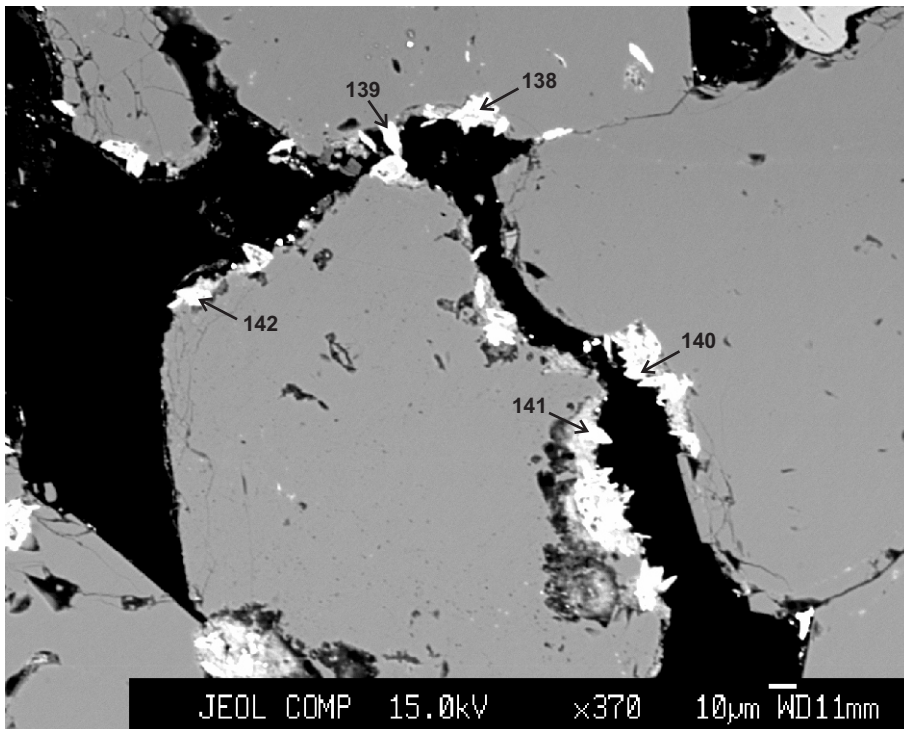
133: siderite  
134: siderite

Figure 17: Panuke B-90-2217.93



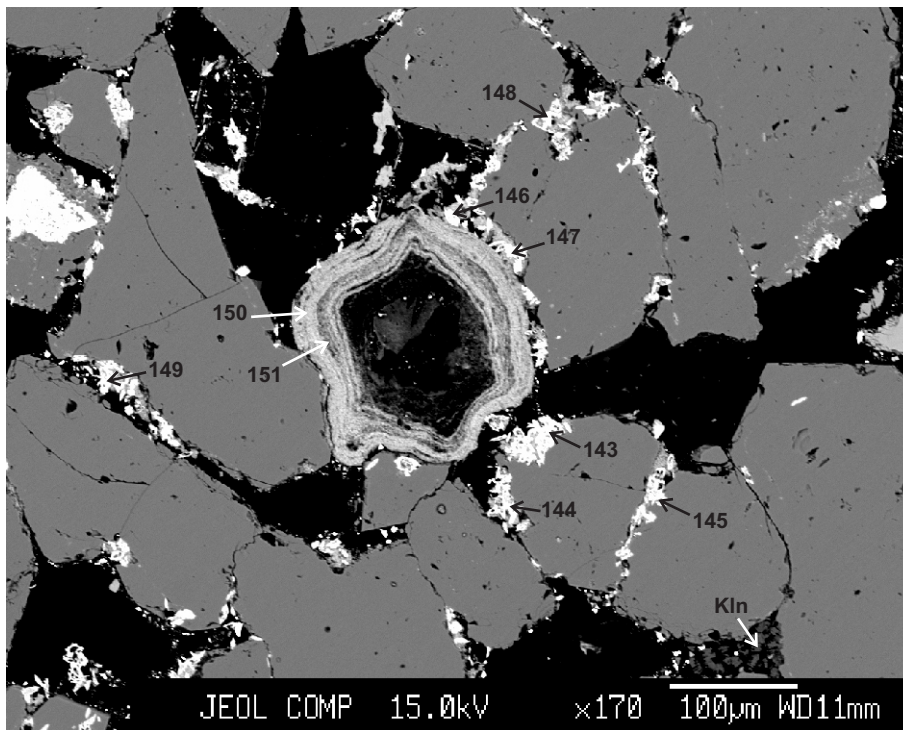
135: siderite  
 136: siderite  
 137: siderite

Figure 18: Panuke B-90-2223.78B



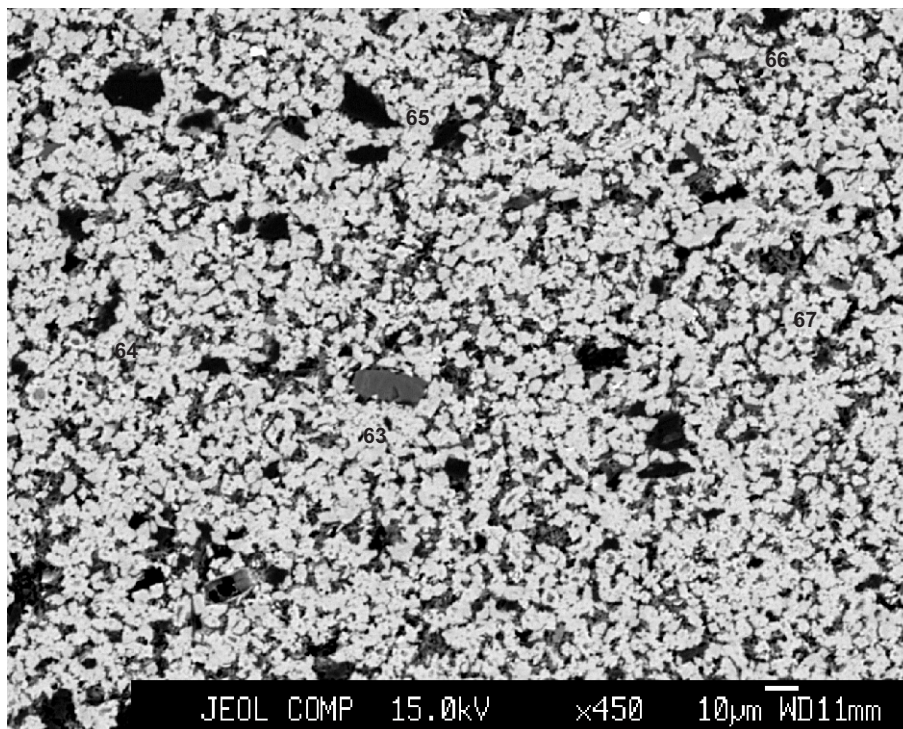
137: siderite  
 138: siderite  
 139: siderite  
 140: siderite  
 141: siderite  
 142: siderite

Figure 19: Panuke B-90-2223.78B



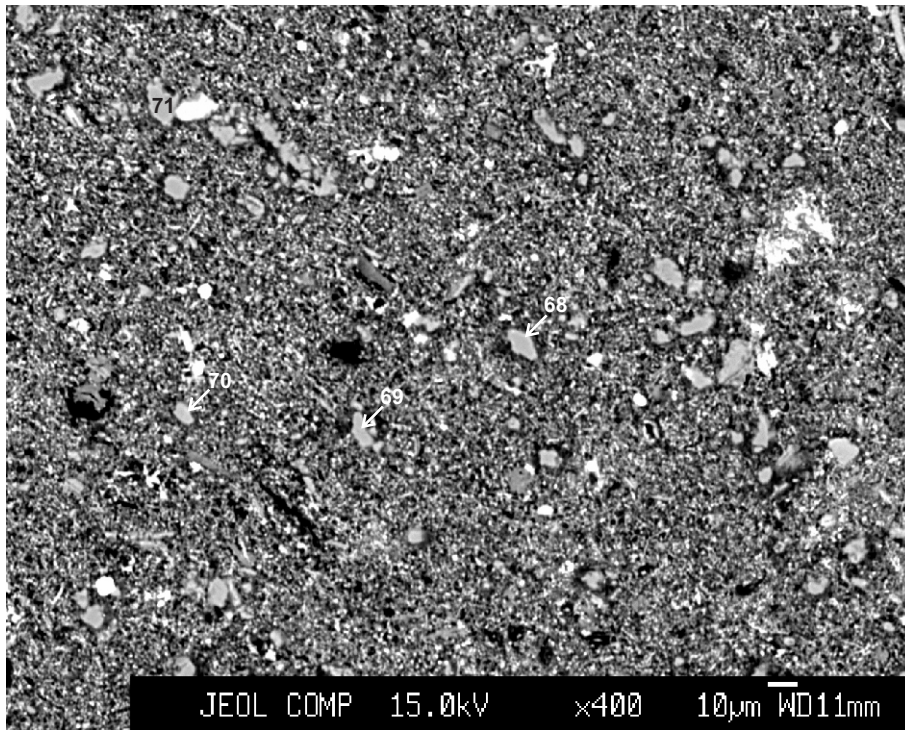
- 143: siderite
- 144: siderite
- 145: siderite
- 146: siderite
- 147: siderite
- 148: pseudorutile
- 149: siderite
- 150: chlorite
- 151: chlorite

Figure 20: Panuke B-90-2223.78B



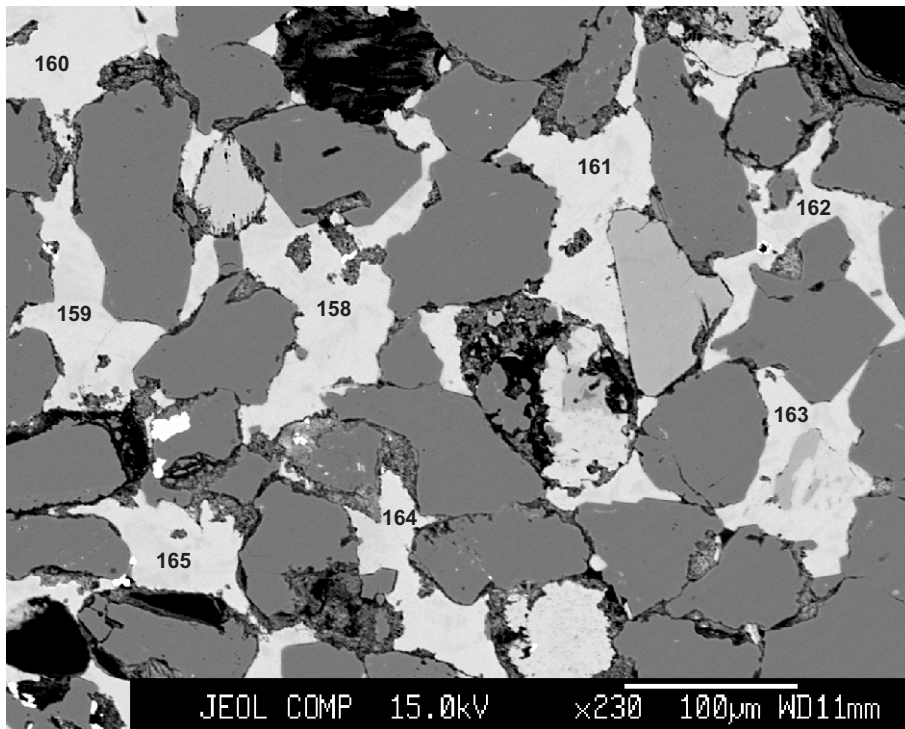
- 63: siderite
- 64: siderite
- 65: siderite
- 66: siderite
- 67: siderite

Figure 21: Panuke B-90-2242.47



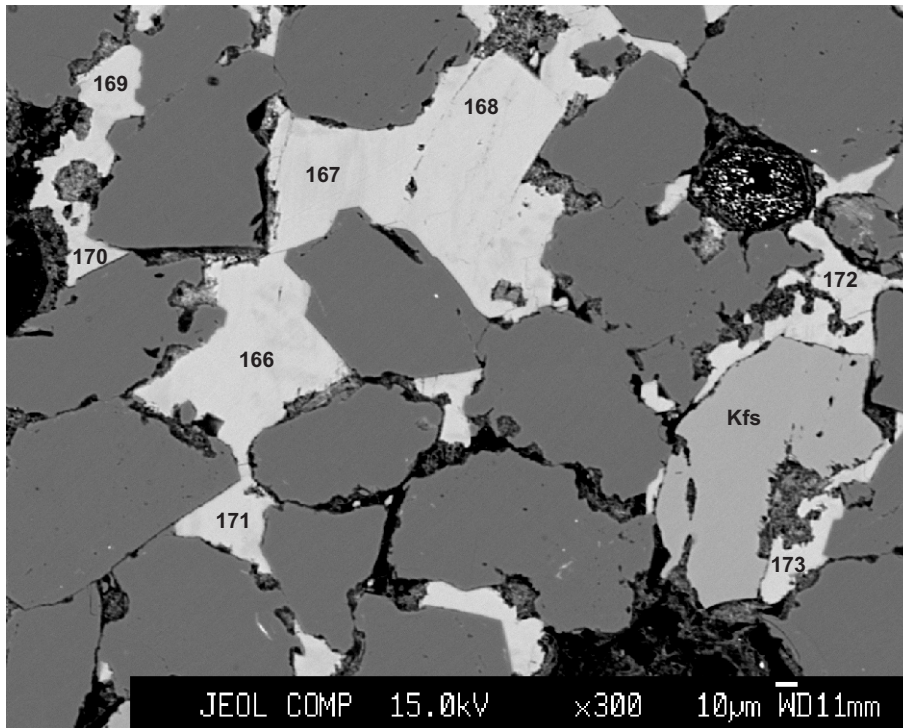
68: quartz  
 69: quartz  
 70: K-feldspar  
 71: quartz

Figure 22: Panuke B-90-2242.47



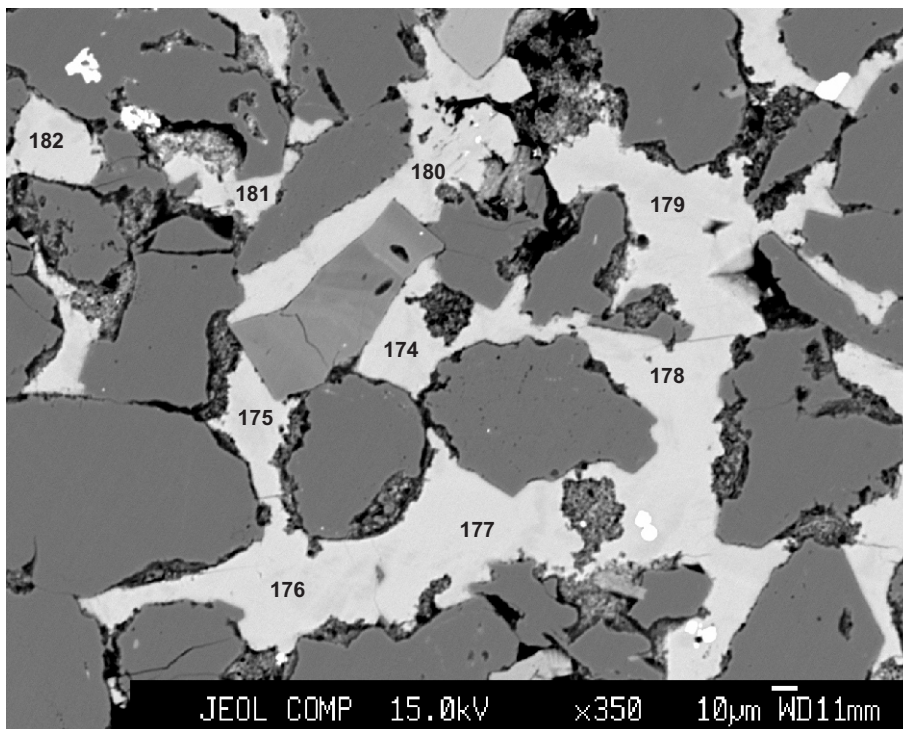
158: Fe-calcite  
 159: calcite  
 160: Fe-calcite  
 161: Fe-calcite  
 162: Fe-calcite  
 163: calcite  
 164: Fe-calcite  
 165: Fe-calcite

Figure 23: Panuke B-90-2281.68



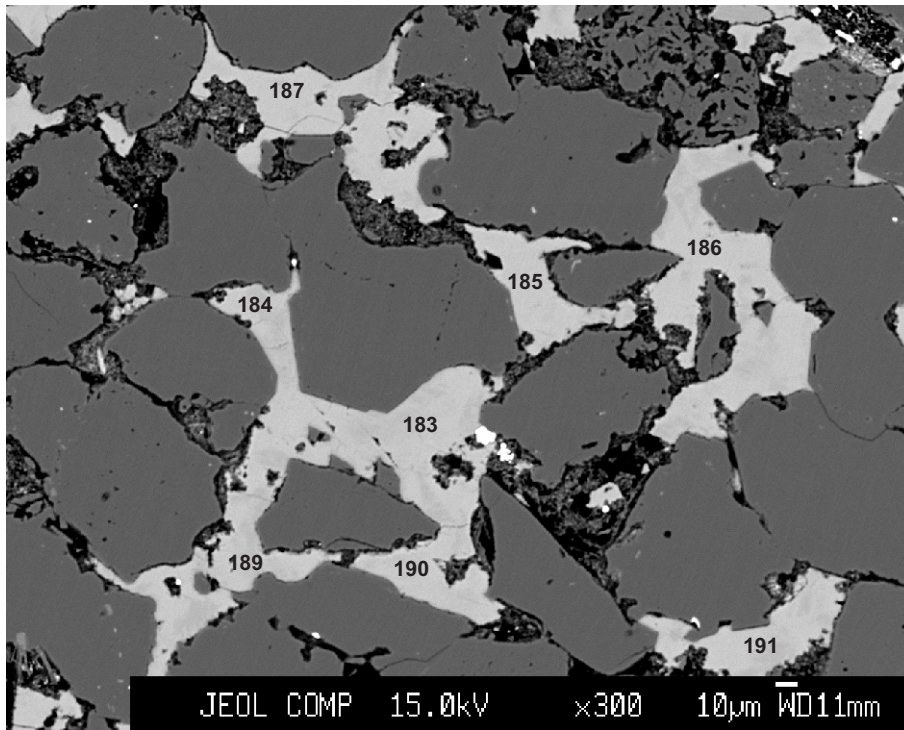
- 166: calcite
- 167: Fe-calcite
- 168: Fe-calcite
- 169: Fe-calcite
- 170: Fe-calcite
- 171: Fe-calcite
- 172: Fe-calcite
- 173: Fe-calcite

Figure 24: Panuke B-90-2281.68



- 174: Fe-calcite
- 175: calcite
- 176: Fe-calcite
- 177: Fe-calcite
- 178: Fe-calcite
- 179: calcite
- 180: calcite
- 181: Fe-calcite
- 182: Fe-calcite

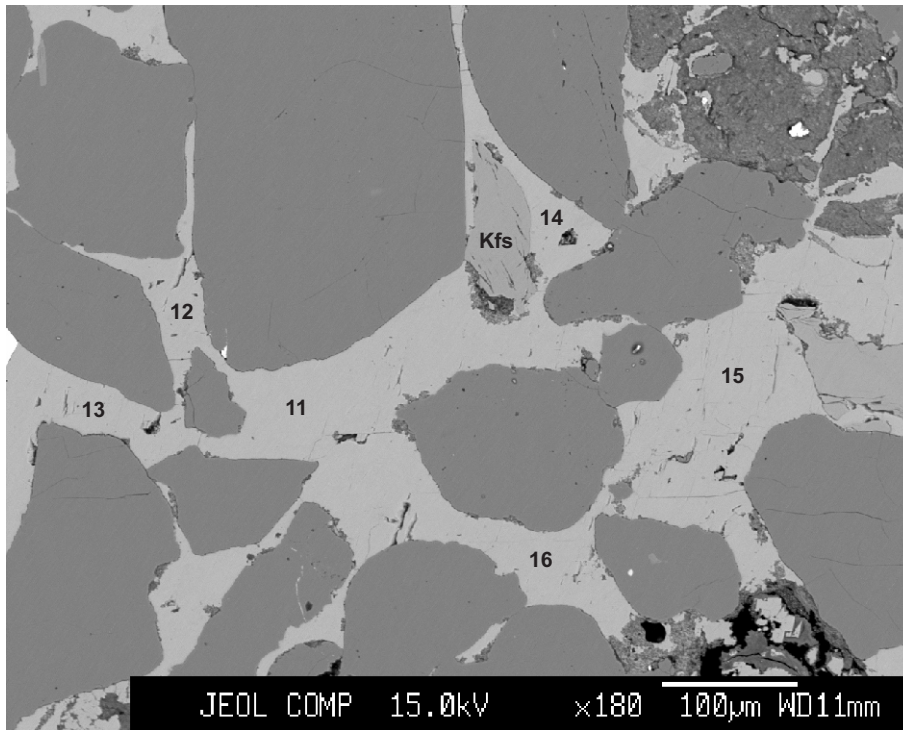
Figure 25: Panuke B-90-2281.68



- 183: Fe-calcite
- 184: calcite
- 185: Fe-calcite
- 186: Fe-calcite
- 187: Fe-calcite
- 188: Fe-calcite
- 189: calcite
- 190: Fe-calcite
- 191: Fe-calcite

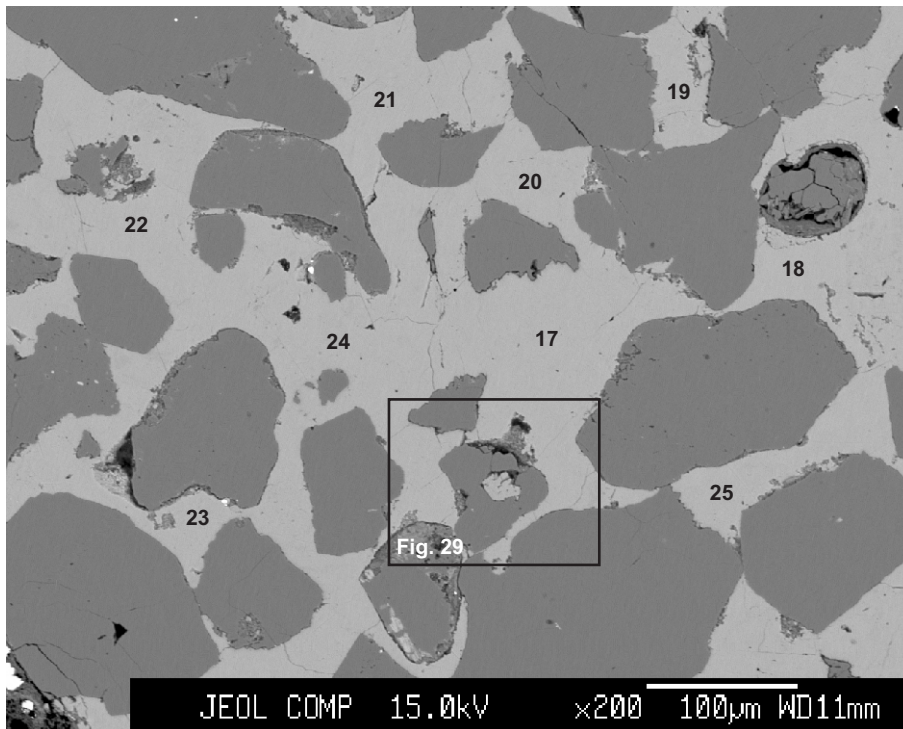
Figure 26: Panuke B-90-2281.68





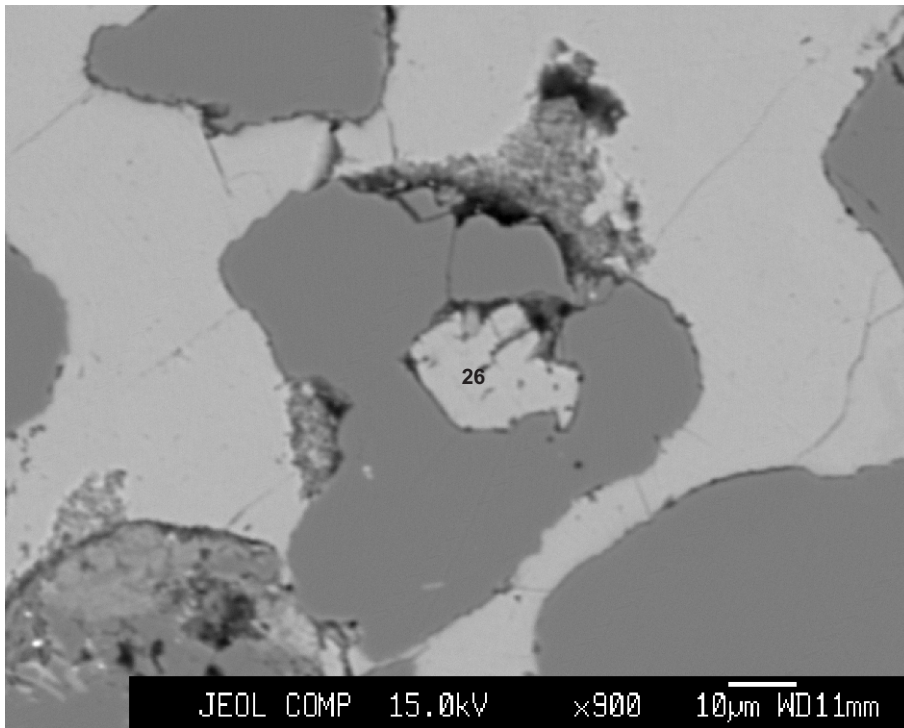
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite

Figure 27: Panuke B-90-2289.57



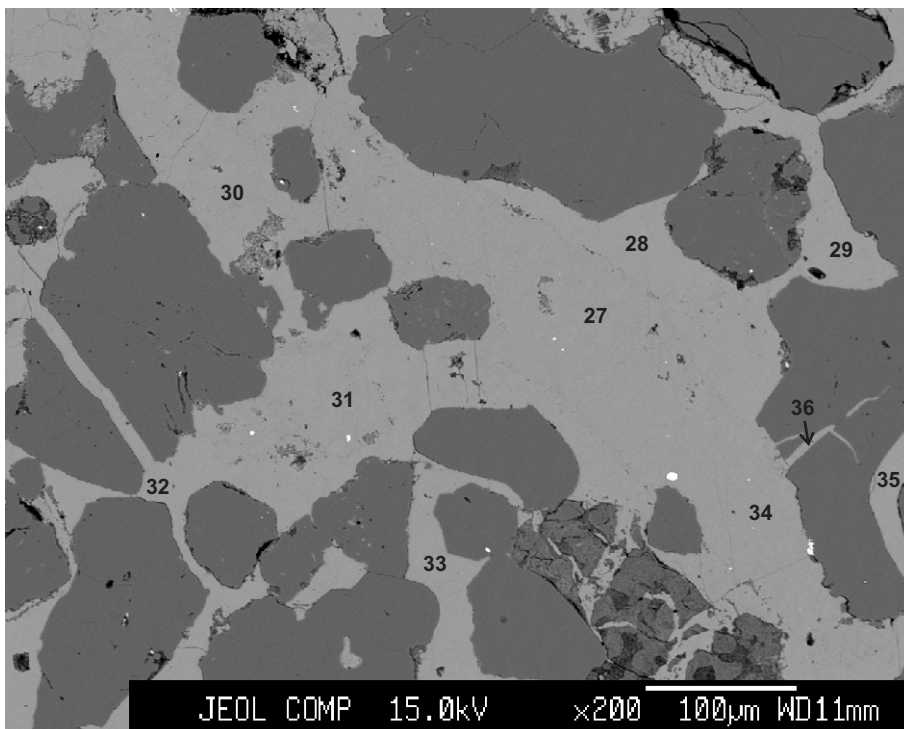
- 17: Fe-calcite
- 18: Fe-calcite
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite

Figure 28: Panuke B-90-2289.57



26: Fe-calcite

Figure 29: Panuke B-90-2289.57



- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: Fe-calcite
- 33: Fe-calcite
- 34: Fe-calcite
- 35: Fe-calcite
- 36: Fe-calcite

Figure 30: Panuke B-90-2289.57

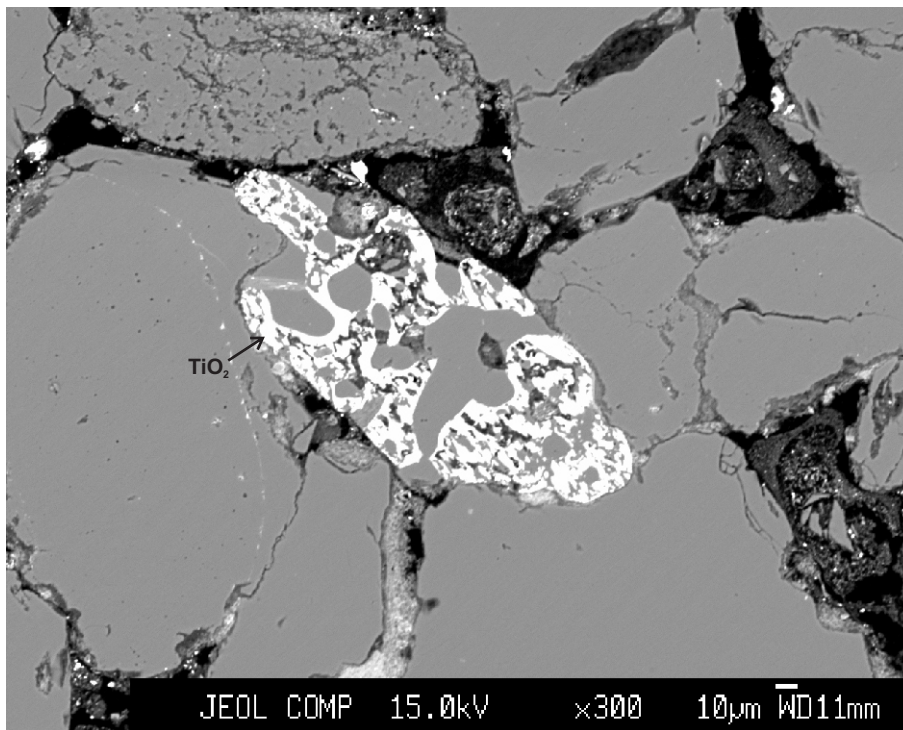
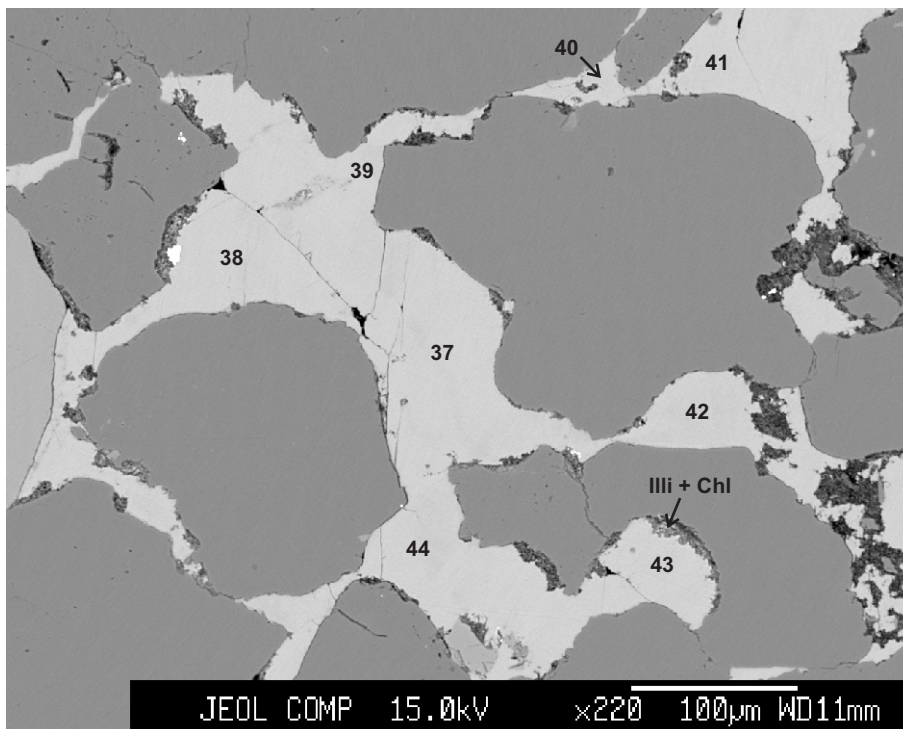
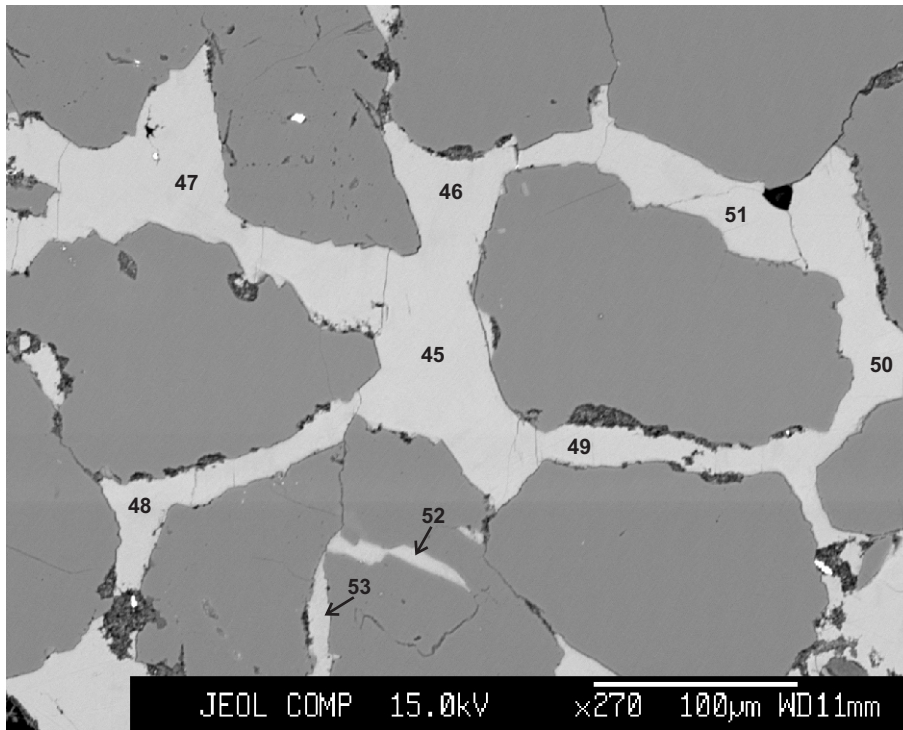


Figure 31: Panuke B-90-2291.26



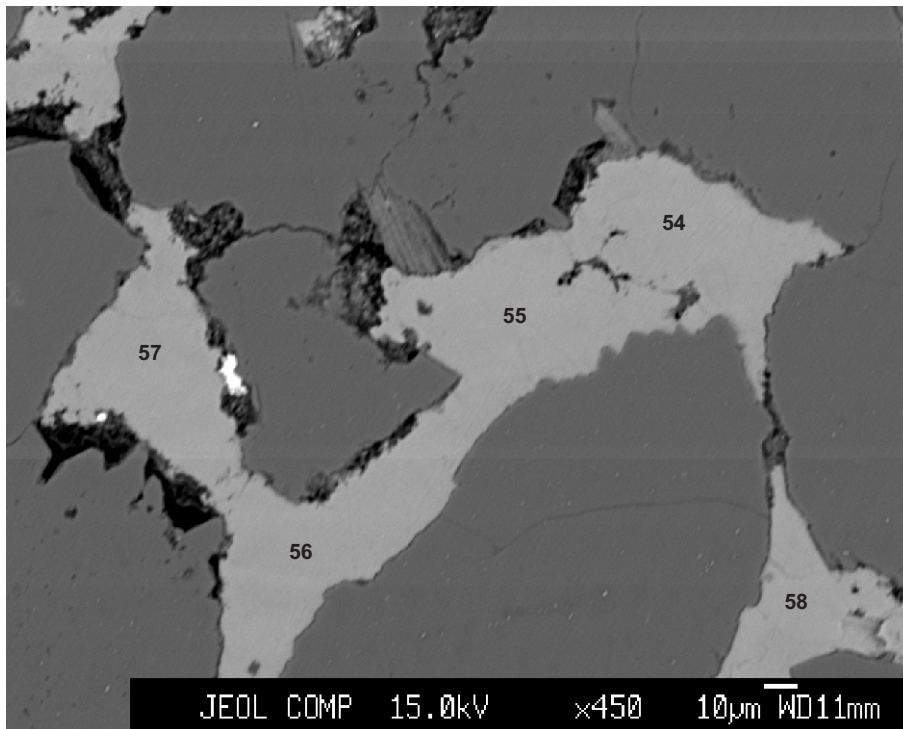
- 37: Fe-calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite
- 44: calcite

Figure 32: Panuke B-90-2292.85



- 45: Fe-calcite
- 46: Fe-calcite
- 47: Fe-calcite
- 48: calcite
- 49: Fe-calcite
- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite

Figure 33: Panuke B-90-2292.85



- 54: Fe-calcite
- 55: Fe-calcite
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite

Figure 34: Panuke B-90-2292.85

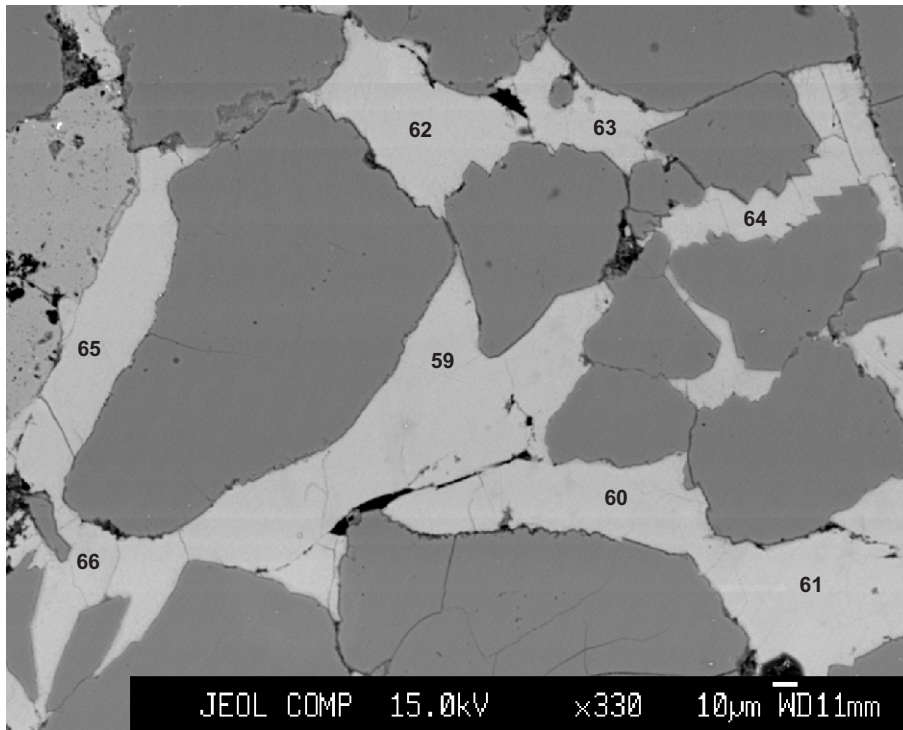


Figure 35: Panuke B-90-2292.85

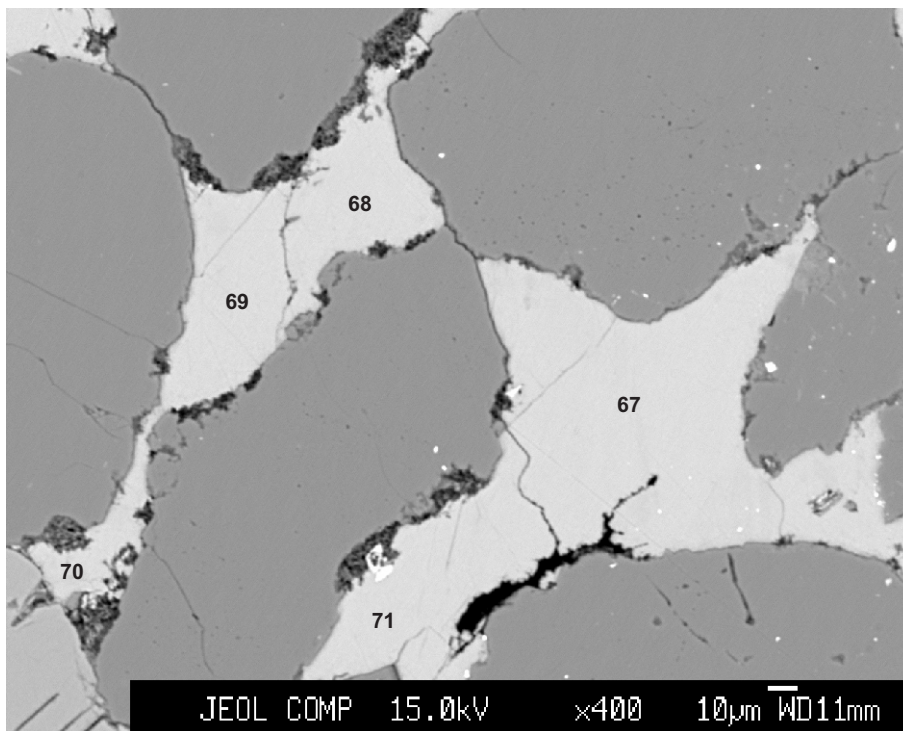
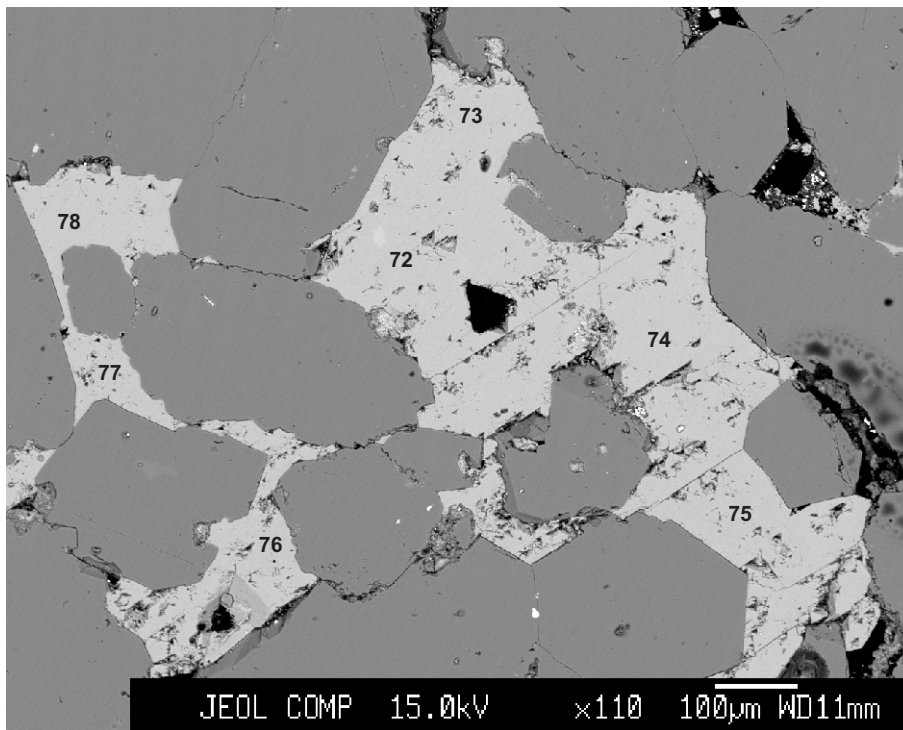
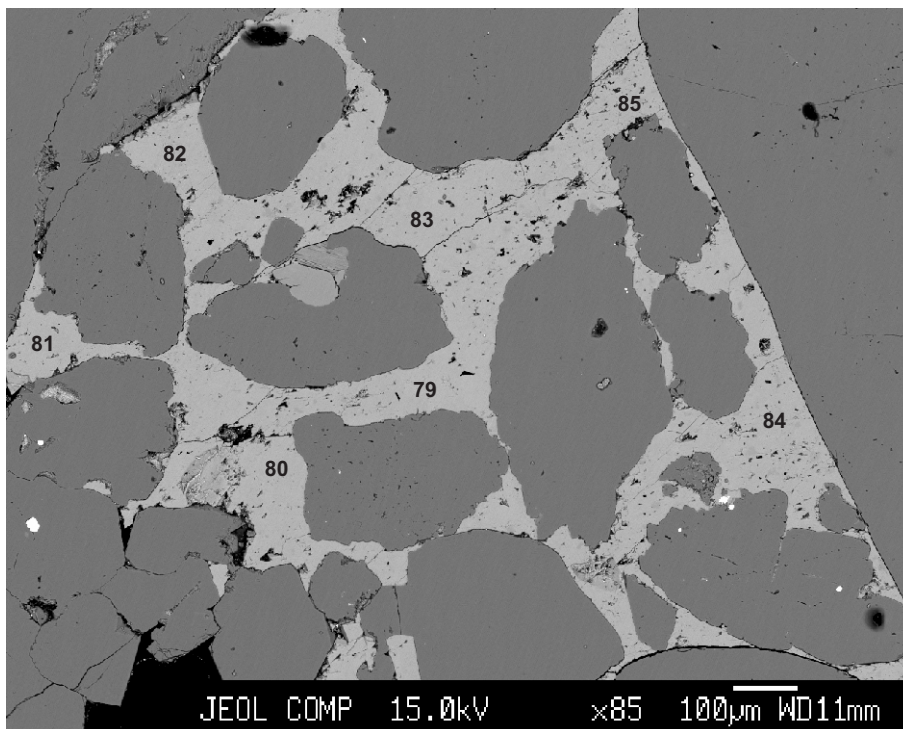


Figure 36: Panuke B-90-2292.85



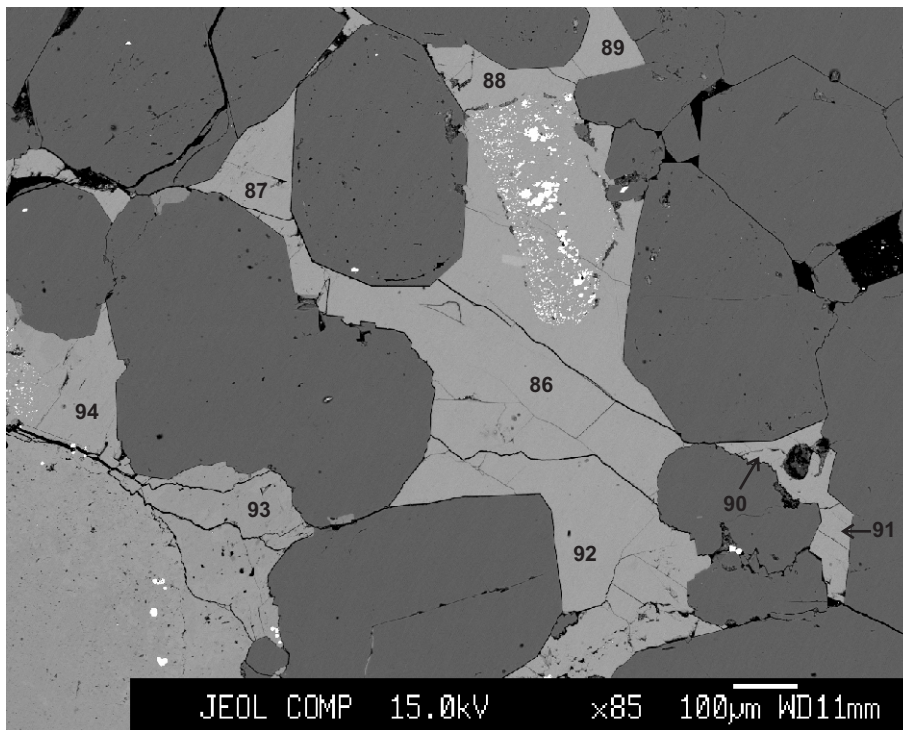
- 72: calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: calcite

Figure 37: Panuke B-90-2320.51



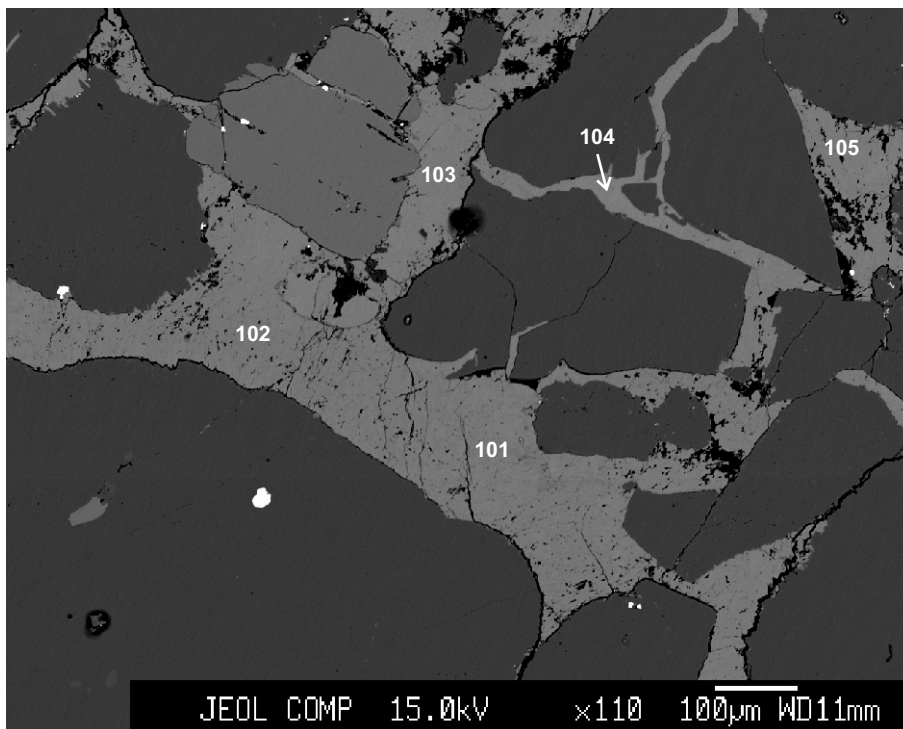
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite

Figure 38: Panuke B-90-2320.51



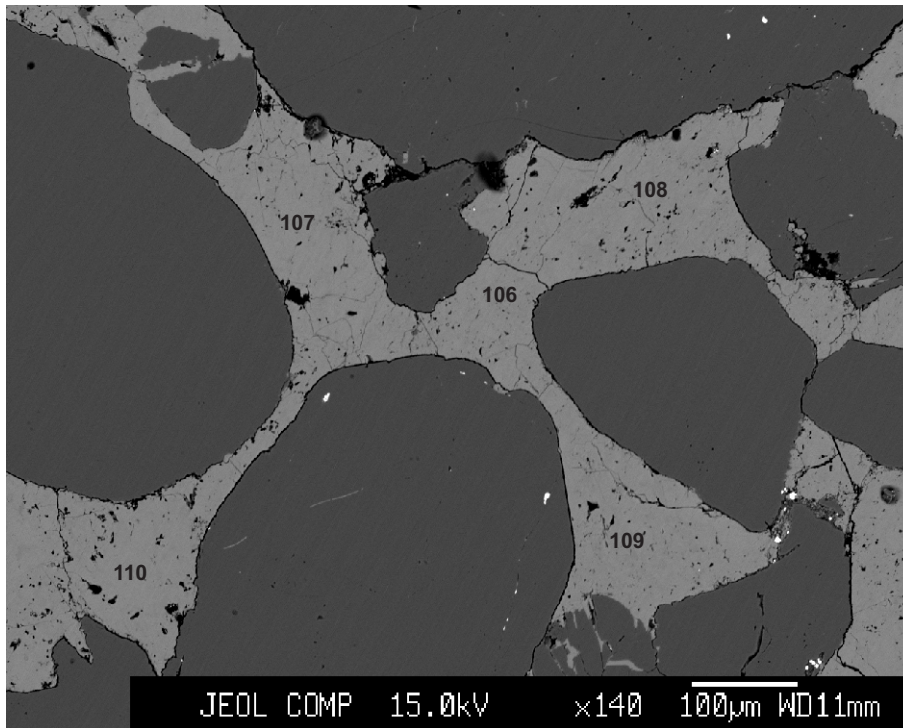
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite

Figure 39: Panuke B-90-2320.51



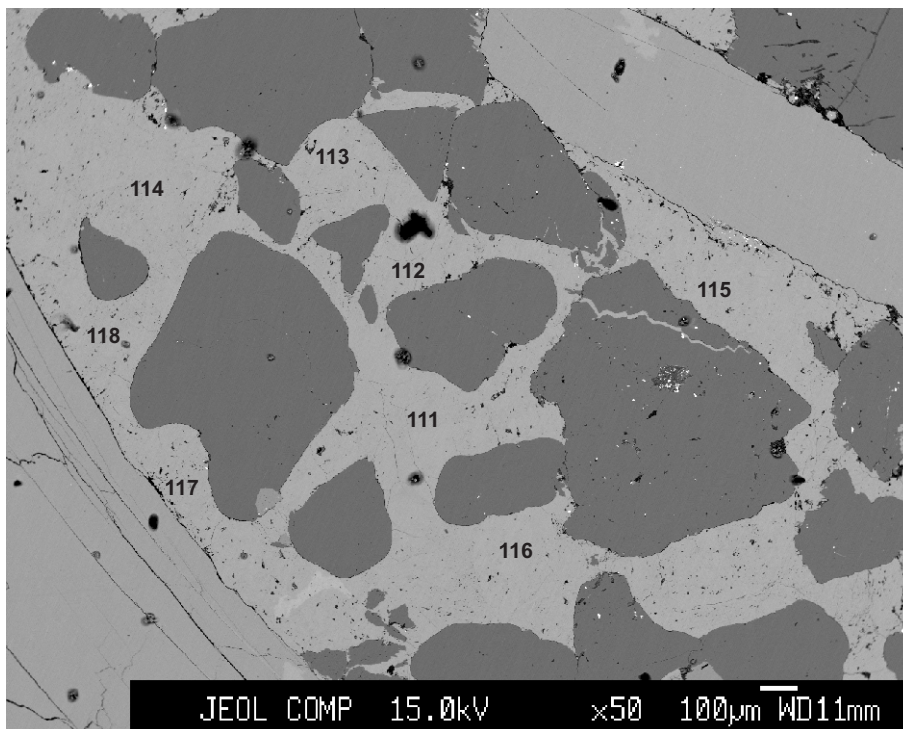
- 101: Fe-calcite
- 102: Fe-calcite
- 103: calcite
- 104: Fe-calcite
- 105: Fe-calcite

Figure 40: Panuke B-90-2379.2



- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

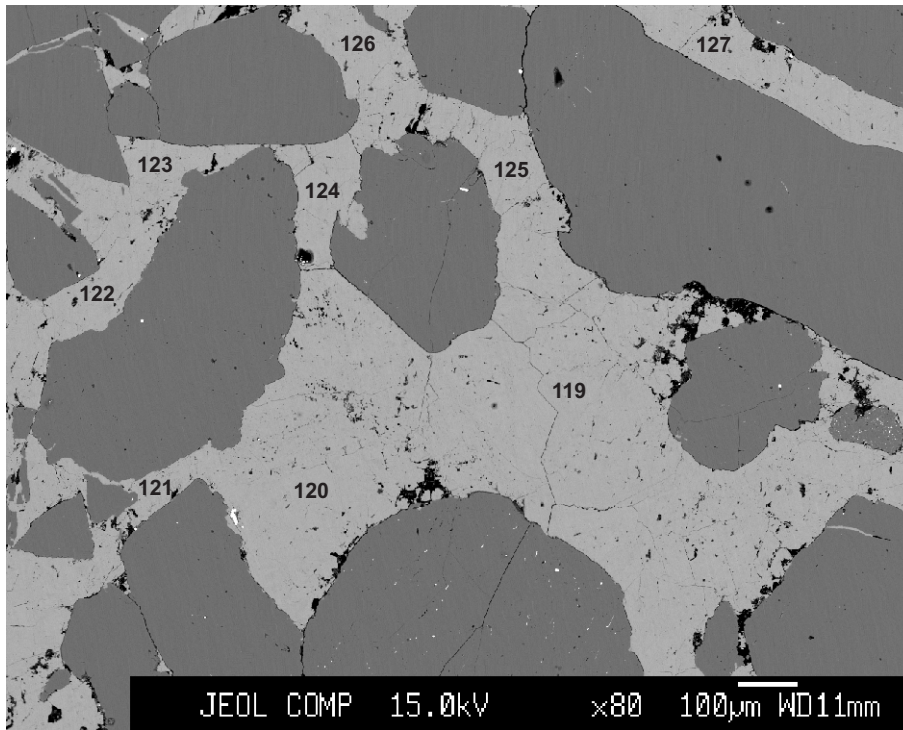
Figure 41: Panuke B-90-2379.2



- 111: Fe-calcite
- 112: calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite

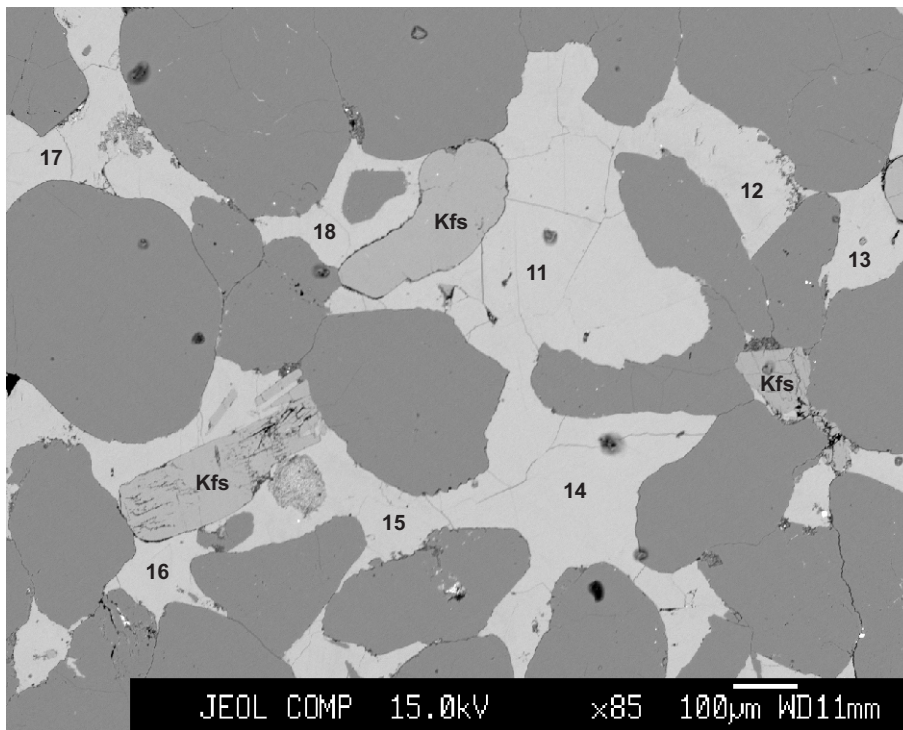
Figure 42: Panuke B-90-2379.2





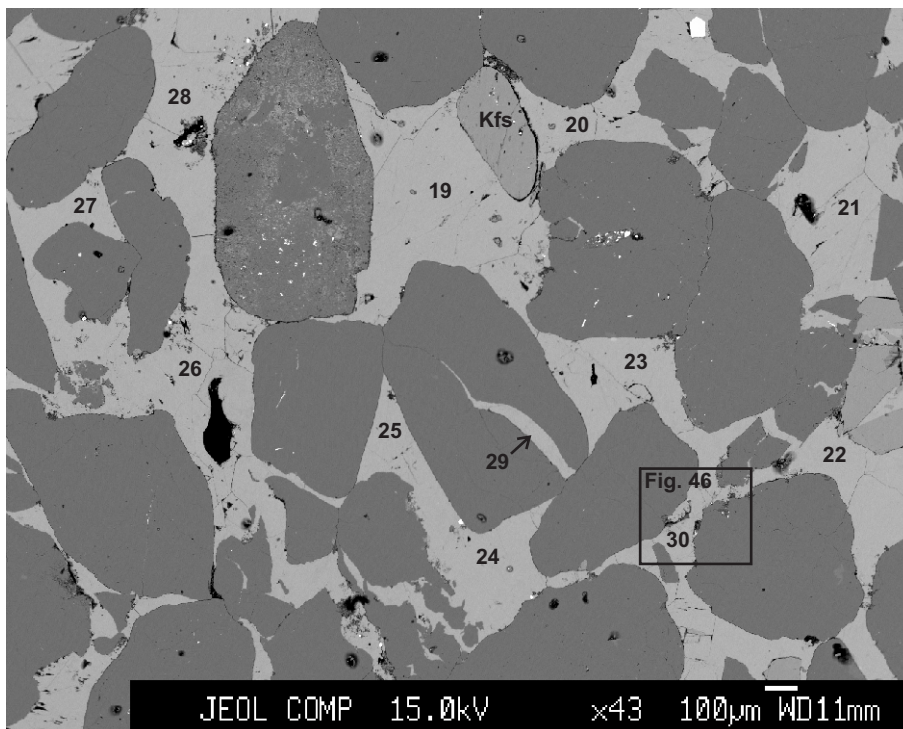
- 119: calcite
- 120: calcite
- 121: calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: calcite
- 127: Fe-calcite

Figure 43: Panuke B-90-2379.2



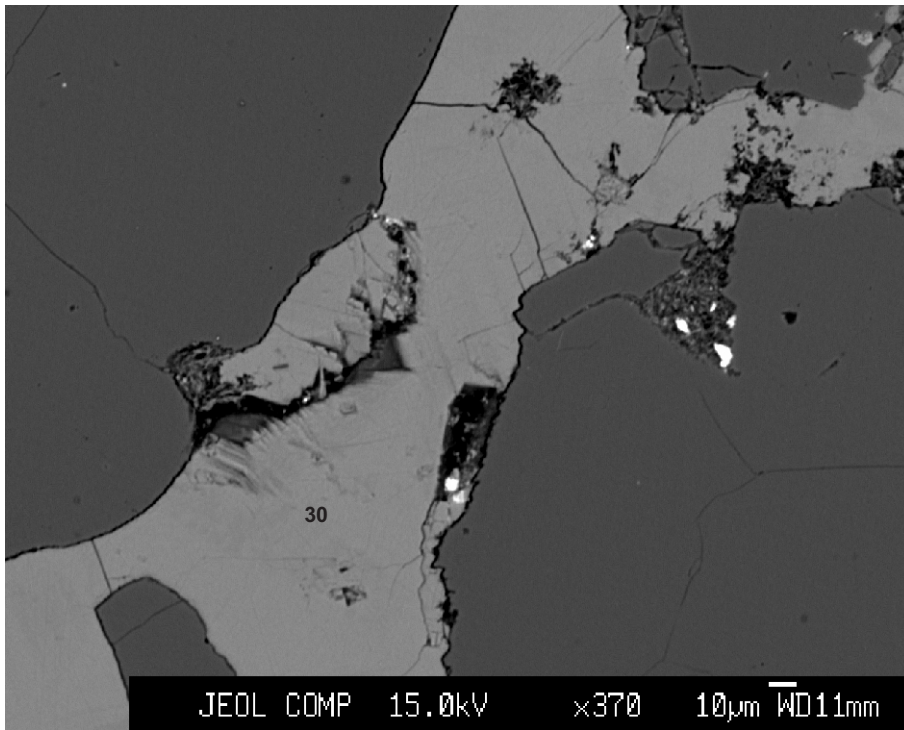
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: calcite
- 17: Fe-calcite
- 18: calcite

Figure 44: Panuke B-90-2393.92



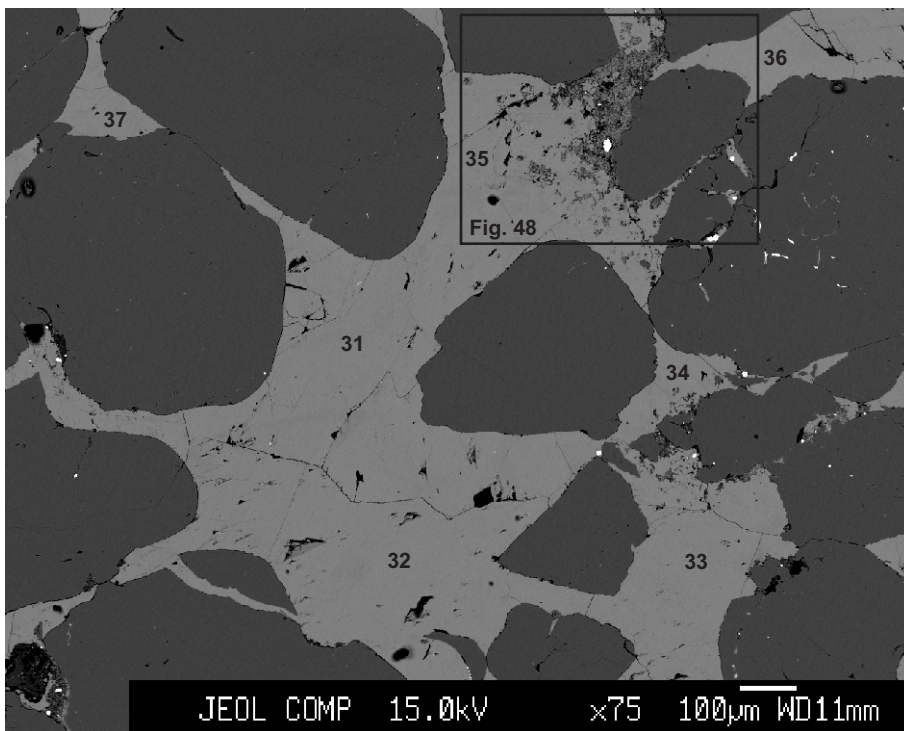
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: Fe-calcite
- 27: calcite
- 28: Fe-calcite
- 29: calcite
- 30: calcite

Figure 45: Panuke B-90-2393.92



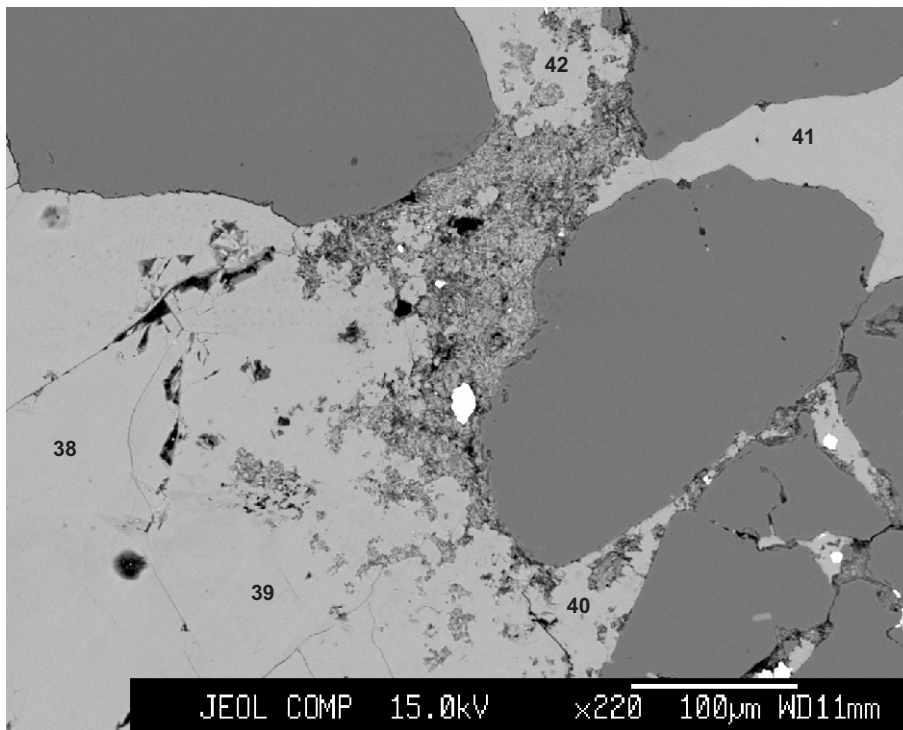
30: calcite

Figure 46: Panuke B-90-2393.92



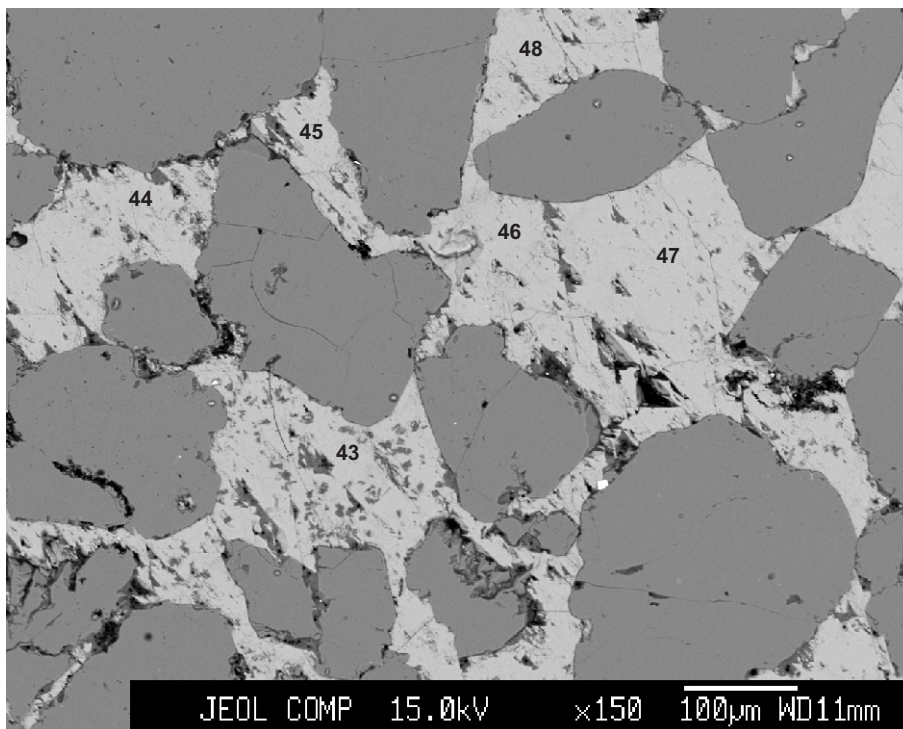
31: Fe-calcite  
 32: Fe-calcite  
 33: Fe-calcite  
 34: Fe-calcite  
 35: Fe-calcite  
 36: calcite  
 37: Fe-calcite

Figure 47: Panuke B-90-2393.92



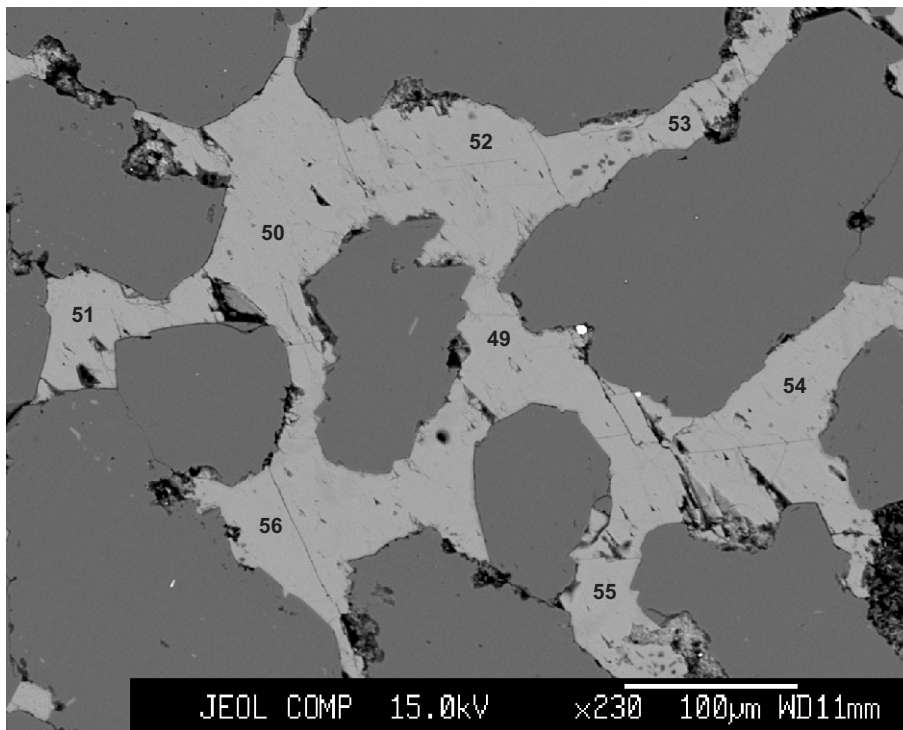
- 38: calcite
- 39: calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: calcite

Figure 48: Panuke B-90-2393.92



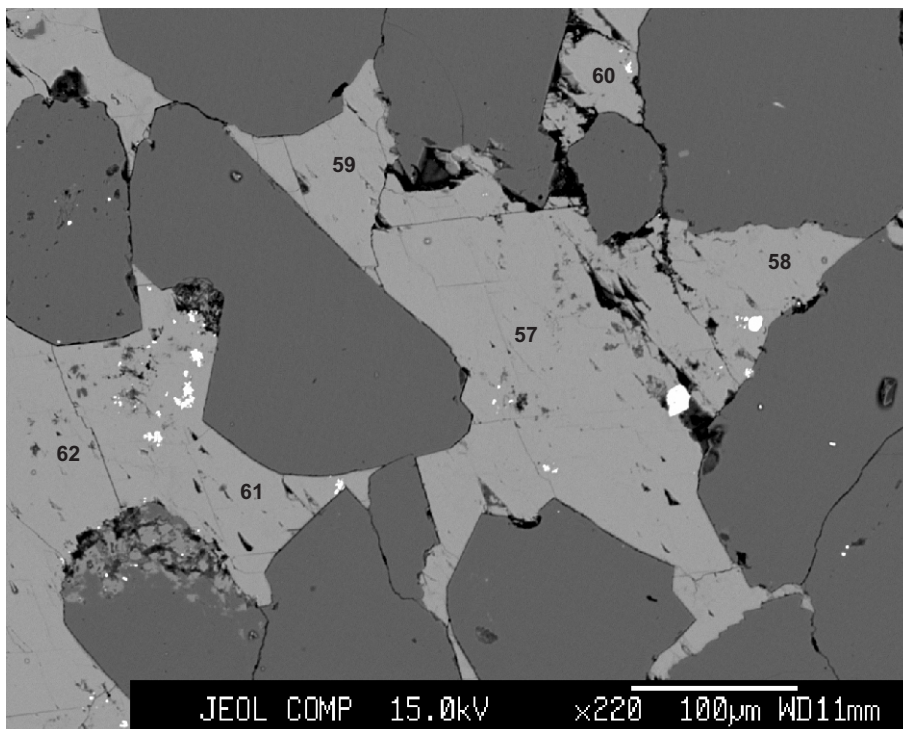
- 43: Fe-calcite
- 44: Fe-calcite
- 45: Fe-calcite
- 46: calcite
- 47: Fe-calcite
- 48: Fe-calcite

Figure 49: Panuke B-90-2403.21



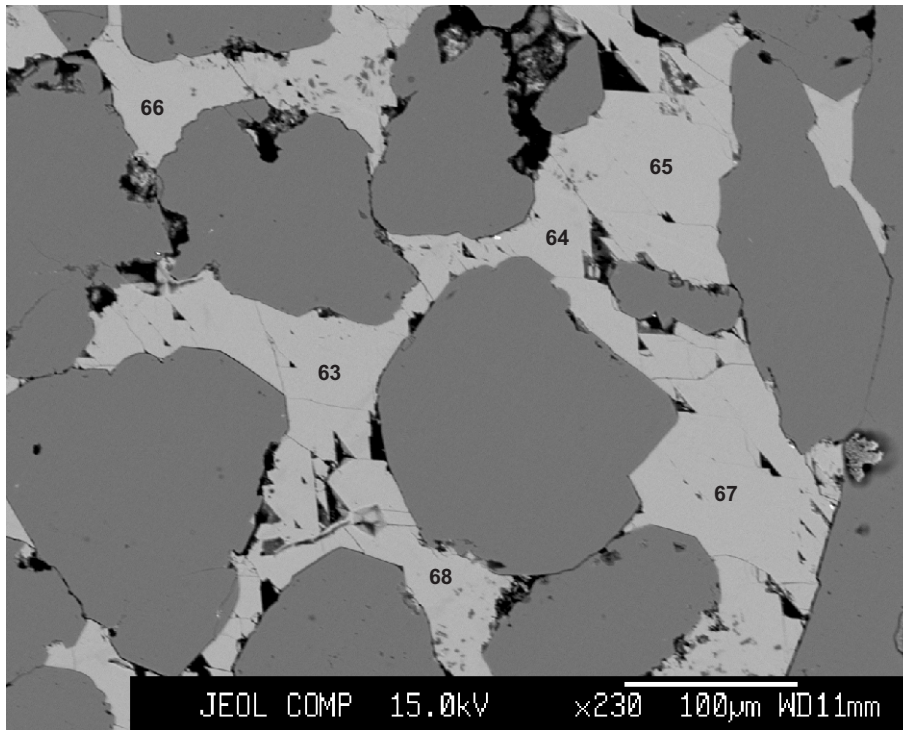
- 49: Fe-calcite
- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite
- 56: Fe-calcite

Figure 50: Panuke B-90-2403.21



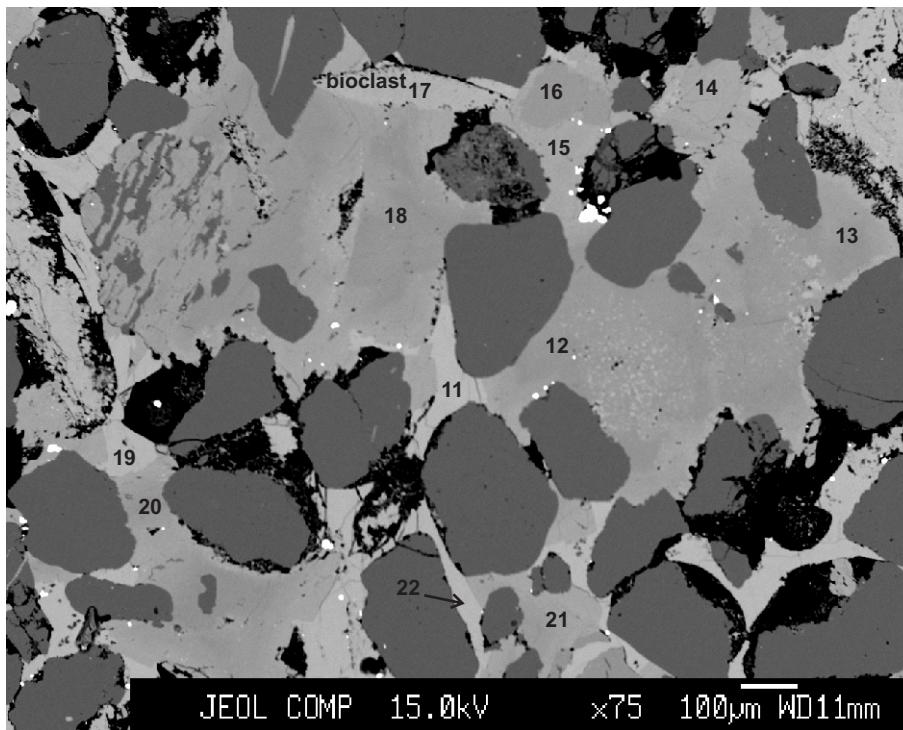
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite
- 62: Fe-calcite

Figure 51: Panuke B-90-2403.21



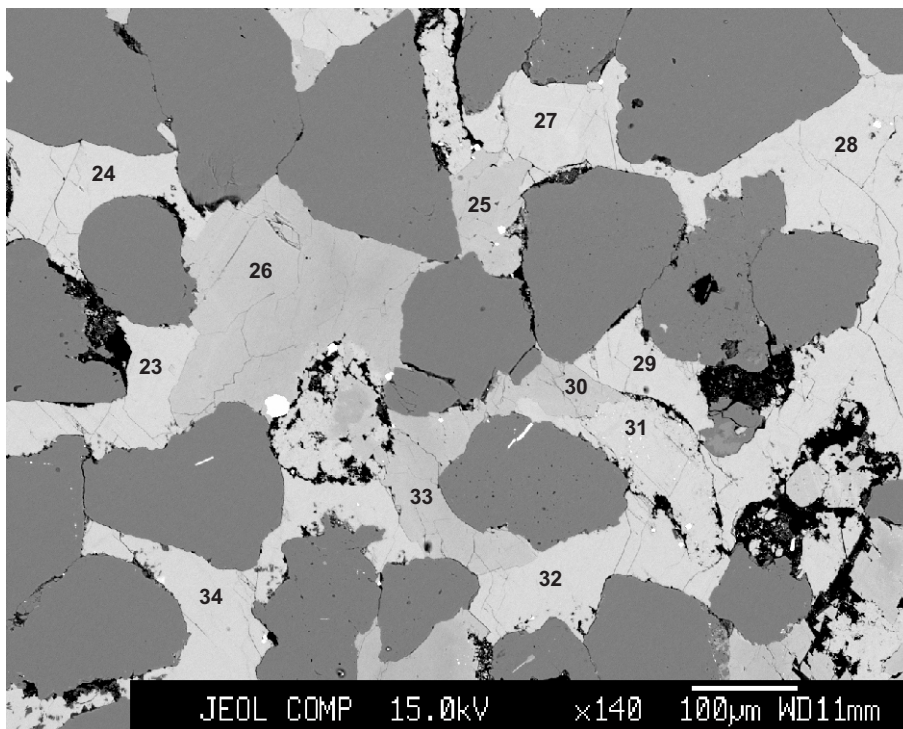
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: Fe-calcite
- 68: Fe-calcite

Figure 52: Panuke B-90-2403.21



- 11: Fe-calcite
- 12: ankerite
- 13: ankerite
- 14: ankerite
- 15: ankerite
- 16: K-feldspar
- 17: calcite (bioclast)
- 18: ankerite
- 19: Fe-calcite
- 20: ankerite
- 21: ankerite
- 22: Fe-calcite

Figure 53: Panuke B-90-2413.05



- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: ankerite
- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: ankerite
- 31: Fe-calcite
- 32: Fe-clcrite
- 33: ankerite
- 34: Fe-calcite

Figure 54: Panuke B-90-2413.05

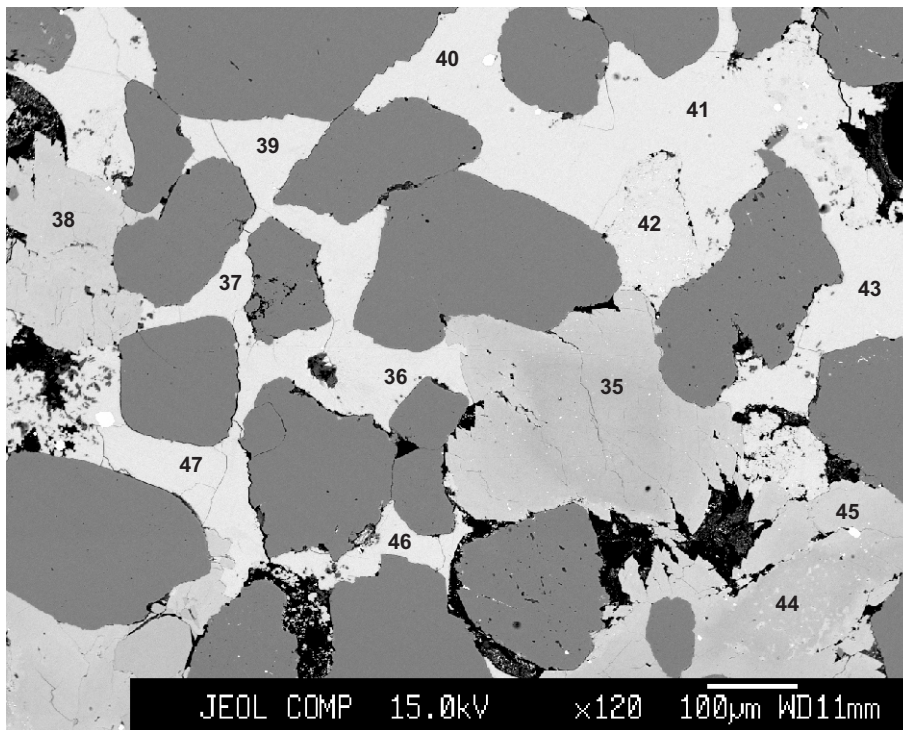


Figure 55: Panuke B-90-2413.05

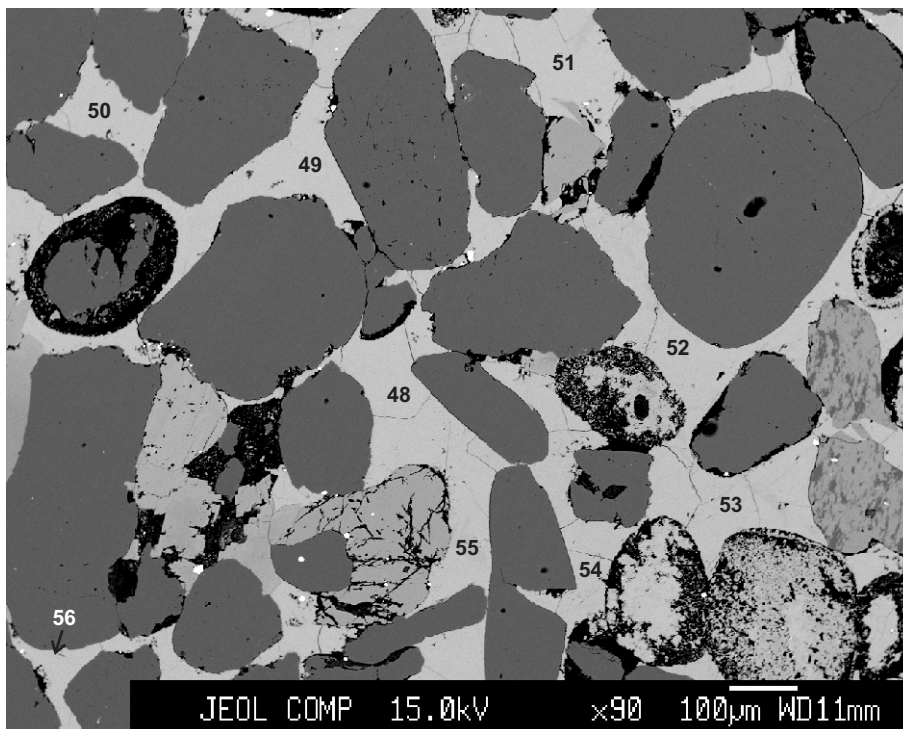
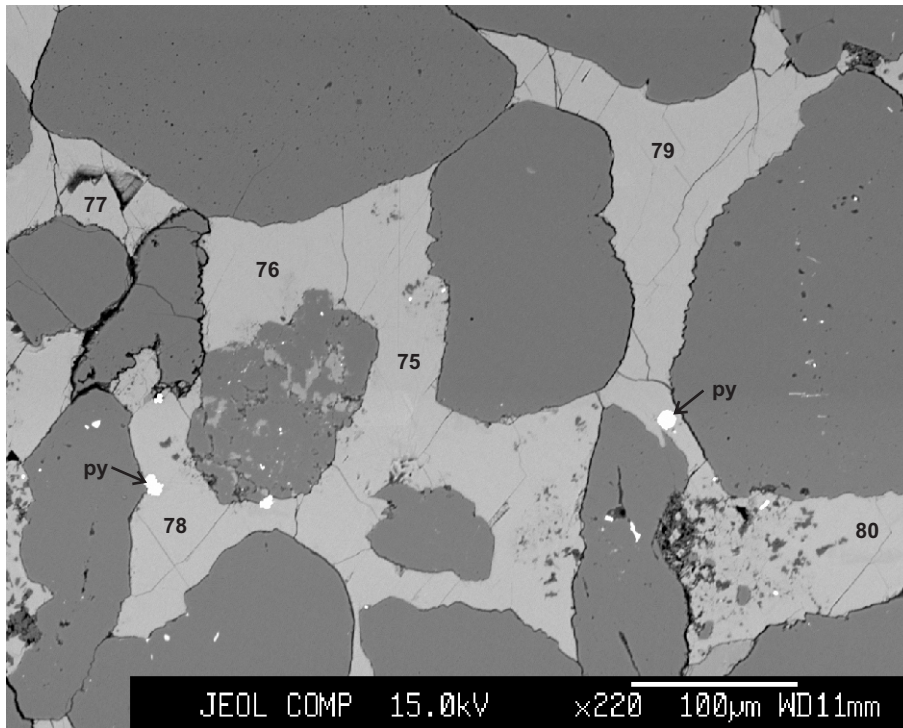


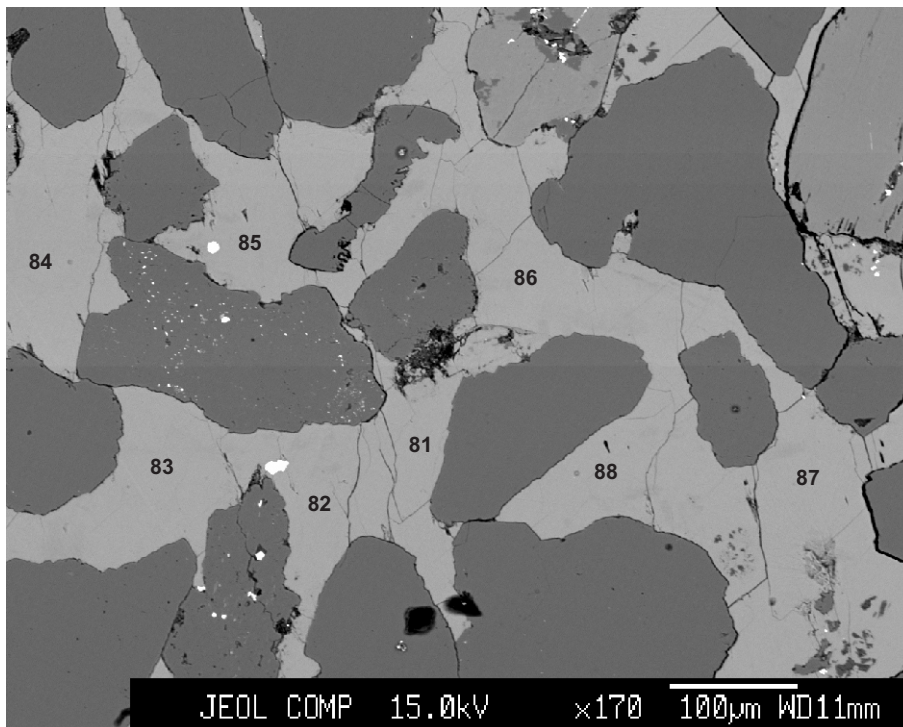
Figure 56: Panuke B-90-2413.05





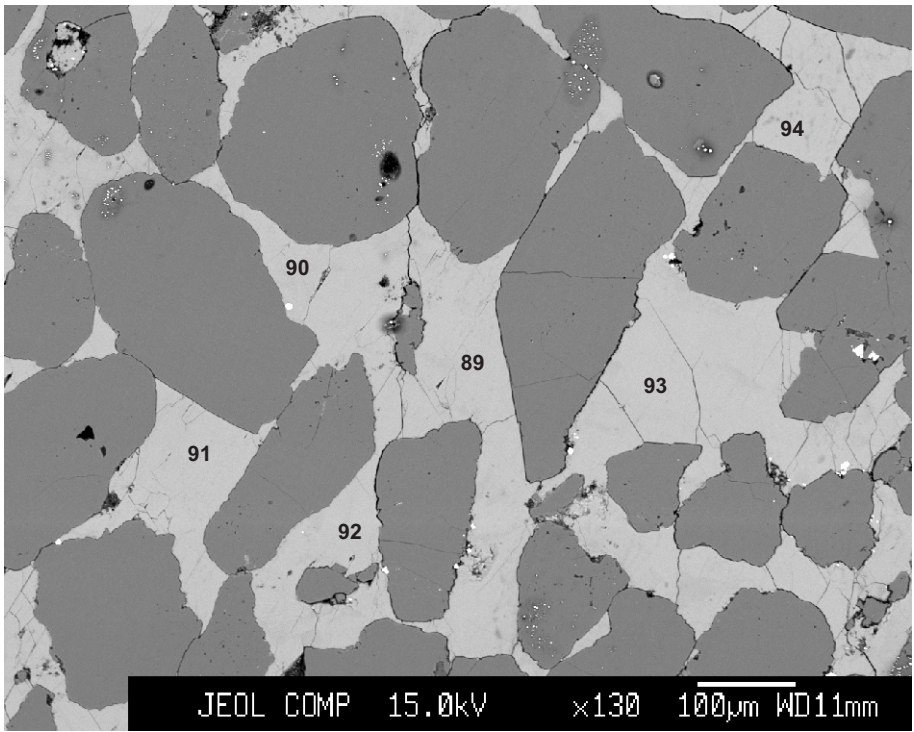
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite

Figure 57: Panuke B-90-2420.46



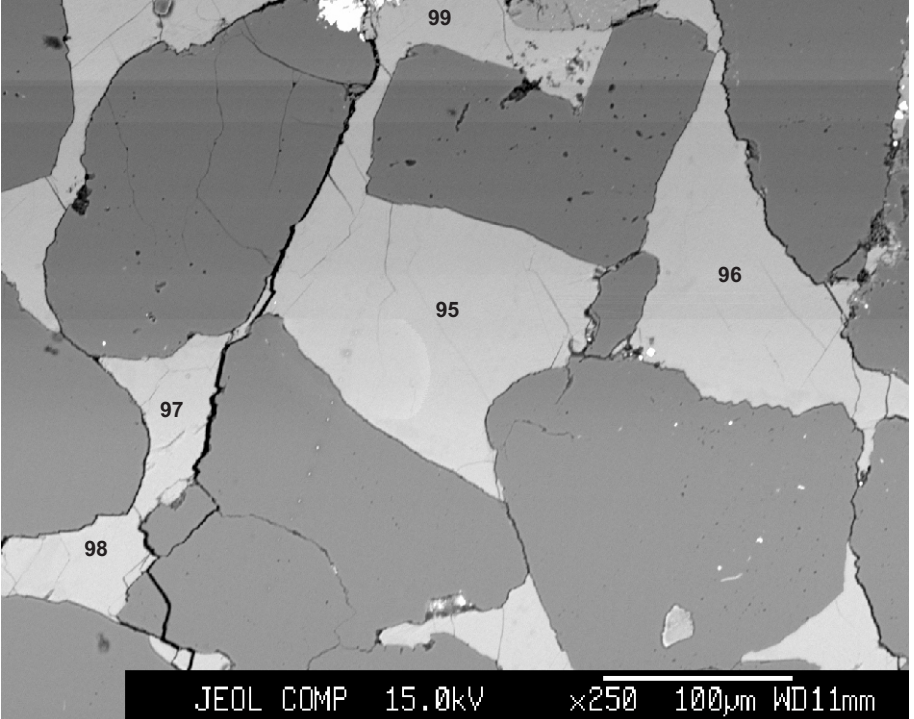
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite

Figure 58: Panuke B-90-2420.46



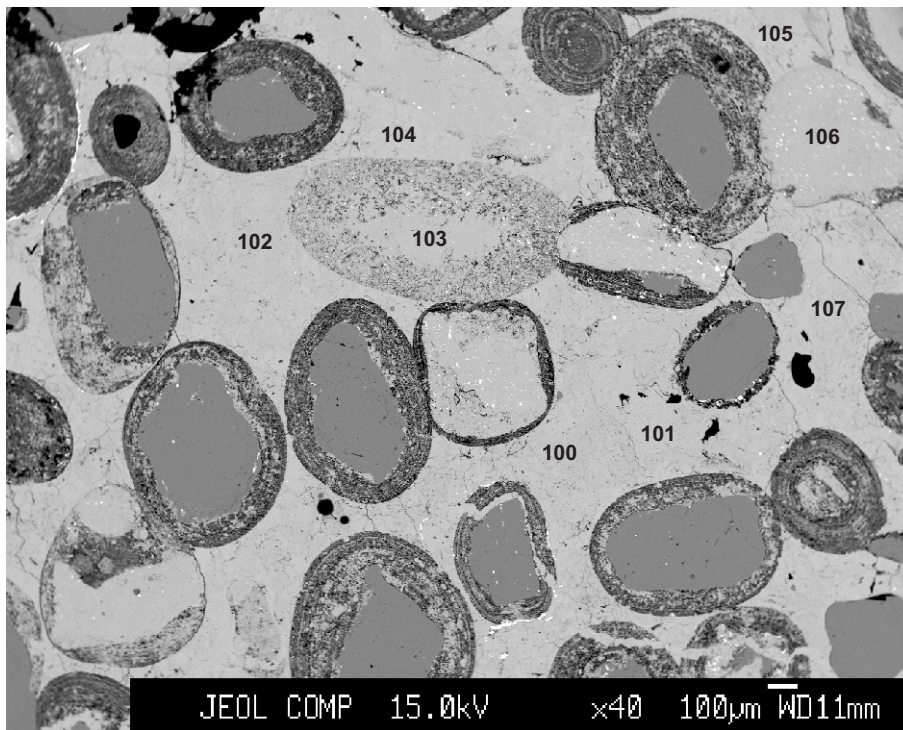
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite

Figure 59: Panuke B-90-2420.46



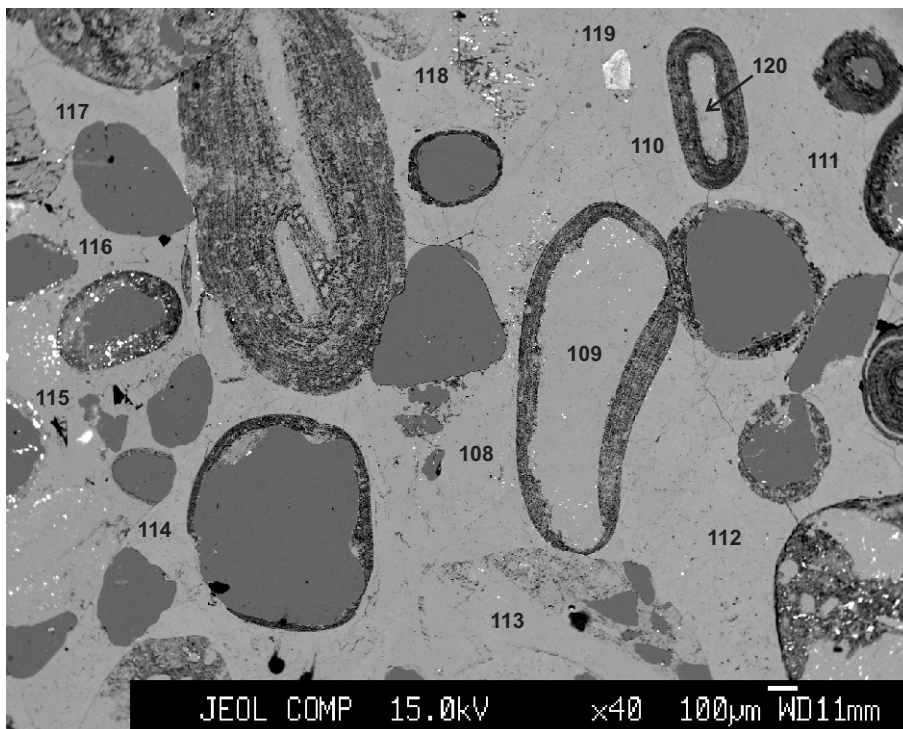
- 95: Fe-calcite
- 96: Fe-calcite
- 97: Fe-calcite
- 98: Fe-calcite
- 99: Fe-calcite

Figure 60: Panuke B-90-2420.46



- 100: calcite
- 101: calcite
- 102: calcite
- 103: calcite
- 104: calcite
- 105: Fe-calcite
- 106: calcite
- 107: calcite

Figure 61: Panuke B-90-2434.33



- 108: calcite
- 109: Mg-calcite
- 110: Mg-calcite
- 111: calcite
- 112: Fe-calcite
- 113: calcite
- 114: calcite
- 115: calcite
- 116: calcite
- 117: calcite
- 118: calcite
- 119: Mg-calcite
- 120: Mg-calcite

Figure 62: Panuke B-90-2434.33

Appendix 2 : Back-scattered electron (BSE) images for the sandstones  
from the studied wells studied by electron microprobe

A: Como P-21

B: Panuke B-90

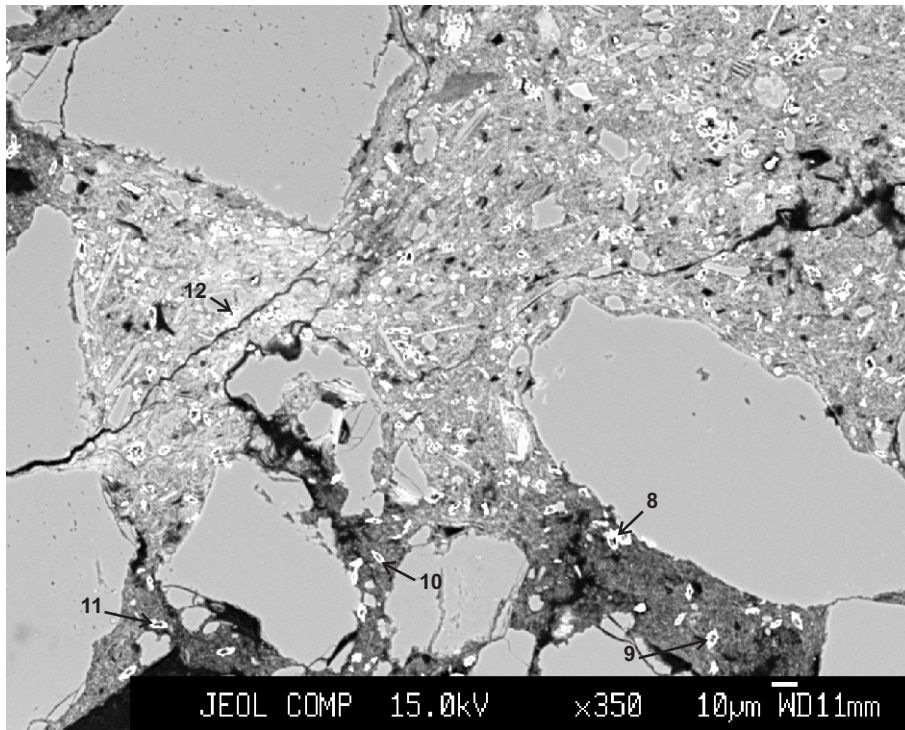
C: Cohasset A-52

D: Balmoral M-32

E: Lawrence D-14

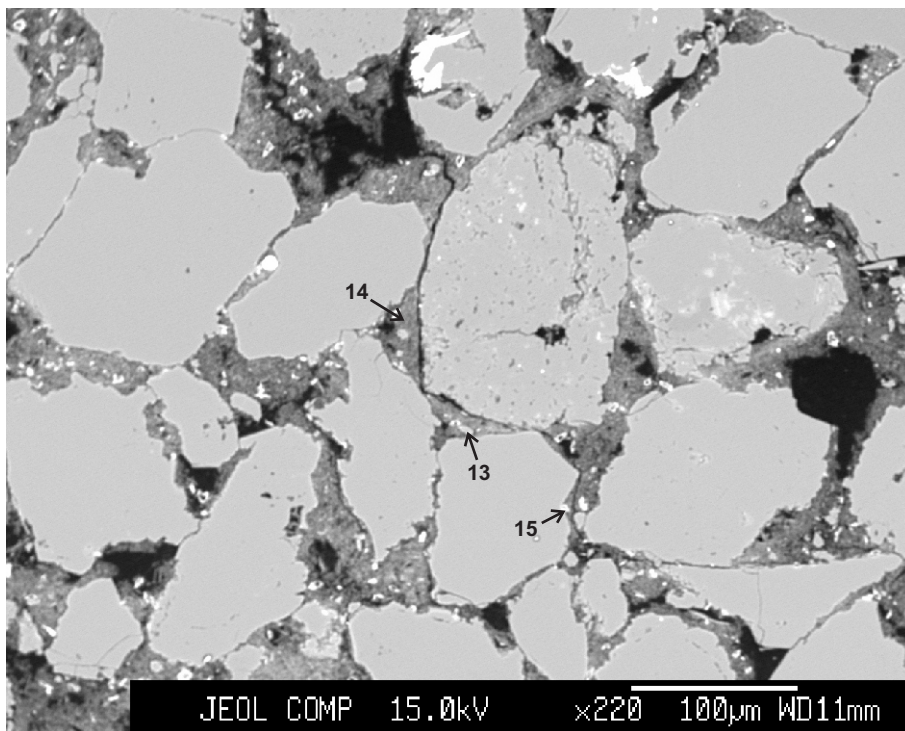
Note: Mineral symbols after Whitney and Evans (2010)

Appendix 2A : Back-scattered electron (BSE) images for the Como P-21 sandstones studied by electron microprobe



- 8: siderite + clay
- 9: siderite + clay
- 10: siderite + clay
- 11: siderite + clay
- 12: siderite + clay

Figure 1: Como P-21-2193.7



- 13: siderite + clay
- 14: clay
- 15: siderite + clay

Figure 2: Como P-21-2193.7

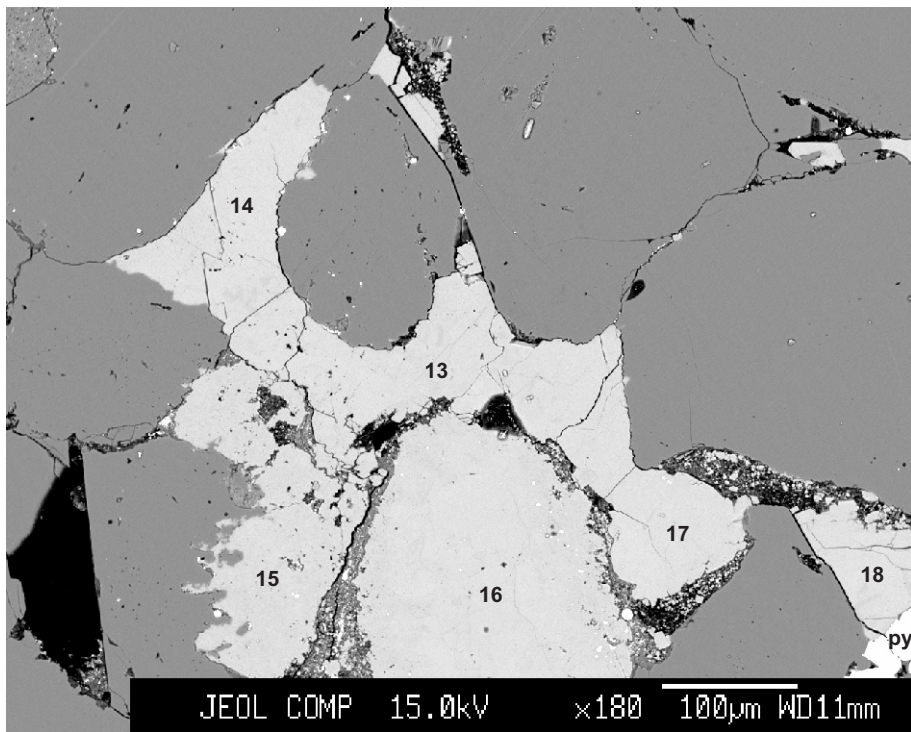


Figure 3: Como P-21-2956.93

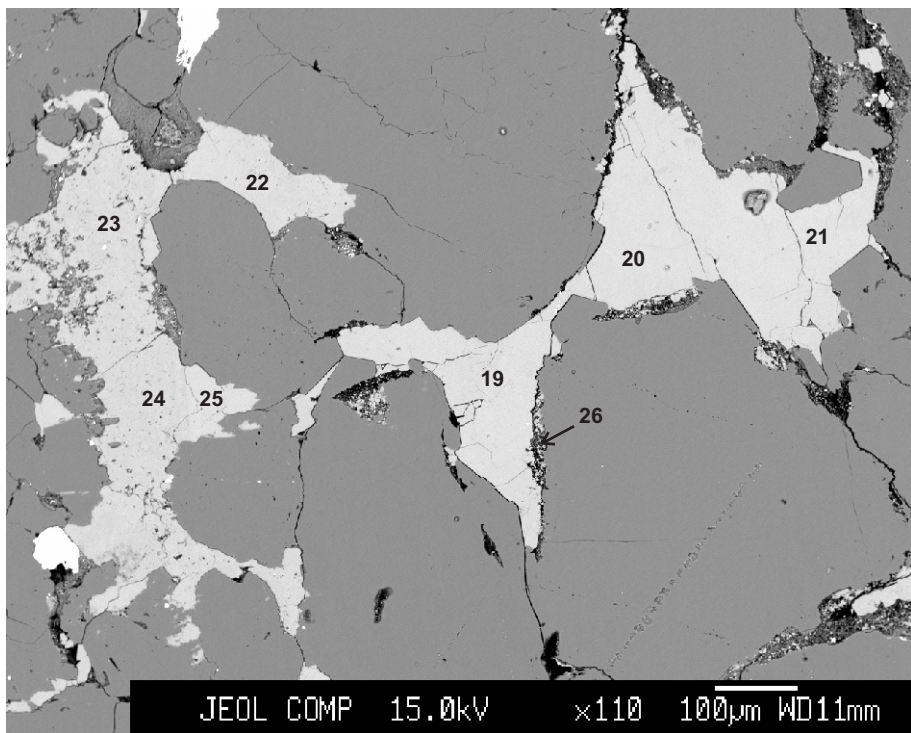
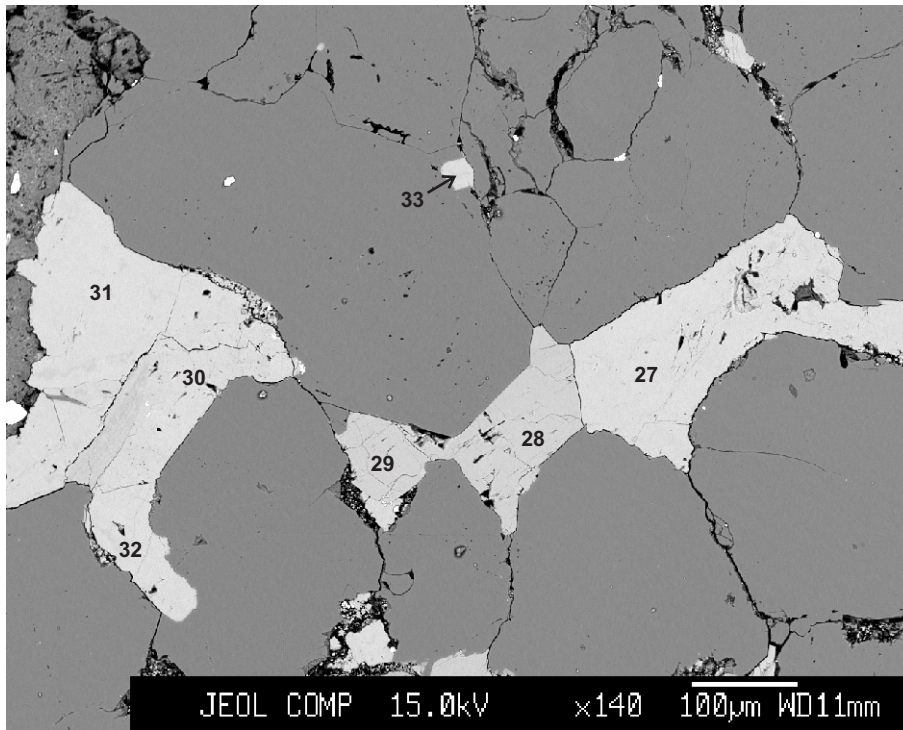
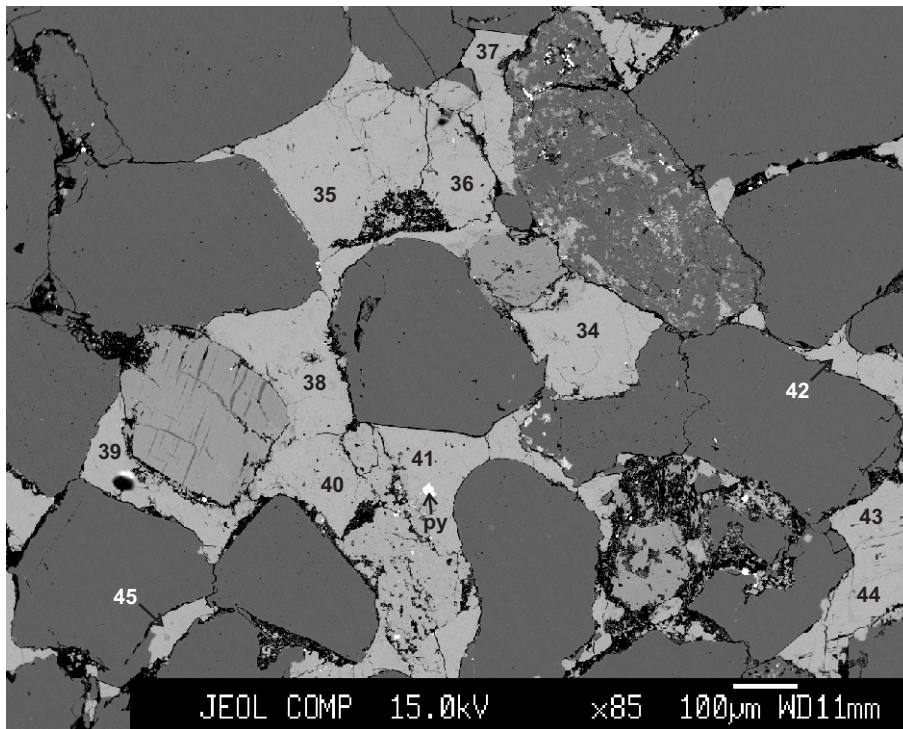


Figure 4: Como P-21-2956.93



- 27: Fe-calcite
- 28: ankerite
- 29: ankerite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: calcite
- 33: calcite

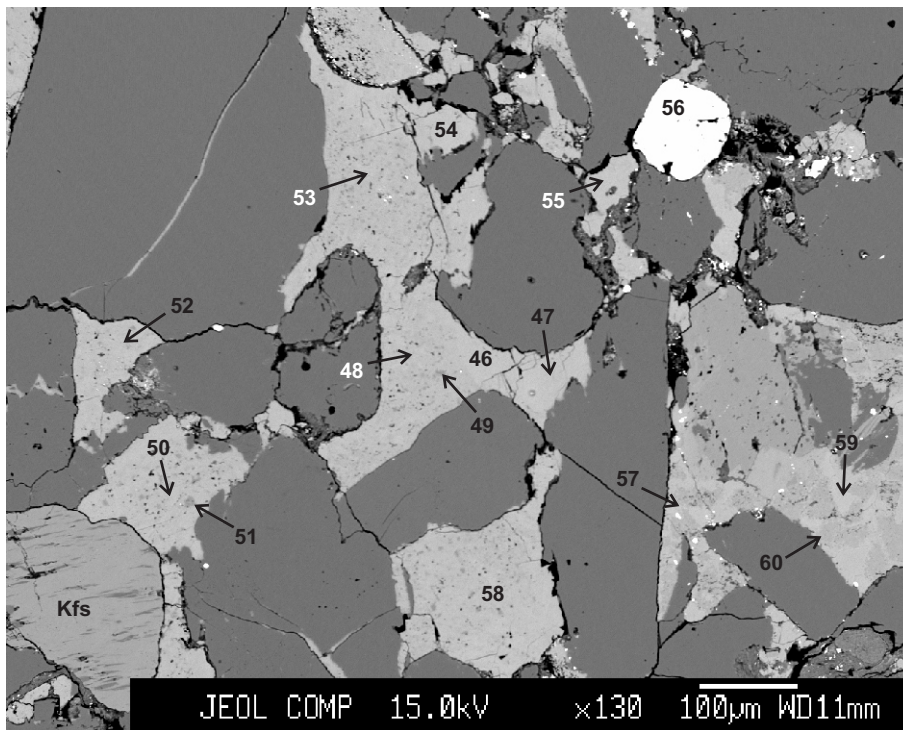
Figure 5: Como P-21-2956.93



- 34: Fe-calcite
- 35: Fe-calcite
- 36: Fe-calcite
- 37: calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: calcite
- 44: Fe-calcite
- 45: Fe-calcite

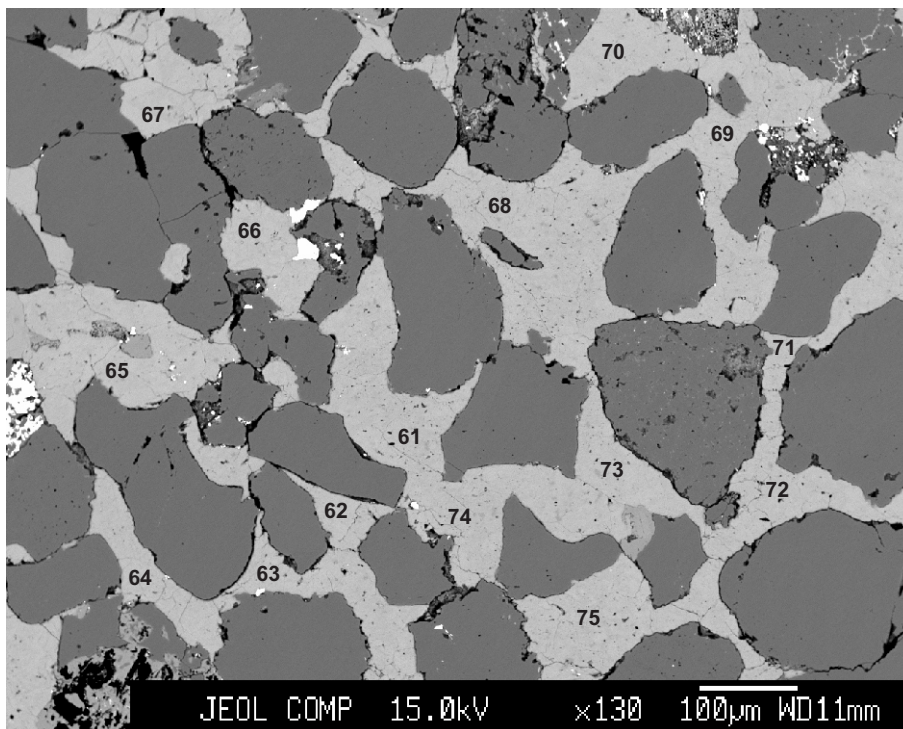
Figure 6: Como P-21-2956.93





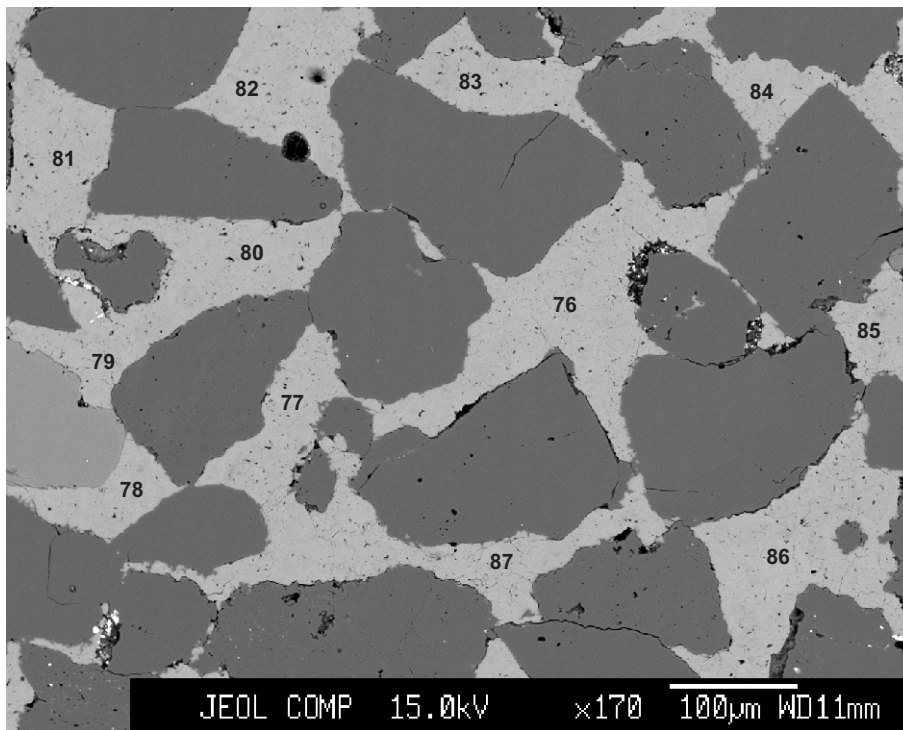
- 46: calcite
- 47: calcite
- 48: calcite
- 49: ankerite
- 50: calcite
- 51: ankerite
- 52: calcite
- 53: calcite
- 54: calcite
- 55: calcite
- 56: chromite
- 57: ankerite
- 58: Fe-Mg-calcite
- 59: ankerite
- 60: Fe-Mg-calcite

Figure 7: Como P-21-2969.48



- 61: calcite
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: calcite
- 68: calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: calcite
- 75: Fe-calcite

Figure 8: Como P-21-2969.48



- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite

Figure 9: Como P-21-2969.48

Appendix 2B : Back-scattered electron (BSE) images for the Panuke  
B-90 sandstones studied by electron microprobe

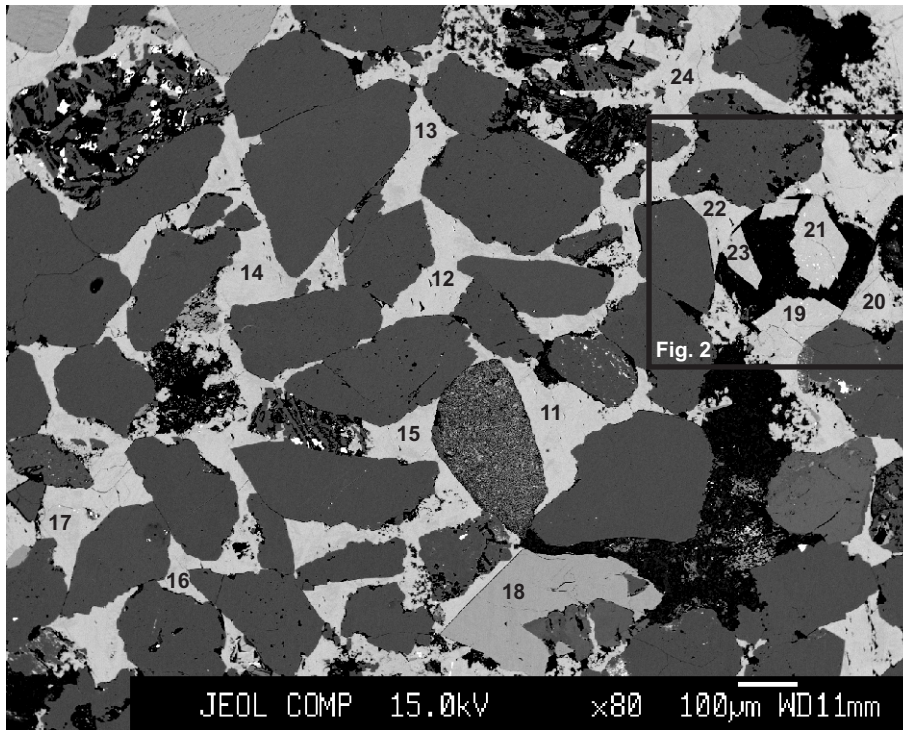


Figure 1: Panuke B-90-2069.01

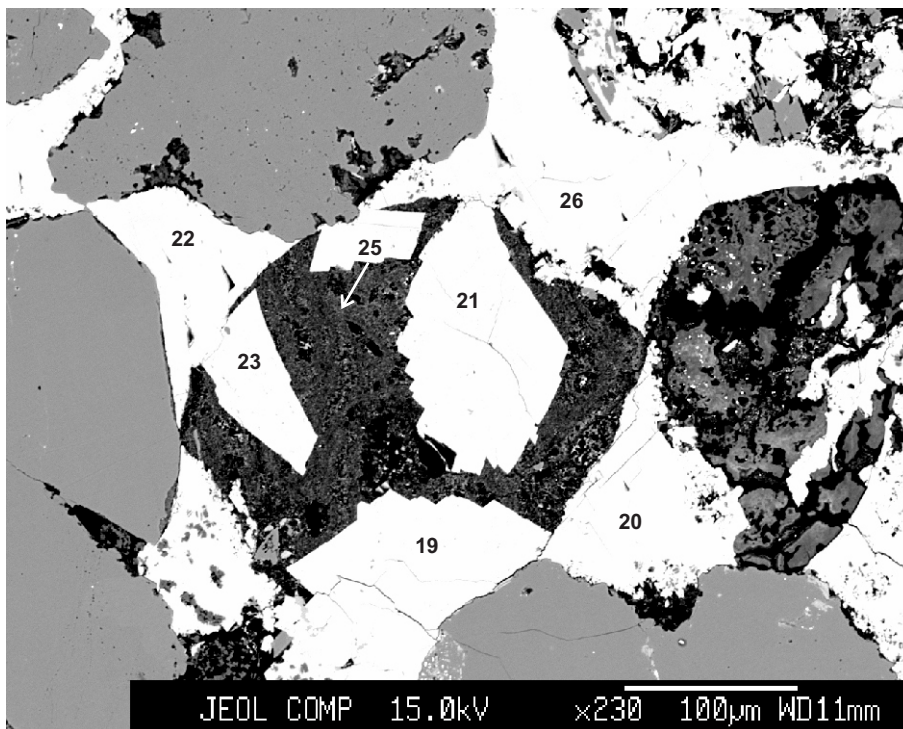


Figure 2: Panuke B-90-2069.01

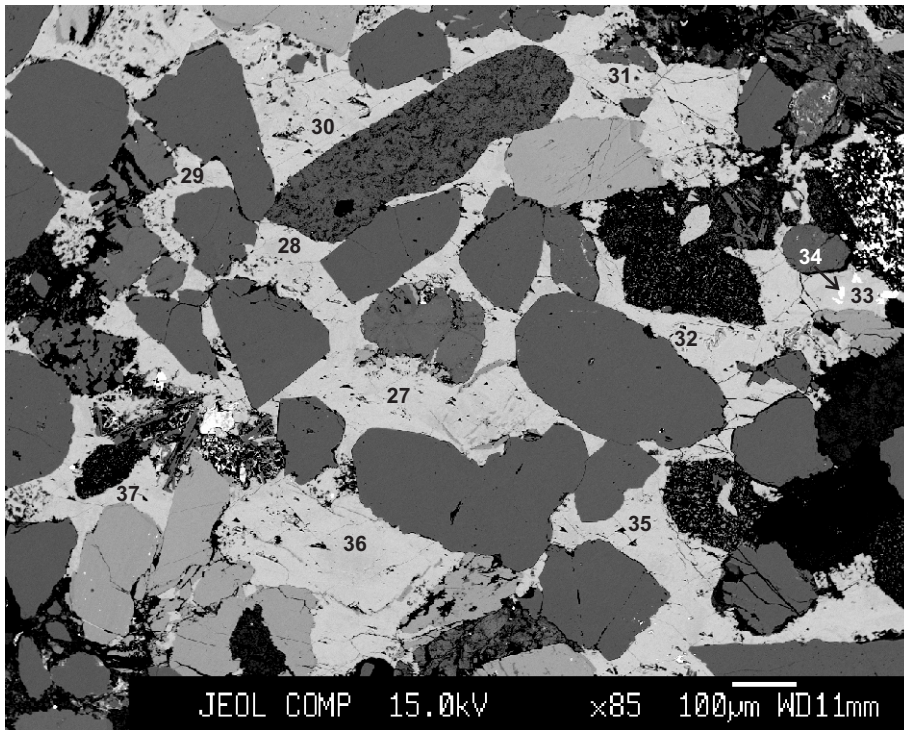


Figure 3: Panuke B-90-2069.01

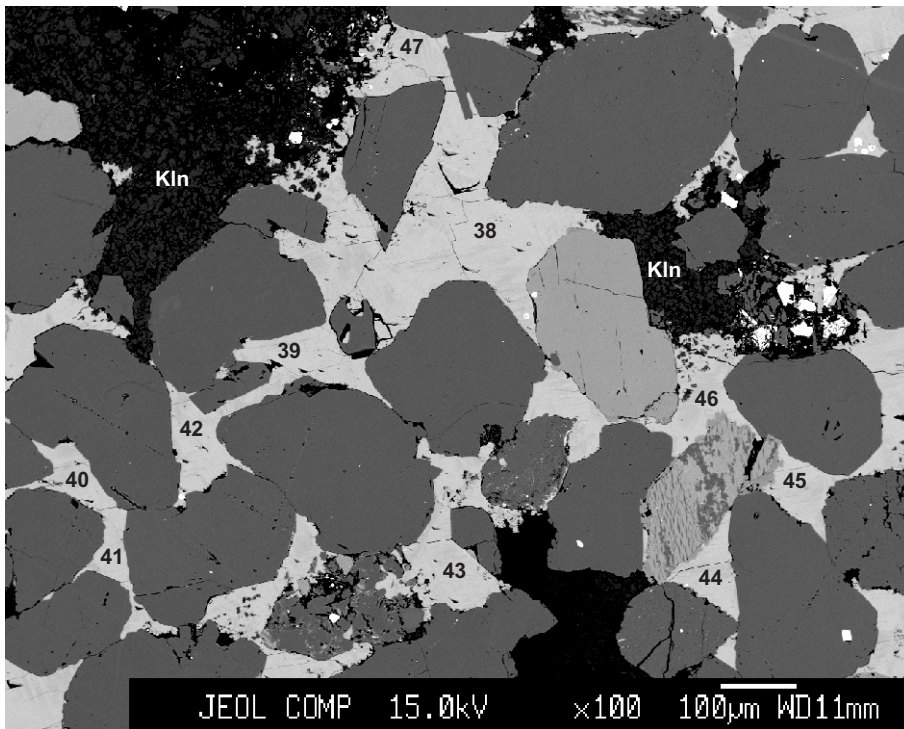


Figure 4: Panuke B-90-2069.01

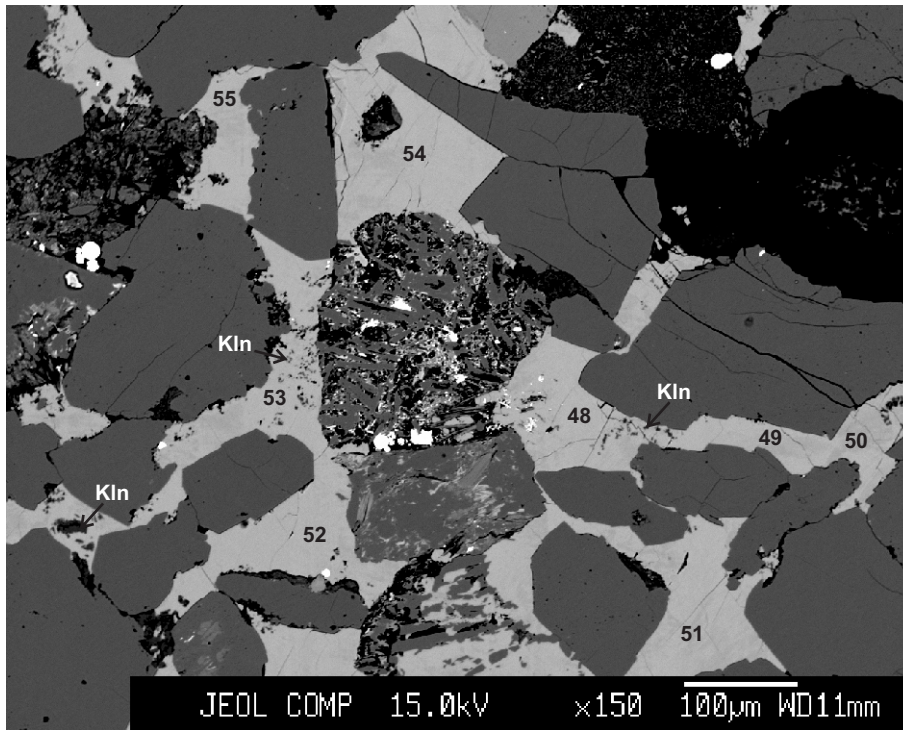


Figure 5: Panuke B-90-2069.01

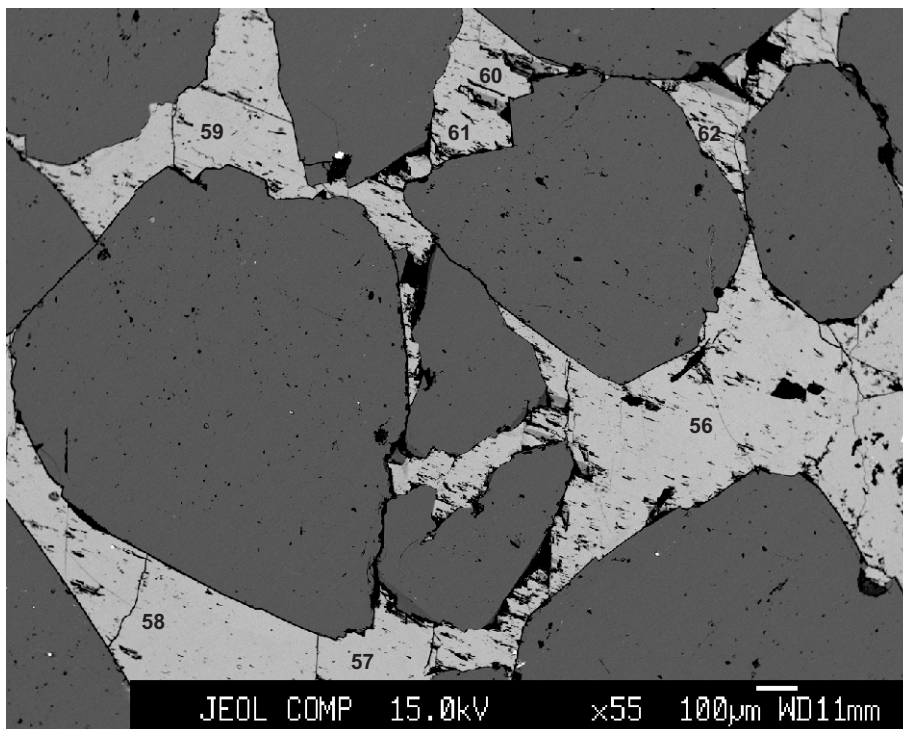
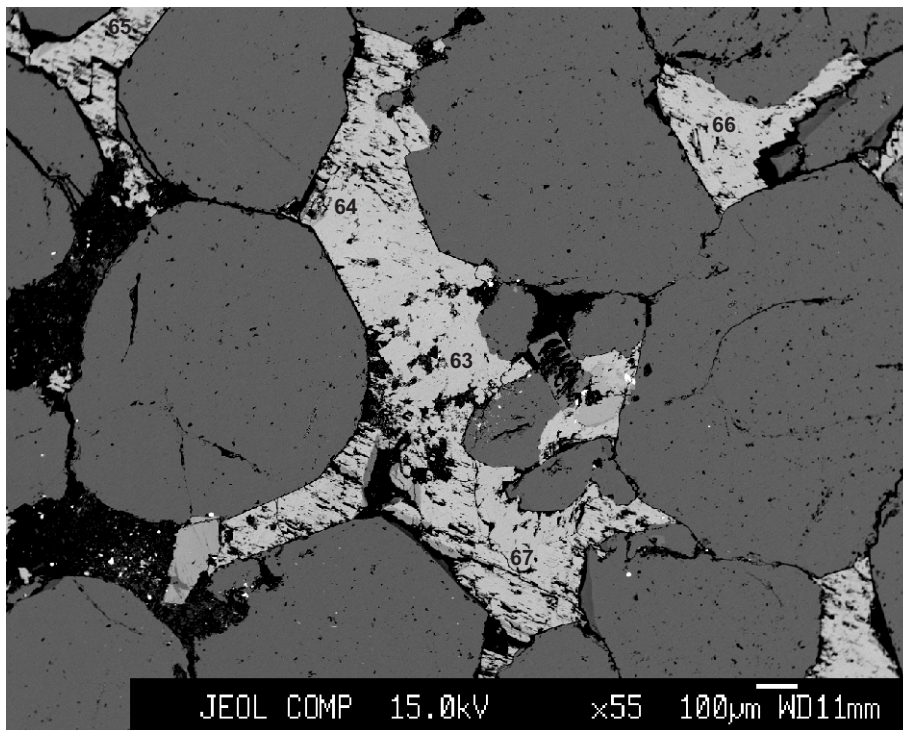
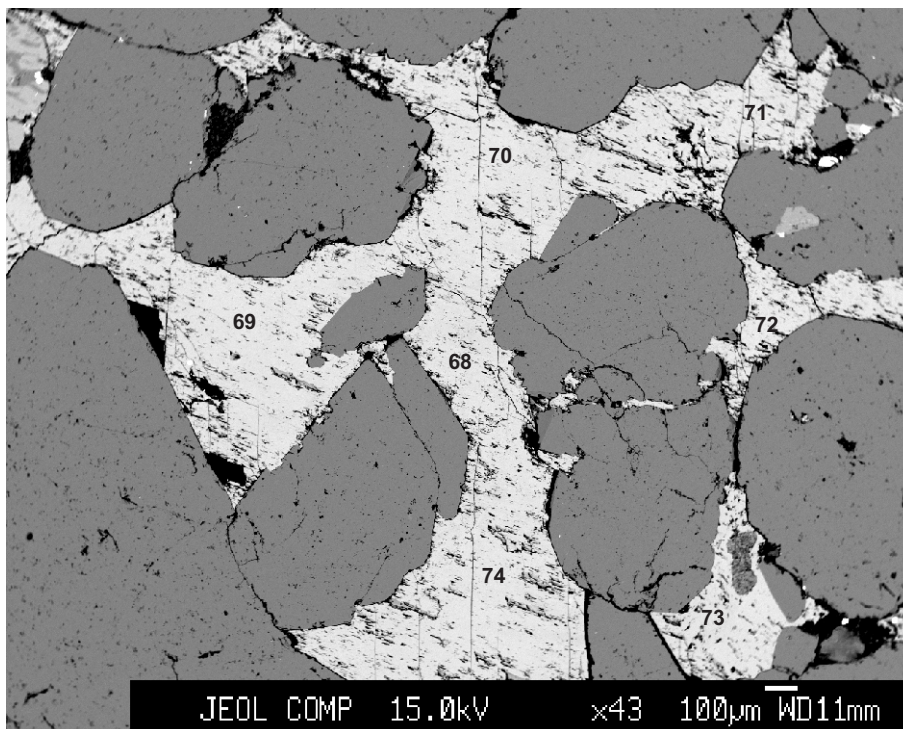


Figure 6: Panuke B-90-2099.21



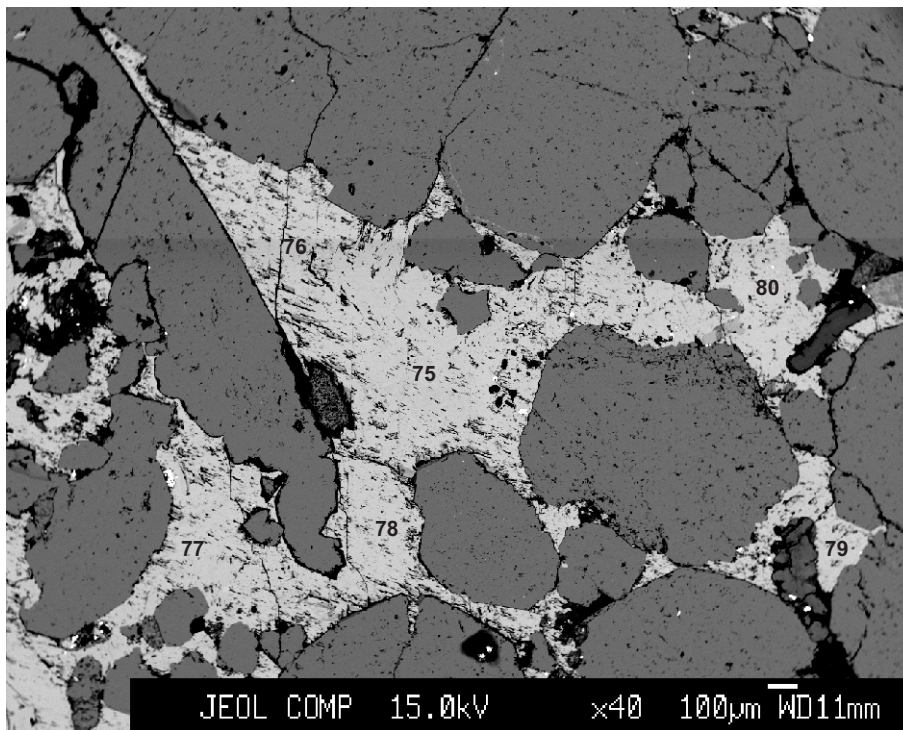
- 63: ankerite
- 64: ankerite
- 65: Fe-calcite
- 66: ankerite
- 67: ankerite

Figure 7: Panuke B-90-2099.21



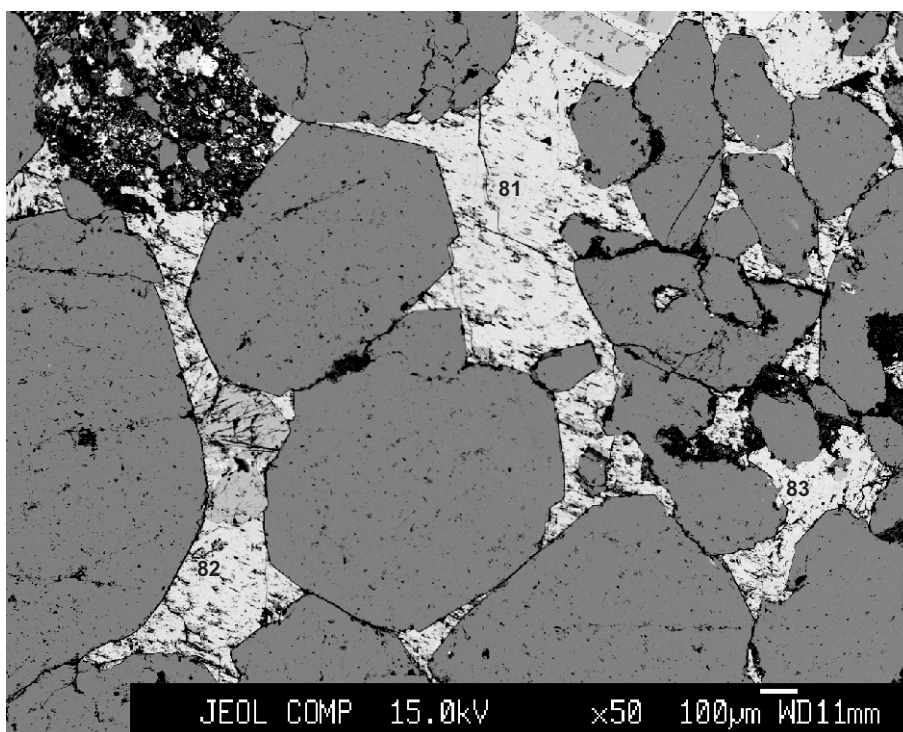
- 68: Fe-calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: ankerite
- 74: Fe-calcite

Figure 8: Panuke B-90-2099.21



- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: ankerite
- 80: ankerite

Figure 9: Panuke B-90-2099.21



- 81: Fe-calcite
- 82: Fe-calcite
- 83: ankerite

Figure 10: Panuke B-90-2099.21



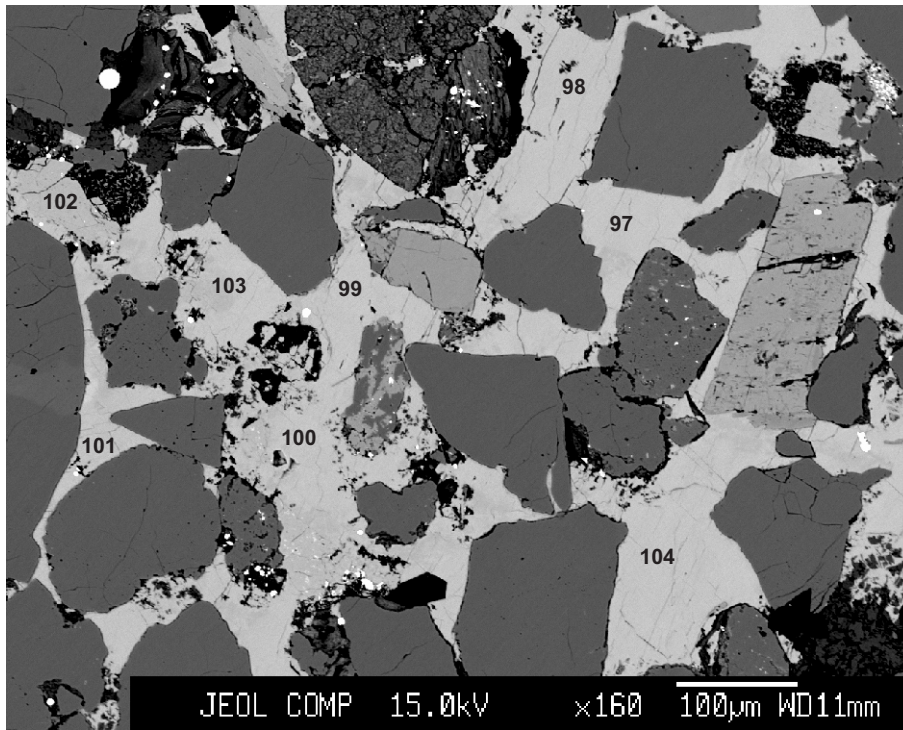


Figure 11: Panuke B-90-2099.69

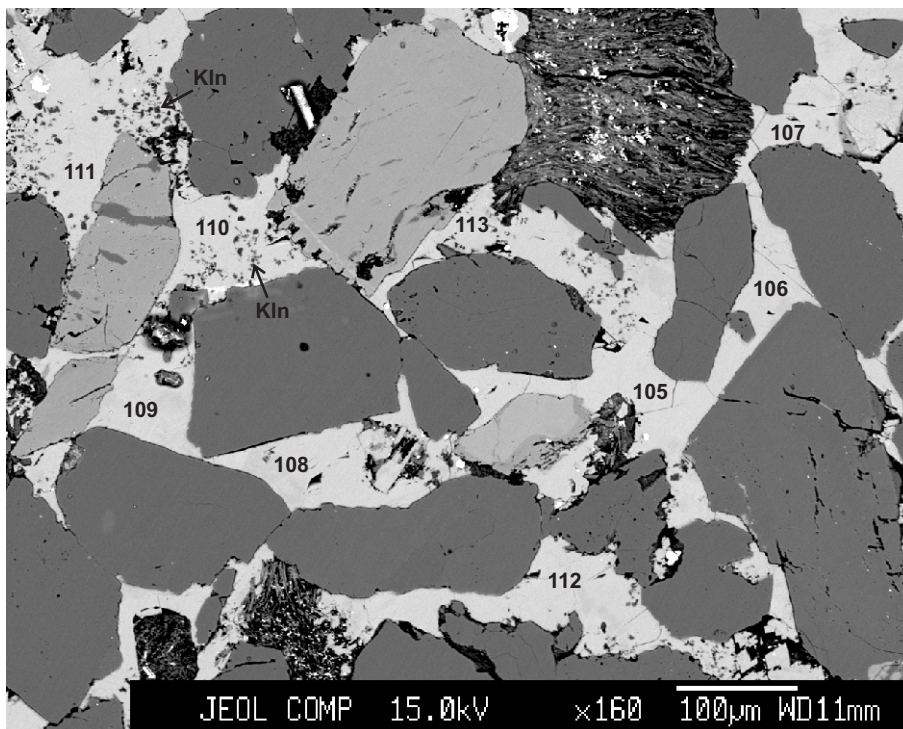
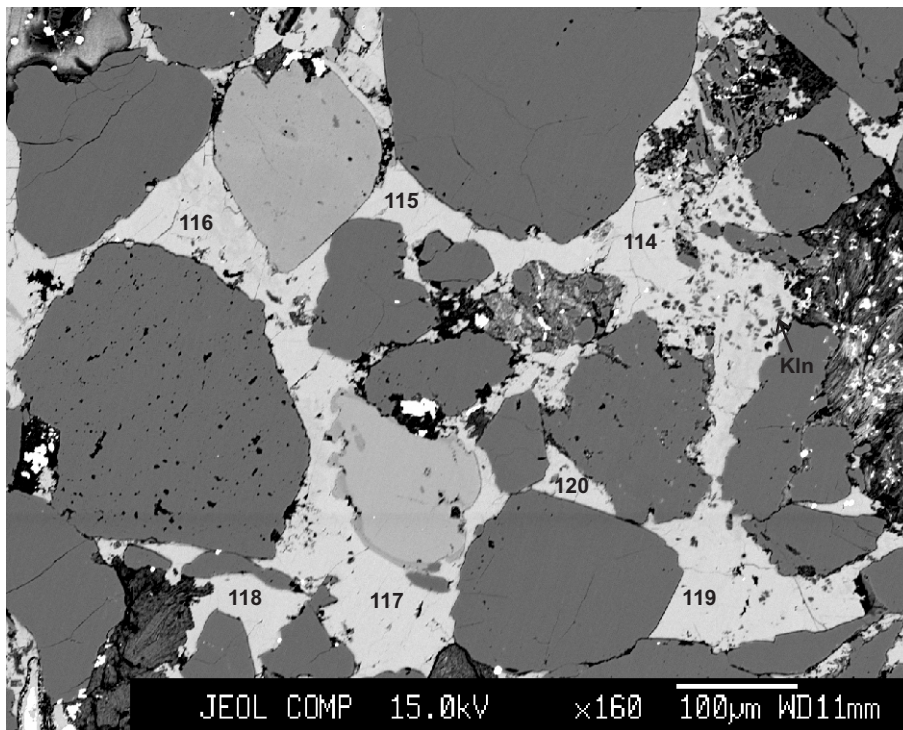
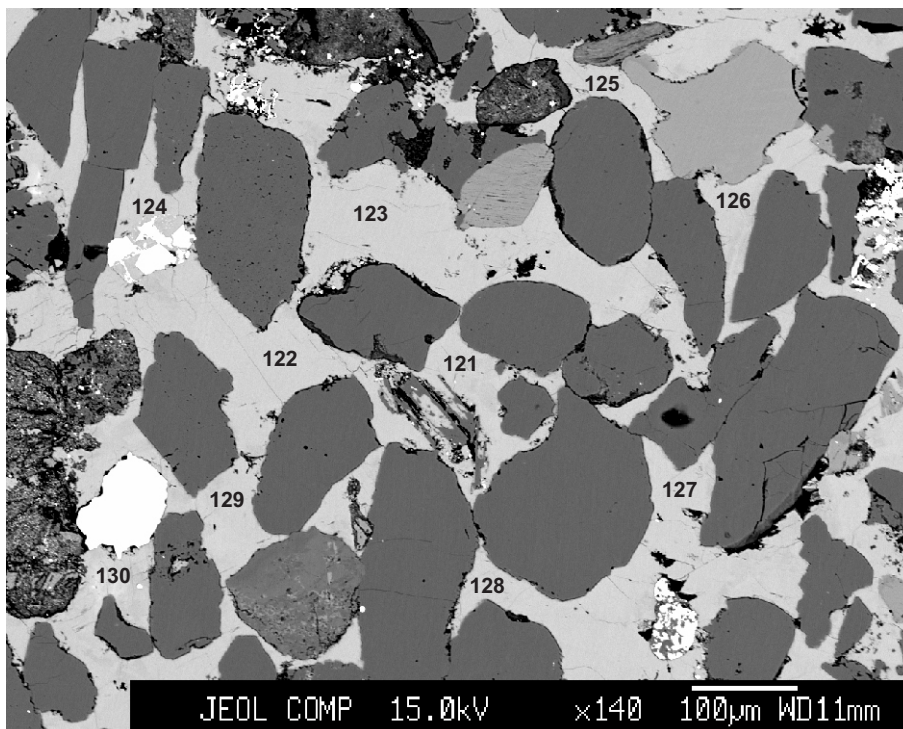


Figure 12: Panuke B-90-2099.69



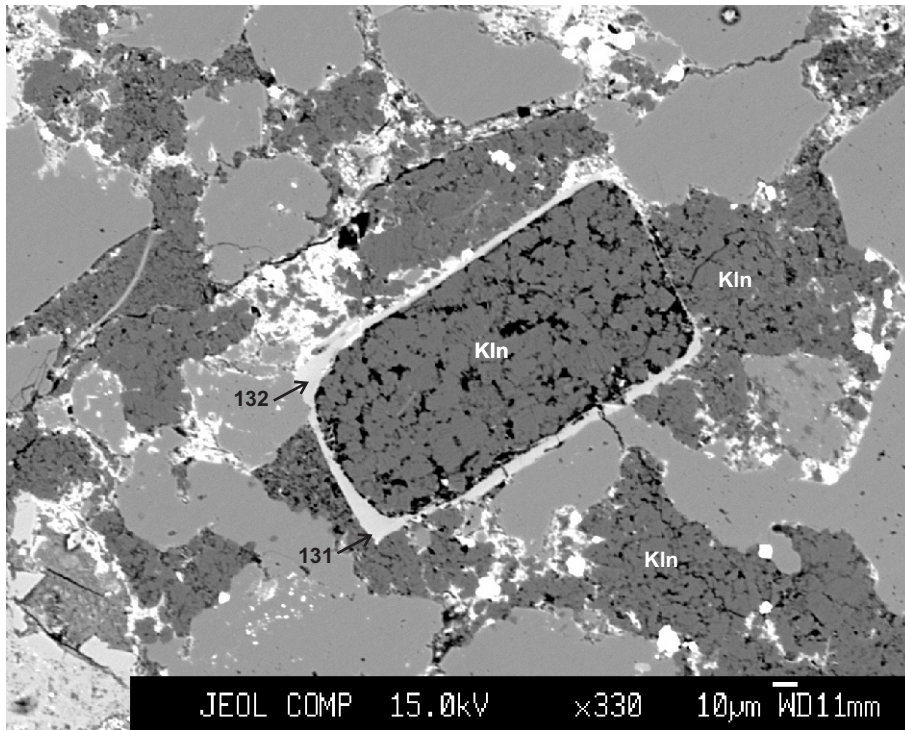
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite
- 119: Fe-calcite
- 120: ankerite

Figure 13: Panuke B-90-2099.69



- 121: Fe-calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: Fe-calcite
- 127: Fe-calcite
- 128: Fe-calcite
- 129: Fe-calcite
- 130: Fe-calcite

Figure 14: Panuke B-90-2099.69



131: K-feldspar  
115: K-feldspar

Figure 15: Panuke B-90-2107.7

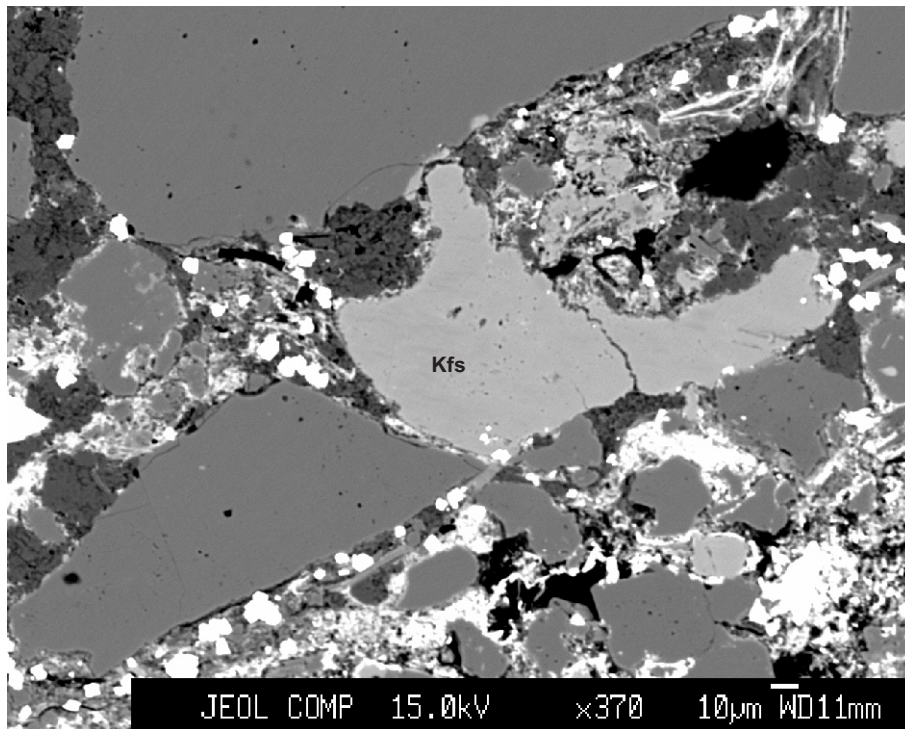
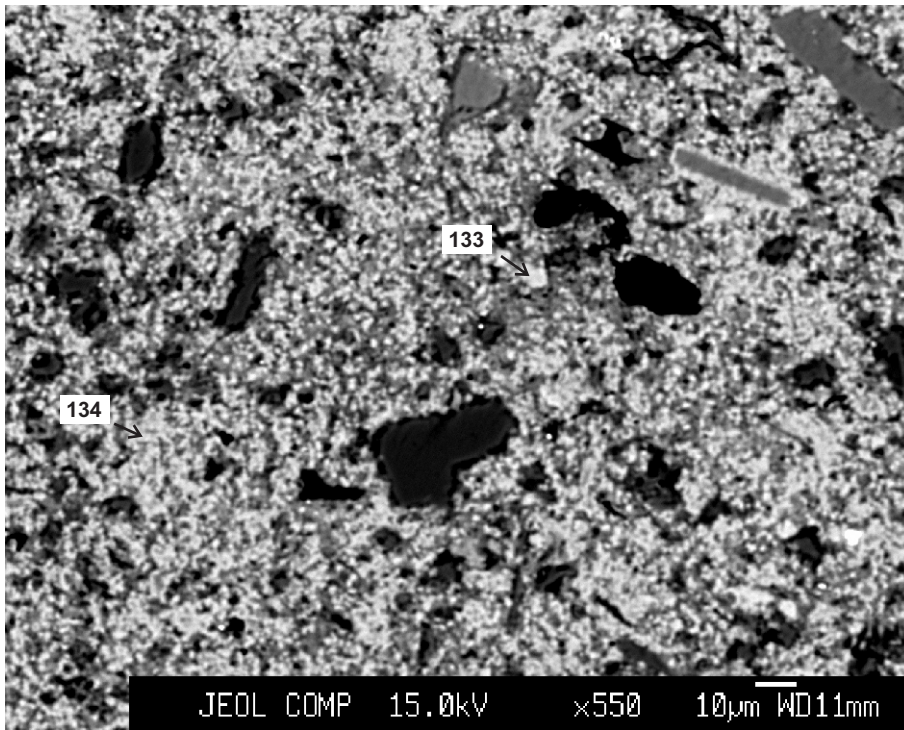
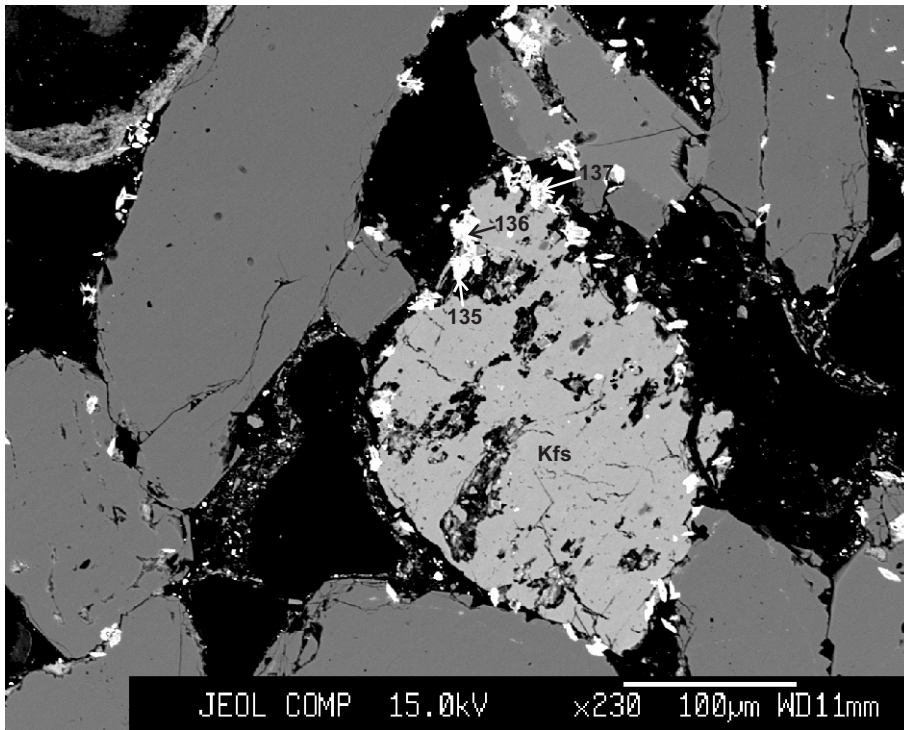


Figure 16: Panuke B-90-2107.7



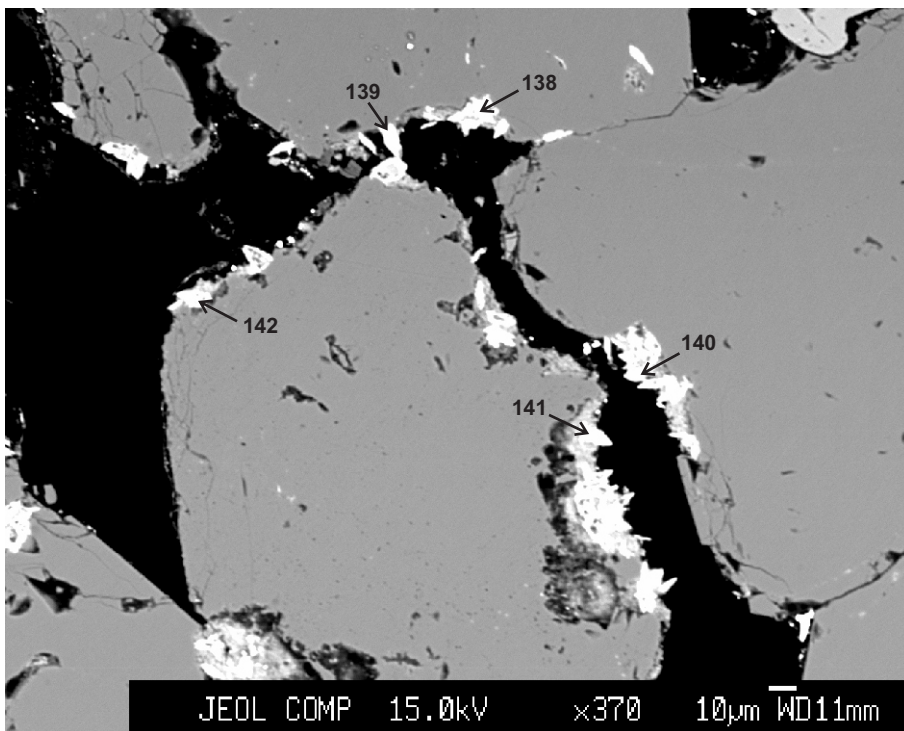
133: siderite  
134: siderite

Figure 17: Panuke B-90-2217.93



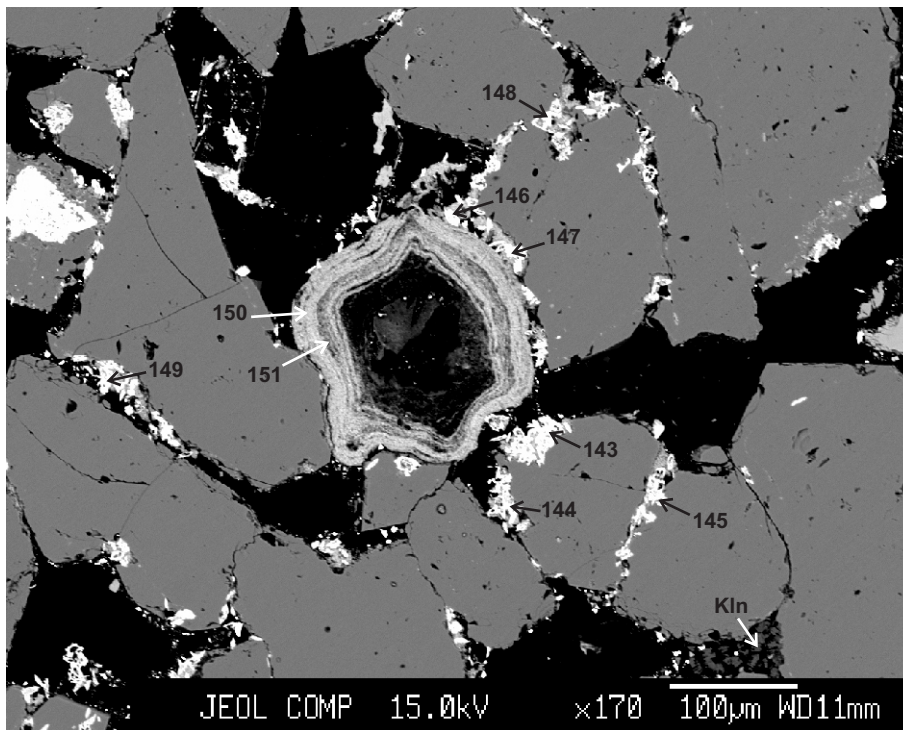
135: siderite  
 136: siderite  
 137: siderite

Figure 18: Panuke B-90-2223.78B



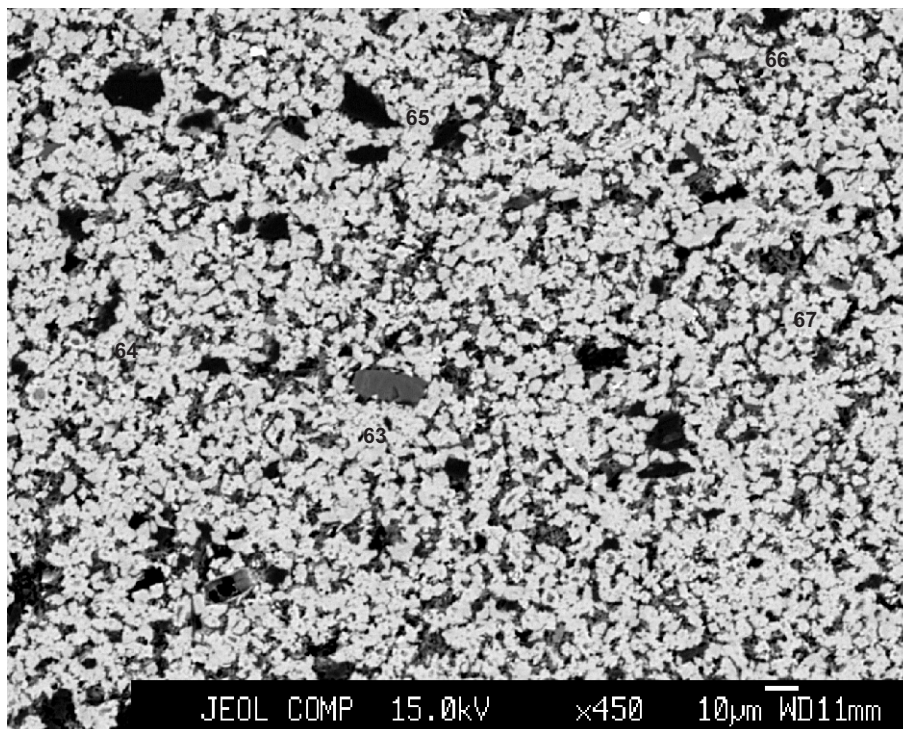
137: siderite  
 138: siderite  
 139: siderite  
 140: siderite  
 141: siderite  
 142: siderite

Figure 19: Panuke B-90-2223.78B



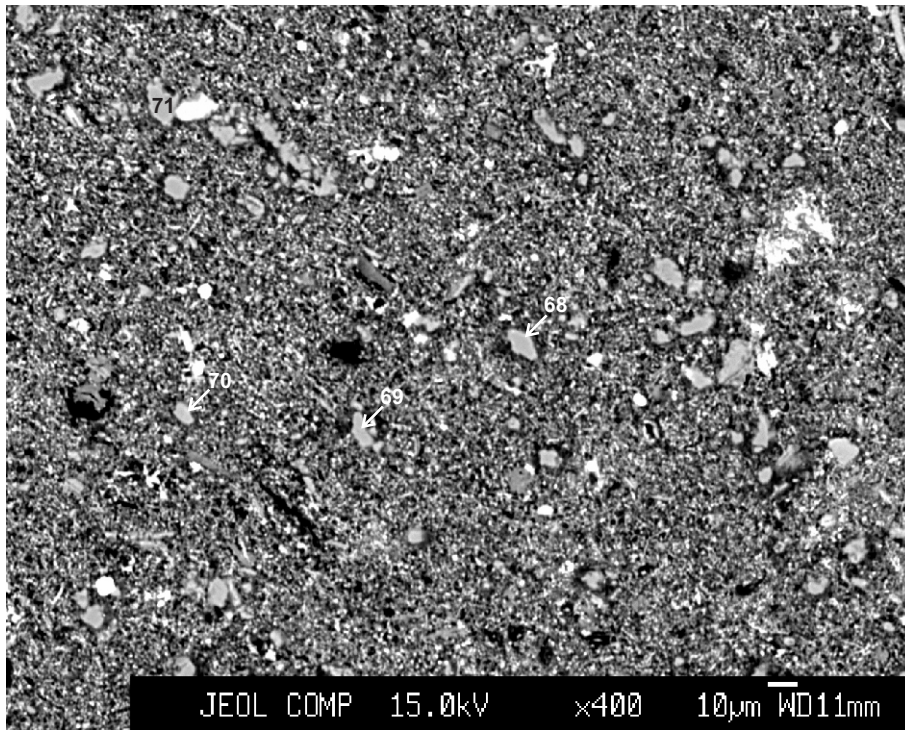
- 143: siderite
- 144: siderite
- 145: siderite
- 146: siderite
- 147: siderite
- 148: pseudorutile
- 149: siderite
- 150: chlorite
- 151: chlorite

Figure 20: Panuke B-90-2223.78B



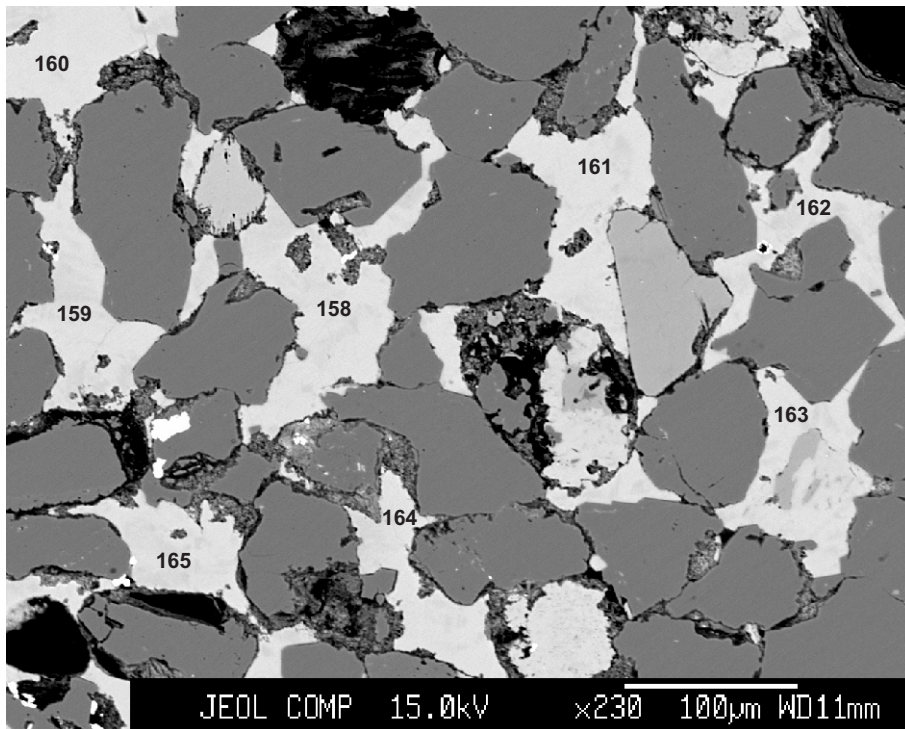
- 63: siderite
- 64: siderite
- 65: siderite
- 66: siderite
- 67: siderite

Figure 21: Panuke B-90-2242.47



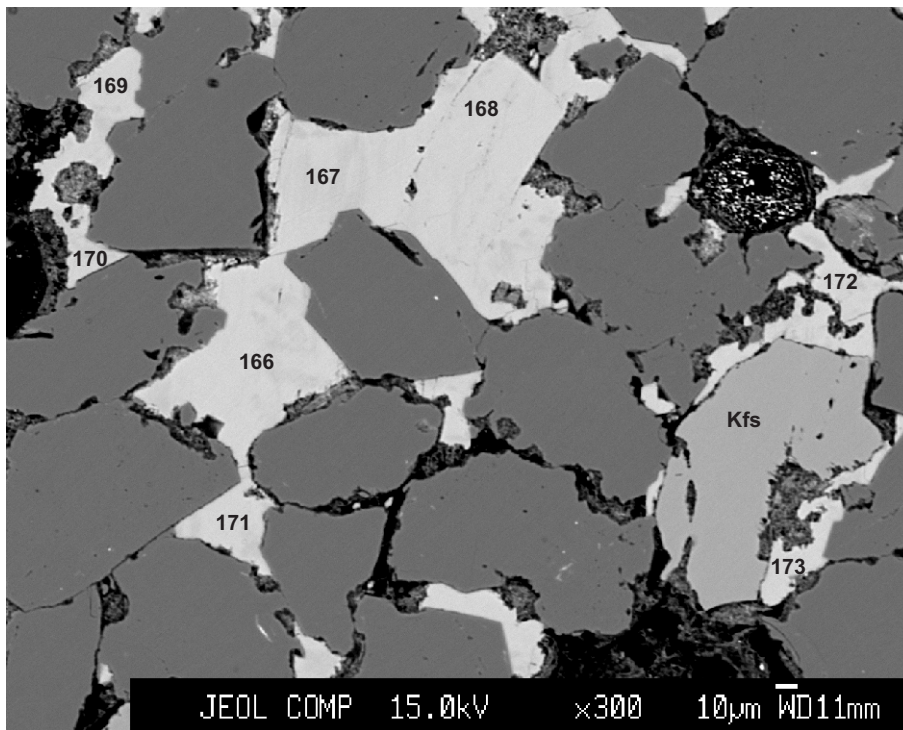
68: quartz  
 69: quartz  
 70: K-feldspar  
 71: quartz

Figure 22: Panuke B-90-2242.47



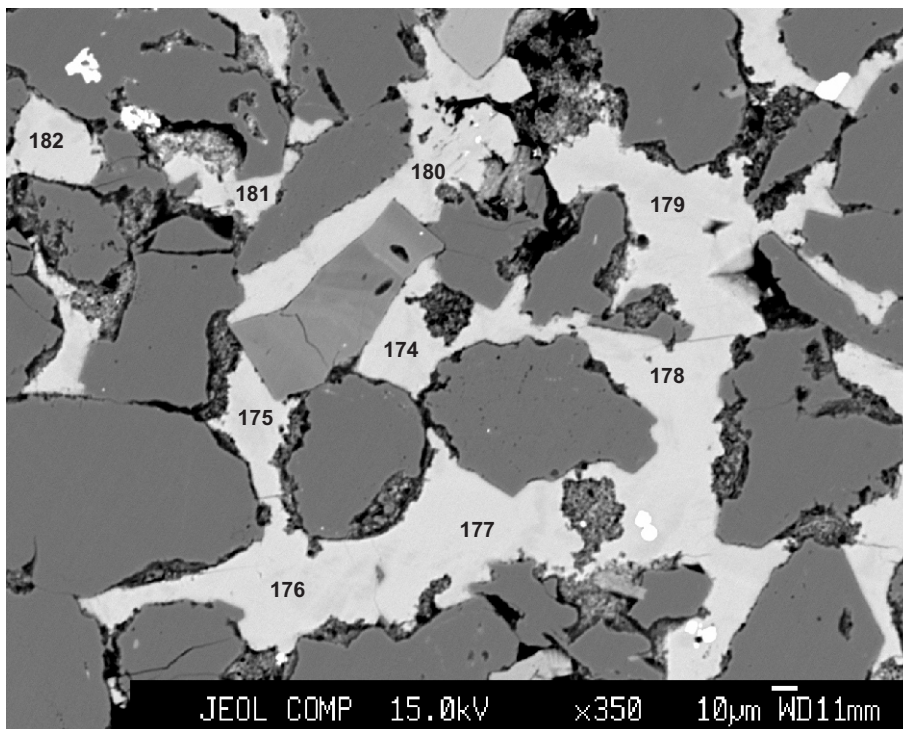
158: Fe-calcite  
 159: calcite  
 160: Fe-calcite  
 161: Fe-calcite  
 162: Fe-calcite  
 163: calcite  
 164: Fe-calcite  
 165: Fe-calcite

Figure 23: Panuke B-90-2281.68



- 166: calcite
- 167: Fe-calcite
- 168: Fe-calcite
- 169: Fe-calcite
- 170: Fe-calcite
- 171: Fe-calcite
- 172: Fe-calcite
- 173: Fe-calcite

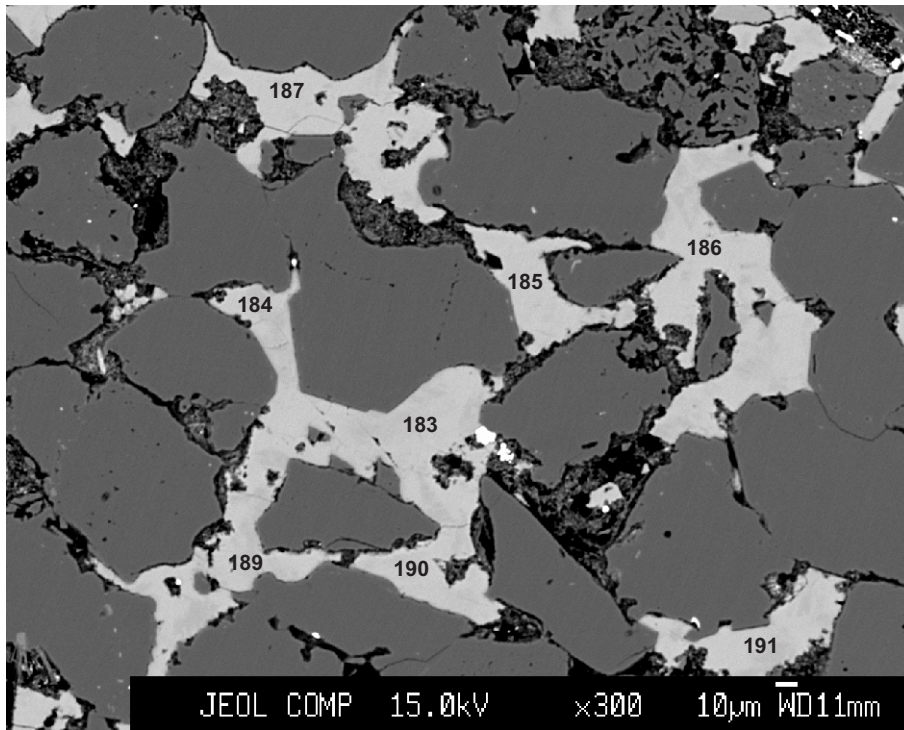
Figure 24: Panuke B-90-2281.68



- 174: Fe-calcite
- 175: calcite
- 176: Fe-calcite
- 177: Fe-calcite
- 178: Fe-calcite
- 179: calcite
- 180: calcite
- 181: Fe-calcite
- 182: Fe-calcite

Figure 25: Panuke B-90-2281.68





- 183: Fe-calcite
- 184: calcite
- 185: Fe-calcite
- 186: Fe-calcite
- 187: Fe-calcite
- 188: Fe-calcite
- 189: calcite
- 190: Fe-calcite
- 191: Fe-calcite

Figure 26: Panuke B-90-2281.68

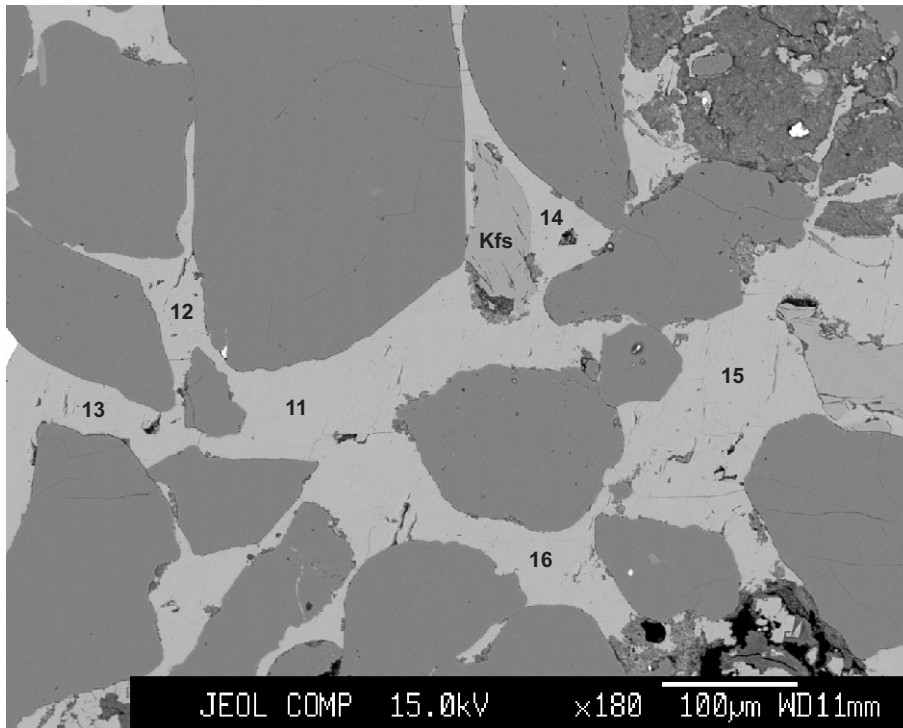


Figure 27: Panuke B-90-2289.57

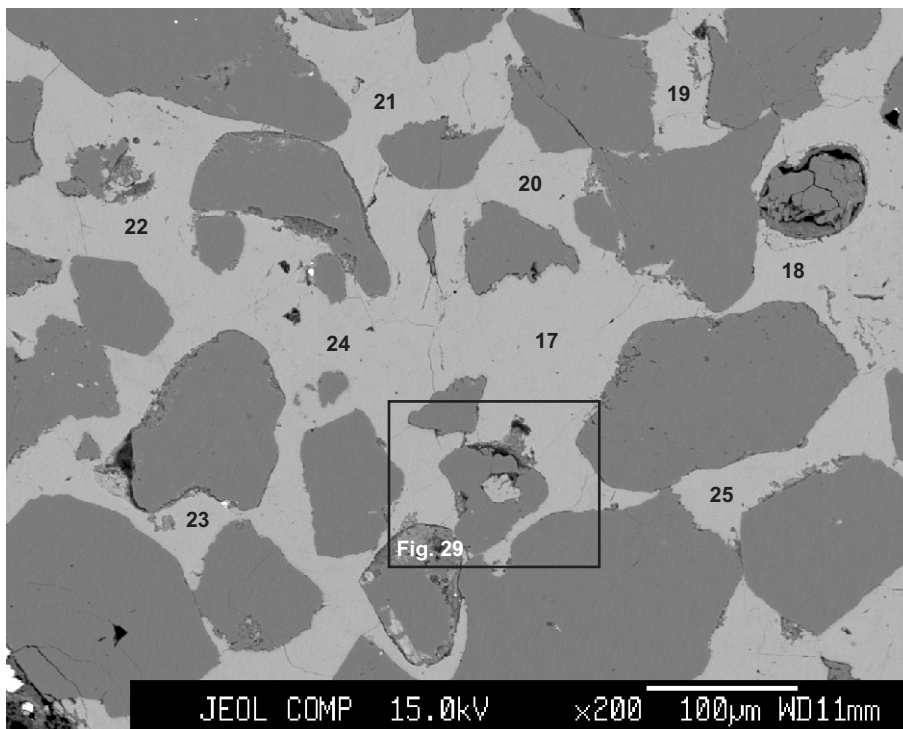
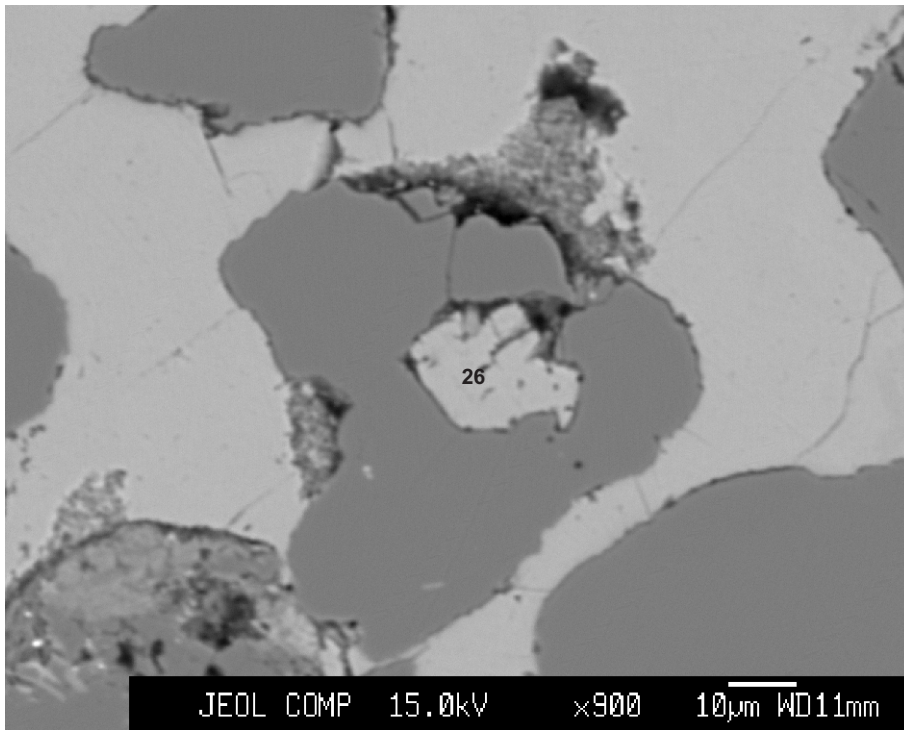
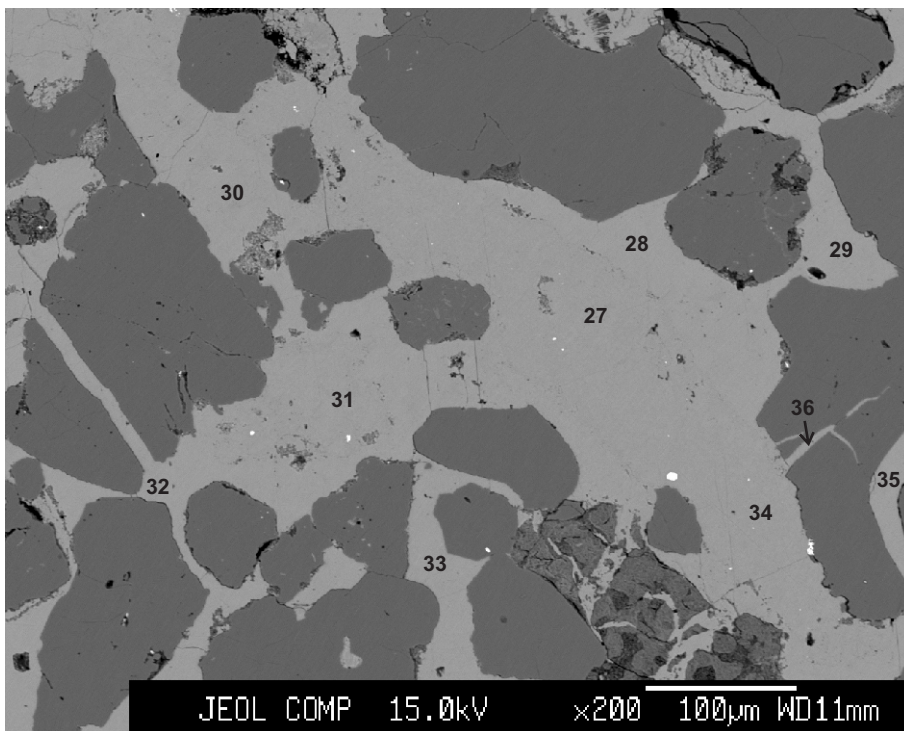


Figure 28: Panuke B-90-2289.57



26: Fe-calcite

Figure 29: Panuke B-90-2289.57



27: Fe-calcite  
 28: Fe-calcite  
 29: Fe-calcite  
 30: Fe-calcite  
 31: Fe-calcite  
 32: Fe-calcite  
 33: Fe-calcite  
 34: Fe-calcite  
 35: Fe-calcite  
 36: Fe-calcite

Figure 30: Panuke B-90-2289.57

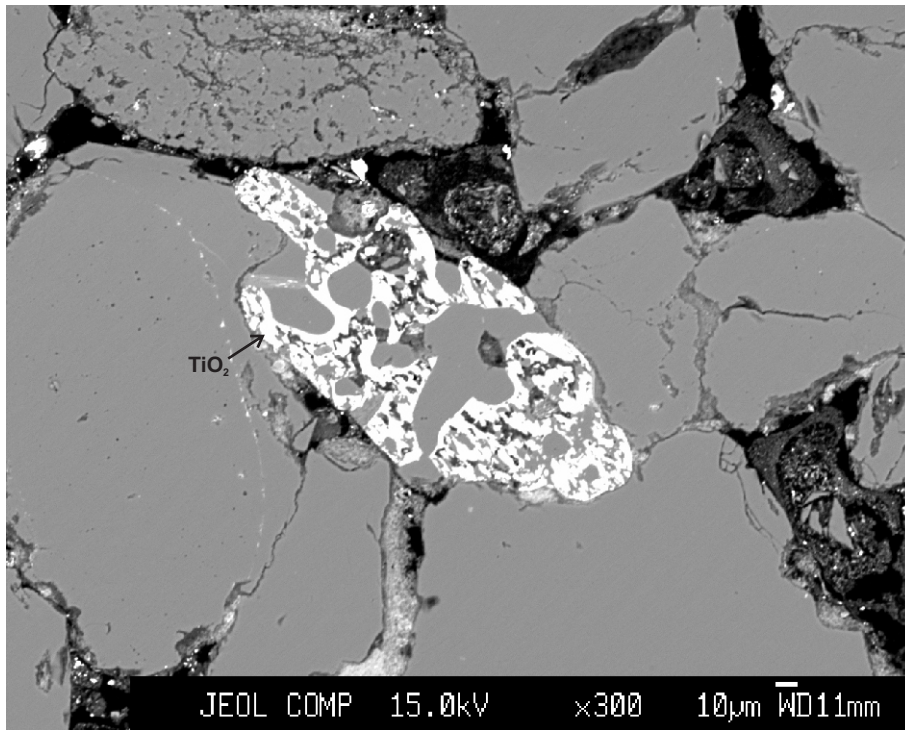
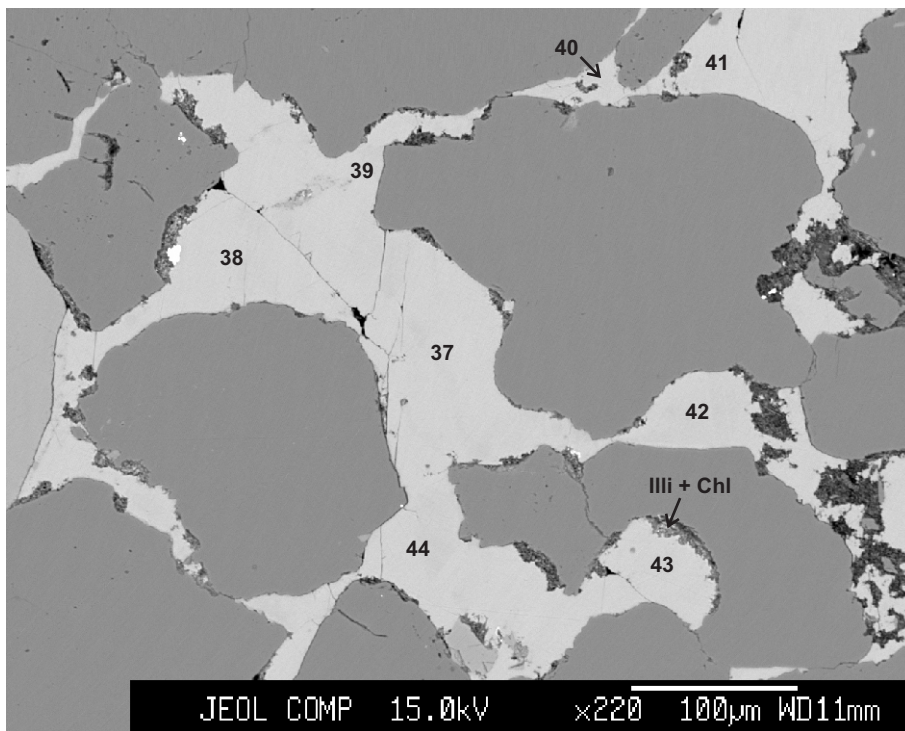


Figure 31: Panuke B-90-2291.26



- 37: Fe-calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite
- 44: calcite

Figure 32: Panuke B-90-2292.85

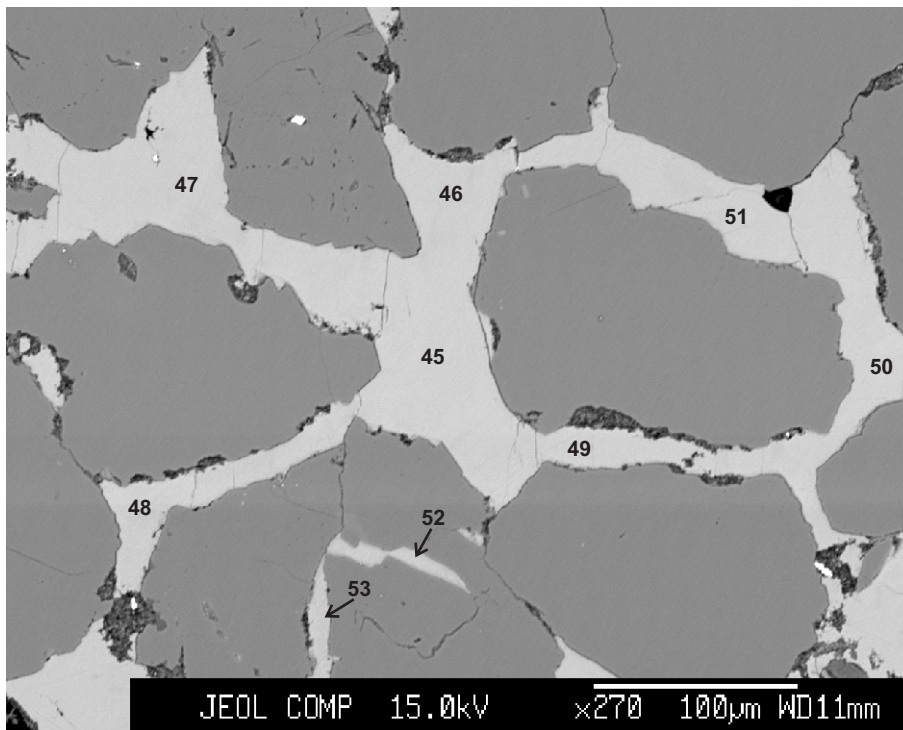


Figure 33: Panuke B-90-2292.85

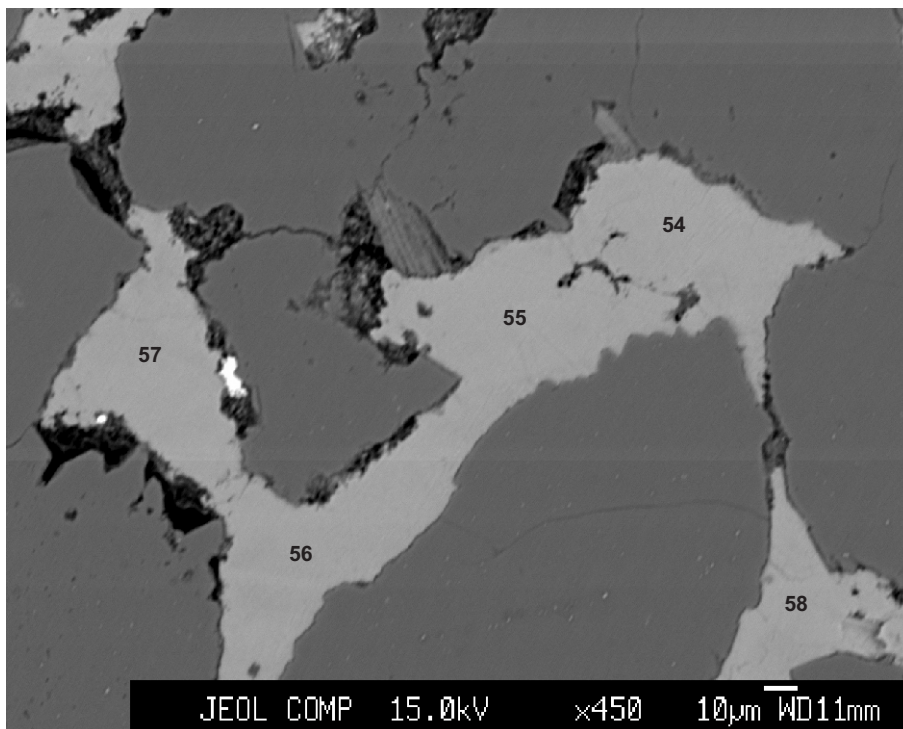


Figure 34: Panuke B-90-2292.85

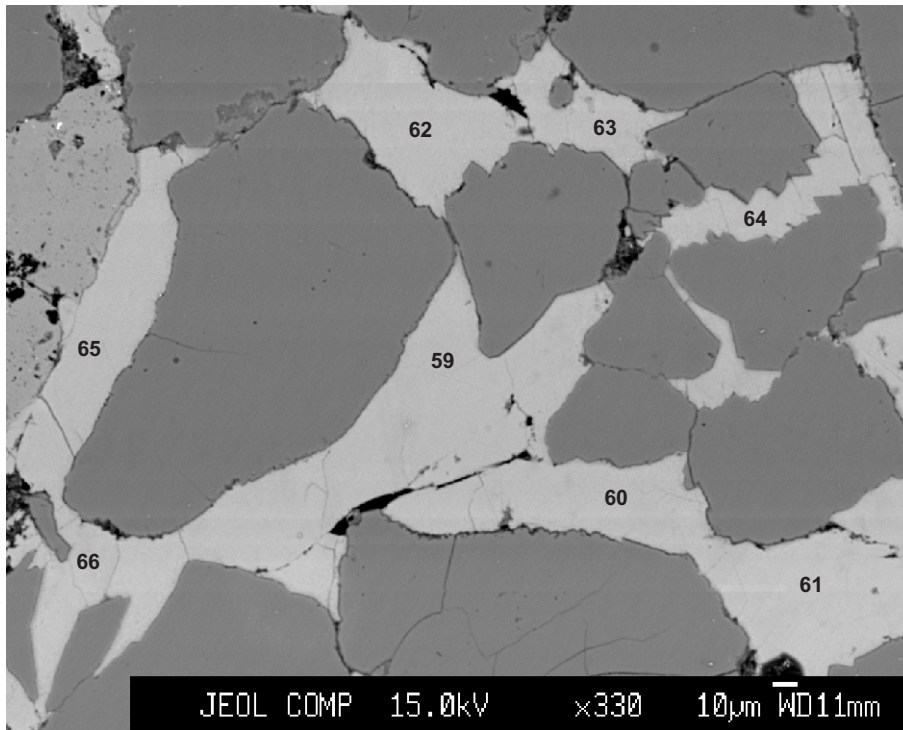


Figure 35: Panuke B-90-2292.85

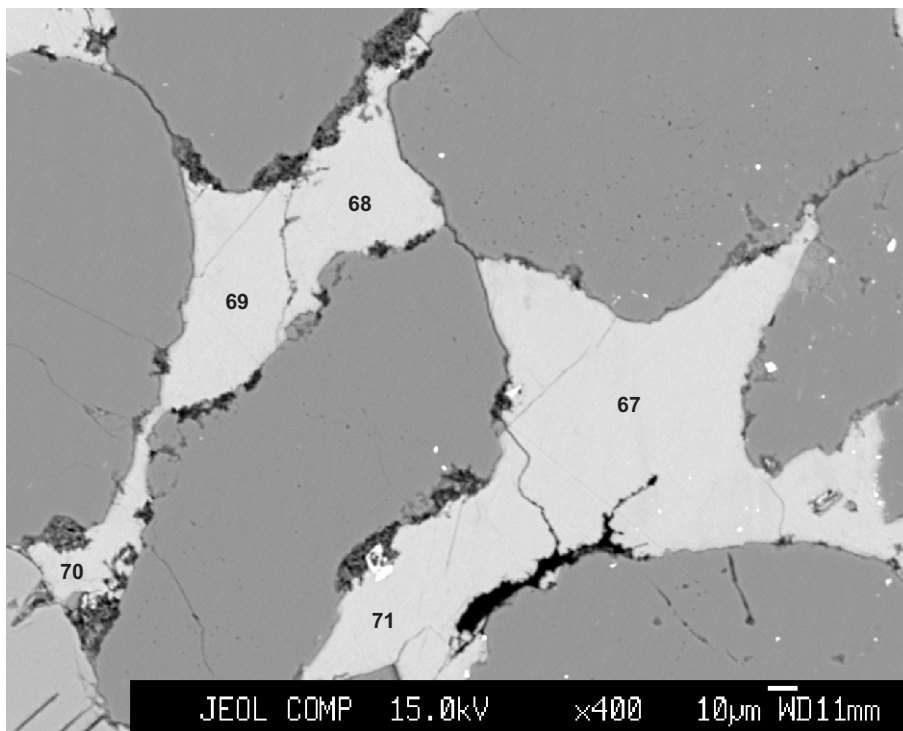


Figure 36: Panuke B-90-2292.85

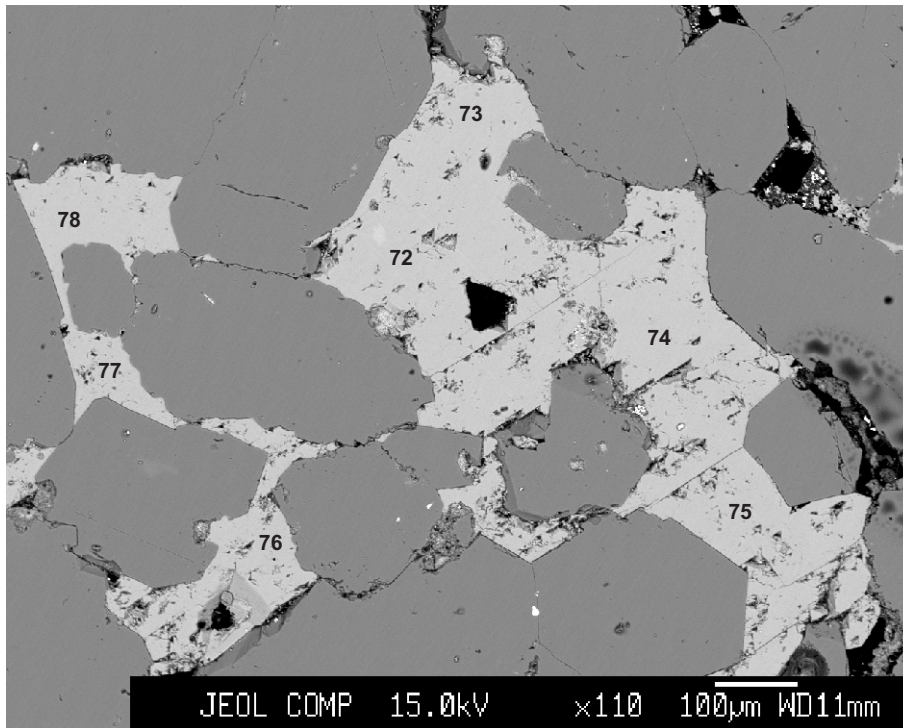


Figure 37: Panuke B-90-2320.51

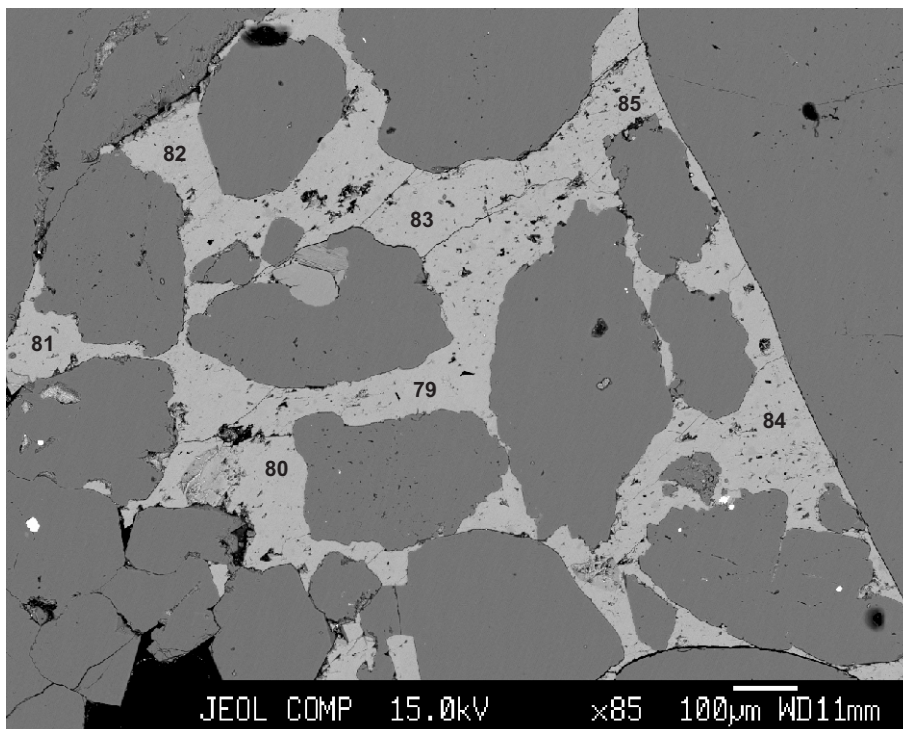
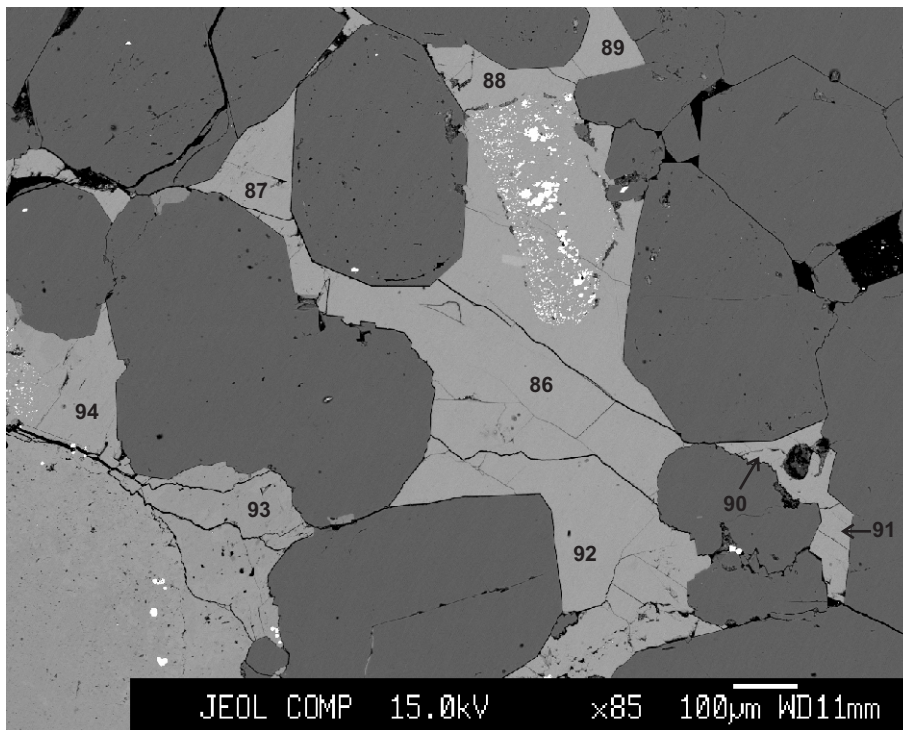
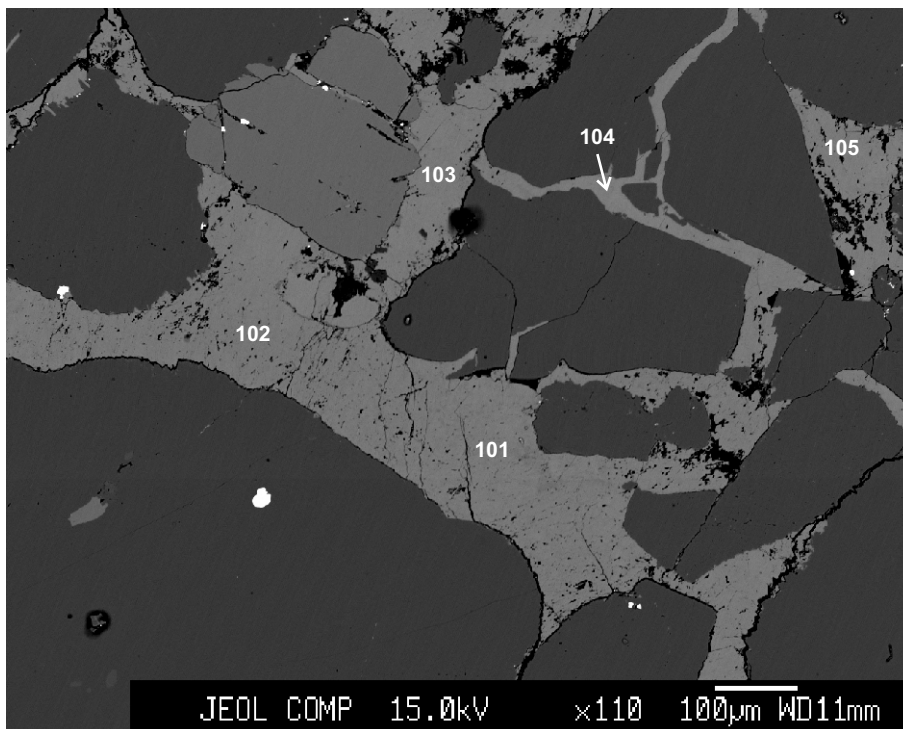


Figure 38: Panuke B-90-2320.51



- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite

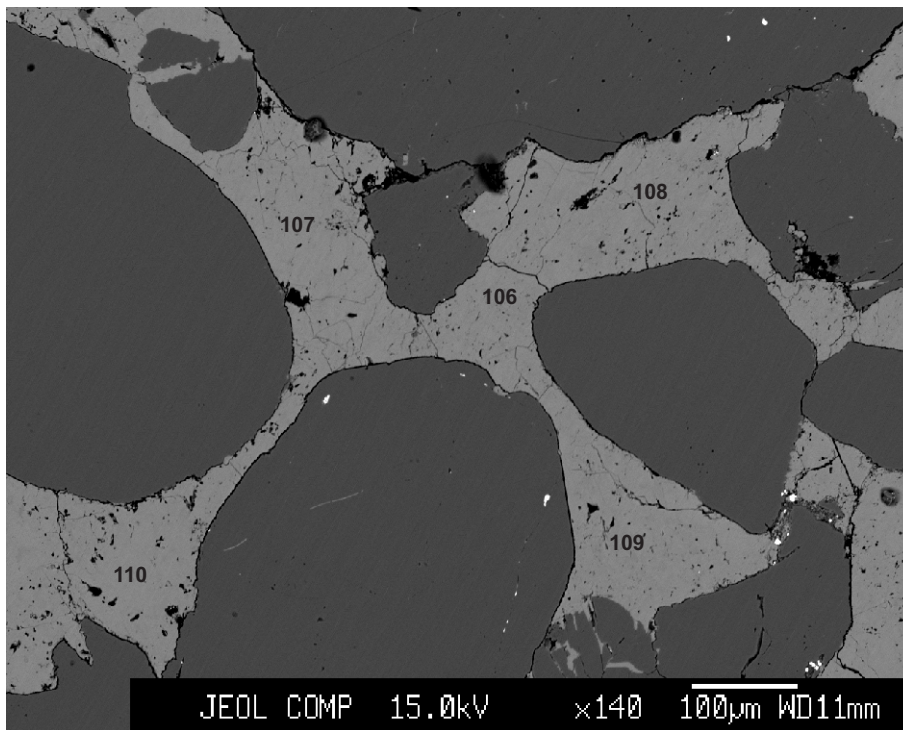
Figure 39: Panuke B-90-2320.51



- 101: Fe-calcite
- 102: Fe-calcite
- 103: calcite
- 104: Fe-calcite
- 105: Fe-calcite

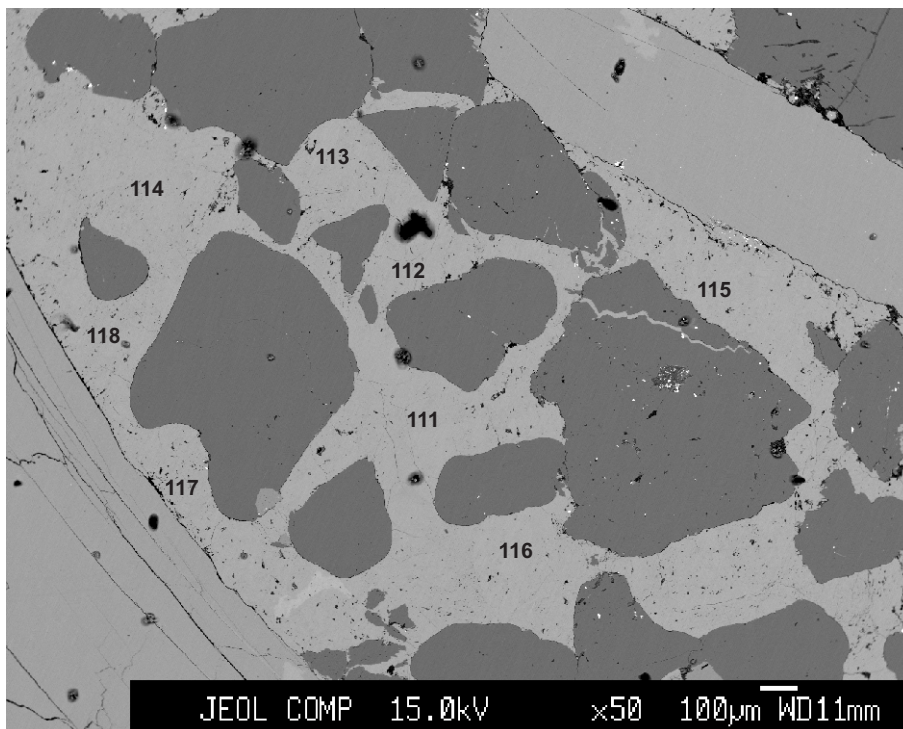
Figure 40: Panuke B-90-2379.2





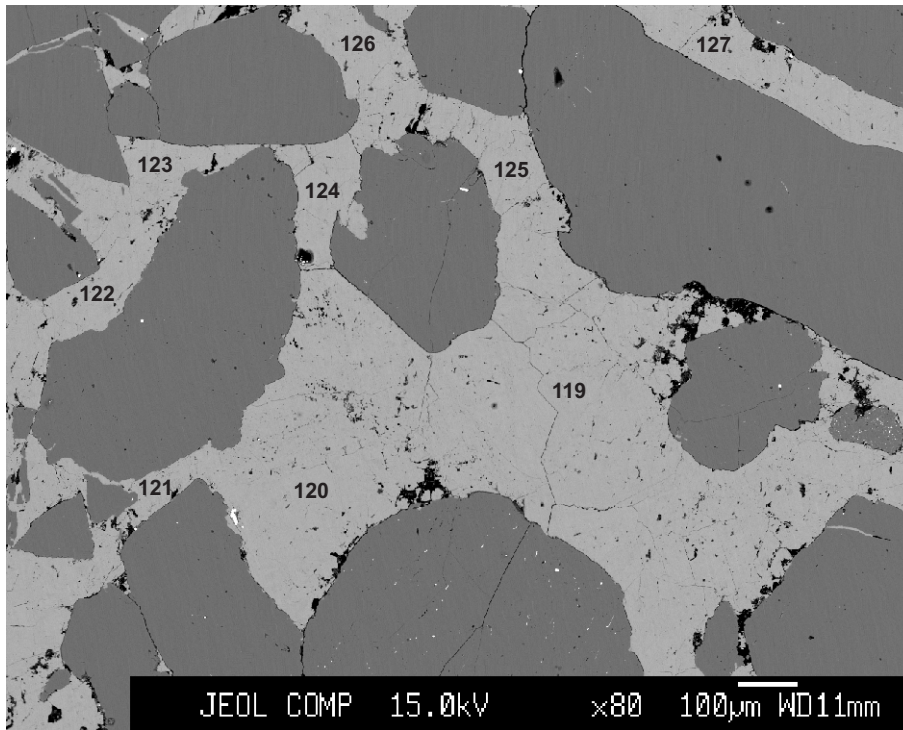
- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

Figure 41: Panuke B-90-2379.2



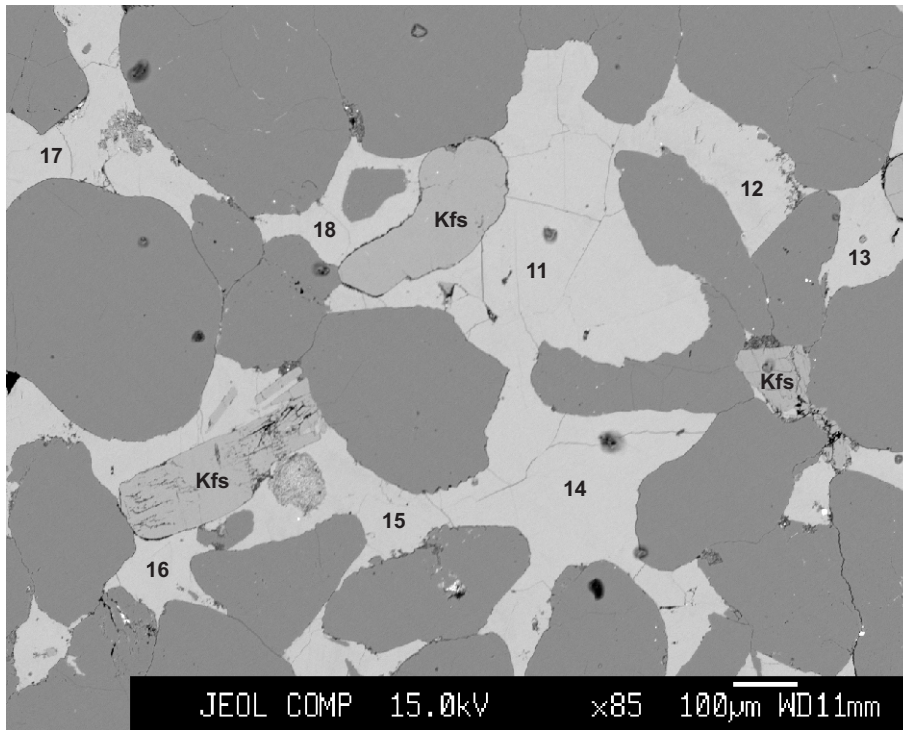
- 111: Fe-calcite
- 112: calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite

Figure 42: Panuke B-90-2379.2



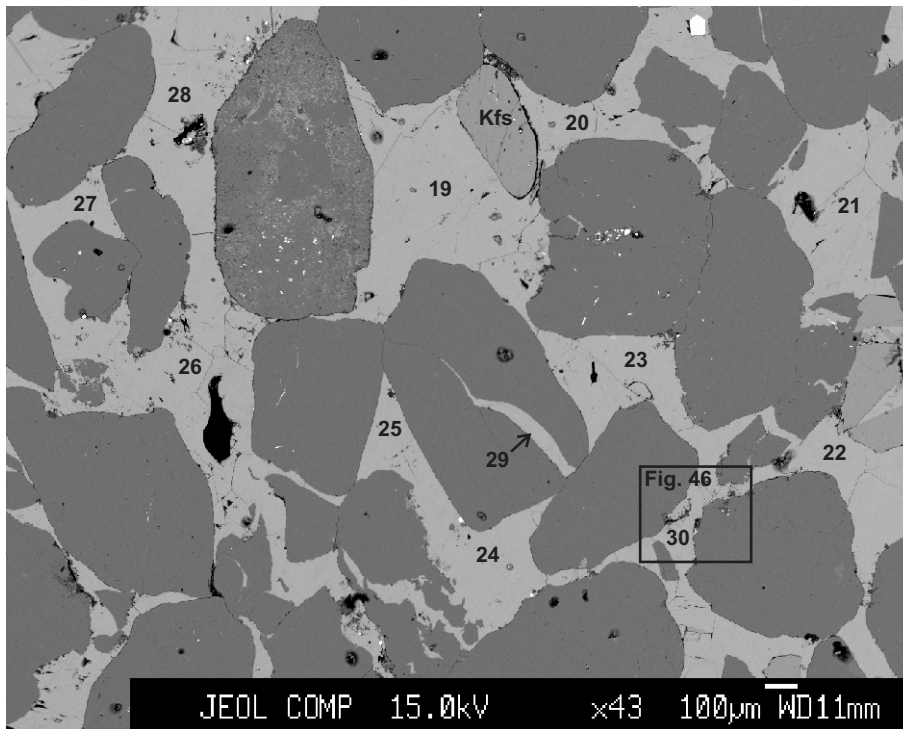
- 119: calcite
- 120: calcite
- 121: calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: calcite
- 127: Fe-calcite

Figure 43: Panuke B-90-2379.2



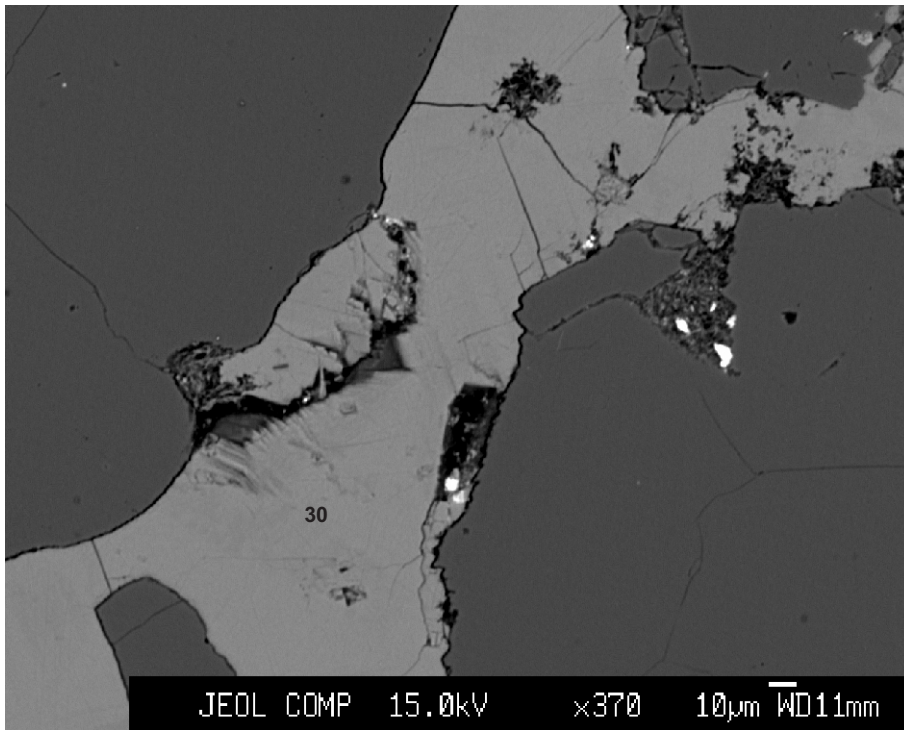
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: calcite
- 17: Fe-calcite
- 18: calcite

Figure 44: Panuke B-90-2393.92



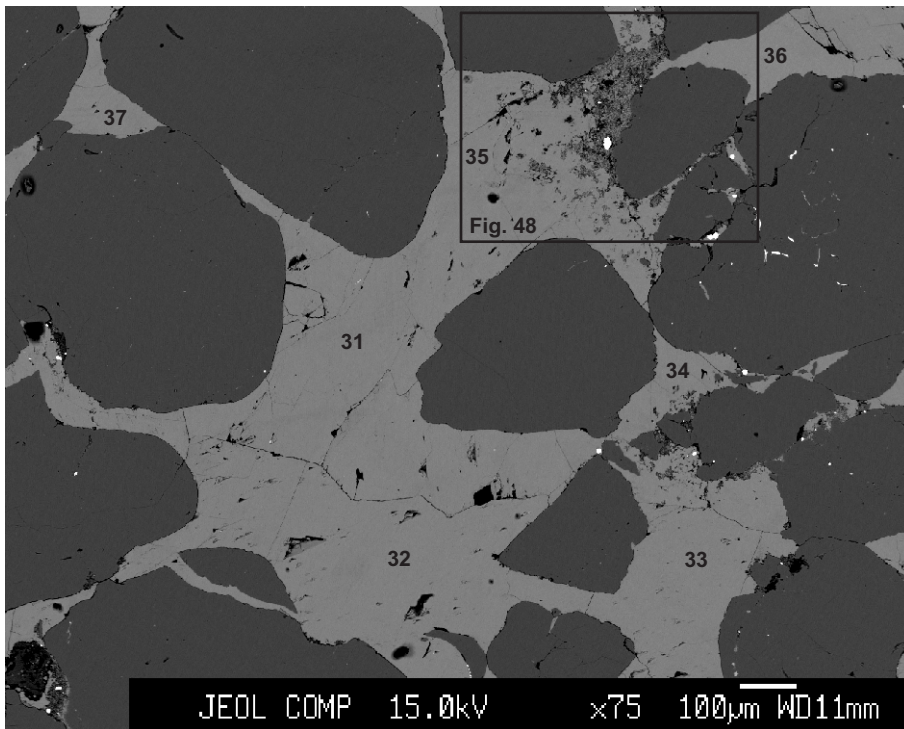
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: Fe-calcite
- 27: calcite
- 28: Fe-calcite
- 29: calcite
- 30: calcite

Figure 45: Panuke B-90-2393.92



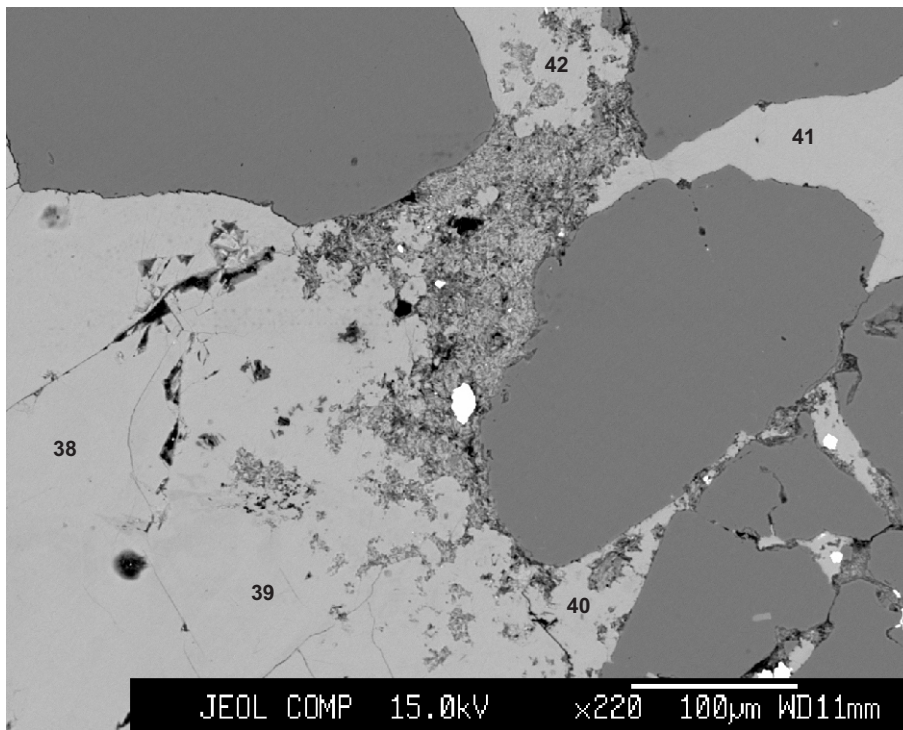
30: calcite

Figure 46: Panuke B-90-2393.92



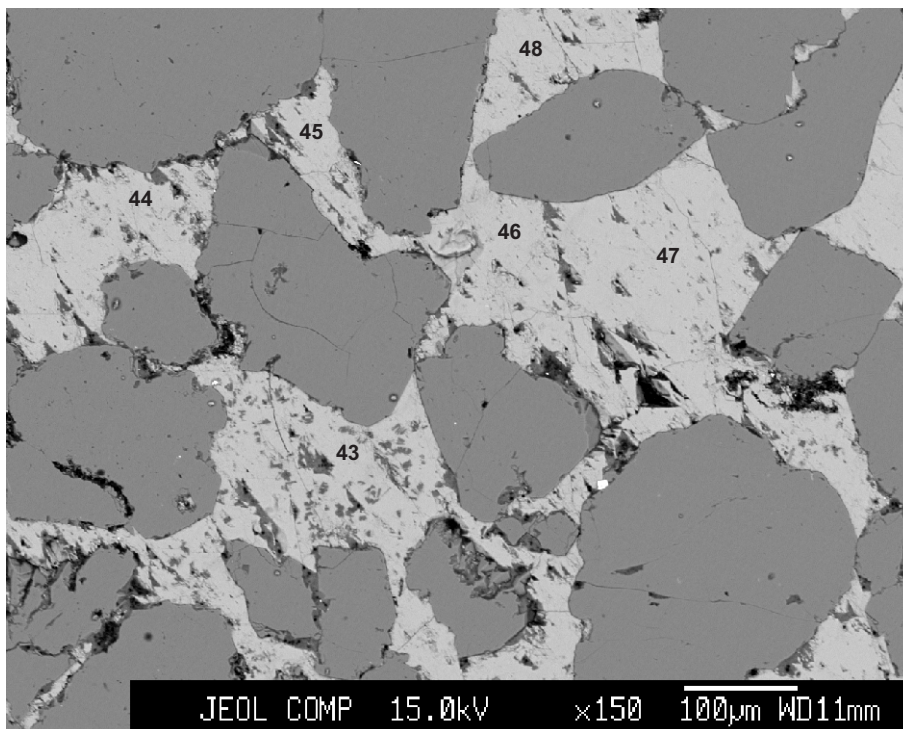
31: Fe-calcite  
 32: Fe-calcite  
 33: Fe-calcite  
 34: Fe-calcite  
 35: Fe-calcite  
 36: calcite  
 37: Fe-calcite

Figure 47: Panuke B-90-2393.92



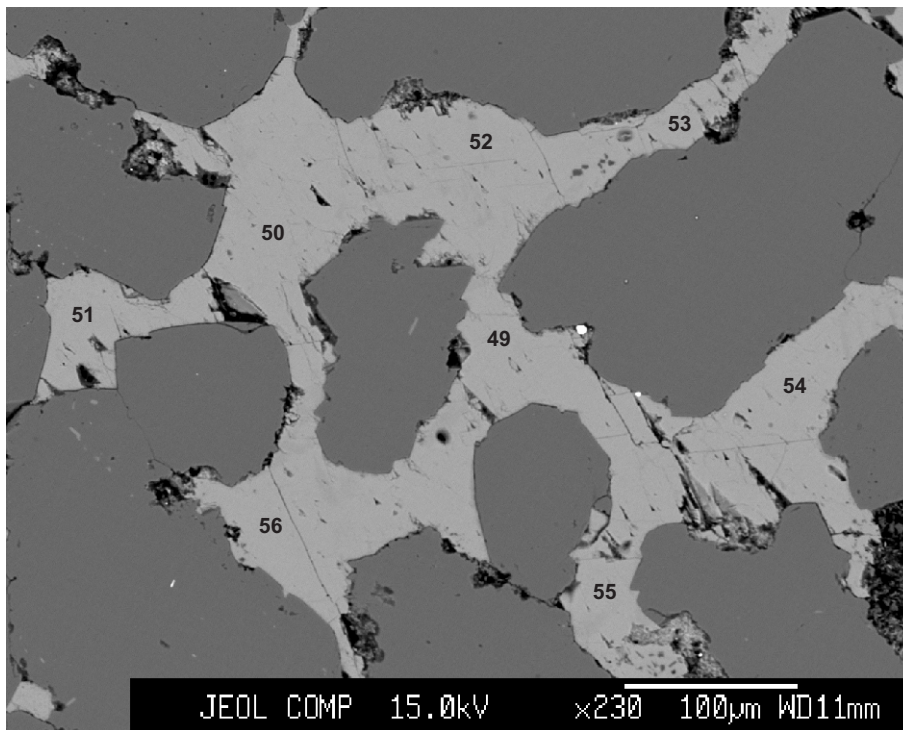
- 38: calcite
- 39: calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: calcite

Figure 48: Panuke B-90-2393.92



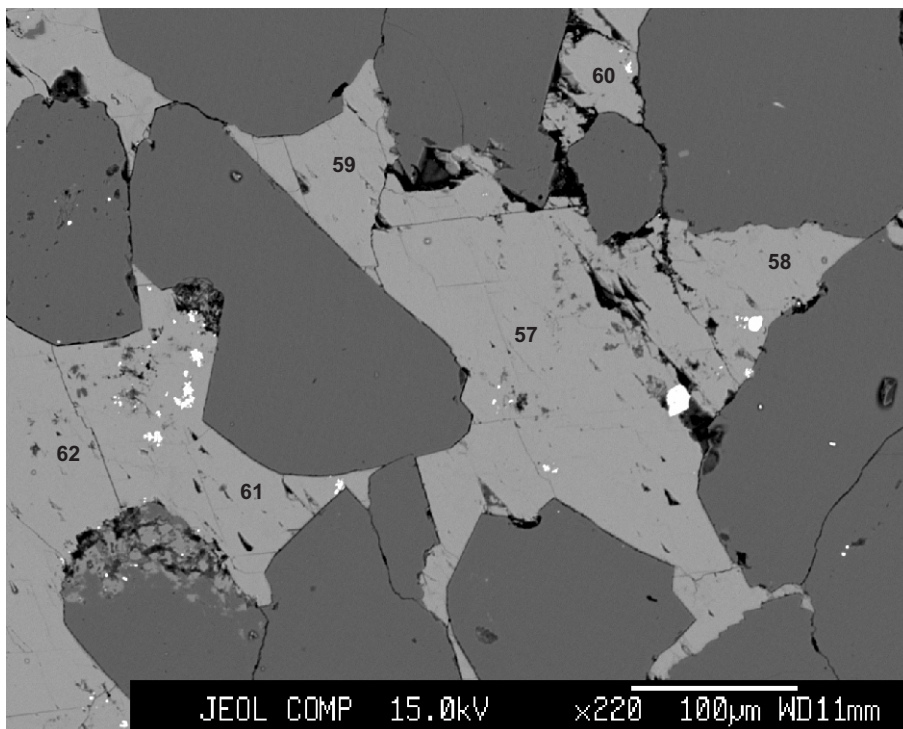
- 43: Fe-calcite
- 44: Fe-calcite
- 45: Fe-calcite
- 46: calcite
- 47: Fe-calcite
- 48: Fe-calcite

Figure 49: Panuke B-90-2403.21



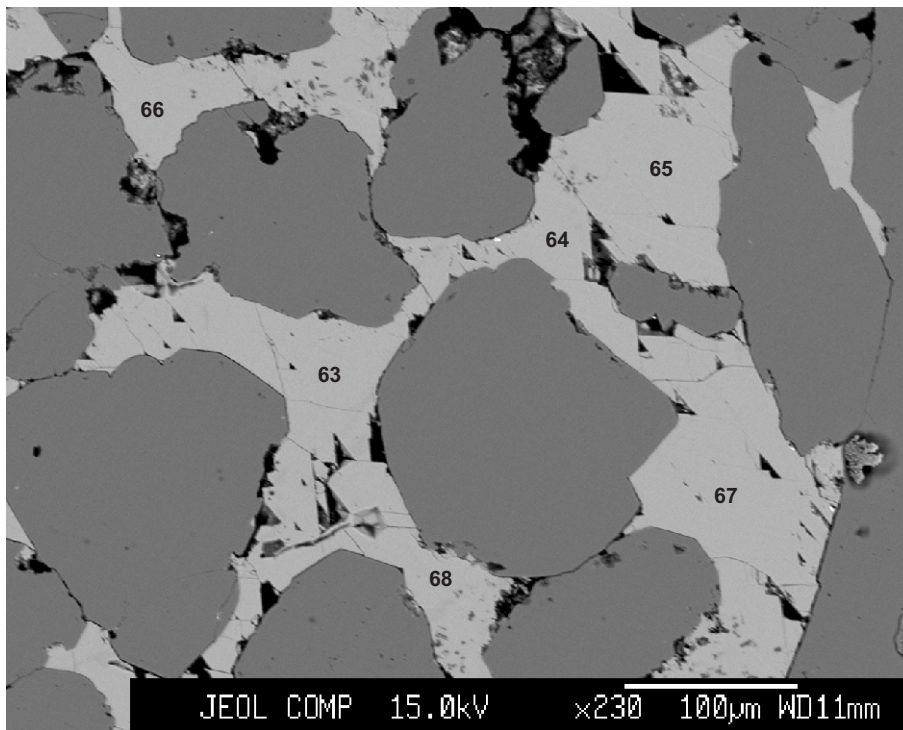
- 49: Fe-calcite
- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite
- 56: Fe-calcite

Figure 50: Panuke B-90-2403.21



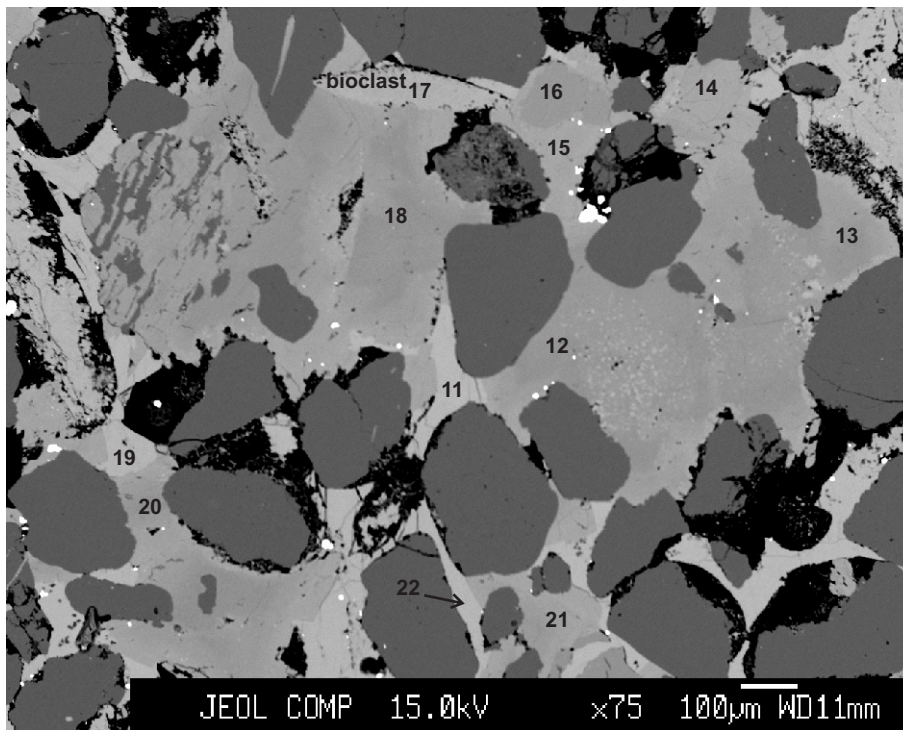
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite
- 62: Fe-calcite

Figure 51: Panuke B-90-2403.21



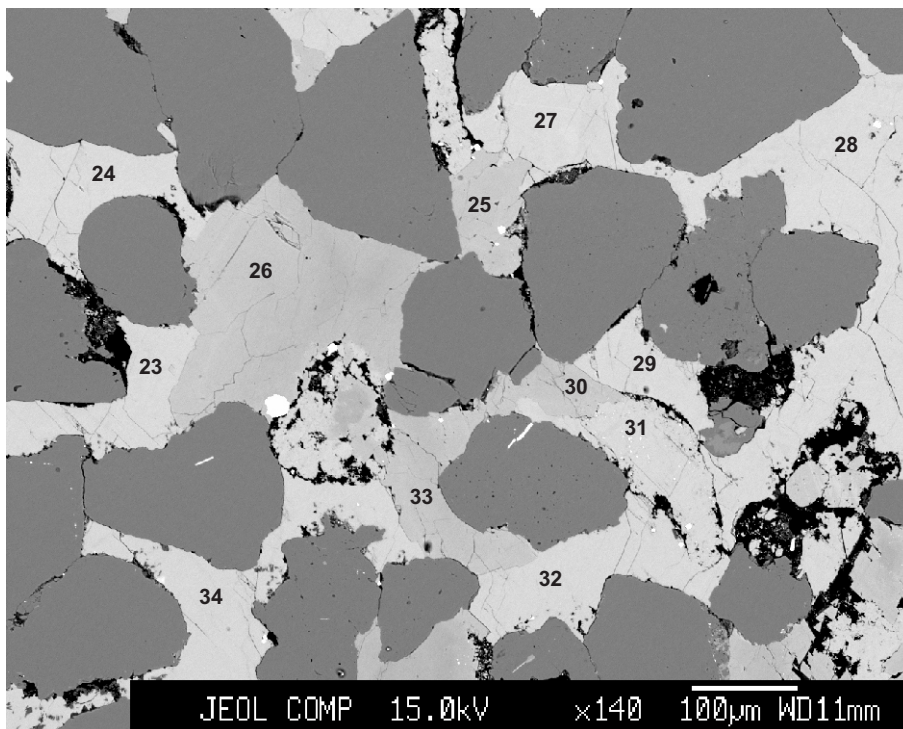
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: Fe-calcite
- 68: Fe-calcite

Figure 52: Panuke B-90-2403.21



- 11: Fe-calcite
- 12: ankerite
- 13: ankerite
- 14: ankerite
- 15: ankerite
- 16: K-feldspar
- 17: calcite (bioclast)
- 18: ankerite
- 19: Fe-calcite
- 20: ankerite
- 21: ankerite
- 22: Fe-calcite

Figure 53: Panuke B-90-2413.05



- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: ankerite
- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: ankerite
- 31: Fe-calcite
- 32: Fe-calcite
- 33: ankerite
- 34: Fe-calcite

Figure 54: Panuke B-90-2413.05



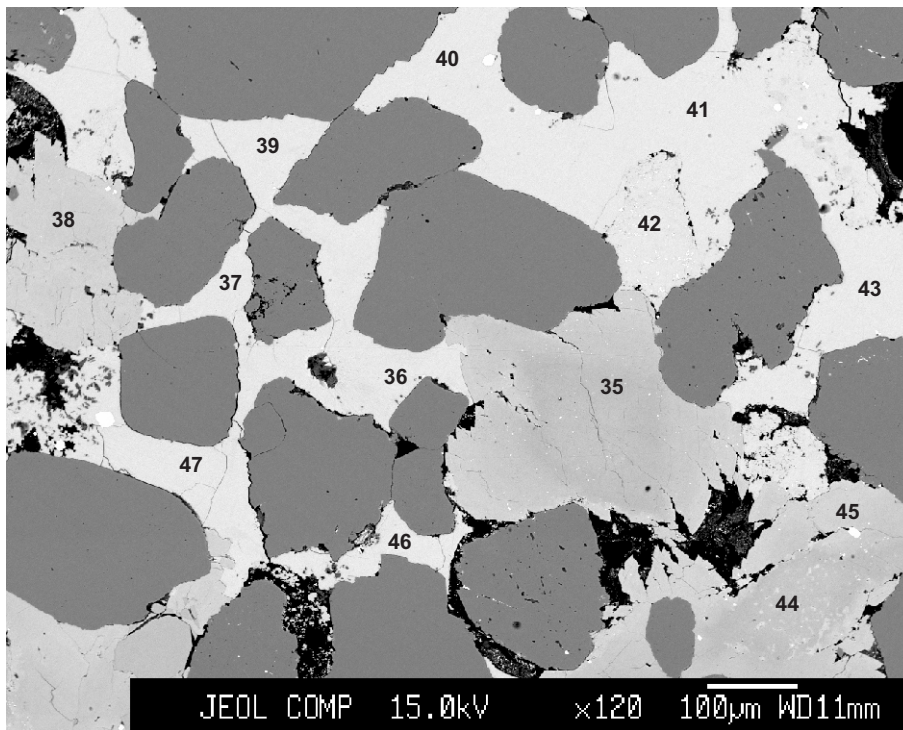


Figure 55: Panuke B-90-2413.05

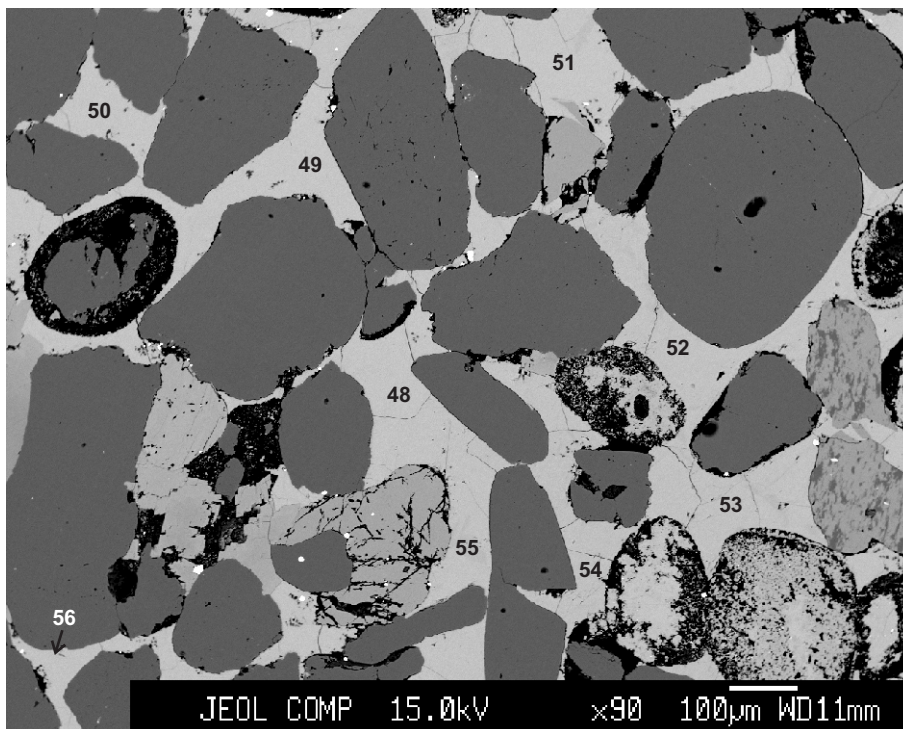
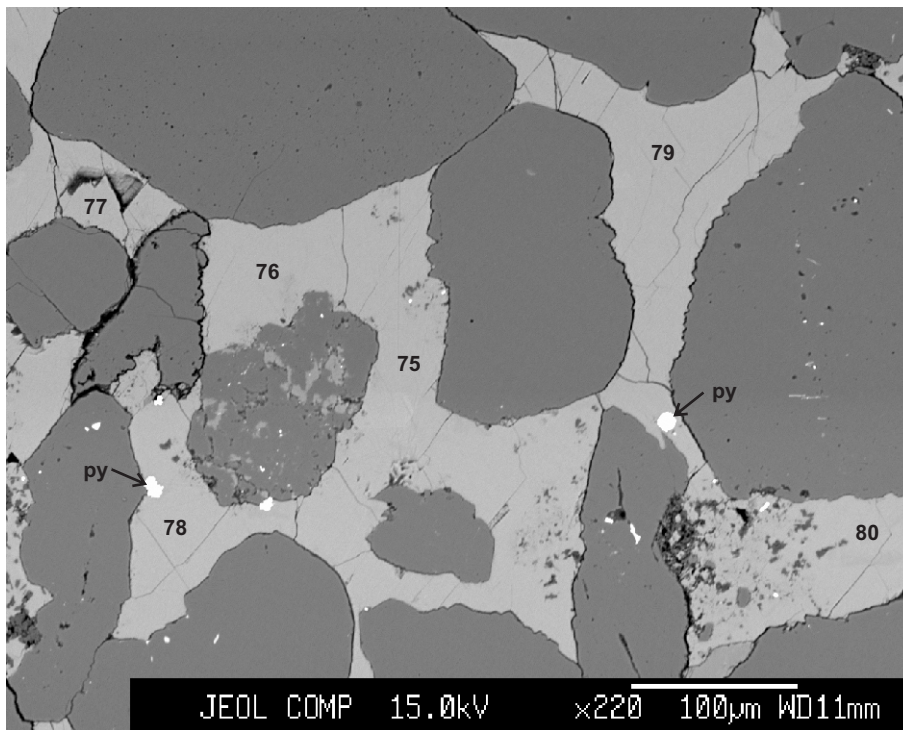
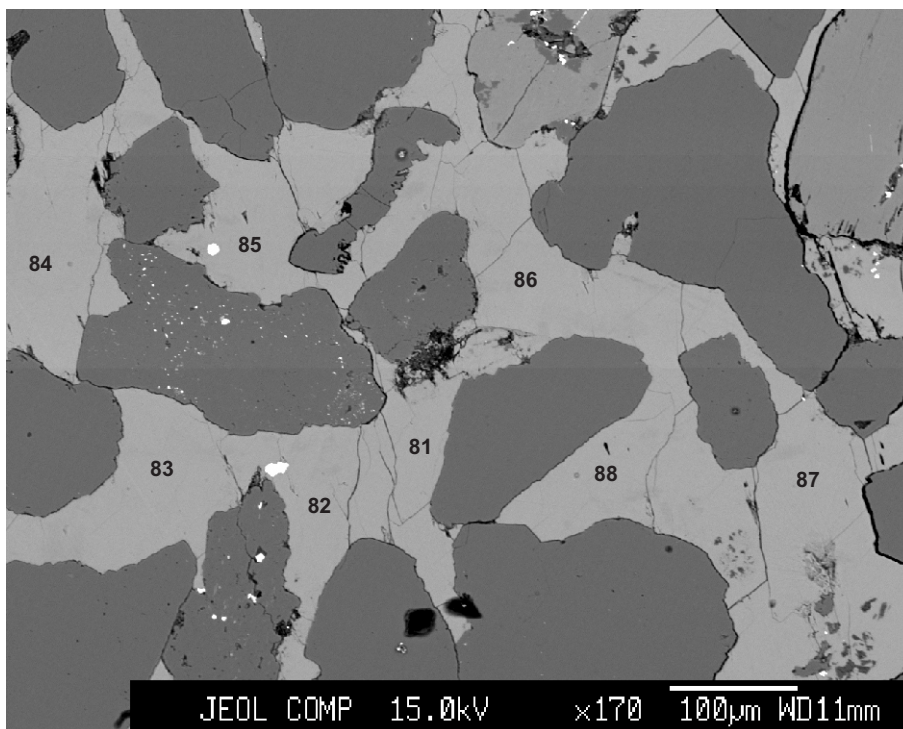


Figure 56: Panuke B-90-2413.05



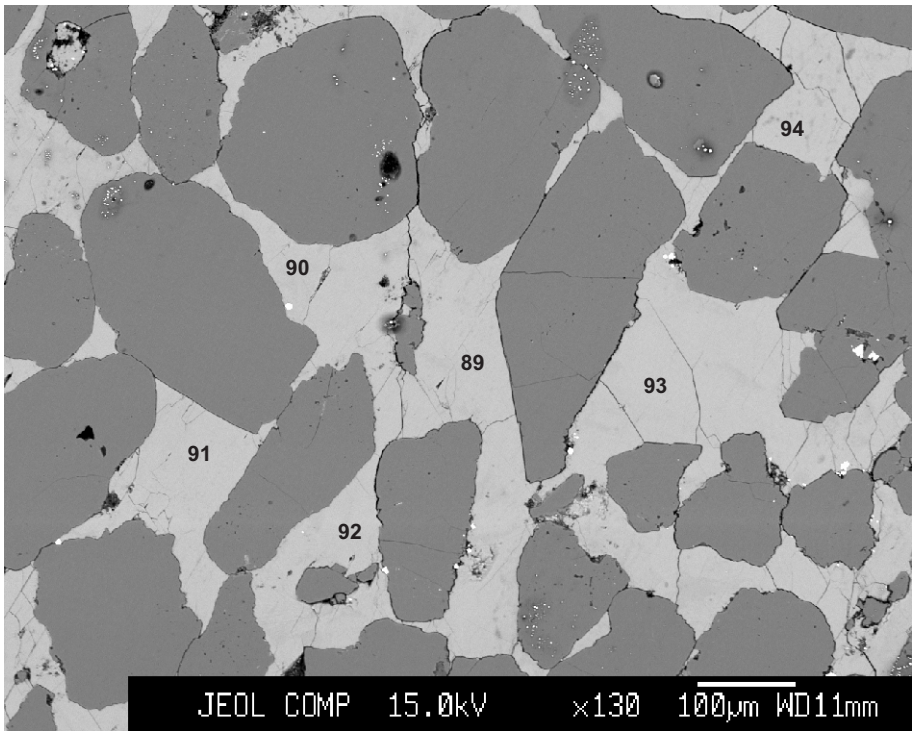
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite

Figure 57: Panuke B-90-2420.46



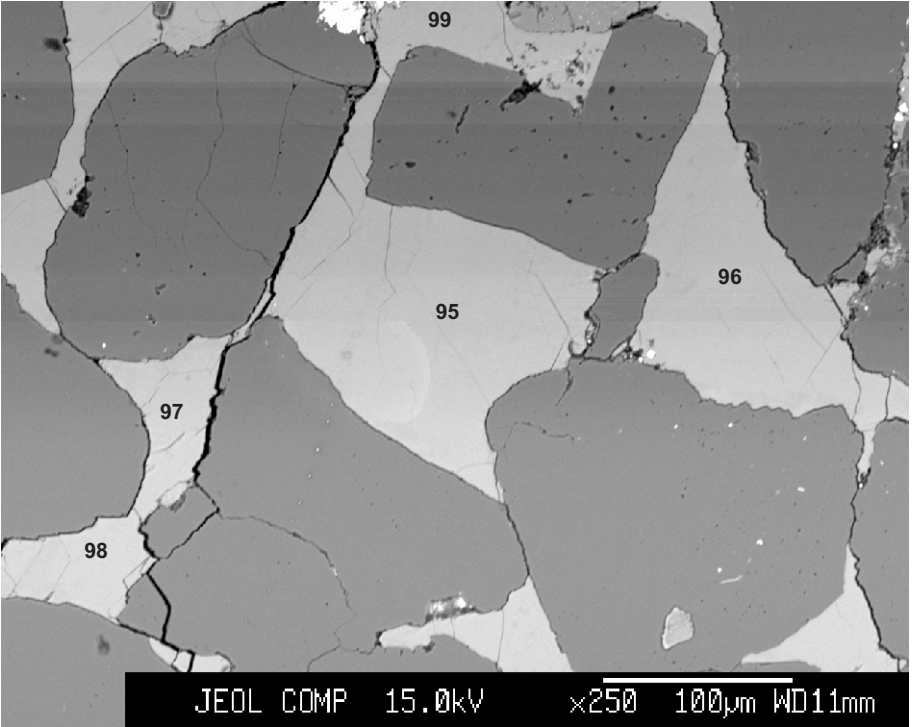
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite

Figure 58: Panuke B-90-2420.46



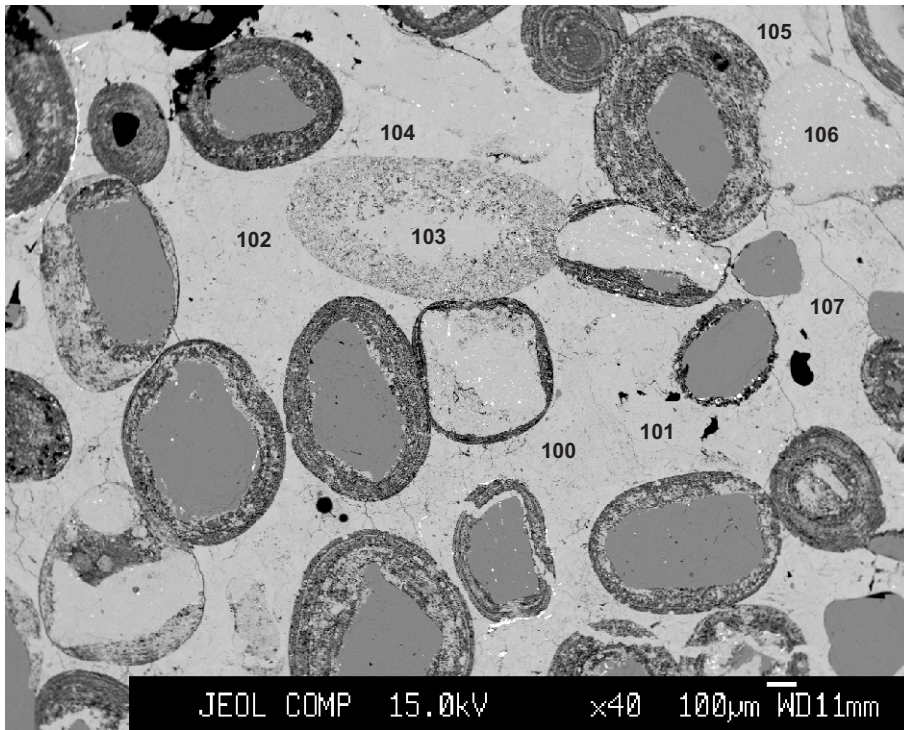
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite

Figure 59: Panuke B-90-2420.46



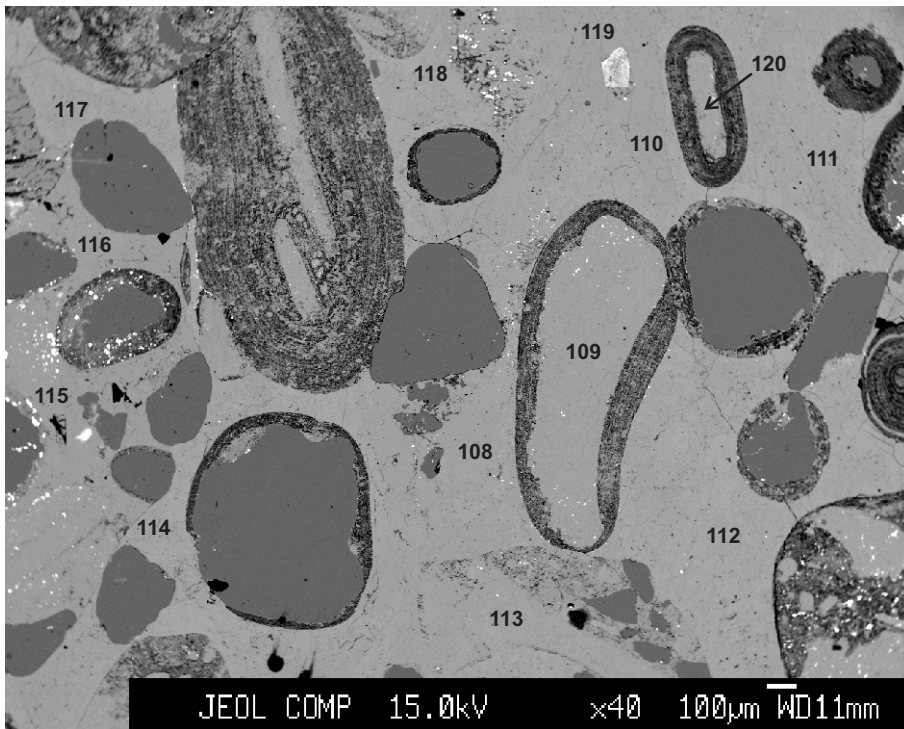
- 95: Fe-calcite
- 96: Fe-calcite
- 97: Fe-calcite
- 98: Fe-calcite
- 99: Fe-calcite

Figure 60: Panuke B-90-2420.46



- 100: calcite
- 101: calcite
- 102: calcite
- 103: calcite
- 104: calcite
- 105: Fe-calcite
- 106: calcite
- 107: calcite

Figure 61: Panuke B-90-2434.33



- 108: calcite
- 109: Mg-calcite
- 110: Mg-calcite
- 111: calcite
- 112: Fe-calcite
- 113: calcite
- 114: calcite
- 115: calcite
- 116: calcite
- 117: calcite
- 118: calcite
- 119: Mg-calcite
- 120: Mg-calcite

Figure 62: Panuke B-90-2434.33

Appendix 2C : Back-scattered electron (BSE) images for the  
Cohasset A-52 sandstones studied by electron microprobe

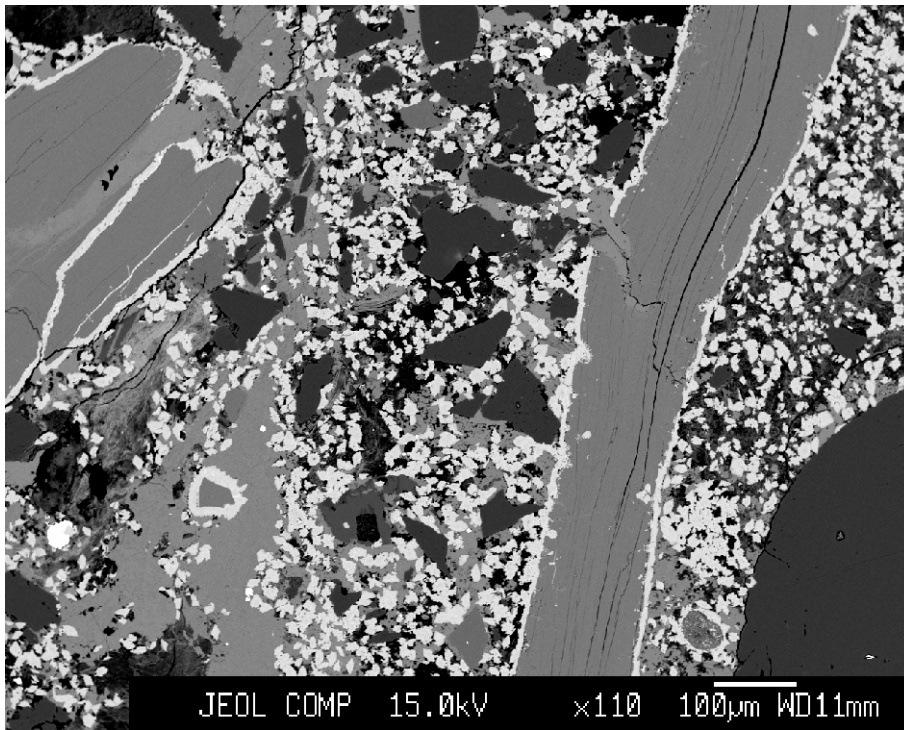
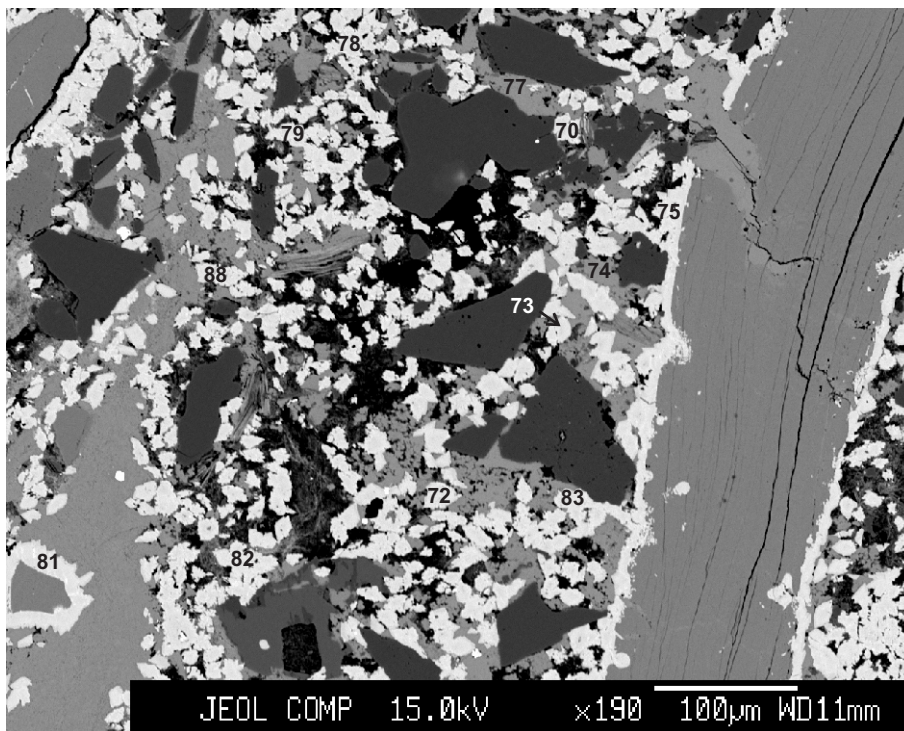
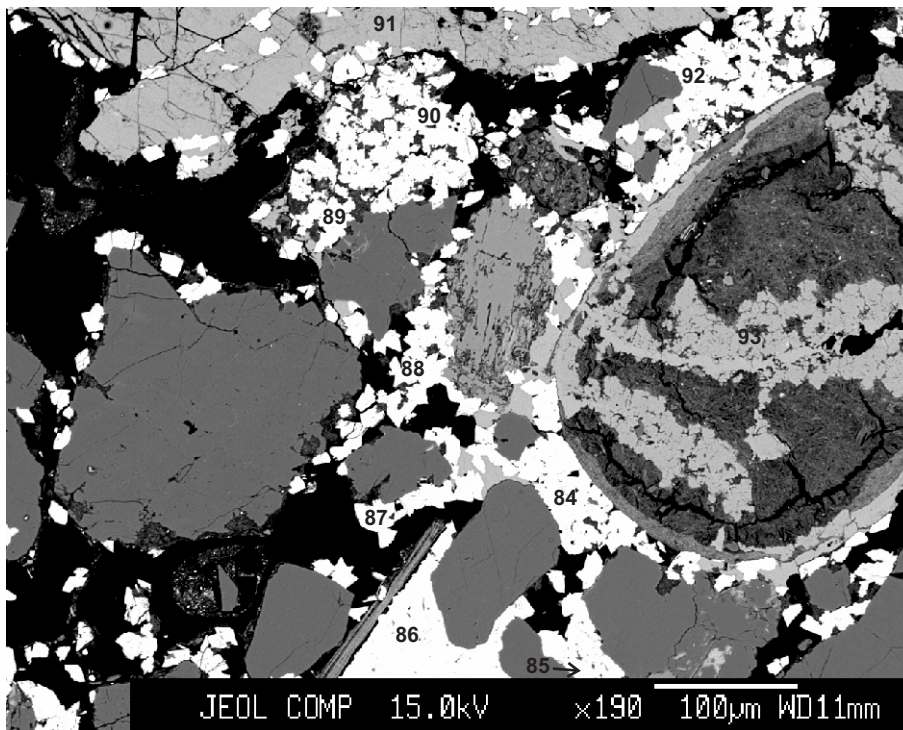


Figure 1: Cohasset A-52-2075.83



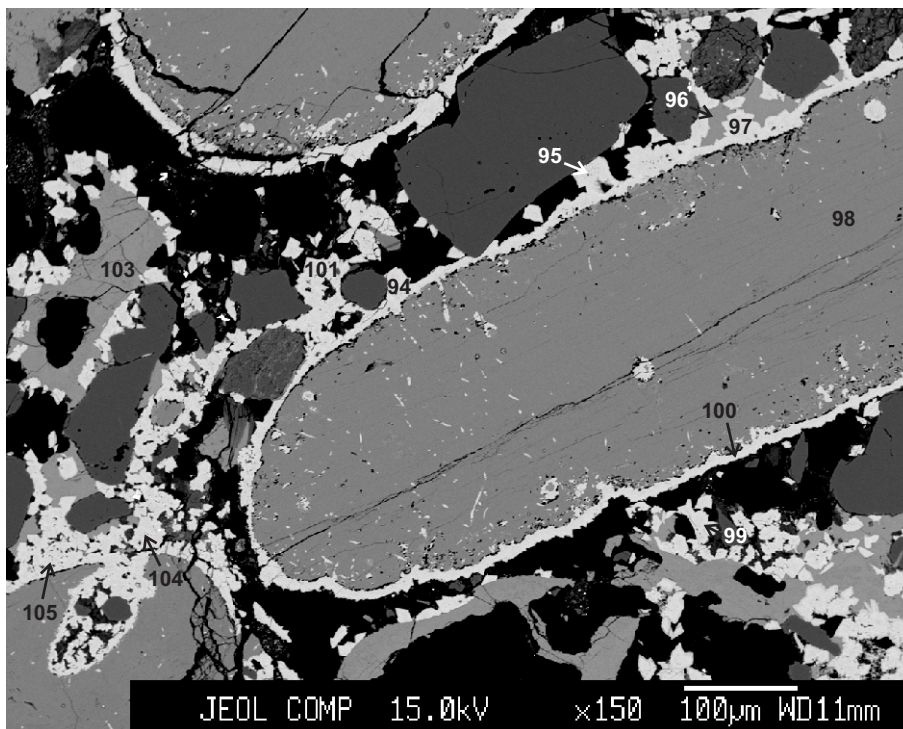
- 72: siderite
- 73: siderite
- 74: Fe-Mg-calcite
- 75: siderite
- 76: siderite
- 77: Fe-calcite
- 78: siderite
- 79: siderite
- 80: siderite
- 81: siderite
- 82: siderite
- 83: siderite

Figure 2: Cohasset A-52-2075.83



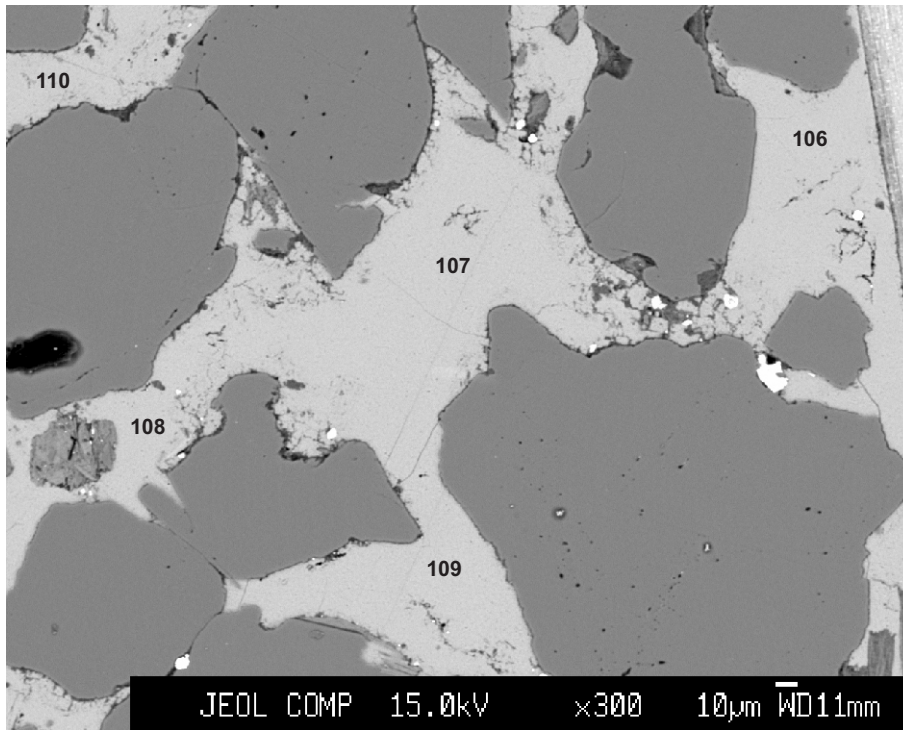
- 84: siderite
- 85: siderite
- 86: siderite
- 87: siderite
- 88: siderite
- 89: siderite
- 90: siderite
- 91: Fe-calcite
- 92: siderite
- 93: Fe-calcite

Figure 3: Cohasset A-52-2075.83



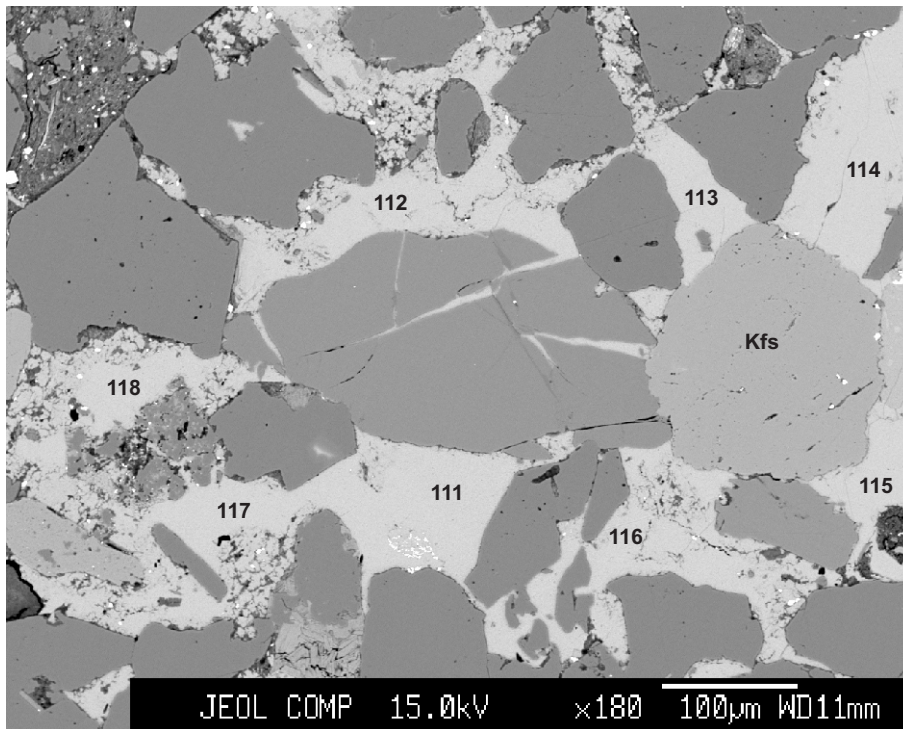
- 84: siderite
- 85: siderite
- 86: siderite
- 87: siderite
- 88: siderite
- 89: siderite
- 90: siderite
- 91: Fe-calcite
- 92: siderite
- 93: Fe-calcite
- 94: siderite
- 95: siderite
- 96: Fe-calcite
- 97: siderite
- 98: calcite (bioclast)
- 99: siderite
- 100: siderite
- 101: siderite
- 102: siderite
- 103: siderite
- 104: siderite
- 105: siderite

Figure 4: Cohasset A-52-2075.83



- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

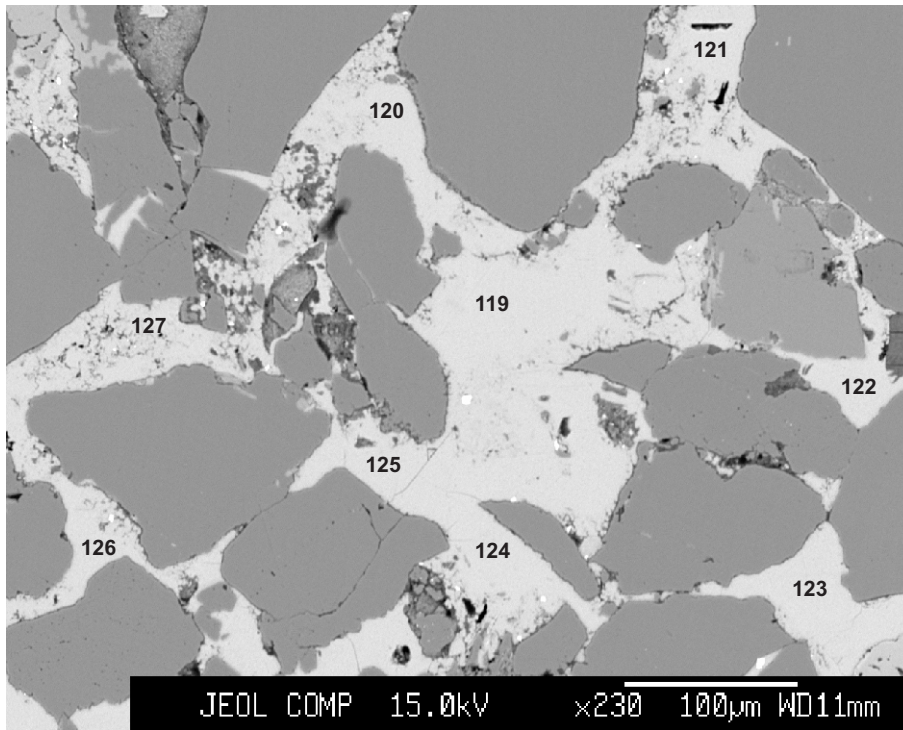
Figure 5: Cohasset A-52-2126.14



- 111: Fe-calcite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite

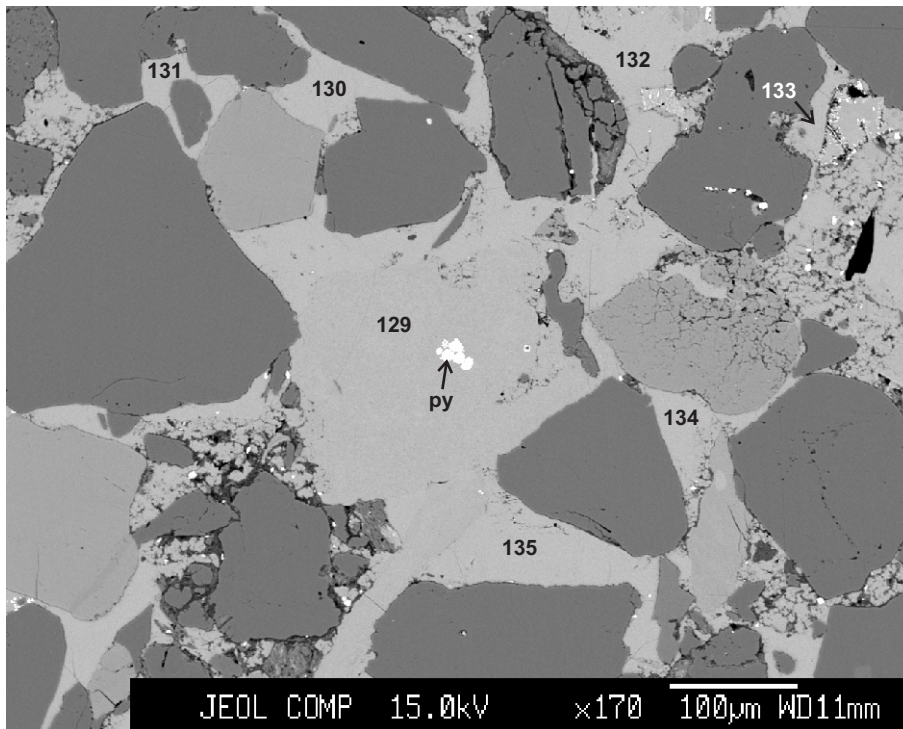
Figure 6: Cohasset A-52-2126.14





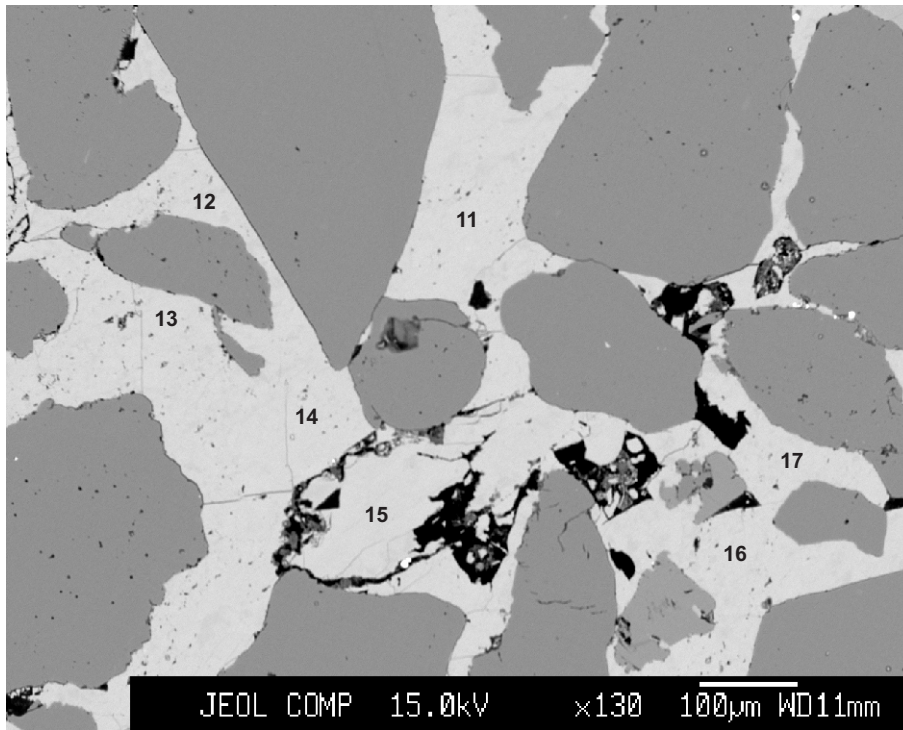
- 119: Fe-calcite
- 120: Fe-calcite
- 121: Fe-calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: Fe-calcite
- 127: Fe-calcite
- 128: Fe-calcite

Figure 7: Cohasset A-52-2126.14



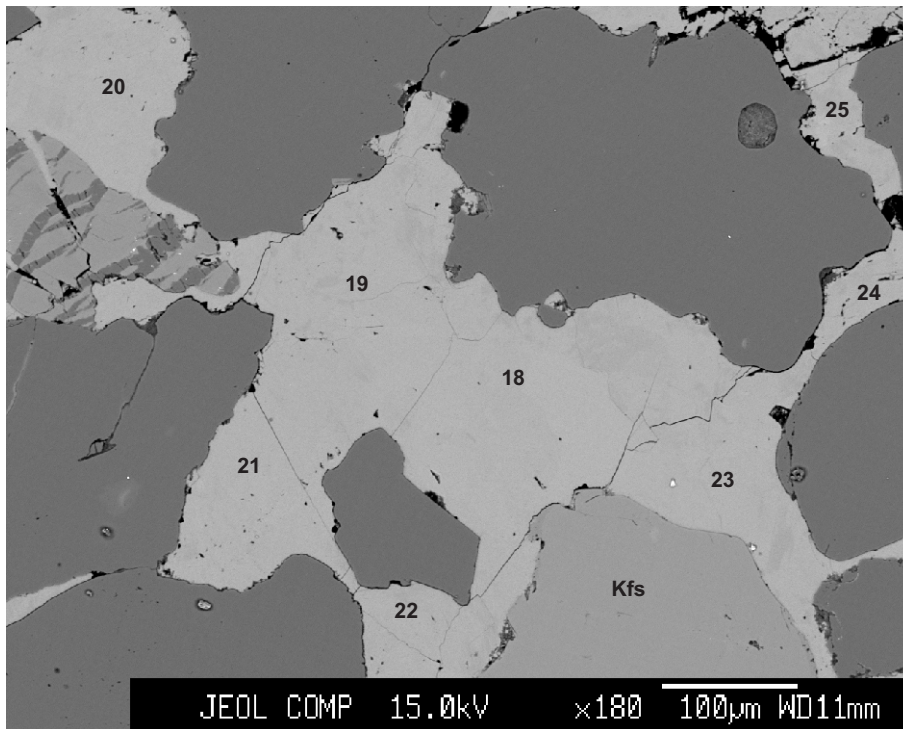
- 129: Fe-calcite
- 130: Fe-calcite
- 131: Fe-calcite
- 132: Fe-calcite
- 133: Fe-calcite
- 134: Fe-calcite
- 135: Fe-calcite

Figure 8: Cohasset A-52-2126.14



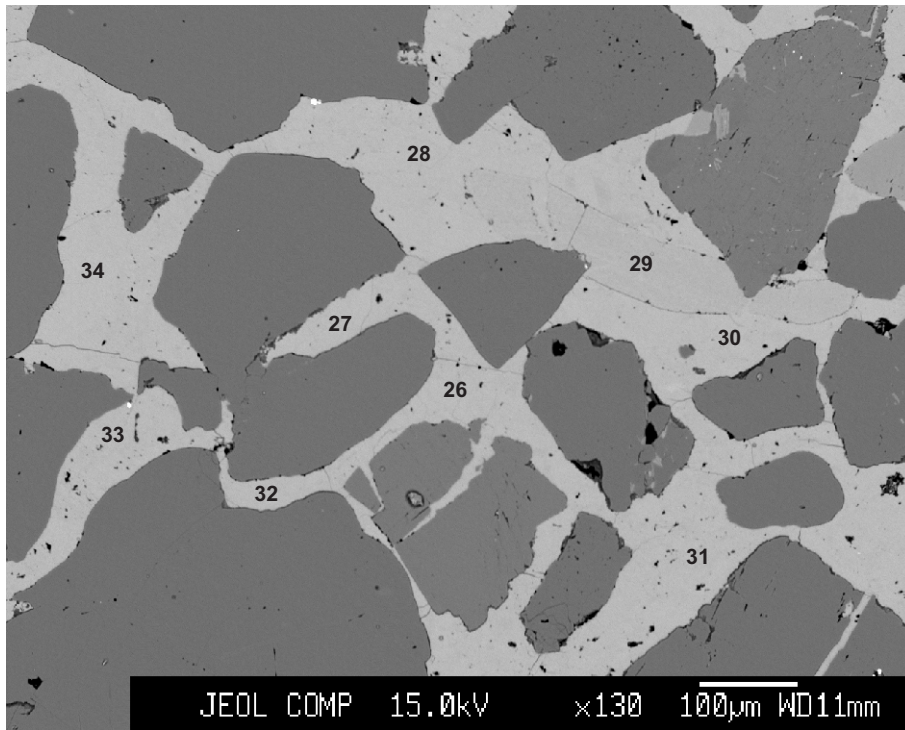
- 11: Fe-calcite
- 12: calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: calcite
- 16: Fe-calcite
- 17: Fe-calcite

Figure 9: Cohasset A-52-2130.04



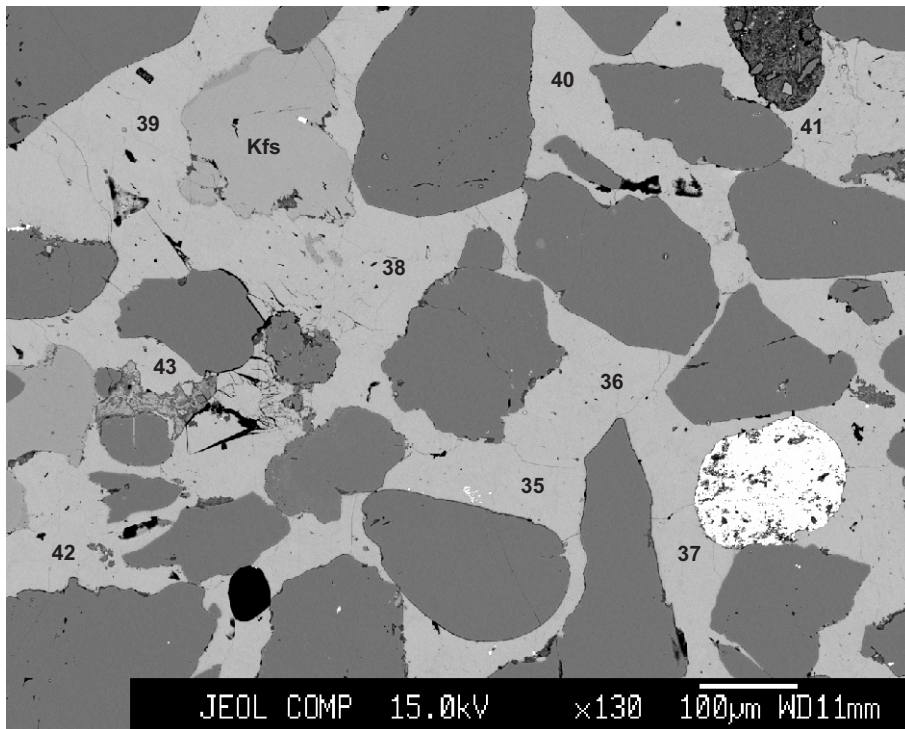
- 18: Fe-calcite
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: calcite
- 25: Fe-calcite

Figure 10: Cohasset A-52-2130.04



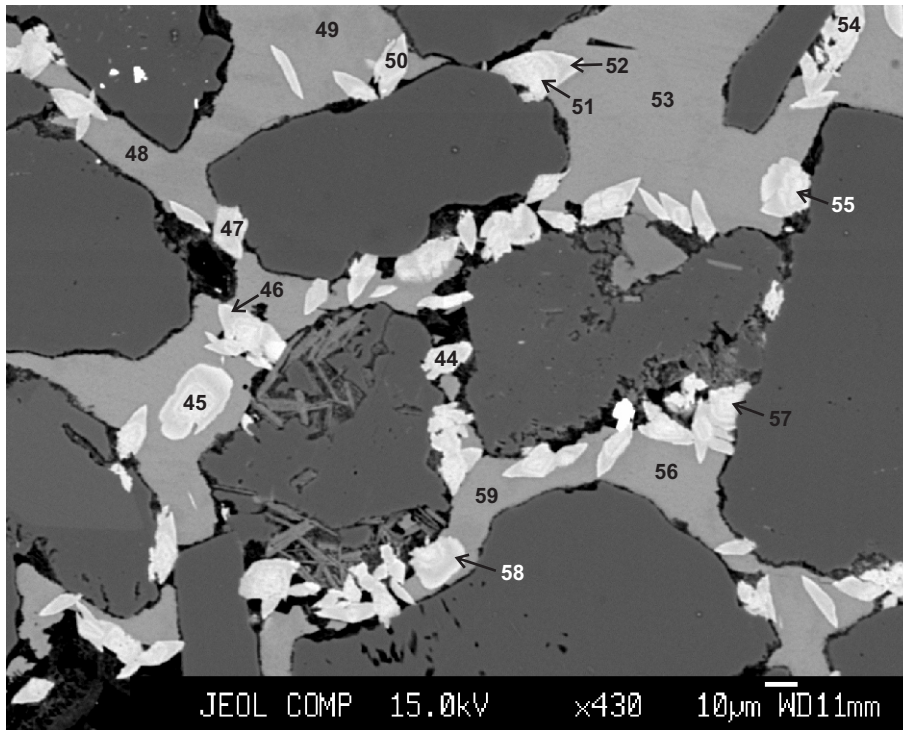
- 26: Fe-calcite
- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: Fe-calcite
- 33: Fe-calcite
- 34: Fe-Mg-calcite

Figure 11: Cohasset A-52-2130.04



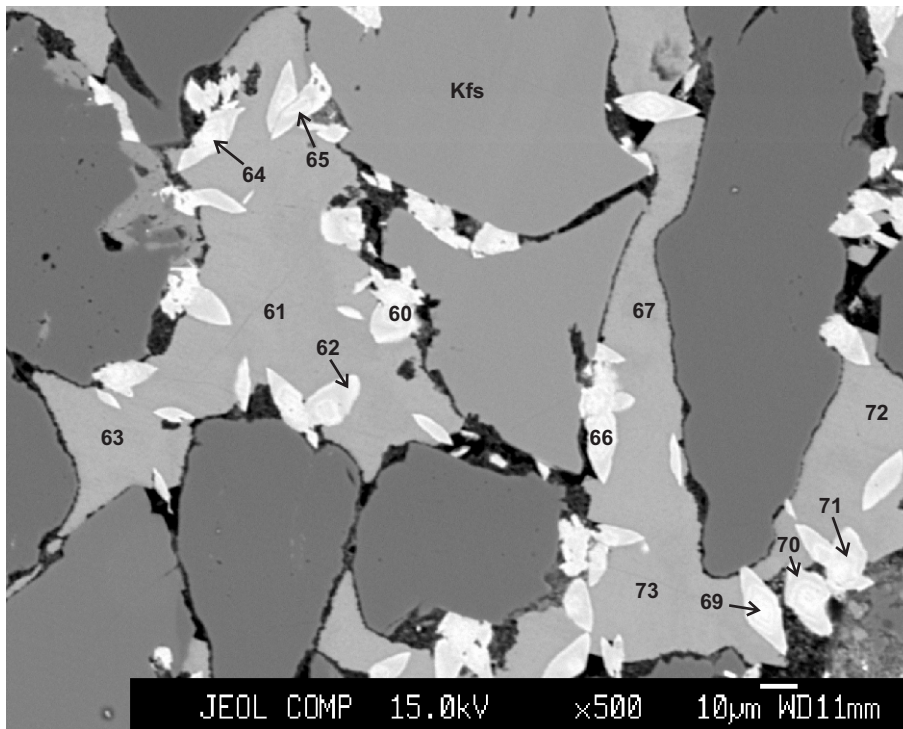
- 35: Fe-Mg-calcite
- 36: Fe-calcite
- 37: Fe-calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite

Figure 12: Cohasset A-52-2130.04



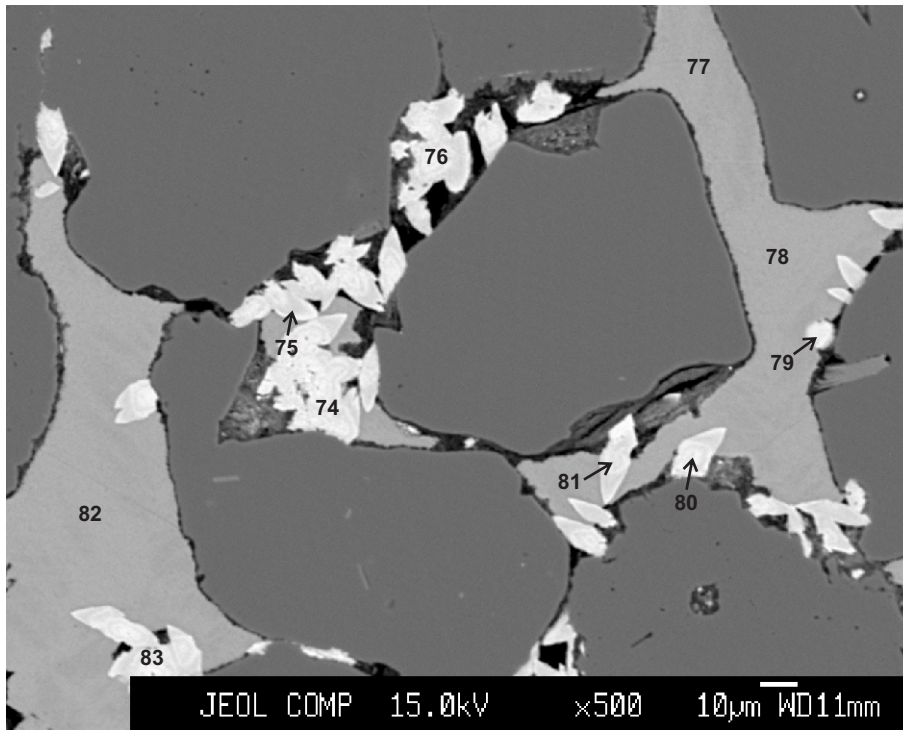
- 44: siderite
- 45: siderite
- 46: siderite
- 47: siderite
- 48: calcite
- 49: Fe-calcite
- 50: siderite
- 51: siderite
- 52: siderite
- 53: Fe-calcite
- 54: siderite
- 55: siderite
- 56: Fe-calcite
- 57: siderite
- 58: siderite
- 59: Fe-calcite

Figure 13: Cohasset A-52-2160.51



- 60: siderite
- 61: Fe-calcite
- 62: siderite
- 63: Fe-calcite
- 64: siderite
- 65: siderite
- 66: siderite
- 67: calcite
- 68: siderite
- 69: siderite
- 70: siderite
- 71: siderite
- 72: Fe-calcite
- 73: Fe-calcite

Figure 14: Cohasset A-52-2160.51



- 75: siderite
- 76: siderite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: siderite
- 80: siderite
- 81: siderite
- 82: Fe-calcite
- 83: siderite

Figure 15: Cohasset A-52-2160.51

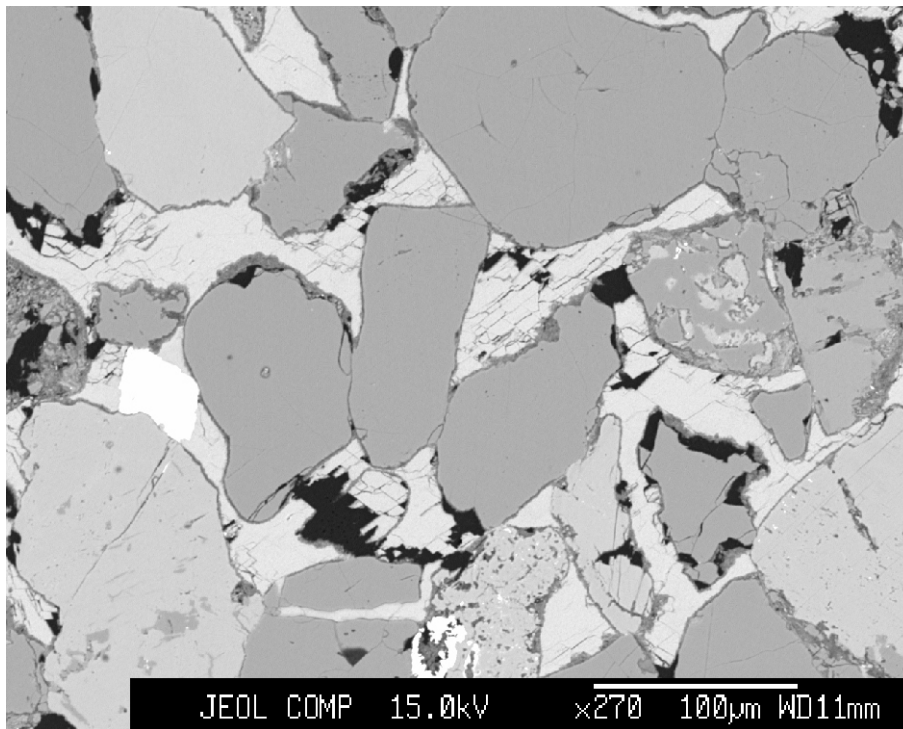
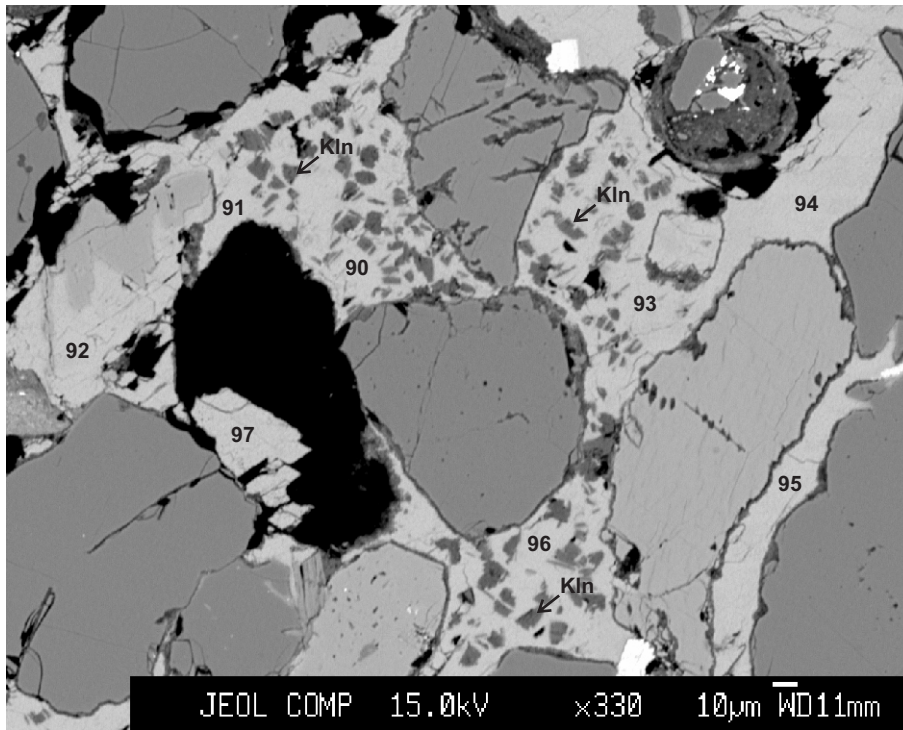
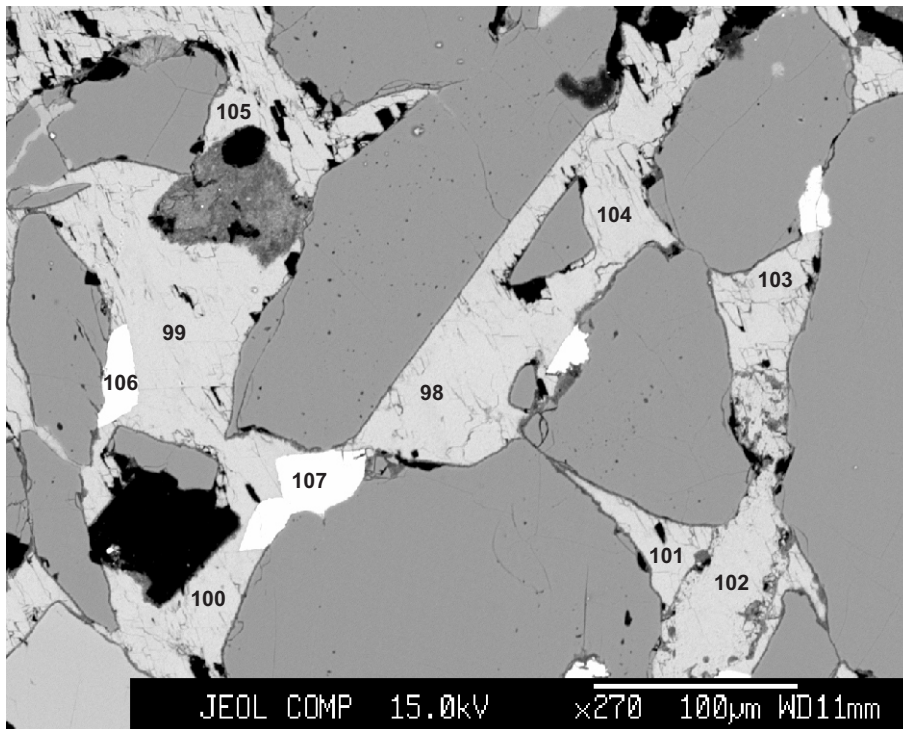


Figure 16: Cohasset A-52-2167.31



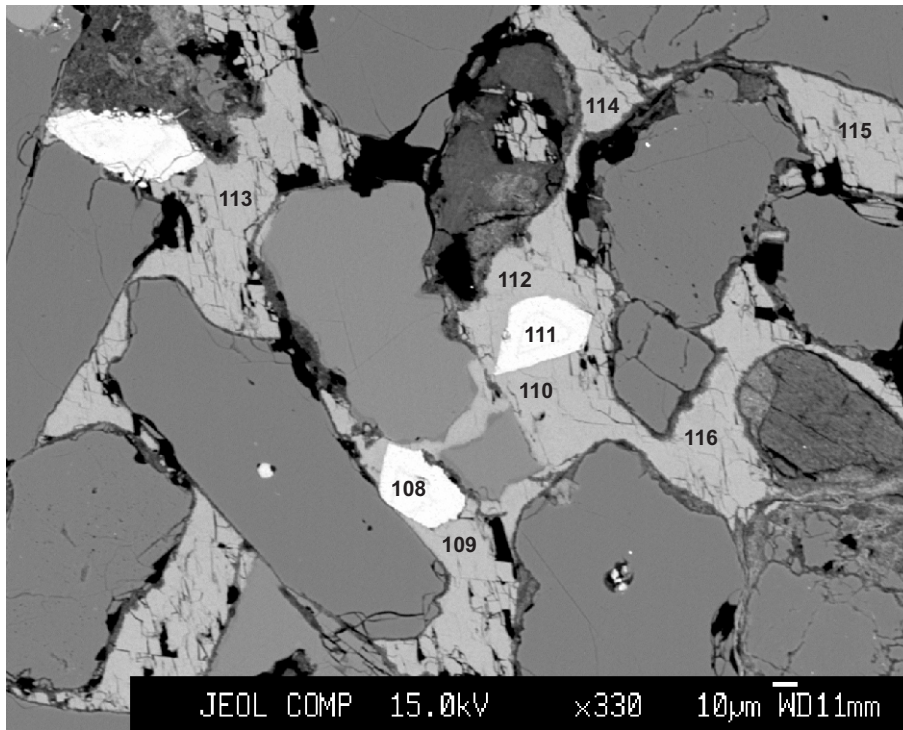
- 90: Fe-calcite
- 91: Fe-calcite
- 92: calcite
- 93: Fe-calcite
- 94: Fe-calcite
- 95: Fe-calcite
- 96: Fe-calcite
- 97: Fe-calcite

Figure 17: Cohasset A-52-2167.31



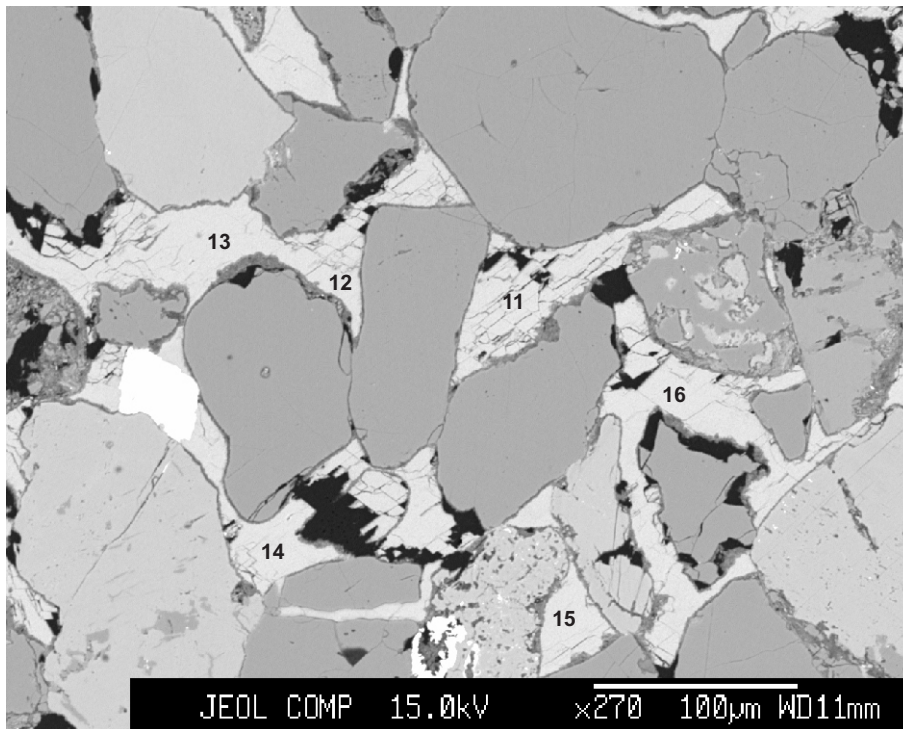
- 98: Fe-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: Fe-calcite
- 102: Fe-calcite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: Fe-calcite
- 106: siderite
- 107: siderite

Figure 18: Cohasset A-52-2167.31



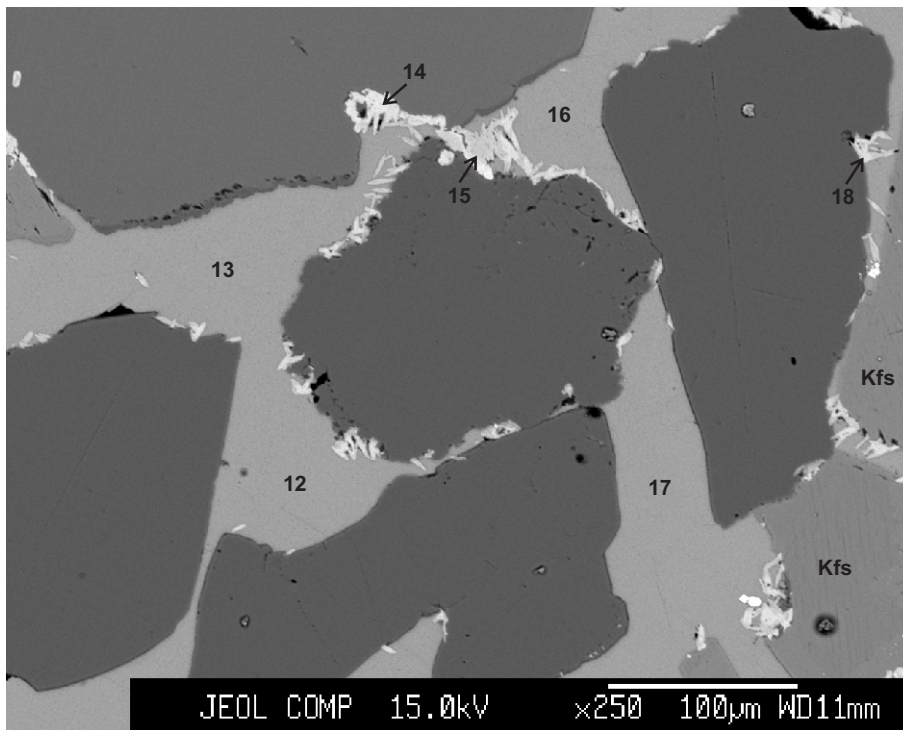
- 108: siderite
- 109: Fe-calcite
- 110: Fe-calcite
- 111: siderite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite

Figure 19: Cohasset A-52-2167.31



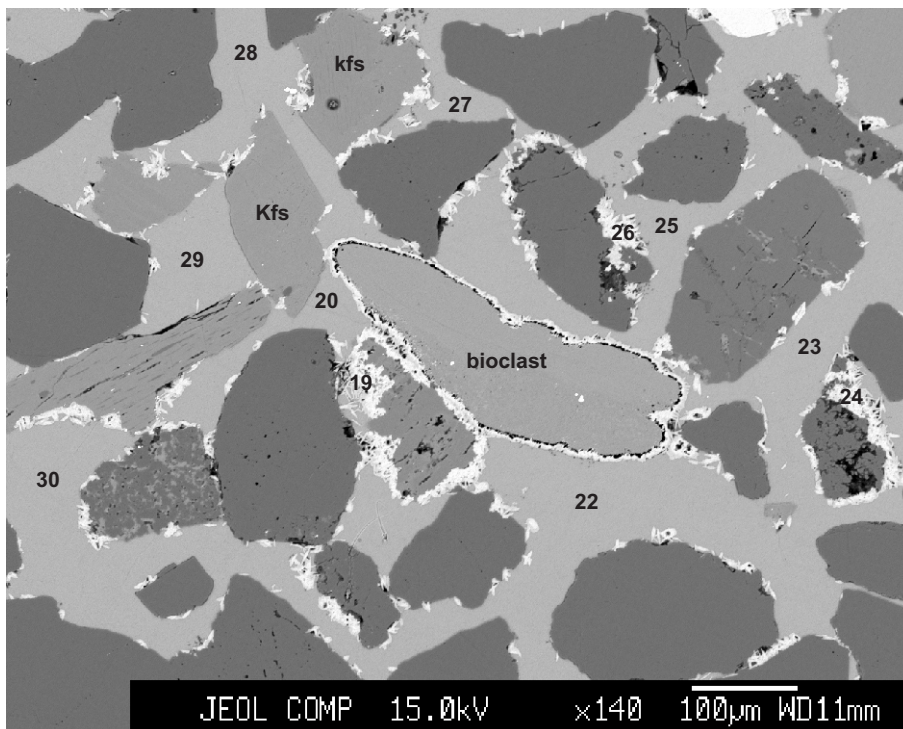
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite

Figure 20: Cohasset A-52-2167.31



- 12: Fe-Mg-calcite
- 13: Fe-Mg-calcite
- 14: siderite
- 15: siderite
- 16: Fe-Mg-calcite
- 17: Fe-Mg-calcite
- 18: siderite

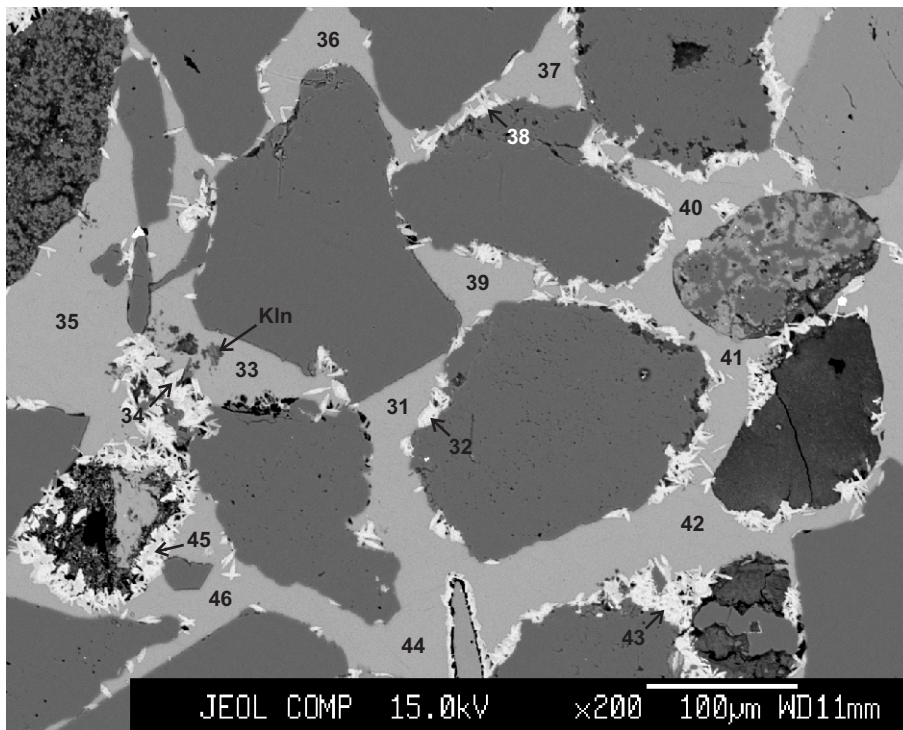
Figure 21: Cohasset A-52-2217.17



- 19: siderite
- 20: Fe-Mg-calcite
- 21: siderite
- 22: Fe-Mg-calcite
- 23: Fe-Mg-calcite
- 24: siderite
- 25: Fe-Mg-calcite
- 26: siderite
- 27: Fe-Mg-calcite
- 28: Fe-Mg-calcite
- 29: Fe-Mg-calcite
- 30: Fe-Mg-calcite

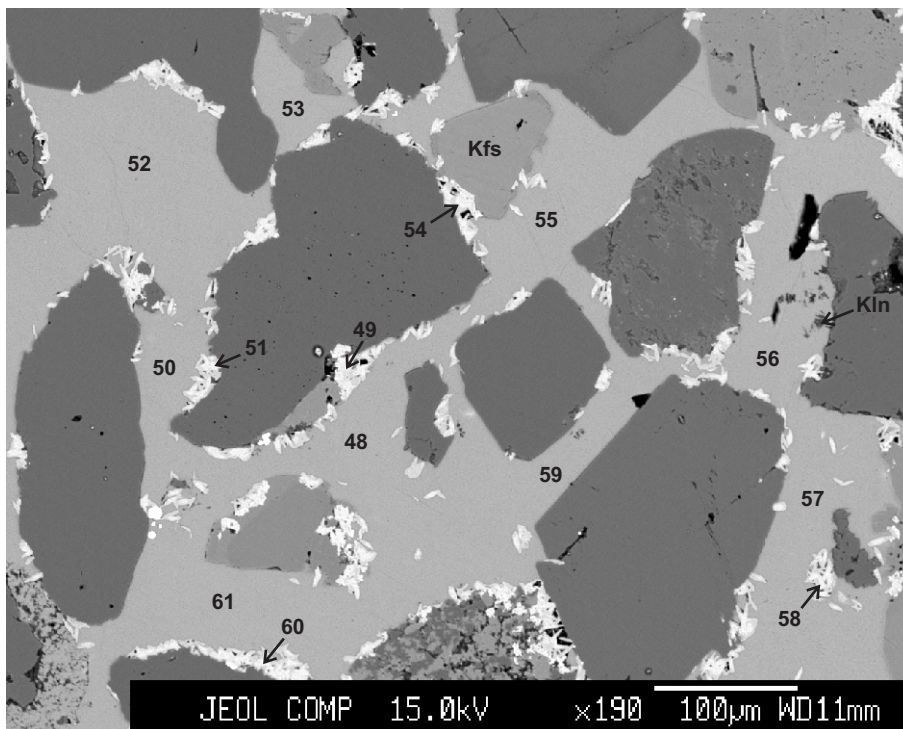
Figure 22: Cohasset A-52-2217.17





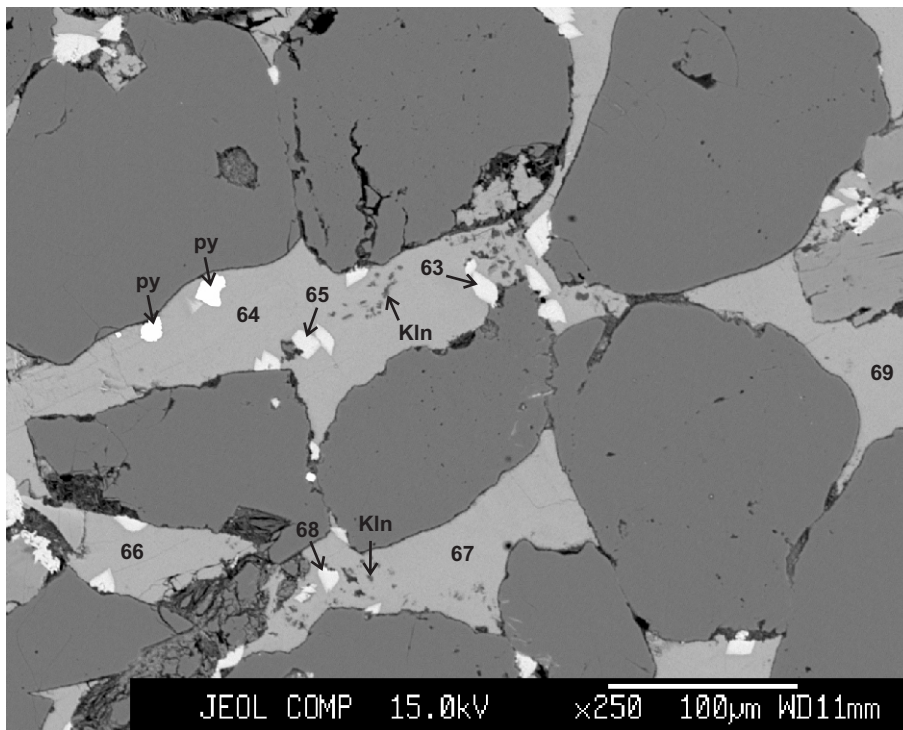
- 31: Fe-Mg-calcite
- 32: siderite
- 33: Fe-Mg-calcite
- 34: siderite
- 35: Fe-Mg-calcite
- 36: Fe-Mg-calcite
- 37: Fe-Mg-calcite
- 38: siderite
- 39: Fe-Mg-calcite
- 40: Fe-Mg-calcite
- 41: Fe-Mg-calcite
- 42: Fe-Mg-calcite
- 43: siderite
- 44: Fe-Mg-calcite
- 45: siderite
- 46: Fe-Mg-calcite

Figure 23: Cohasset A-52-2217.17



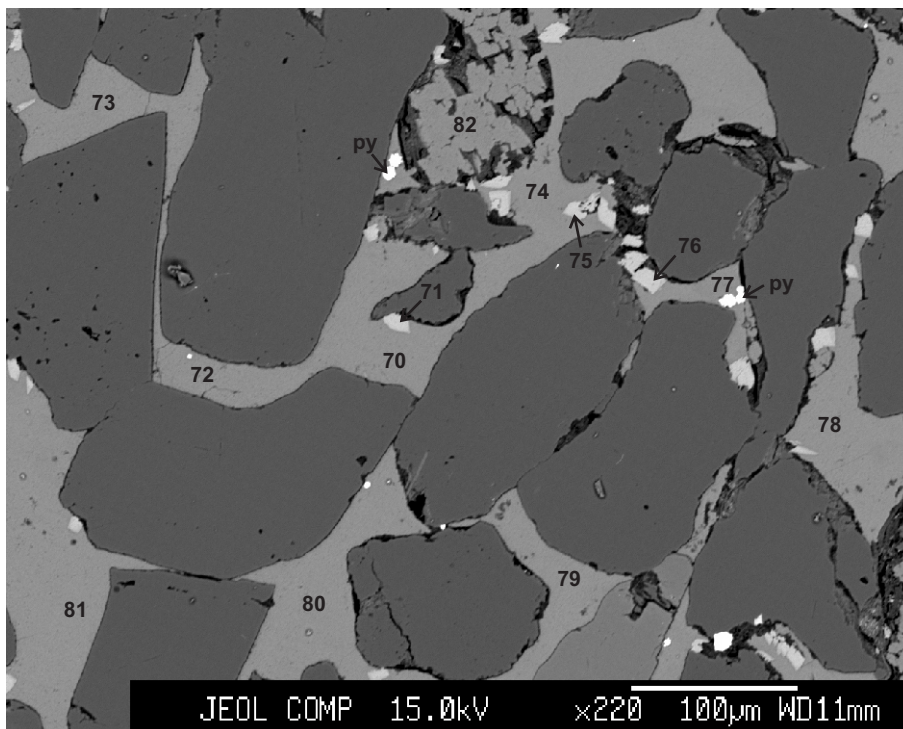
- 48: Fe-Mg-calcite
- 49: siderite
- 50: Fe-Mg-calcite
- 51: siderite
- 52: Fe-Mg-calcite
- 53: Fe-Mg-calcite
- 54: siderite
- 55: Fe-Mg-calcite
- 56: Fe-Mg-calcite
- 57: Fe-calcite
- 58: siderite
- 59: Fe-Mg-calcite
- 60: siderite
- 61: Fe-calcite

Figure 24: Cohasset A-52-2217.17



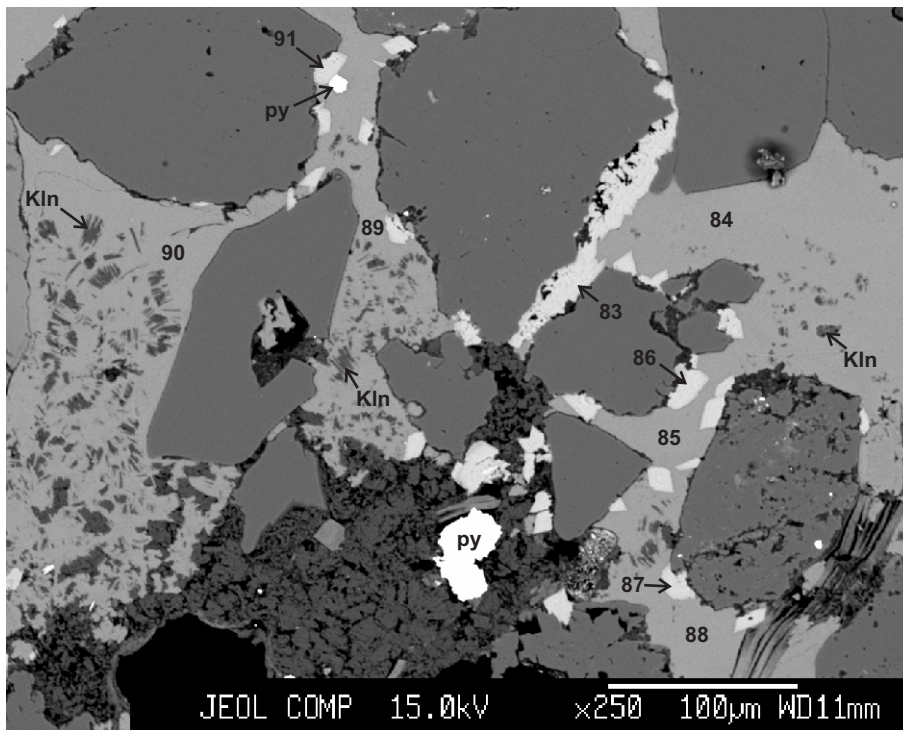
- 62: Fe-calcite
- 63: siderite
- 64: Fe-calcite
- 65: siderite
- 66: Fe-calcite
- 67: Fe-calcite
- 68: siderite
- 69: Fe-calcite

Figure 25: Cohasset A-52-2230.38



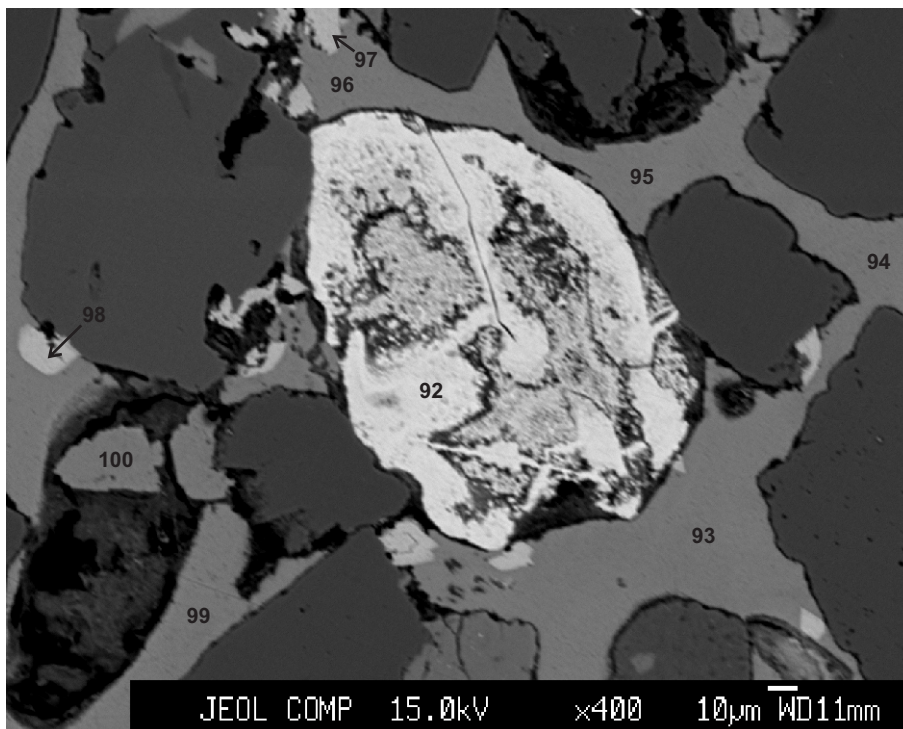
- 70: Fe-calcite
- 71: siderite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: siderite
- 76: siderite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite

Figure 26: Cohasset A-52-2230.38



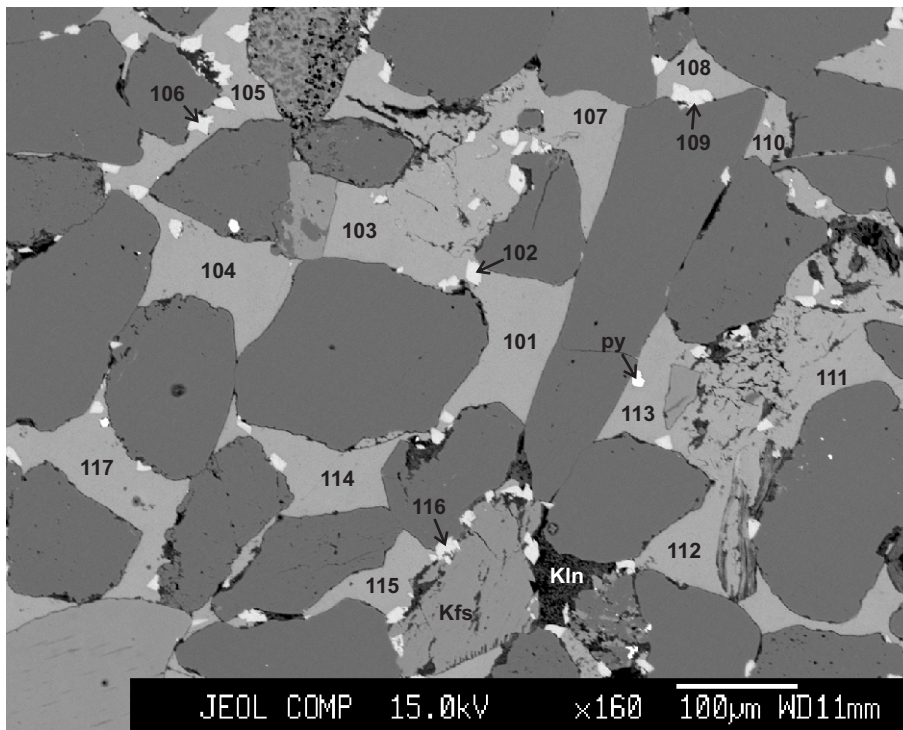
- 83: siderite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: siderite
- 87: siderite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: siderite

Figure 27: Cohasset A-52-2230.38



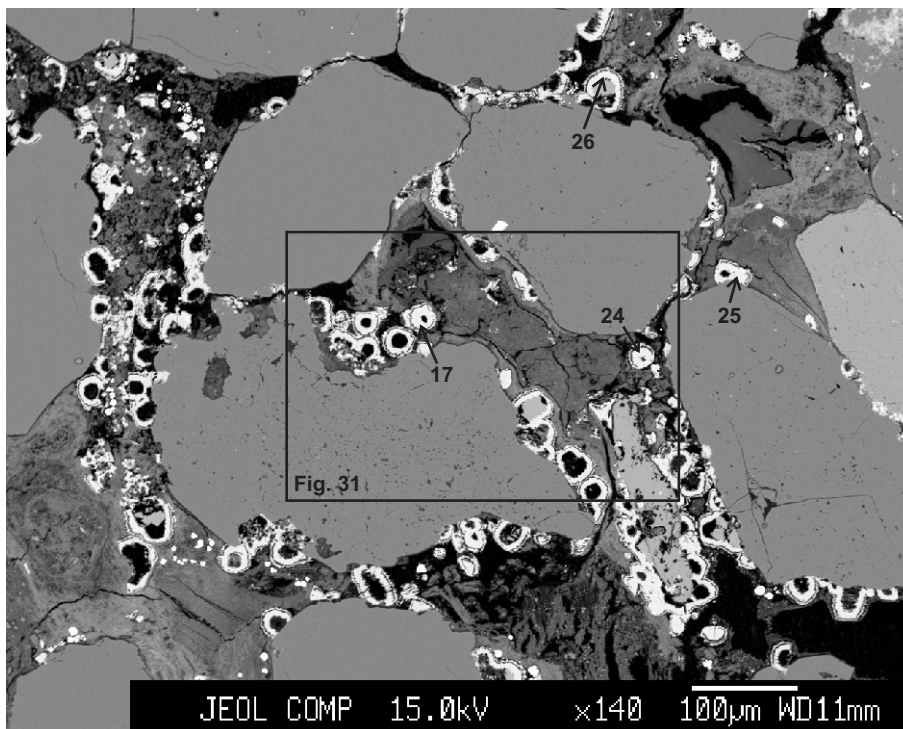
- 92: pseudorutile
- 93: Fe-calcite
- 94: Fe-calcite
- 95: Fe-calcite
- 96: Fe-calcite
- 97: siderite
- 98: siderite
- 99: Fe-calcite
- 100: Fe-calcite

Figure 28: Cohasset A-52-2230.38



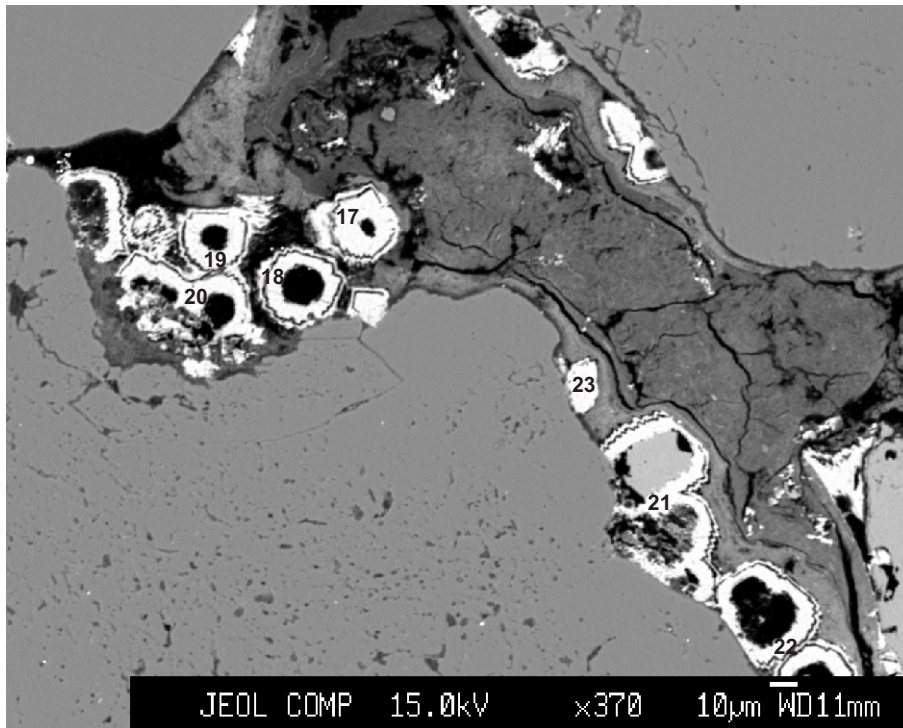
- 101: Fe-calcite
- 102: siderite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: Fe-calcite
- 106: siderite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: siderite
- 110: Fe-calcite
- 111: Fe-calcite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: siderite
- 117: Fe-calcite
- 118: Fe-calcite

Figure 29: Cohasset A-52-2230.38



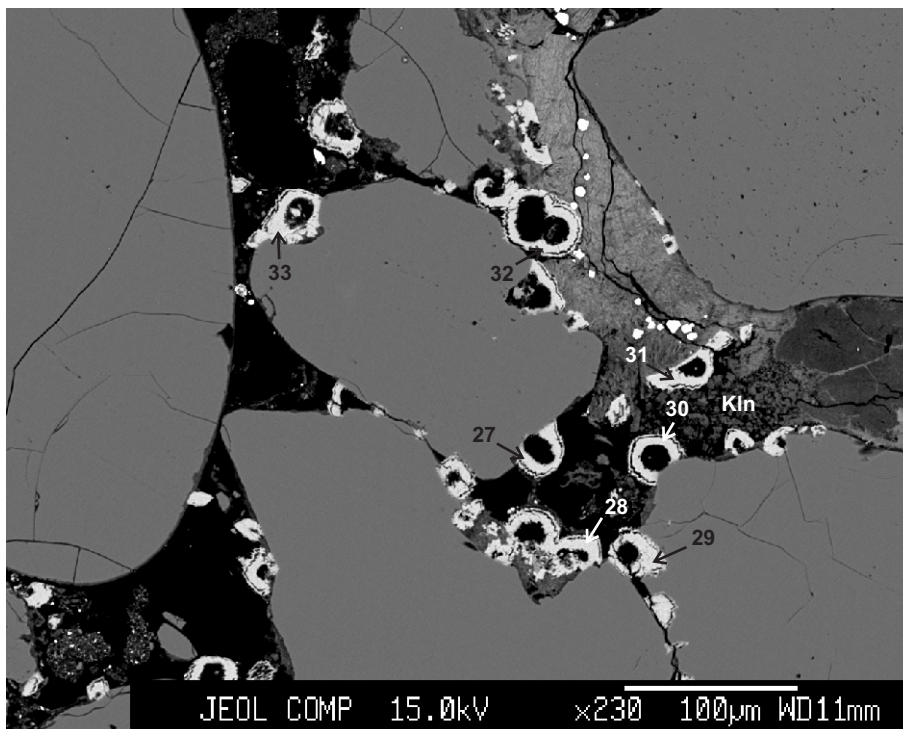
- 17: siderite
- 24: siderite
- 25: siderite
- 26: siderite

Figure 30: Cohasset A-52-2338.92



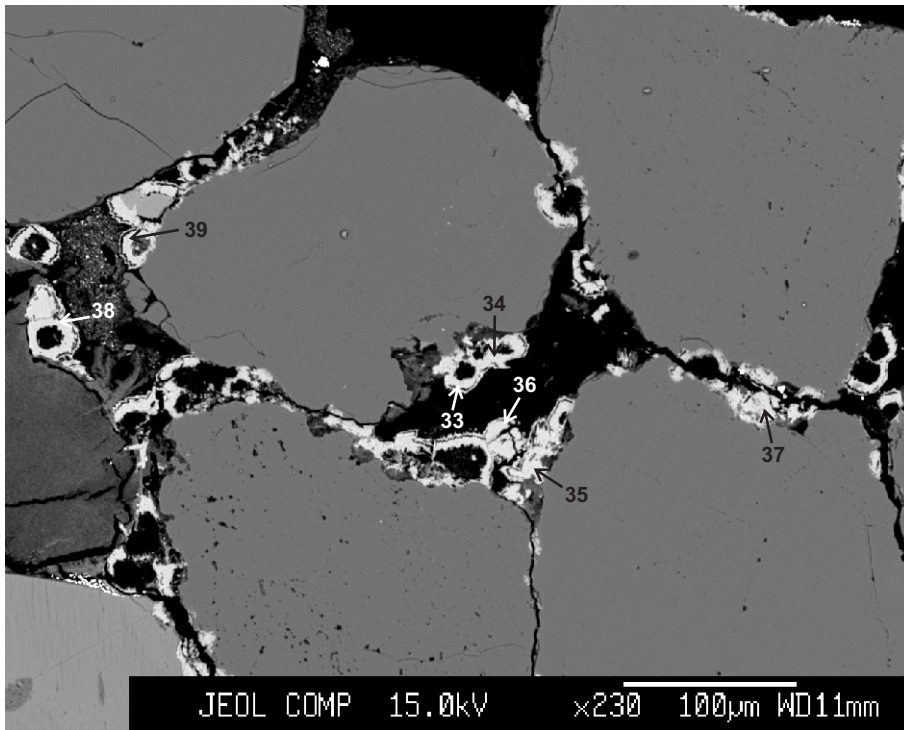
- 17: siderite
- 18: siderite
- 19: siderite
- 20: siderite
- 21: siderite
- 22: siderite
- 23: siderite

Figure 31: Cohasset A-52-2338.92



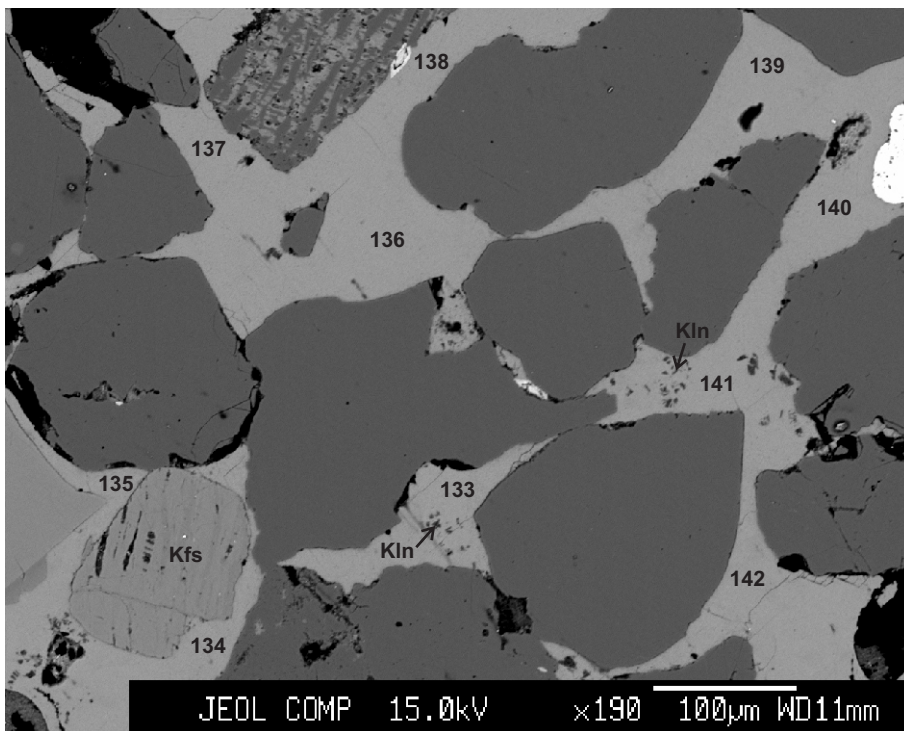
- 27: siderite
- 28: siderite
- 29: siderite
- 30: siderite
- 31: siderite
- 32: siderite
- 33: siderite

Figure 32: Cohasset A-52-2338.92



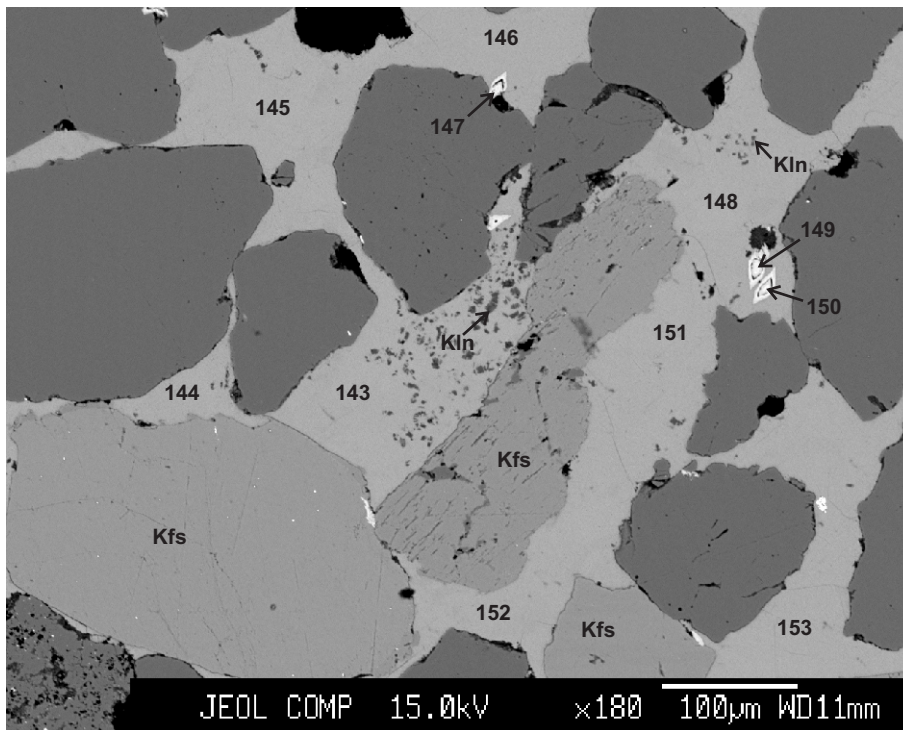
- 33: siderite
- 34: siderite
- 35: siderite
- 36: siderite
- 37: siderite
- 38: siderite
- 39: siderite

Figure 33: Cohasset A-52-2338.92



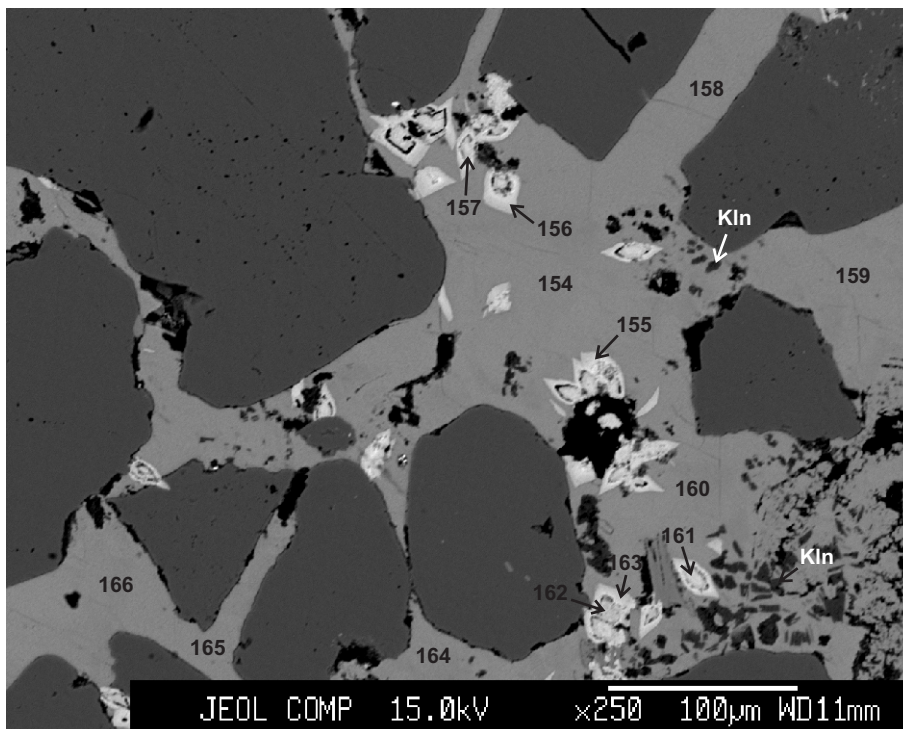
- 133: Fe-calcite
- 134: Fe-calcite
- 135: Fe-calcite
- 136: Fe-calcite
- 137: Fe-calcite
- 138: Fe-calcite
- 139: Fe-calcite
- 140: Fe-calcite
- 141: Fe-calcite
- 142: Fe-calcite

Figure 34: Cohasset A-52-2343.79



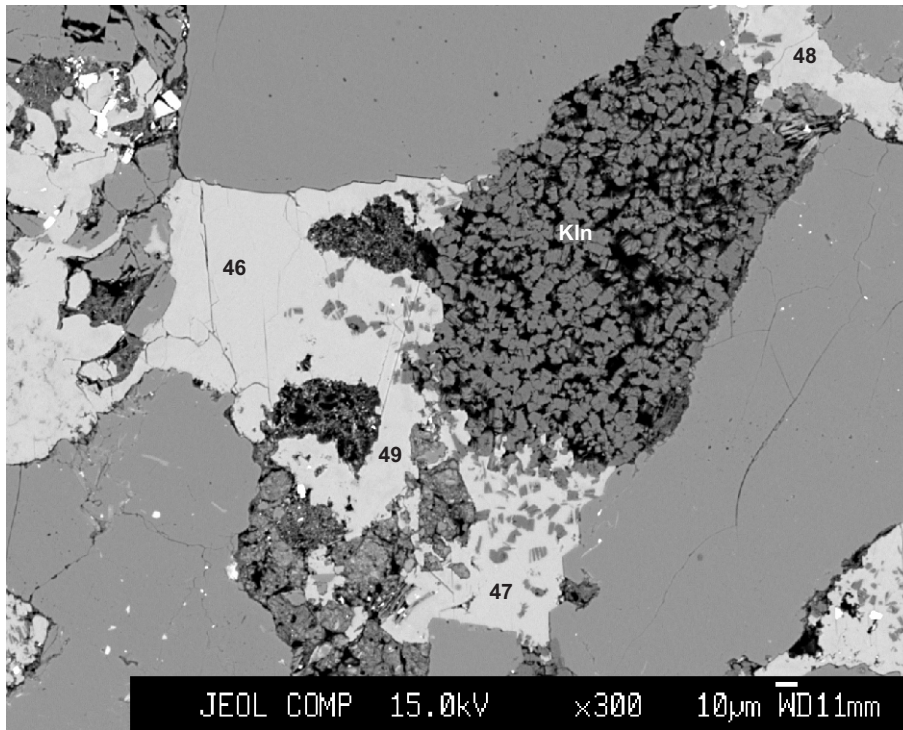
- 143: Fe-calcite
- 144: Fe-calcite
- 145: Fe-calcite
- 146: Fe-calcite
- 147: siderite
- 148: Fe-calcite
- 149: siderite
- 150: siderite
- 151: Fe-calcite
- 152: Fe-calcite
- 153: Fe-calcite

Figure 35: Cohasset A-52-2343.79



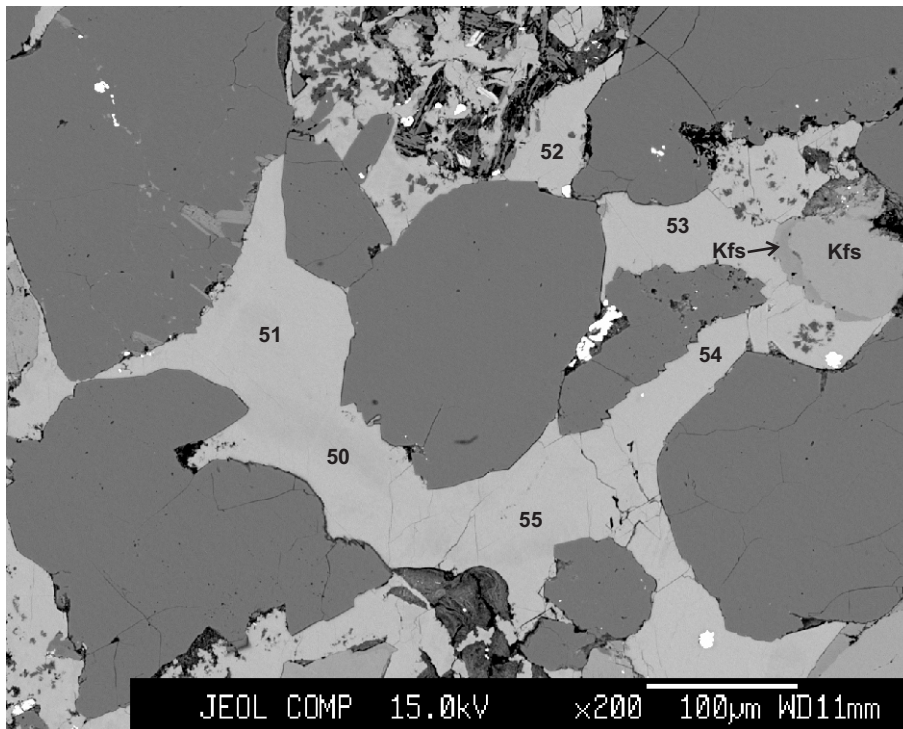
- 154: Fe-calcite
- 155: siderite
- 156: siderite
- 157: siderite
- 158: Fe-calcite
- 159: Fe-calcite
- 160: Fe-calcite
- 161: siderite
- 162: siderite
- 163: siderite
- 164: Fe-calcite
- 165: Fe-calcite
- 166: Fe-calcite

Figure 36: Cohasset A-52-2343.79



- 46: Fe-calcite
- 47: Fe-calcite
- 48: Fe-calcite
- 49: calcite

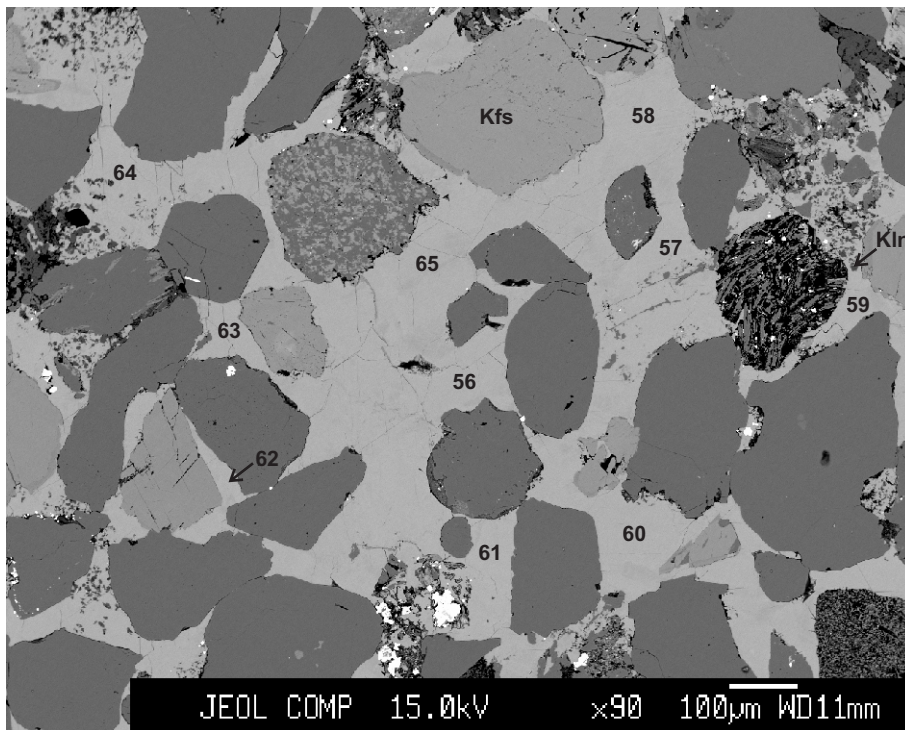
Figure 37: Cohasset A-52-2353.98



- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite

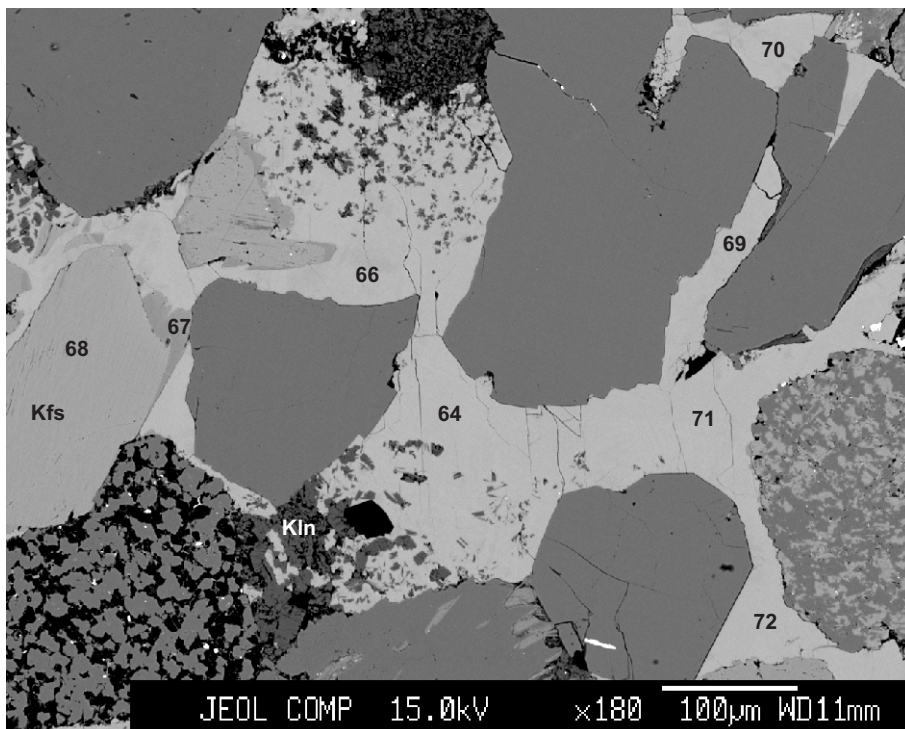
Figure 38: Cohasset A-52-2353.98





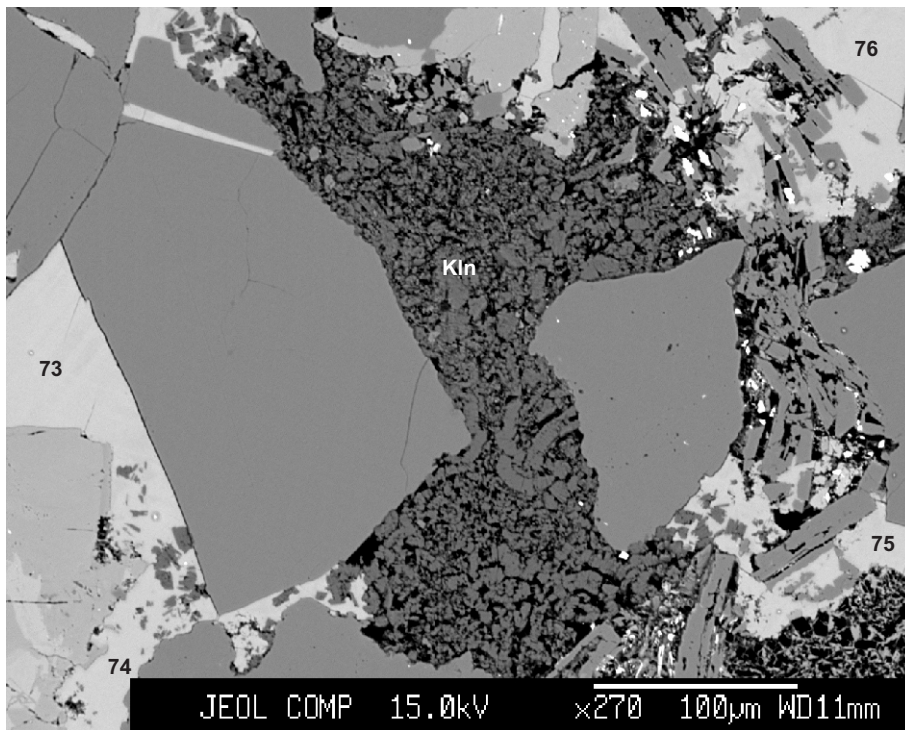
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite

Figure 39: Cohasset A-52-2353.98



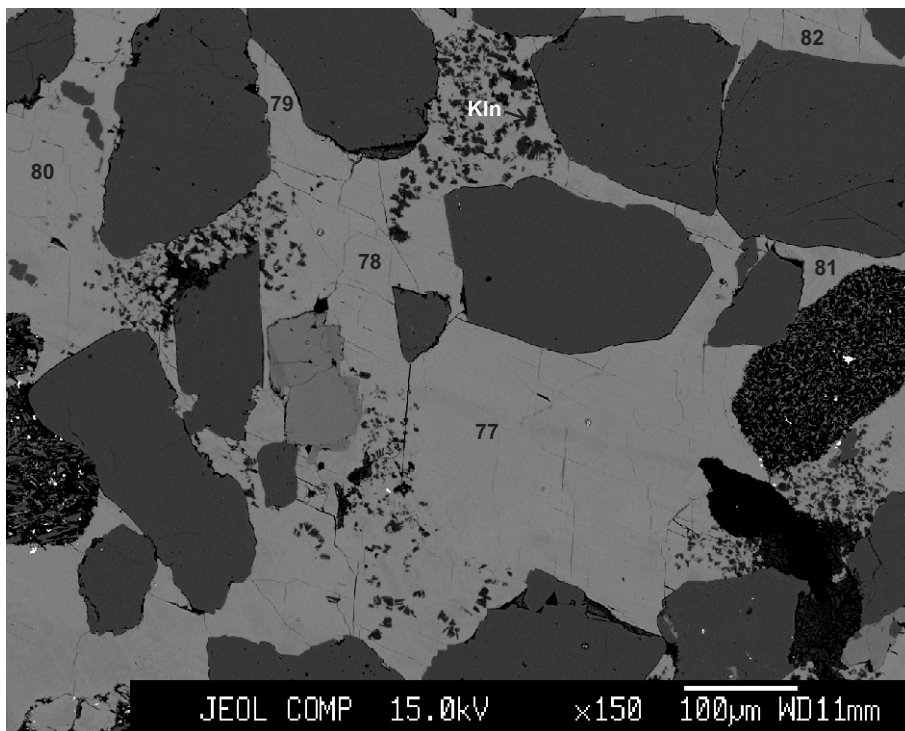
- 66: Fe-calcite
- 67: K-feldspar
- 68: K-feldspar
- 69: calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite

Figure 40: Cohasset A-52-2353.98



- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite
- 76: Fe-calcite

Figure 41: Cohasset A-52-2353.98



- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: calcite

Figure 42: Cohasset A-52-2353.98

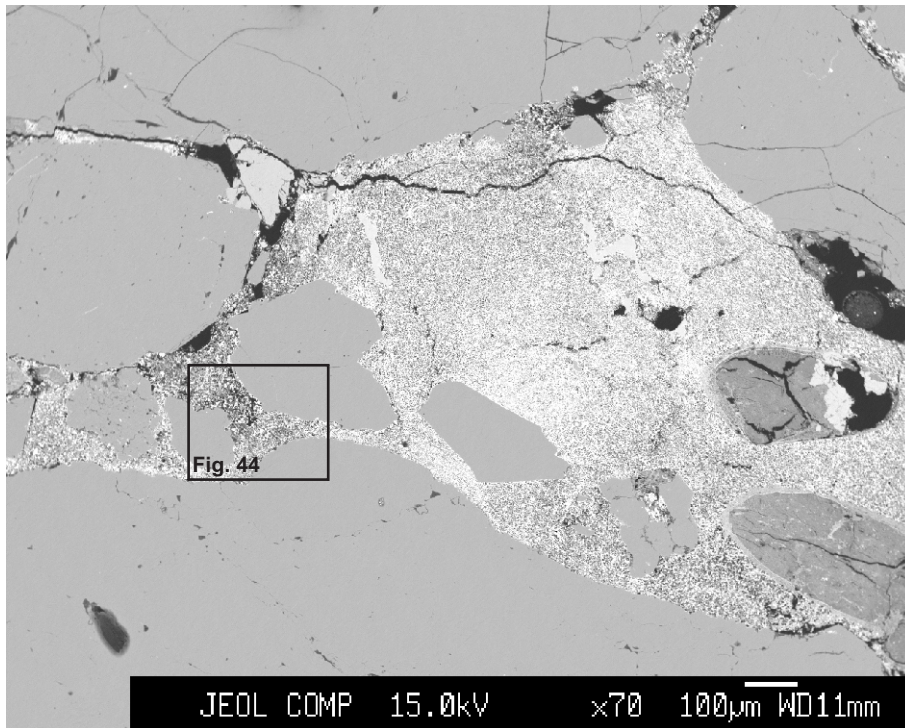
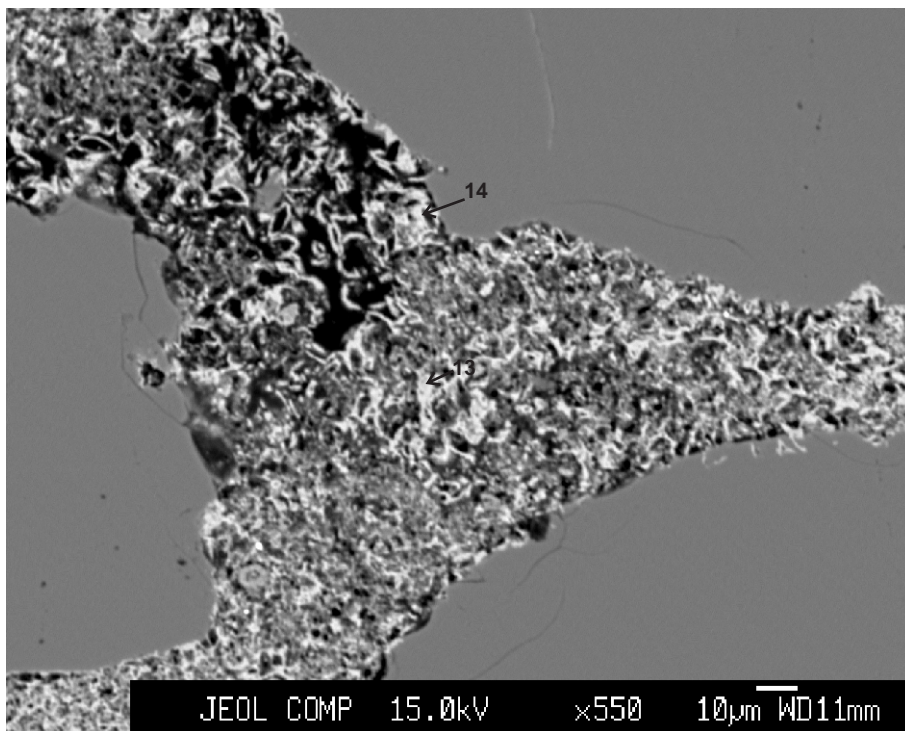
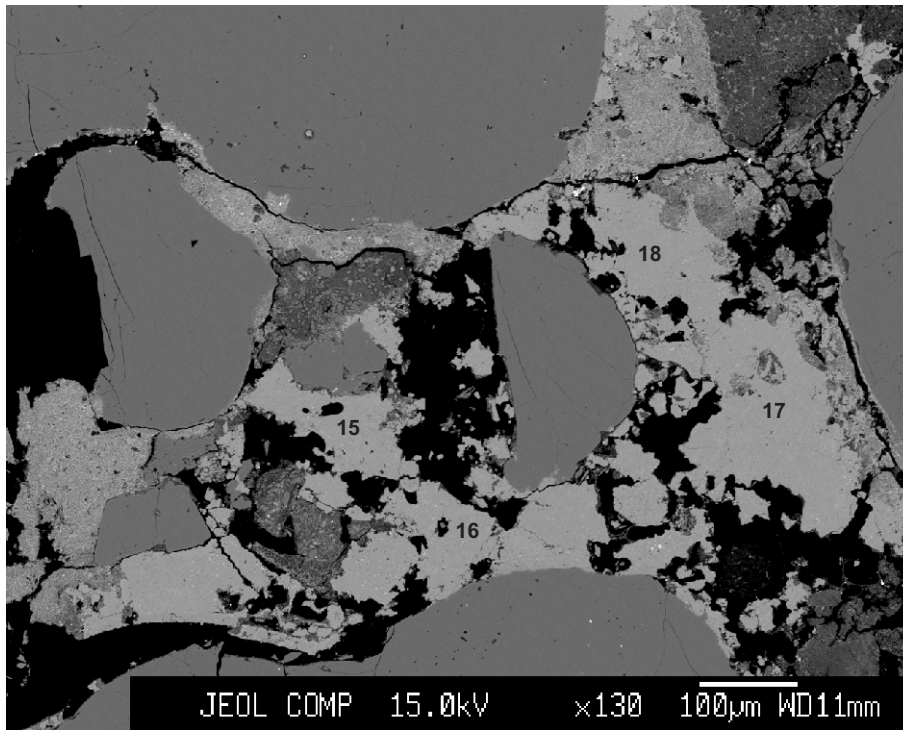


Figure 43: Cohasset A-52-2386.29



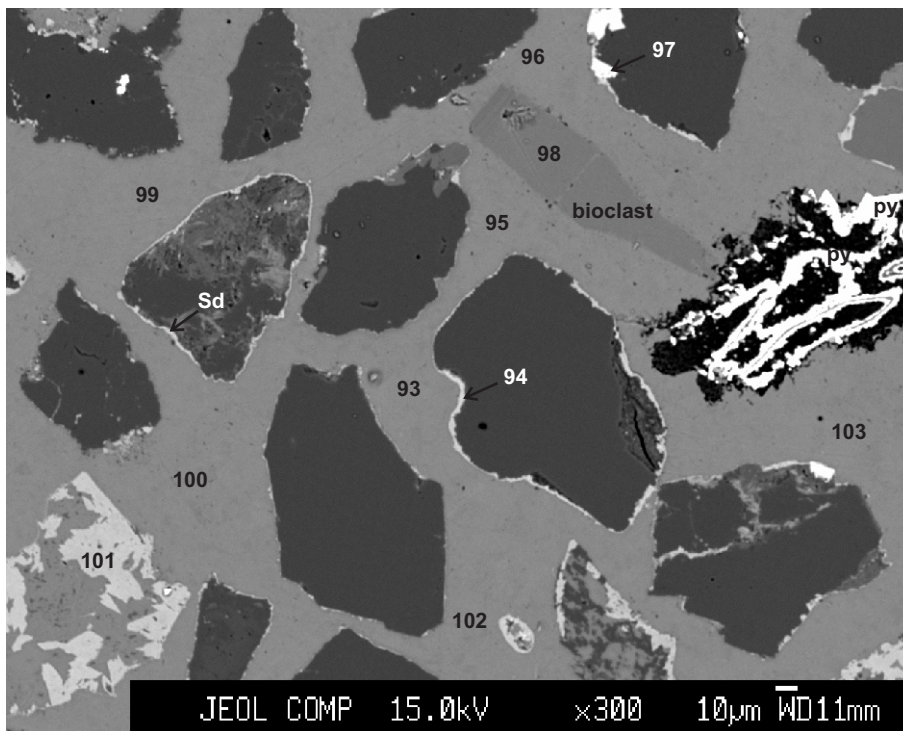
13: siderite  
14: siderite

Figure 44: Cohasset A-52-2386.29



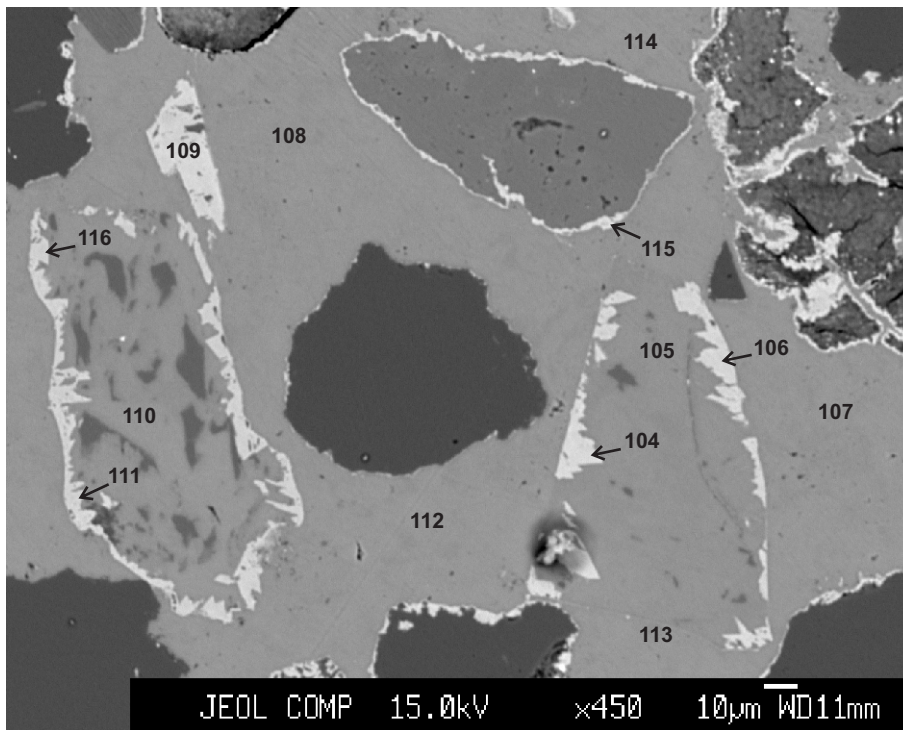
- 15: Fe-Mg-calcite
- 16: Fe-Mg-calcite
- 17: Fe-Mg-calcite
- 18: Fe-Mg-calcite

Figure 45: Cohasset A-52-2386.29



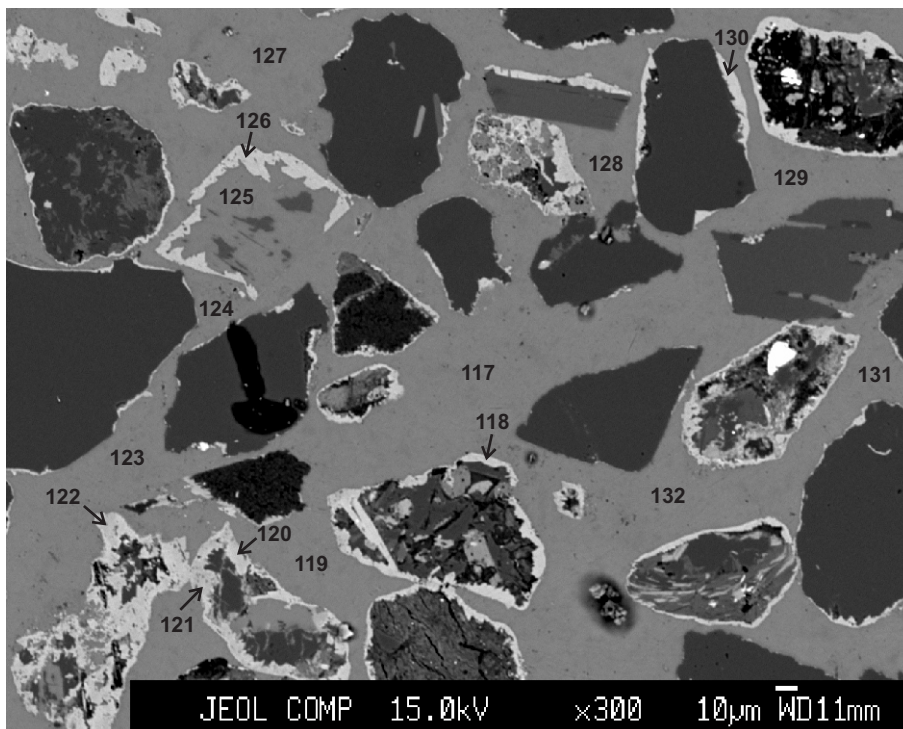
- 93: Fe-calcite
- 94: siderite + Qz
- 95: Fe-calcite
- 96: Fe-calcite
- 97: pseudorutile
- 98: Mg-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: siderite
- 102: Fe-calcite
- 103: Fe-calcite

Figure 46: Cohasset A-52-2421.04



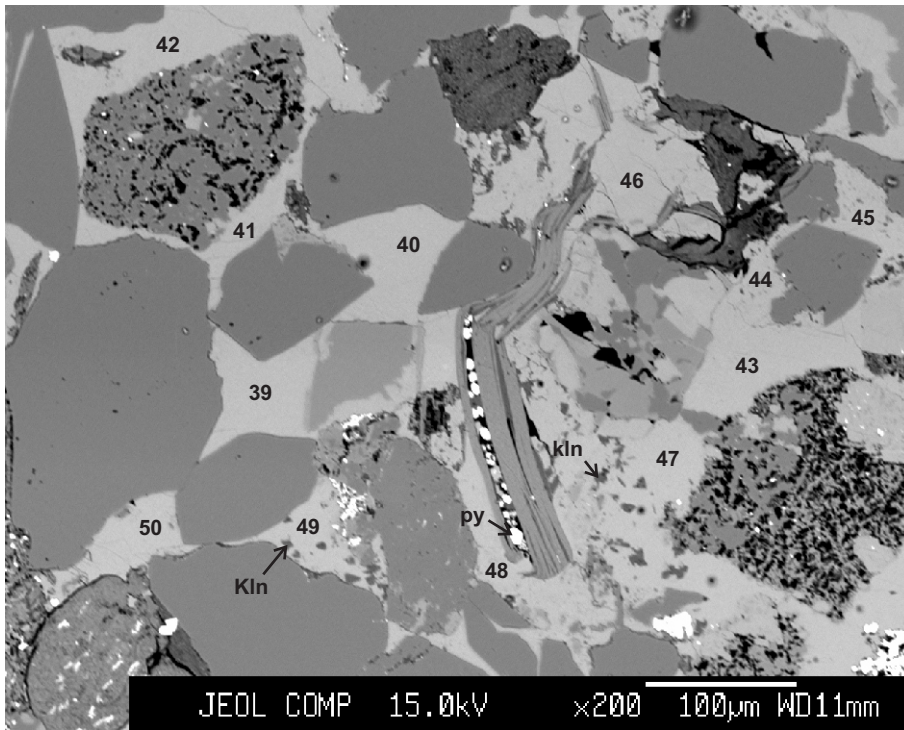
- 104: siderite
- 105: Fe-calcite
- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: siderite
- 110: Fe-calcite
- 111: siderite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: siderite + Qz
- 116: siderite

Figure 47: Cohasset A-52-2421.04



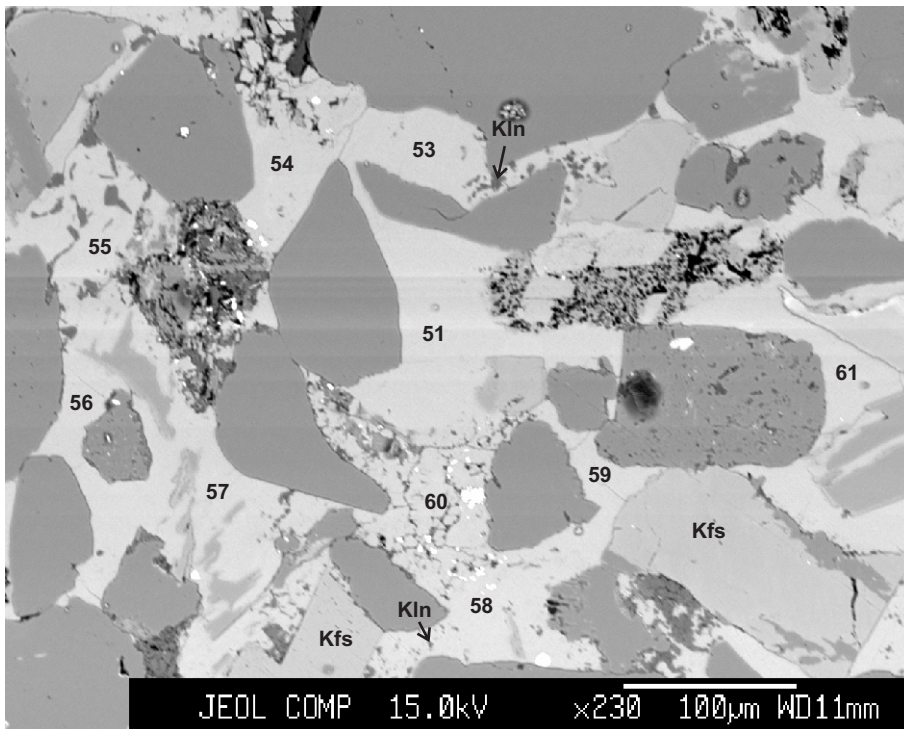
- 117: Fe-calcite
- 118: siderite
- 119: Fe-calcite
- 120: siderite
- 121: siderite
- 122: siderite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: siderite
- 127: Fe-calcite
- 128: Fe-calcite
- 129: Fe-calcite
- 130: siderite
- 131: Fe-calcite
- 132: Fe-calcite

Figure 48: Cohasset A-52-2421.04



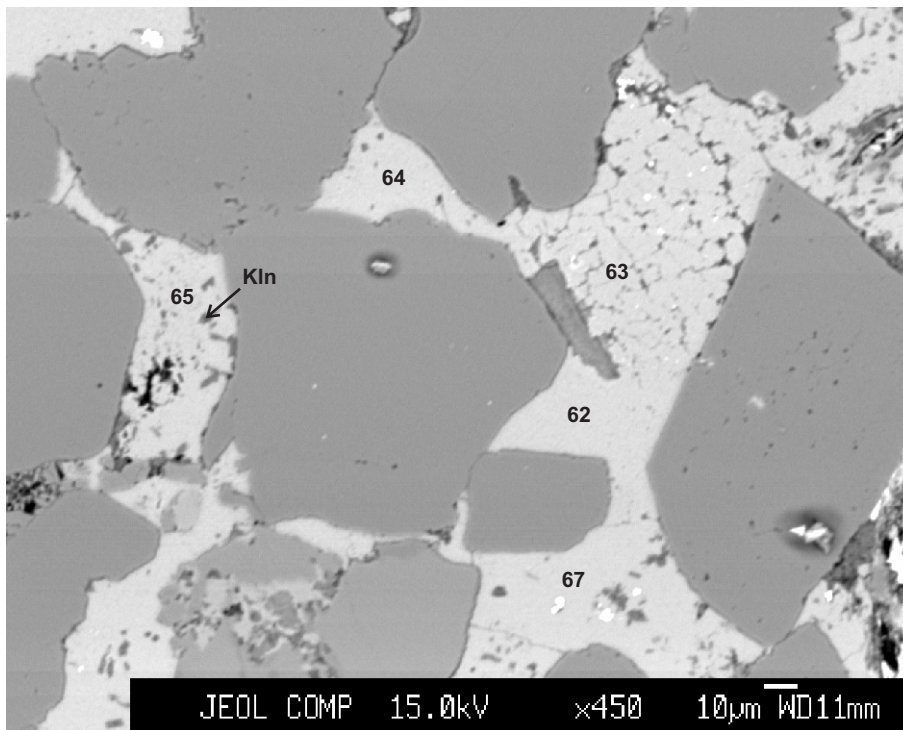
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite
- 44: Fe-calcite
- 45: Fe-calcite
- 46: Fe-calcite
- 47: Fe-calcite
- 48: Fe-calcite
- 49: Fe-calcite
- 50: Fe-calcite

Figure 49: Cohasset A-52-2440.04



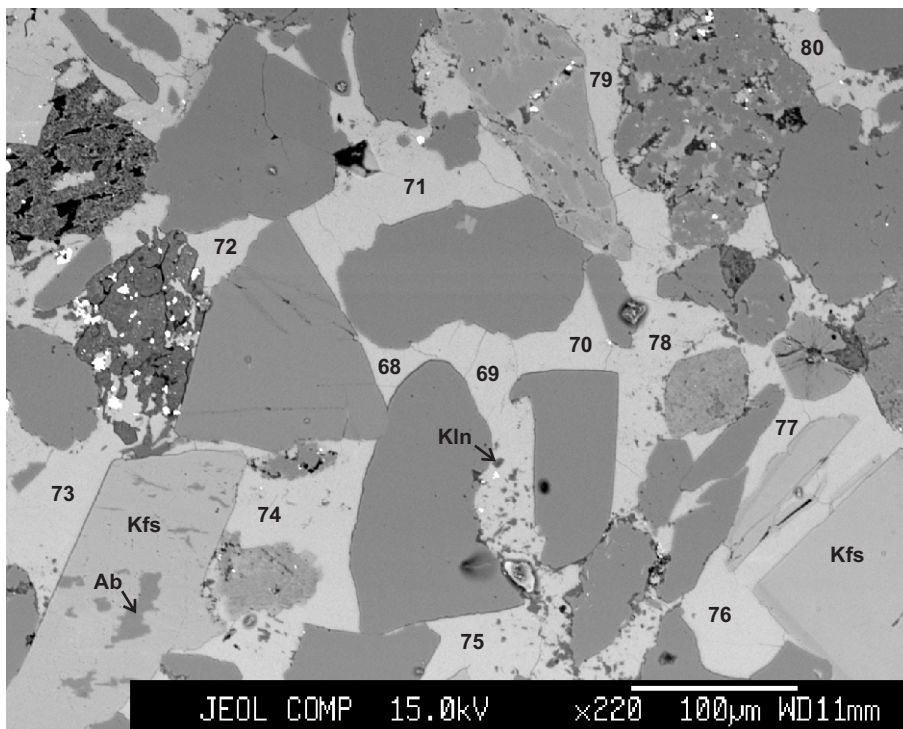
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite

Figure 50: Cohasset A-52-2440.04



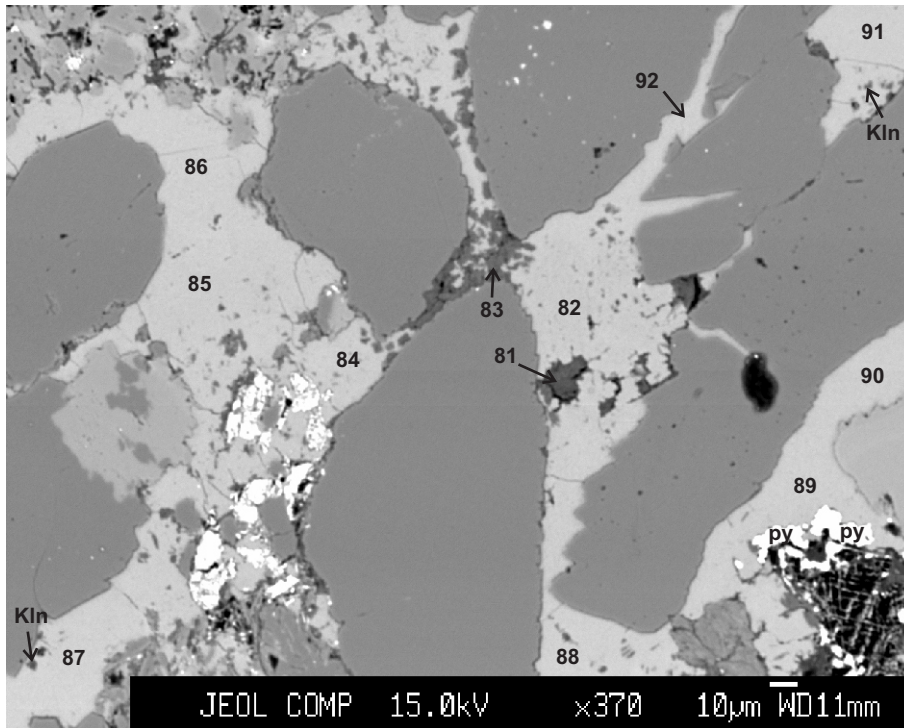
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: Fe-calcite

Figure 51: Cohasset A-52-2440.04



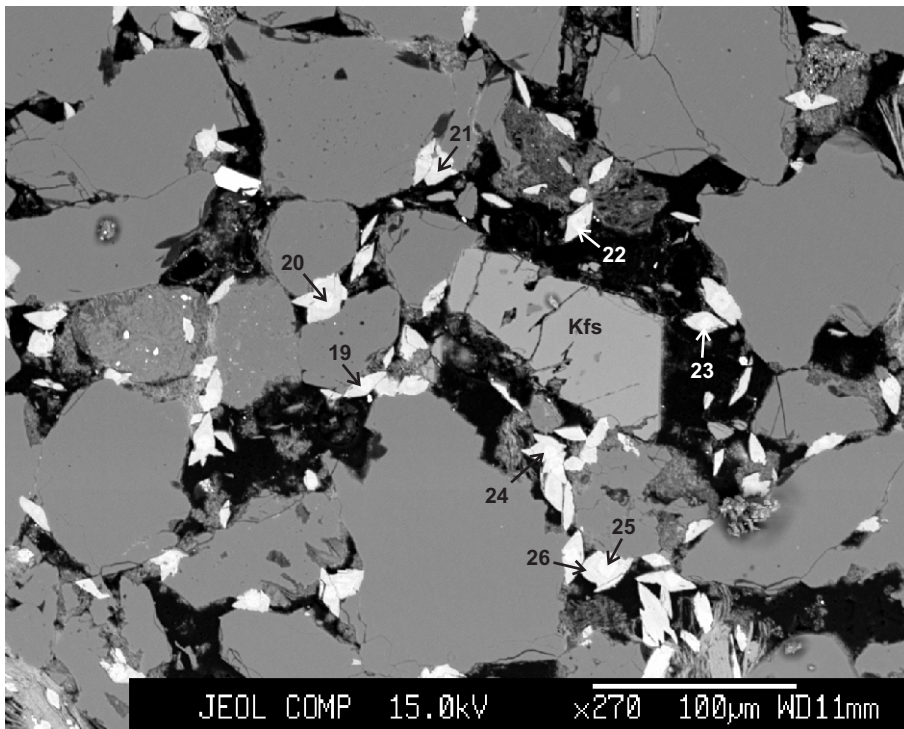
- 68: Fe-calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite

Figure 52: Cohasset A-52-2440.04



- 81: chlorite
- 82: Fe-calcite
- 83: kaolinite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite

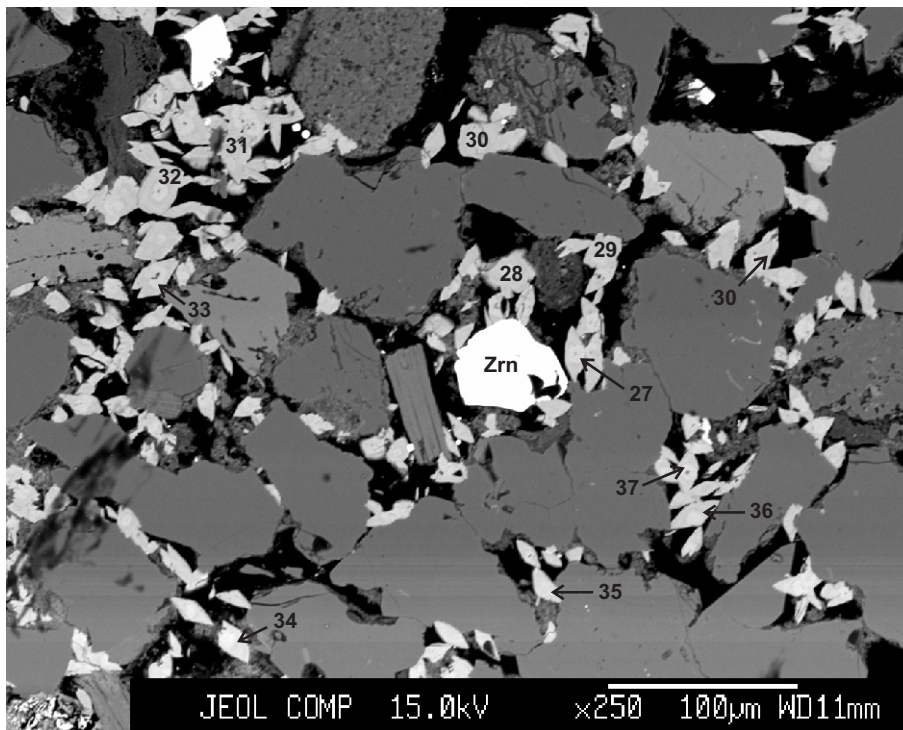
Figure 53: Cohasset A-52-2440.04



- 19: siderite
- 20: siderite
- 21: siderite
- 22: siderite
- 23: siderite
- 24: siderite
- 25: siderite
- 26: siderite

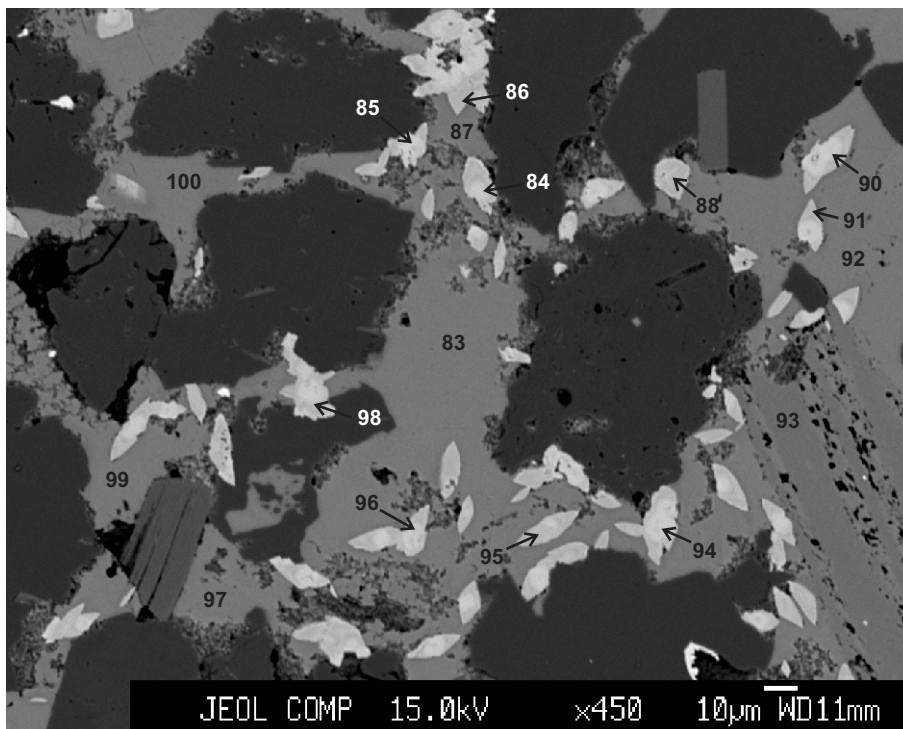
Figure 54: Cohasset A-52-2602.65





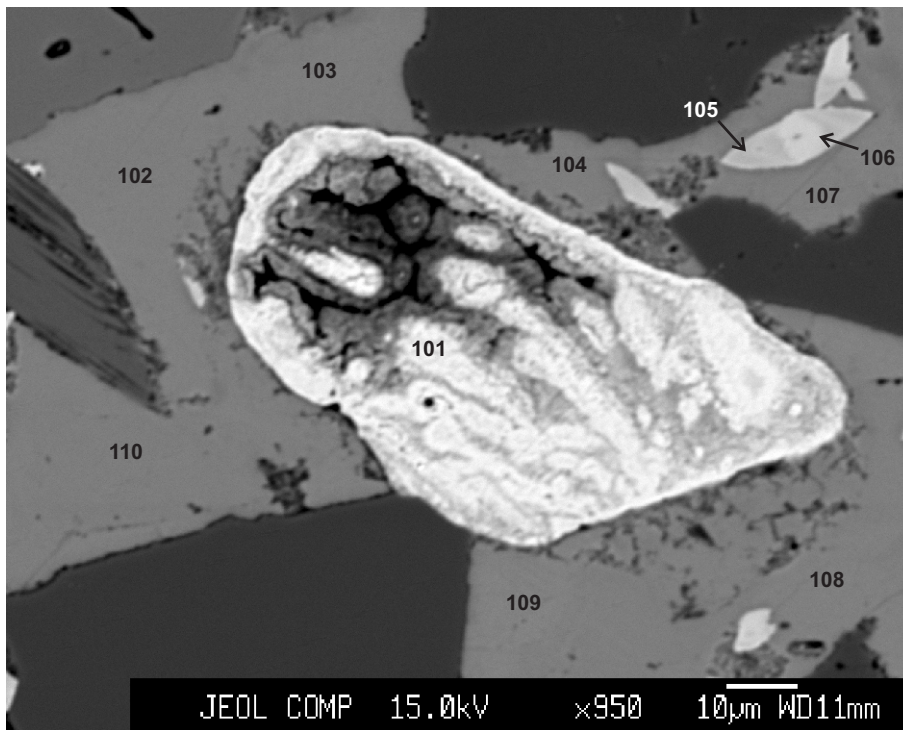
- 27: siderite
- 28: siderite
- 29: siderite
- 30: siderite
- 31: siderite
- 32: siderite
- 33: siderite
- 34: siderite
- 35: siderite
- 36: siderite
- 37: siderite
- 38: siderite

Figure 55: Cohasset A-52-2602.65



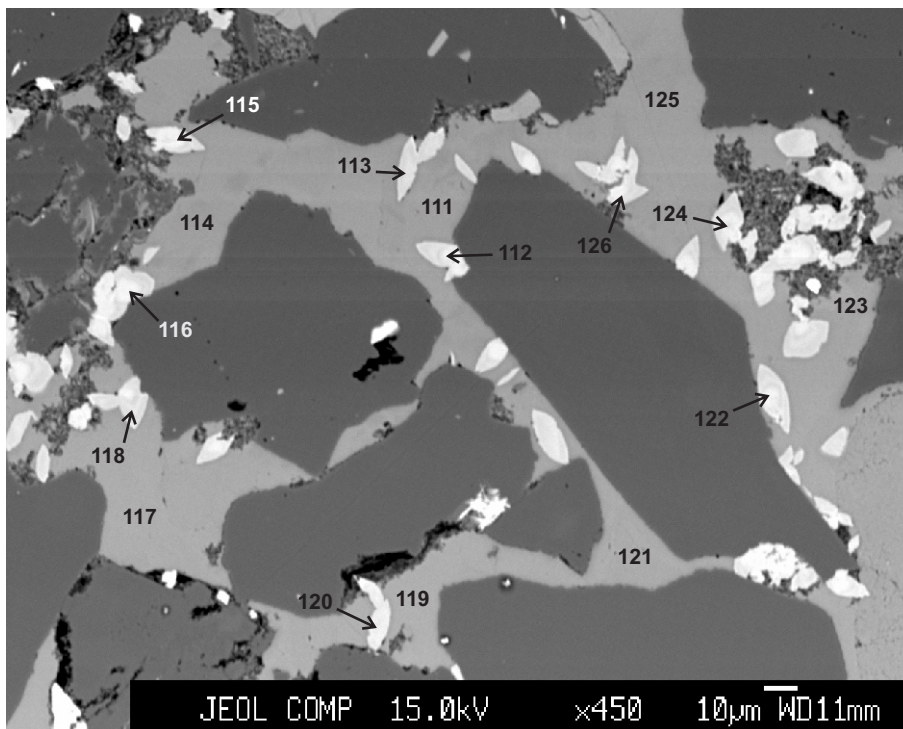
- 83: Fe-calcite
- 84: siderite
- 85: siderite
- 86: siderite
- 87: Fe-calcite
- 88: siderite
- 89: Fe-calcite
- 90: siderite
- 91: siderite
- 92: Fe-calcite
- 93: calcite
- 94: siderite
- 95: siderite
- 96: siderite
- 97: Fe-calcite
- 98: siderite
- 99: Fe-calcite
- 100: Fe-calcite

Figure 56: Cohasset A-52-2603.49



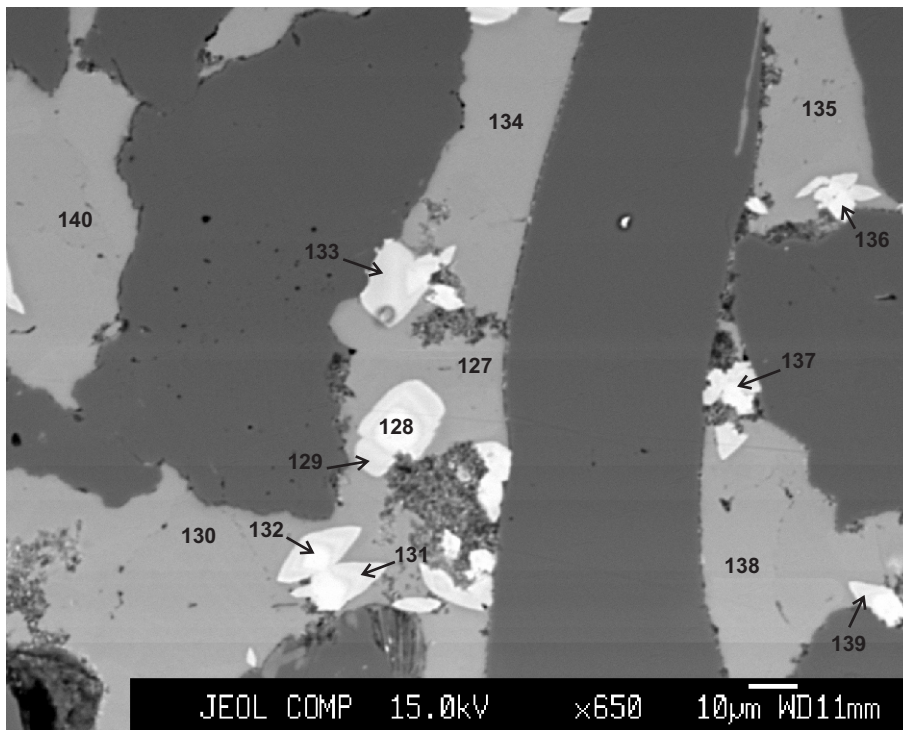
- 101: pseudorutile
- 102: Fe-calcite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: siderite
- 106: siderite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

Figure 57: Cohasset A-52-2603.49



- 111: Fe-calcite
- 112: siderite
- 113: siderite
- 114: Fe-calcite
- 115: siderite
- 116: siderite
- 117: Fe-calcite
- 118: siderite
- 119: Fe-calcite
- 120: siderite
- 121: Fe-calcite
- 122: siderite
- 123: Fe-calcite
- 124: siderite
- 125: Fe-calcite
- 126: siderite

Figure 58: Cohasset A-52-2603.49



- 127: Fe-calcite
- 128: siderite
- 129: siderite
- 130: Fe-calcite
- 131: siderite
- 132: siderite
- 133: siderite
- 134: Fe-calcite
- 135: Fe-calcite
- 136: siderite
- 137: siderite
- 138: Fe-calcite
- 139: siderite
- 140: Fe-calcite

Figure 59: Cohasset A-52-2603.49

Appendix 2 : Back-scattered electron (BSE) images for the sandstones  
from the studied wells studied by electron microprobe

A: Como P-21

B: Panuke B-90

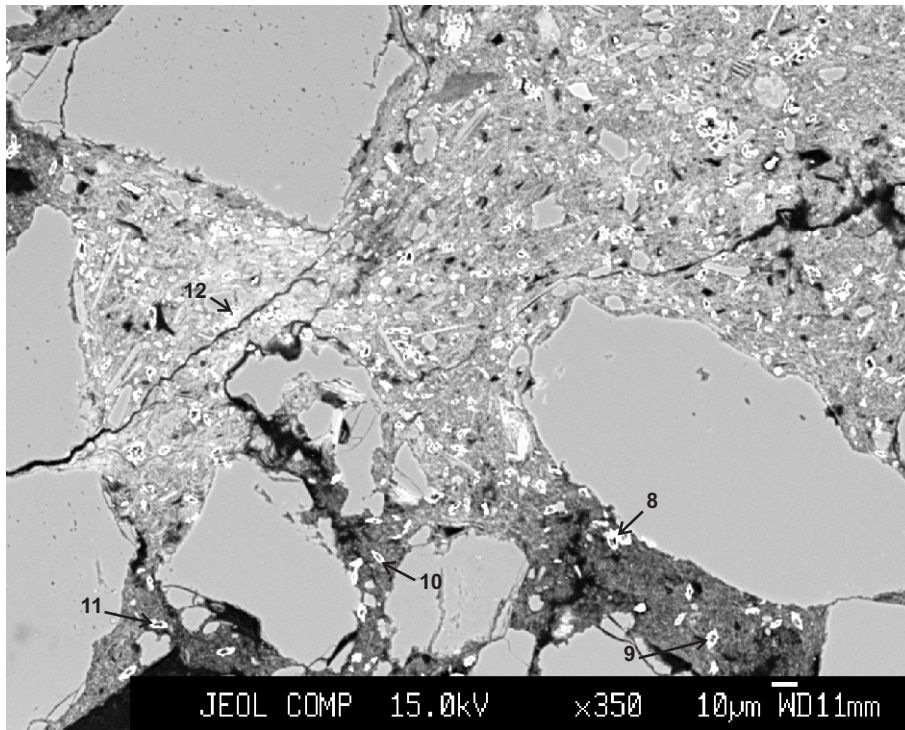
C: Cohasset A-52

D: Balmoral M-32

E: Lawrence D-14

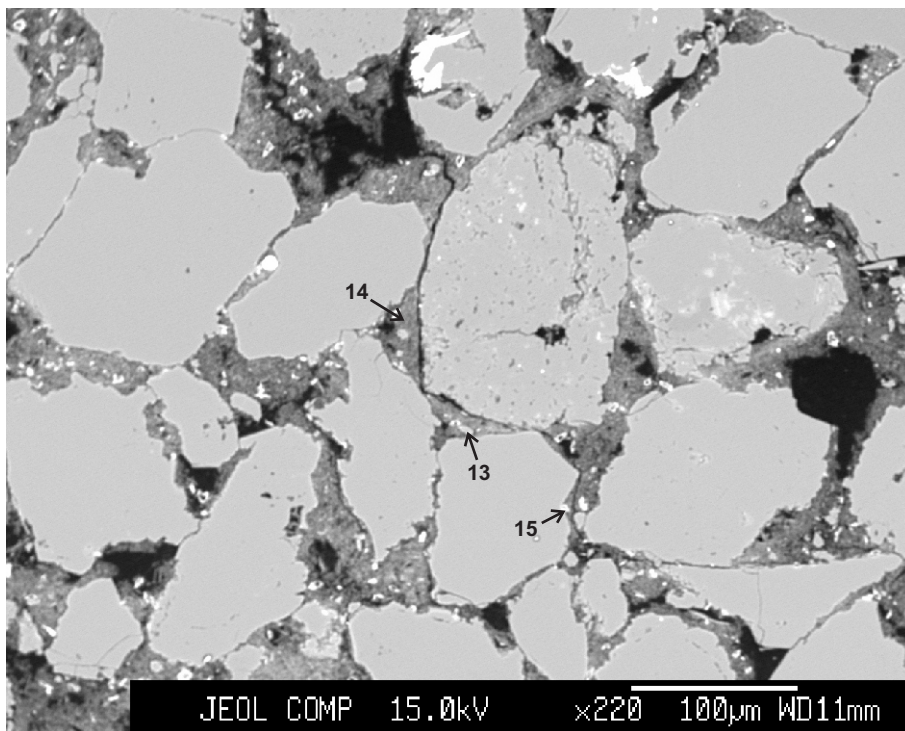
Note: Mineral symbols after Whitney and Evans (2010)

Appendix 2A : Back-scattered electron (BSE) images for the Como P-21 sandstones studied by electron microprobe



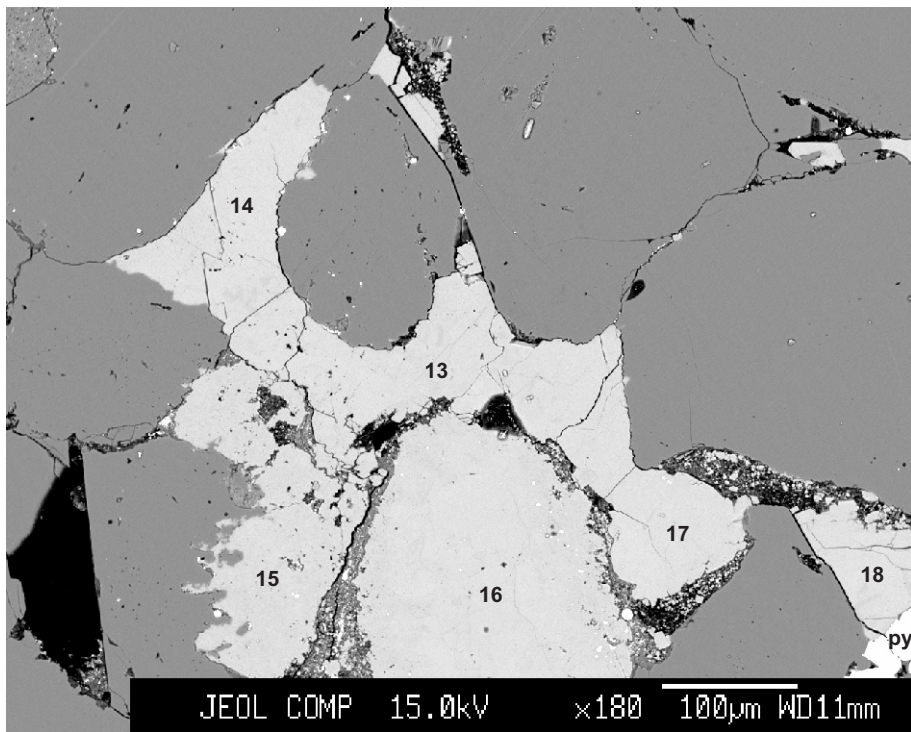
- 8: siderite + clay
- 9: siderite + clay
- 10: siderite + clay
- 11: siderite + clay
- 12: siderite + clay

Figure 1: Como P-21-2193.7



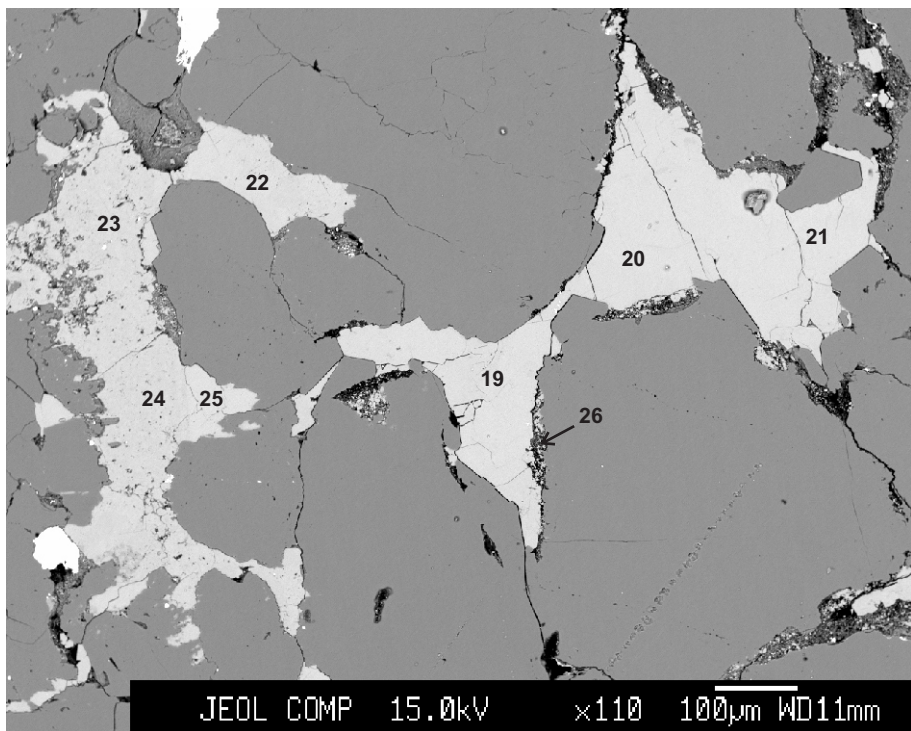
- 13: siderite + clay
- 14: clay
- 15: siderite + clay

Figure 2: Como P-21-2193.7



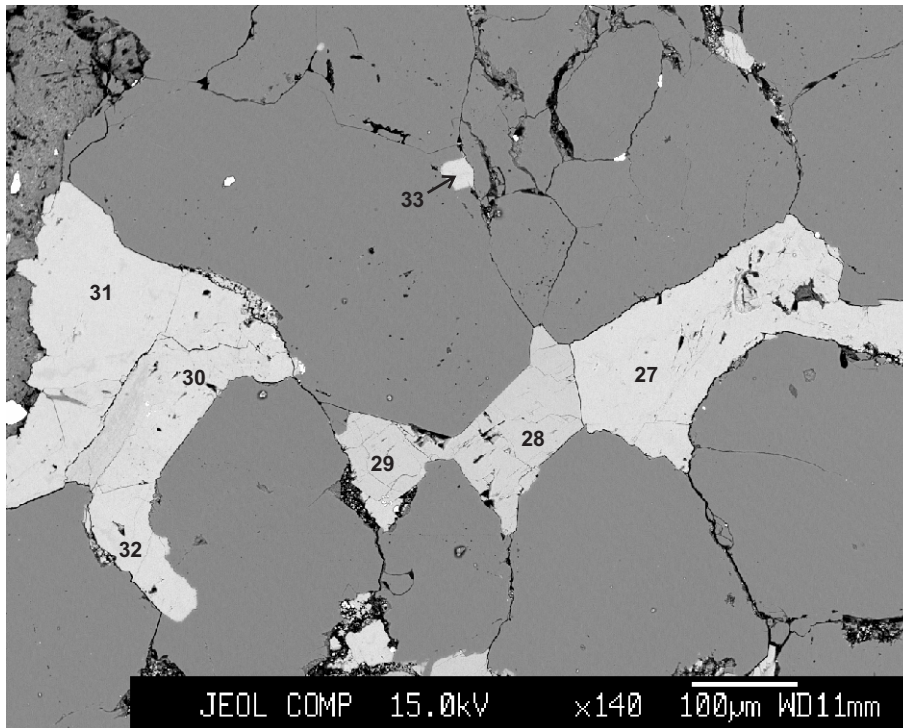
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite
- 17: Fe-calcite
- 18: Fe-calcite

Figure 3: Como P-21-2956.93



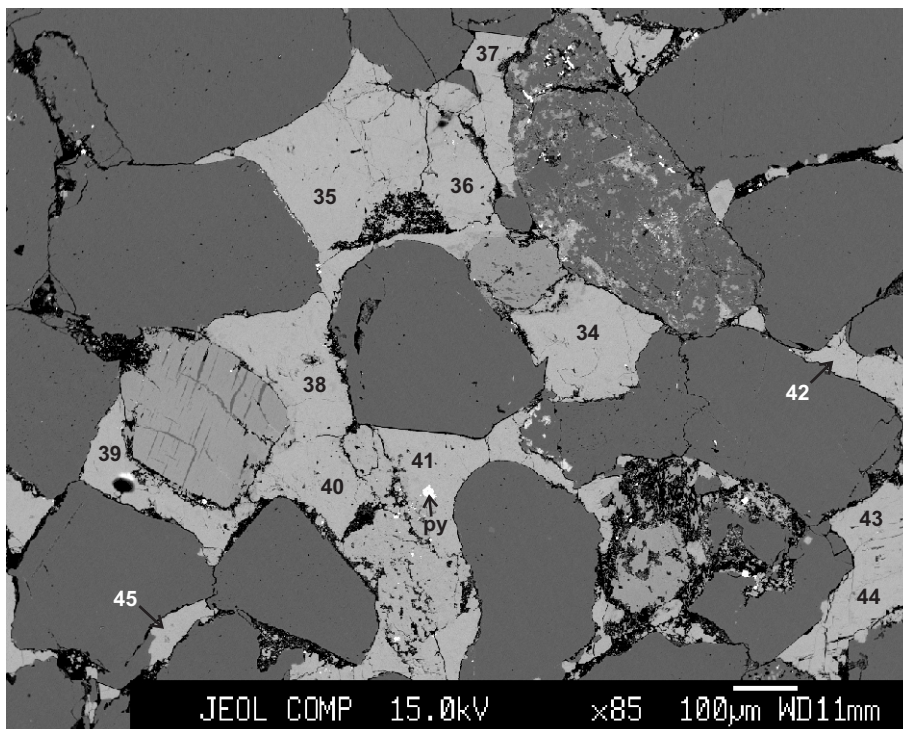
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: clay

Figure 4: Como P-21-2956.93



- 27: Fe-calcite
- 28: ankerite
- 29: ankerite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: calcite
- 33: calcite

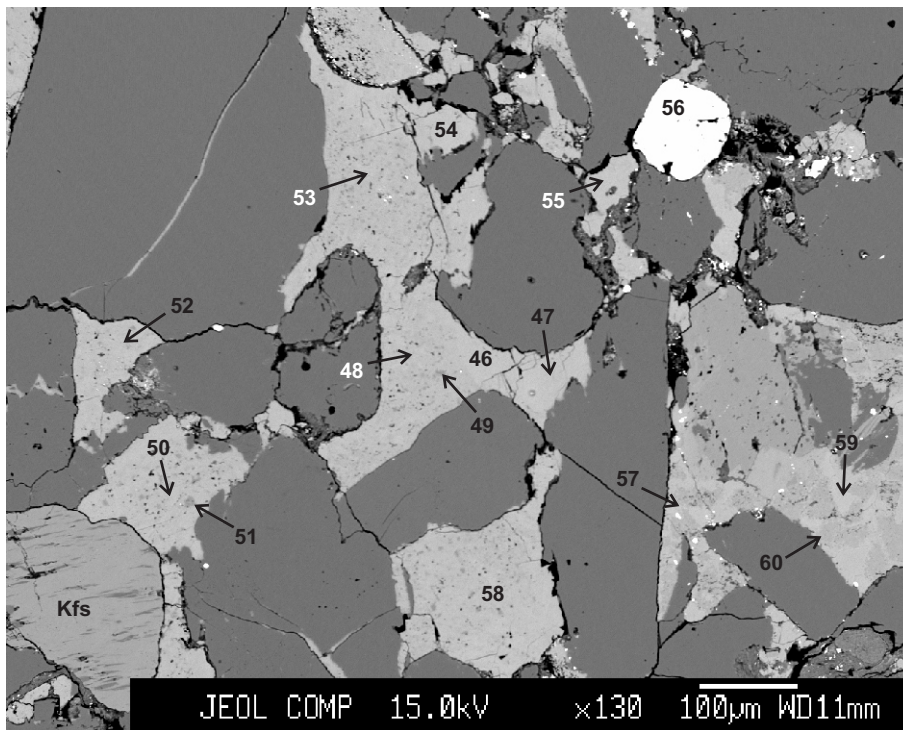
Figure 5: Como P-21-2956.93



- 34: Fe-calcite
- 35: Fe-calcite
- 36: Fe-calcite
- 37: calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: calcite
- 44: Fe-calcite
- 45: Fe-calcite

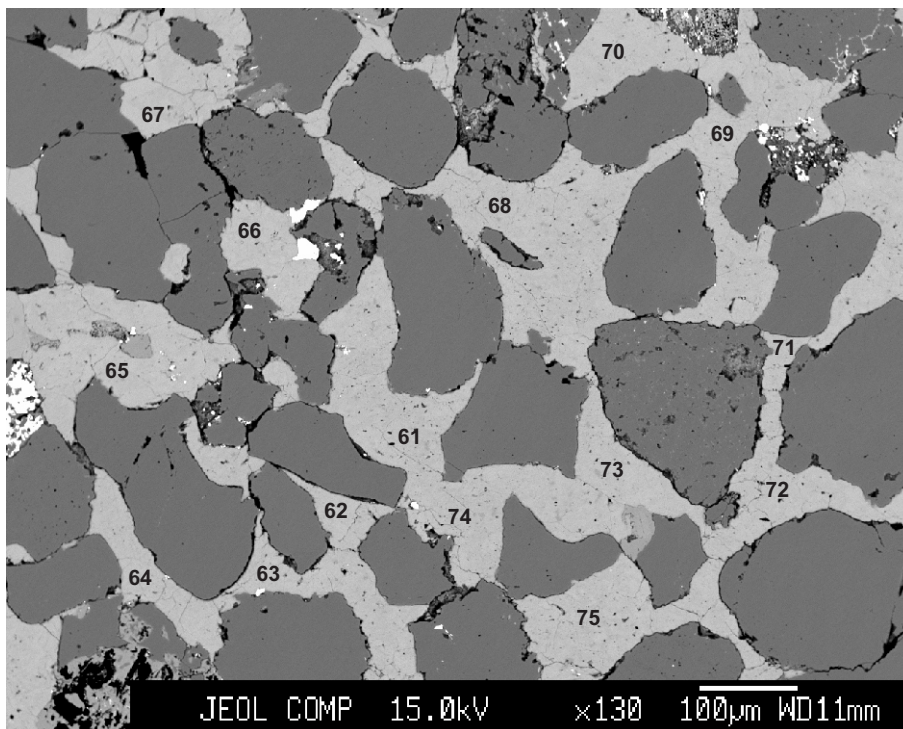
Figure 6: Como P-21-2956.93





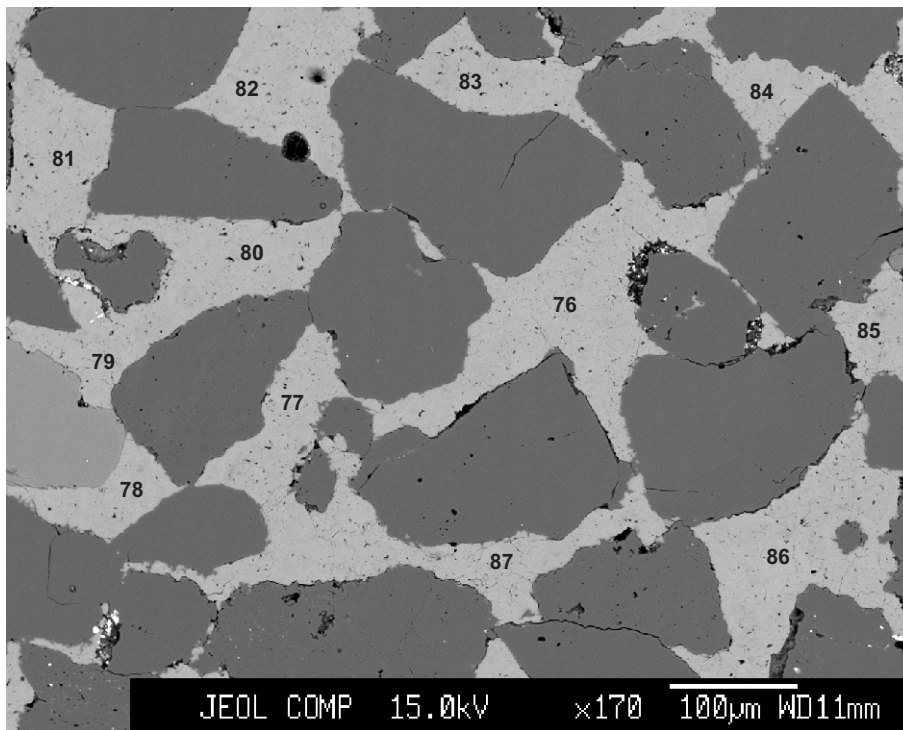
- 46: calcite
- 47: calcite
- 48: calcite
- 49: ankerite
- 50: calcite
- 51: ankerite
- 52: calcite
- 53: calcite
- 54: calcite
- 55: calcite
- 56: chromite
- 57: ankerite
- 58: Fe-Mg-calcite
- 59: ankerite
- 60: Fe-Mg-calcite

Figure 7: Como P-21-2969.48



- 61: calcite
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: calcite
- 68: calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: calcite
- 75: Fe-calcite

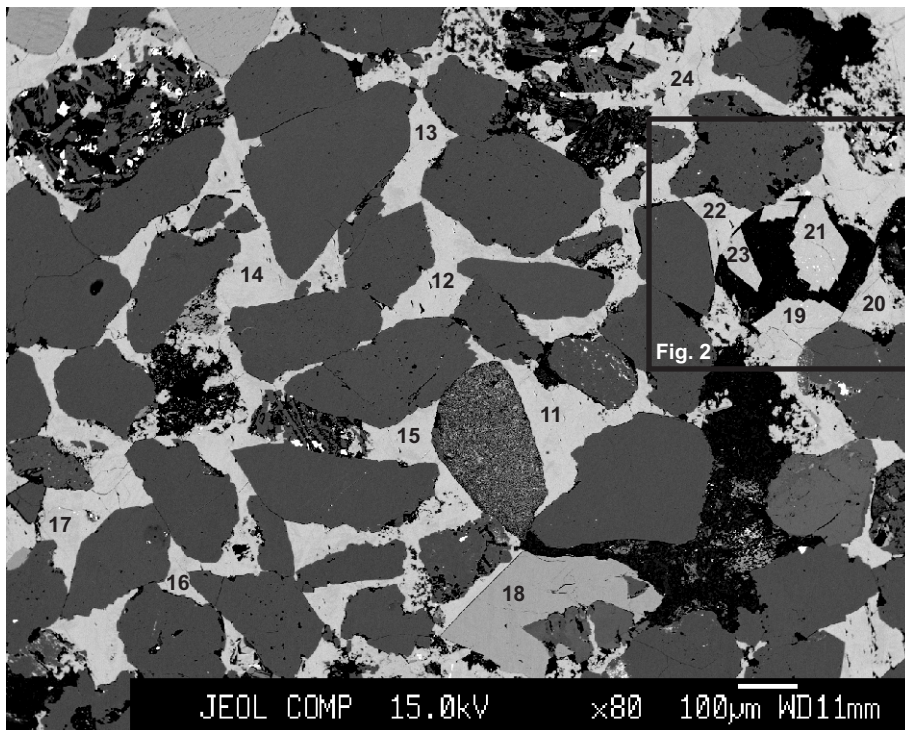
Figure 8: Como P-21-2969.48



- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite

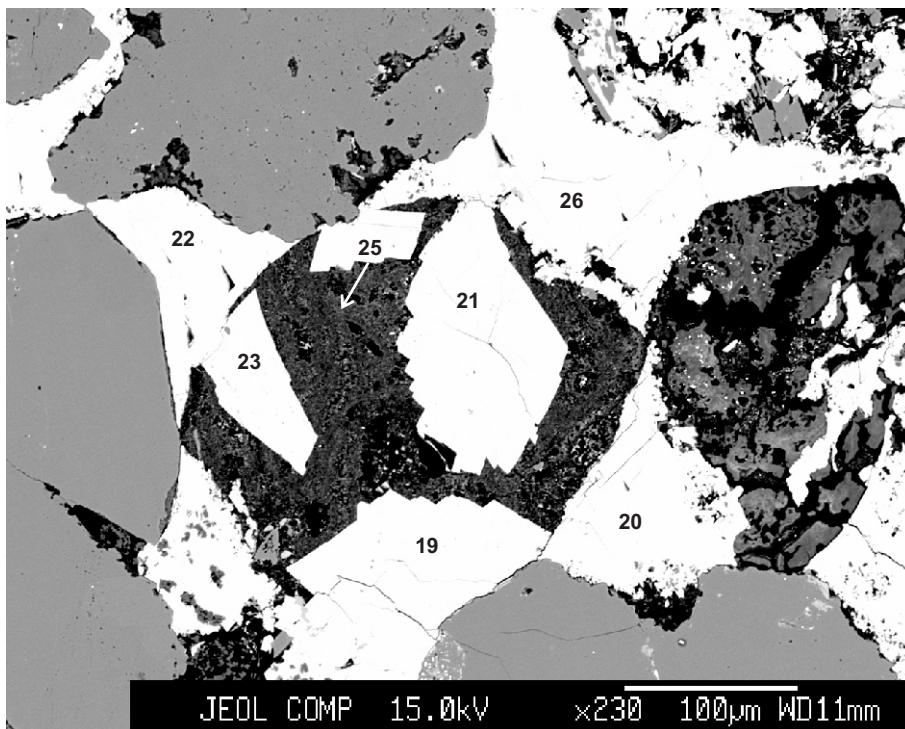
Figure 9: Como P-21-2969.48

Appendix 2B : Back-scattered electron (BSE) images for the Panuke  
B-90 sandstones studied by electron microprobe



- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite
- 17: calcite
- 18: K-feldspar
- 19: ankerite
- 20: Fe-calcite
- 21: ankerite
- 22: calcite
- 23: ankerite
- 24: Fe-calcite

Figure 1: Panuke B-90-2069.01



- 19: ankerite
- 20: Fe-calcite
- 21: ankerite
- 22: calcite
- 23: ankerite
- 24: Fe-calcite
- 25: illite
- 26: Fe-calcite

Figure 2: Panuke B-90-2069.01

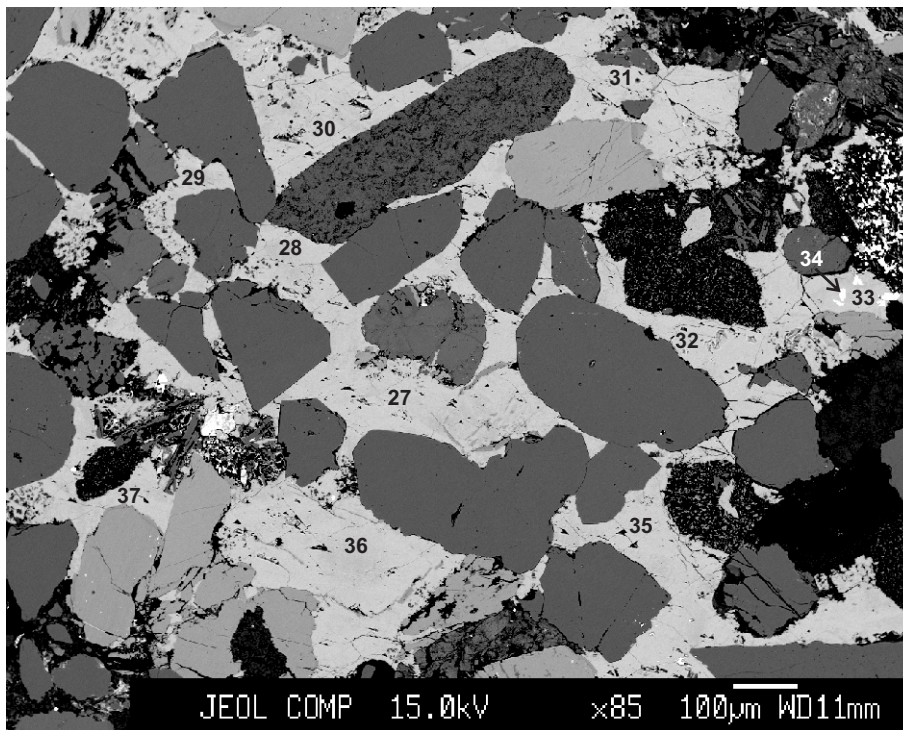


Figure 3: Panuke B-90-2069.01

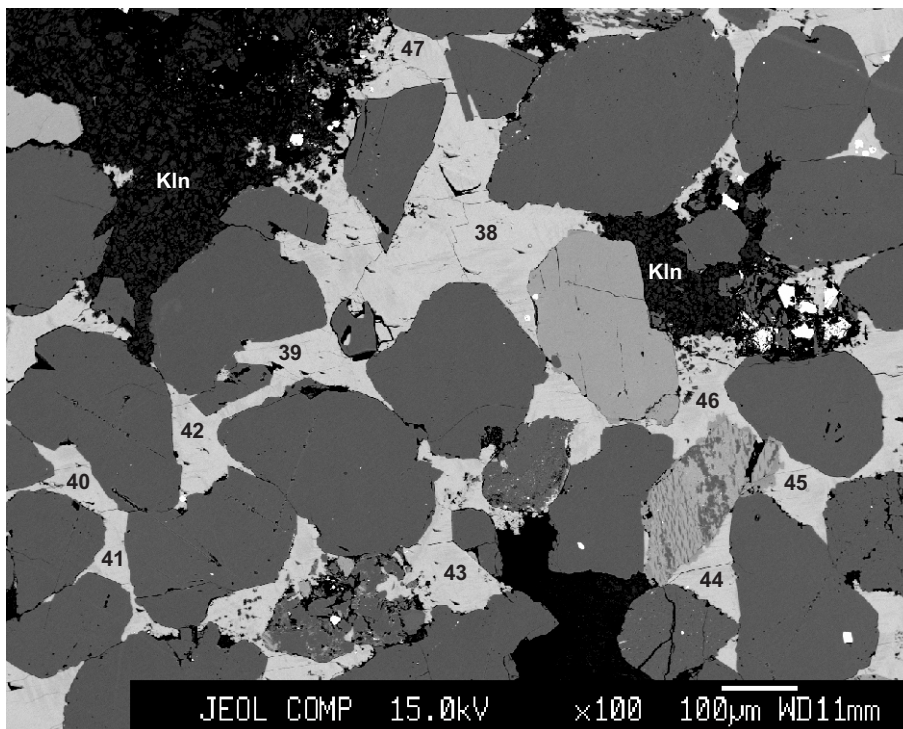


Figure 4: Panuke B-90-2069.01

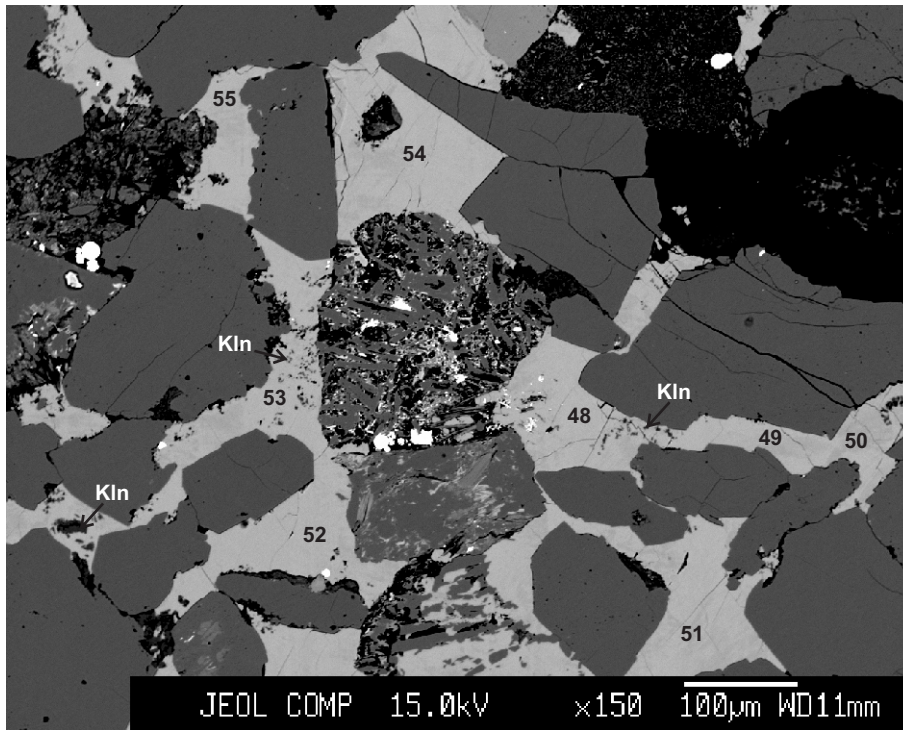


Figure 5: Panuke B-90-2069.01

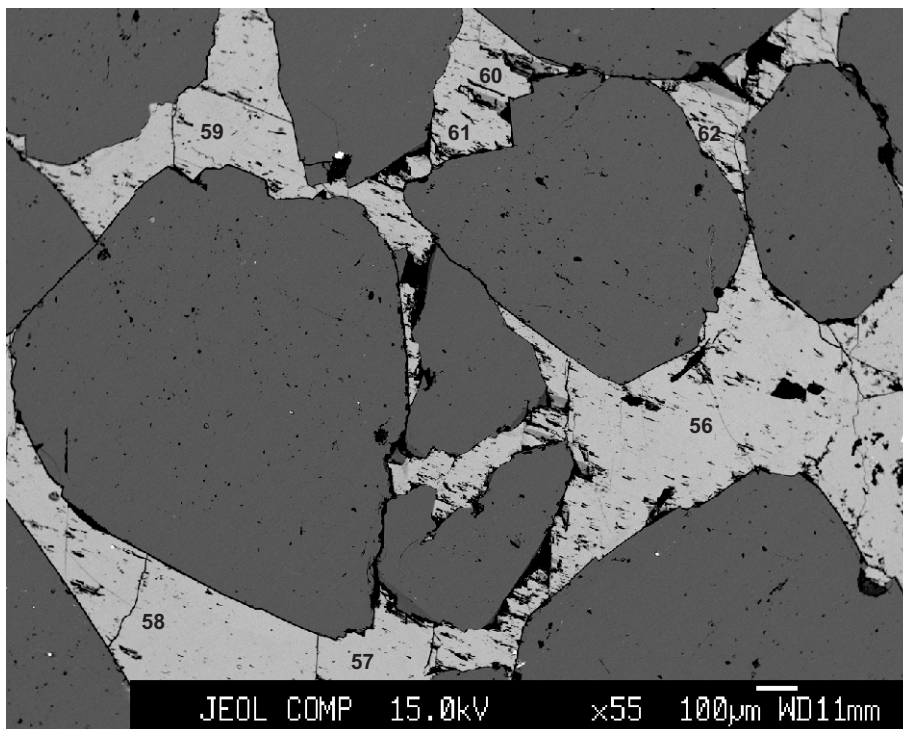
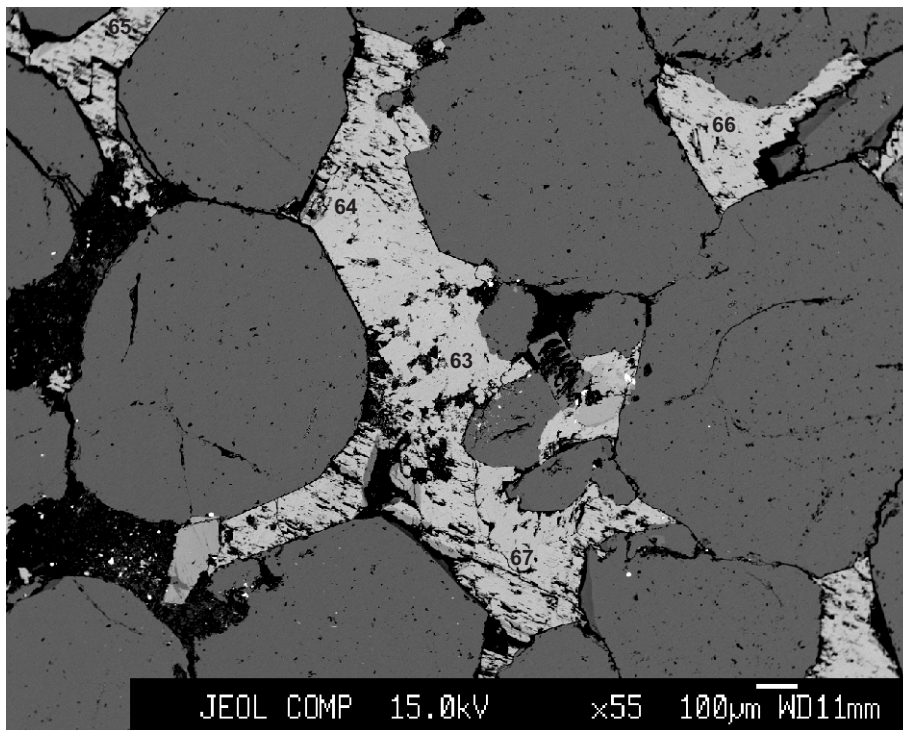
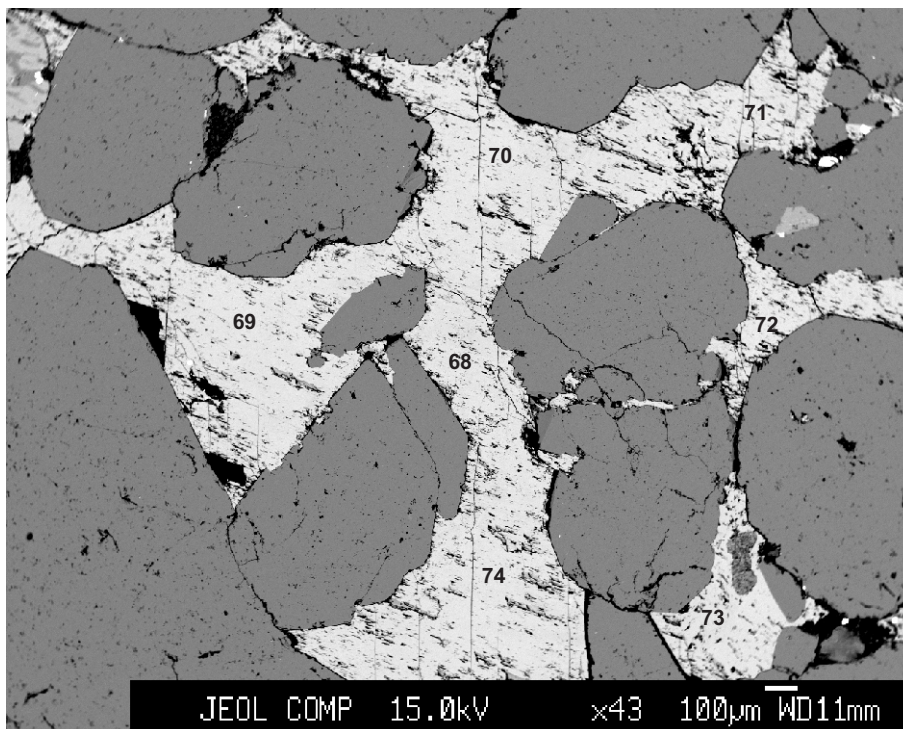


Figure 6: Panuke B-90-2099.21



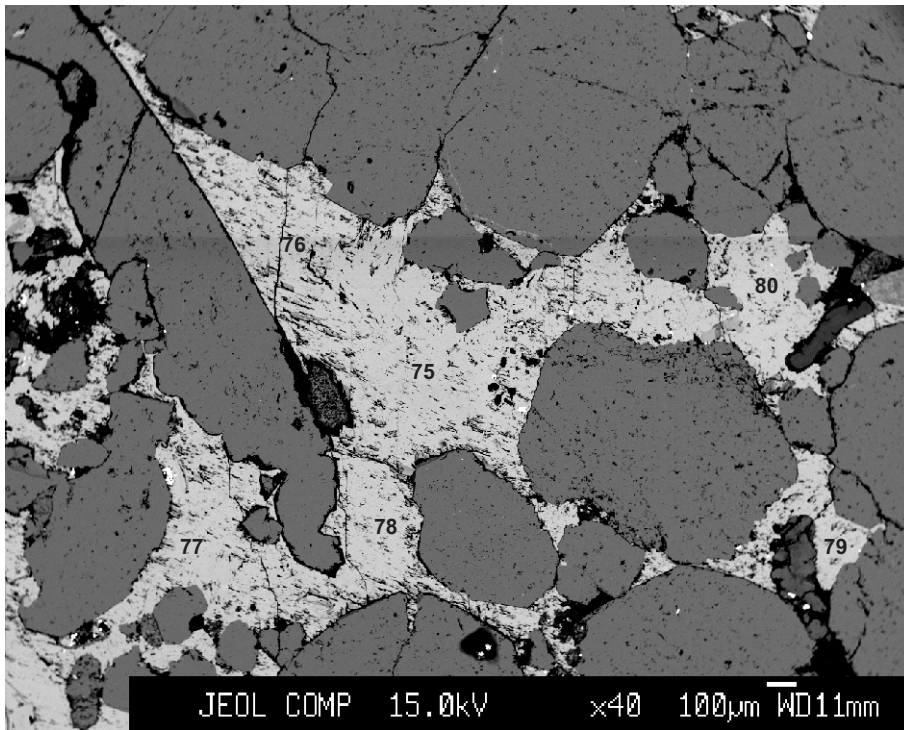
- 63: ankerite
- 64: ankerite
- 65: Fe-calcite
- 66: ankerite
- 67: ankerite

Figure 7: Panuke B-90-2099.21



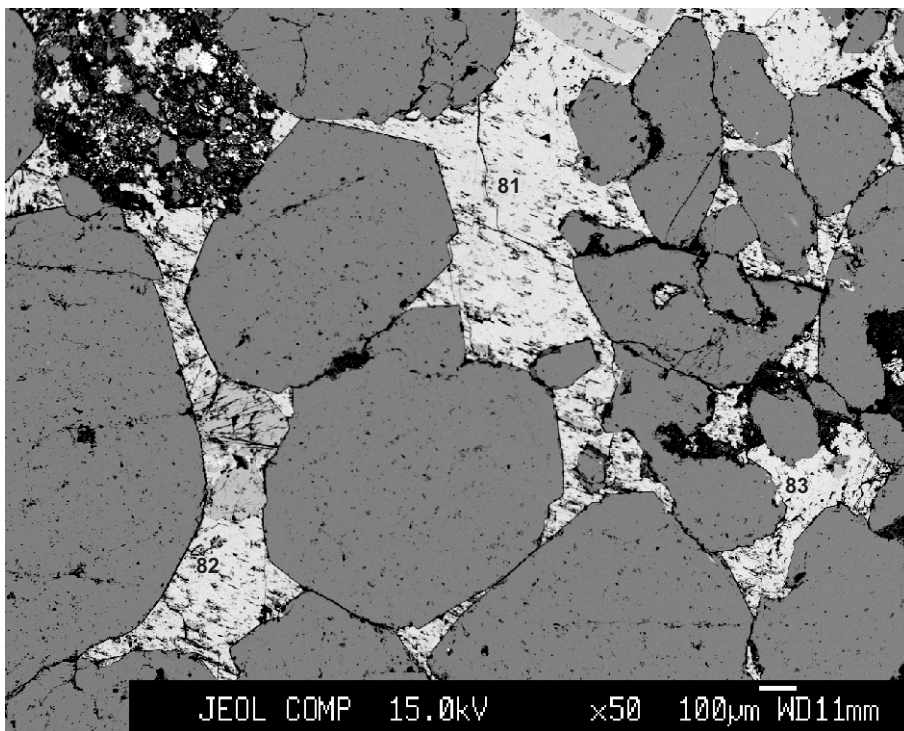
- 68: Fe-calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: ankerite
- 74: Fe-calcite

Figure 8: Panuke B-90-2099.21



- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: ankerite
- 80: ankerite

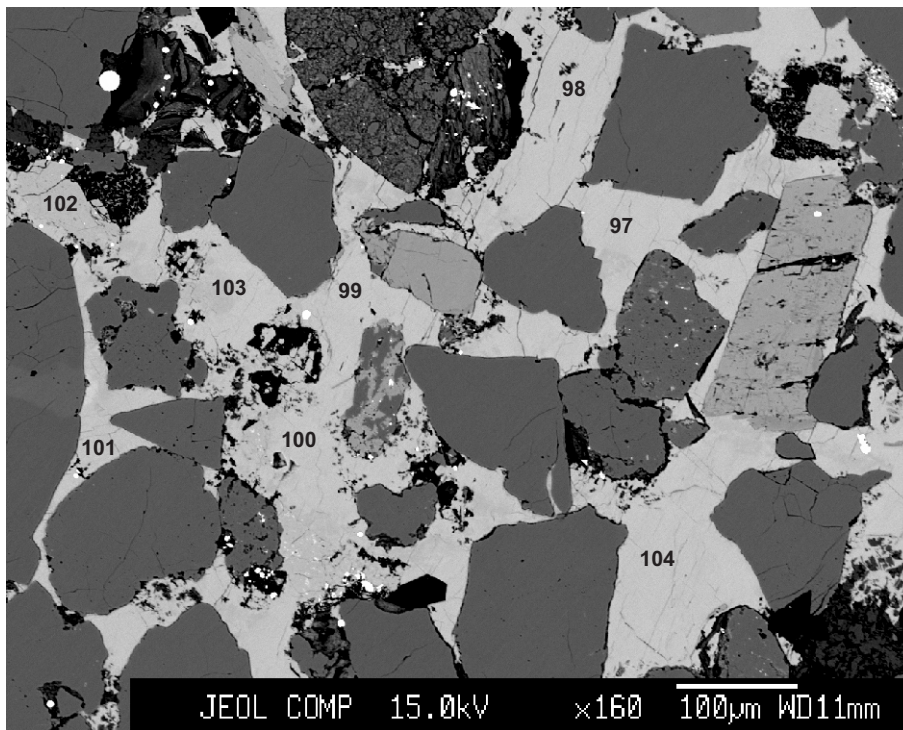
Figure 9: Panuke B-90-2099.21



- 81: Fe-calcite
- 82: Fe-calcite
- 83: ankerite

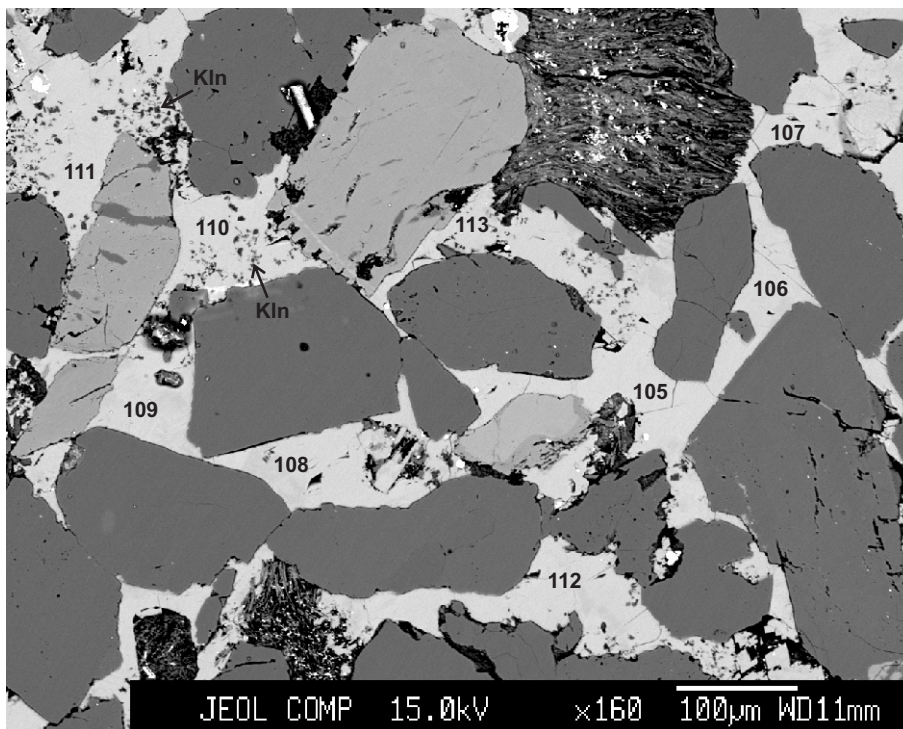
Figure 10: Panuke B-90-2099.21





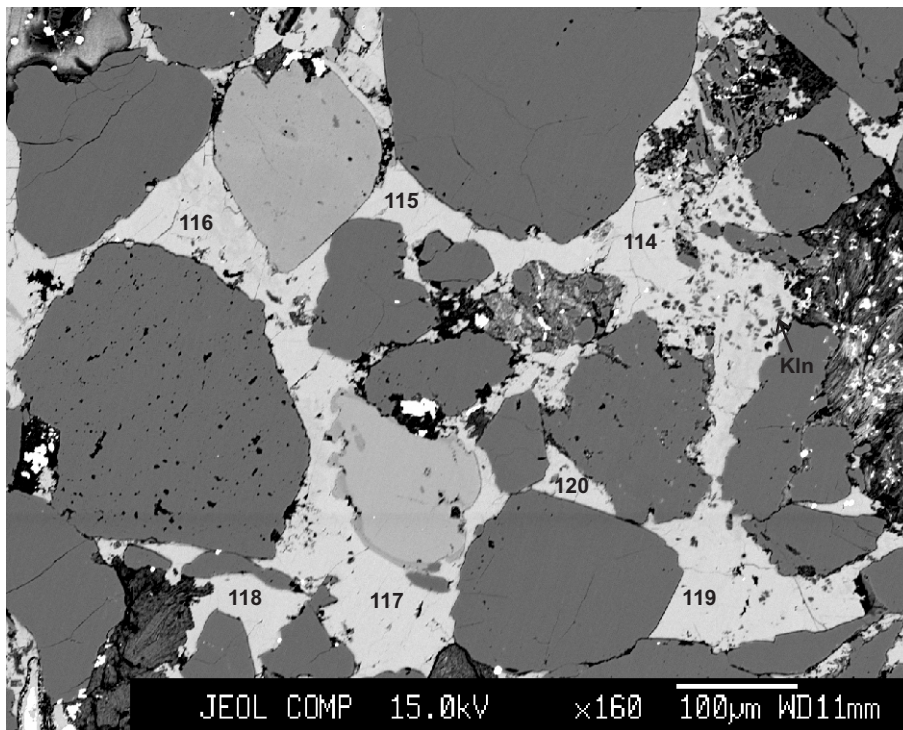
- 96: Fe-calcite
- 97: Fe-calcite
- 98: Fe-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: Fe-calcite
- 102: ankerite
- 103: Fe-calcite
- 104: Fe-calcite

Figure 11: Panuke B-90-2099.69



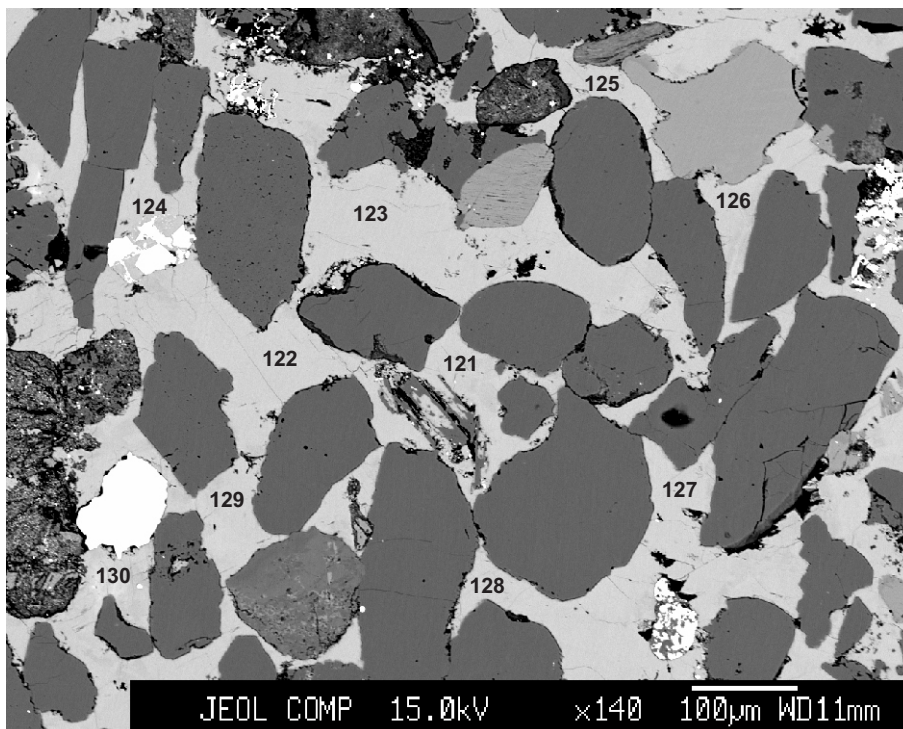
- 105: Fe-calcite
- 106: Fe-calcite
- 107: Fe-calcite
- 108: calcite
- 109: Fe-calcite
- 110: Fe-calcite
- 111: Fe-calcite
- 112: Fe-calcite
- 113: Fe-calcite

Figure 12: Panuke B-90-2099.69



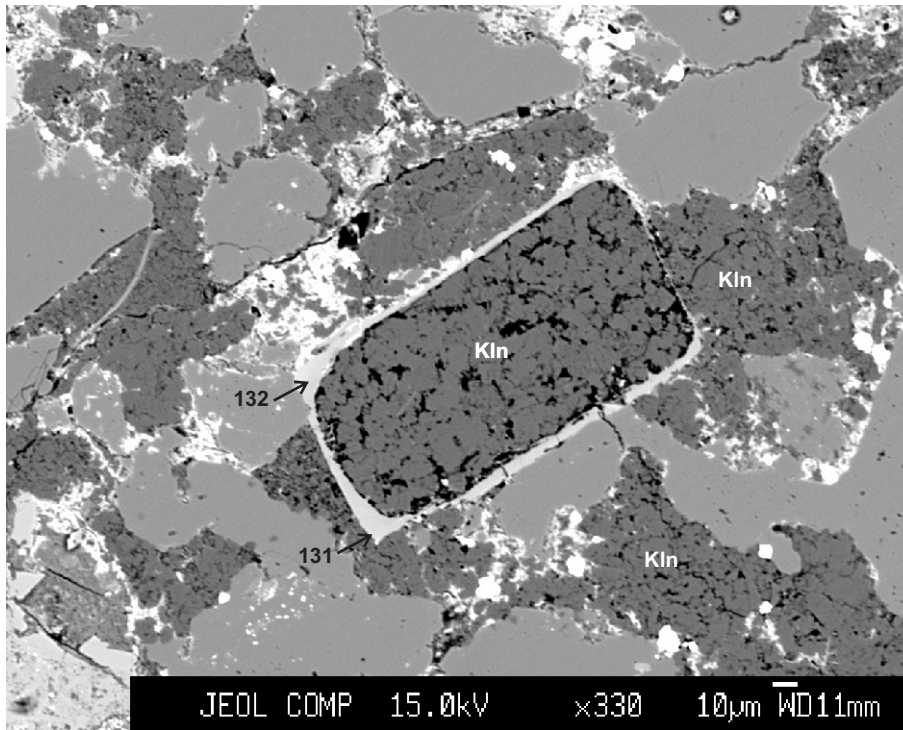
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite
- 119: Fe-calcite
- 120: ankerite

Figure 13: Panuke B-90-2099.69



- 121: Fe-calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: Fe-calcite
- 127: Fe-calcite
- 128: Fe-calcite
- 129: Fe-calcite
- 130: Fe-calcite

Figure 14: Panuke B-90-2099.69



131: K-feldspar  
115: K-feldspar

Figure 15: Panuke B-90-2107.7

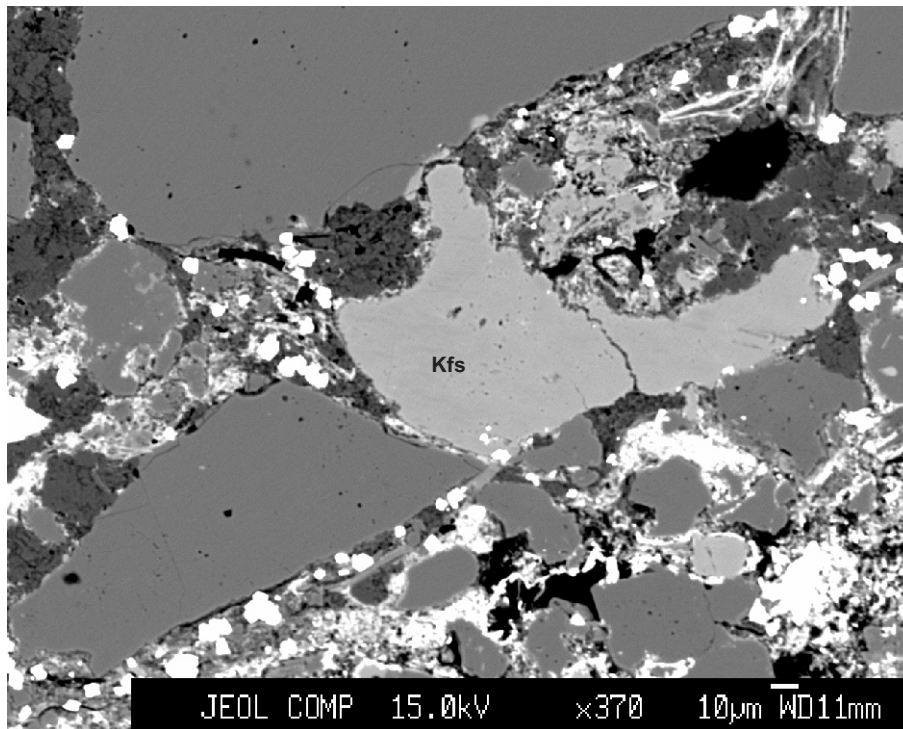
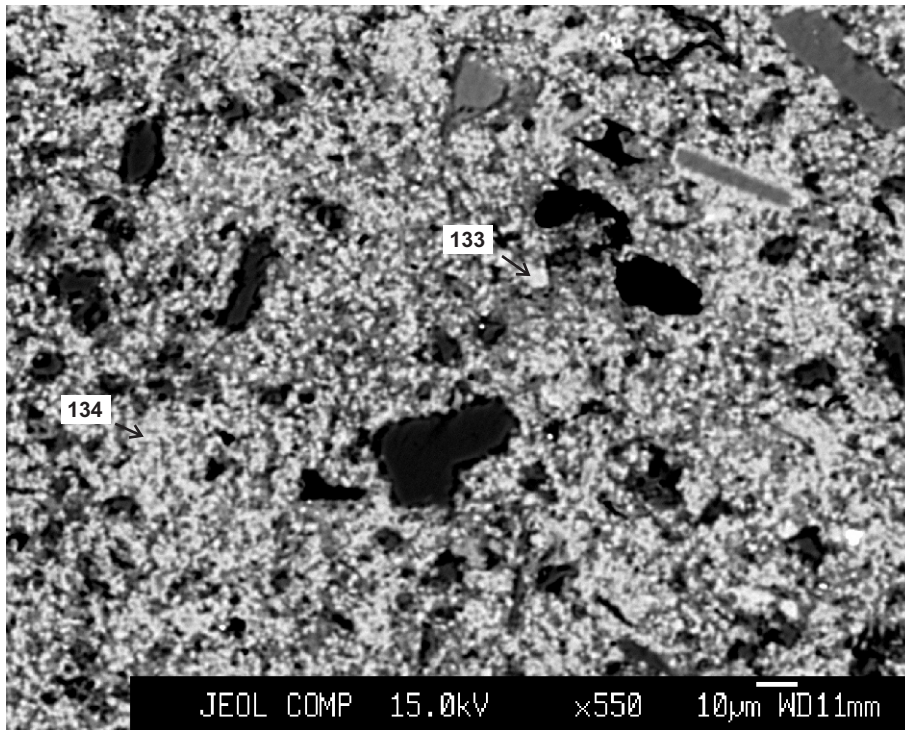
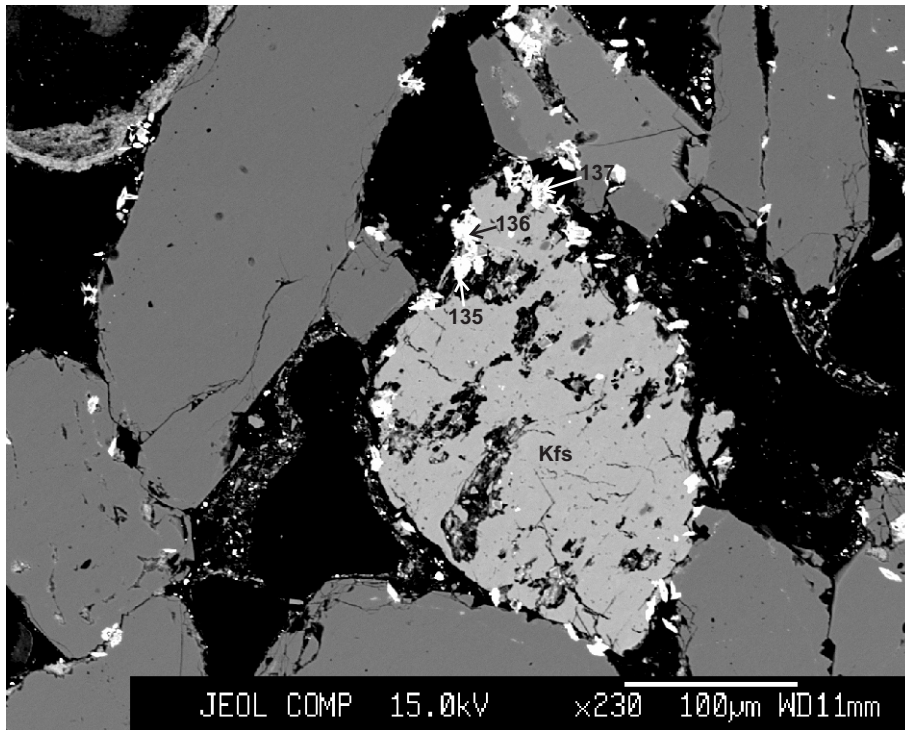


Figure 16: Panuke B-90-2107.7



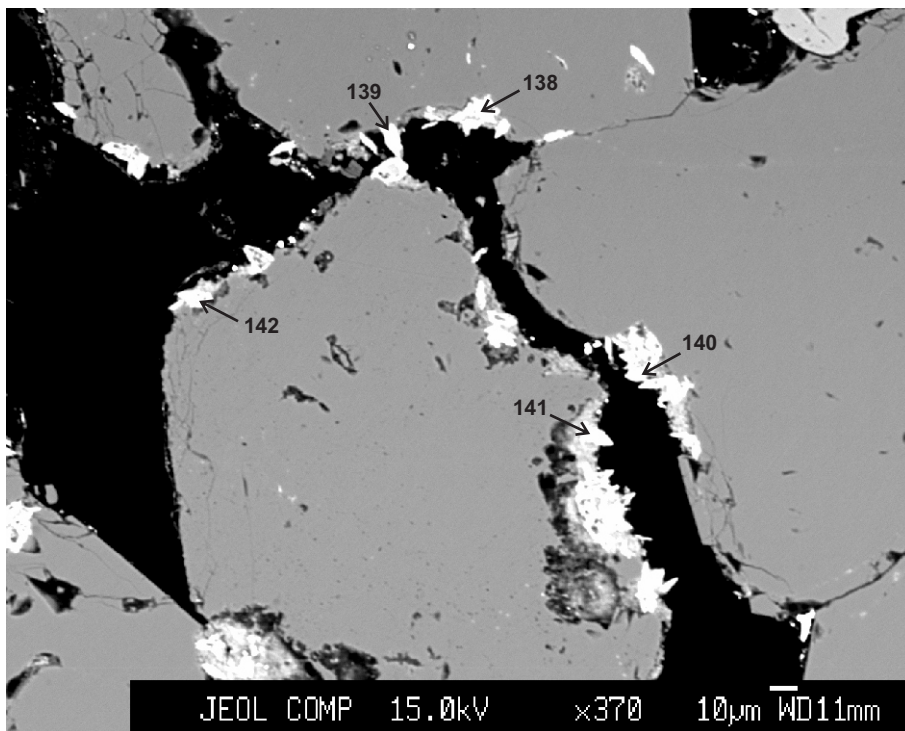
133: siderite  
134: siderite

Figure 17: Panuke B-90-2217.93



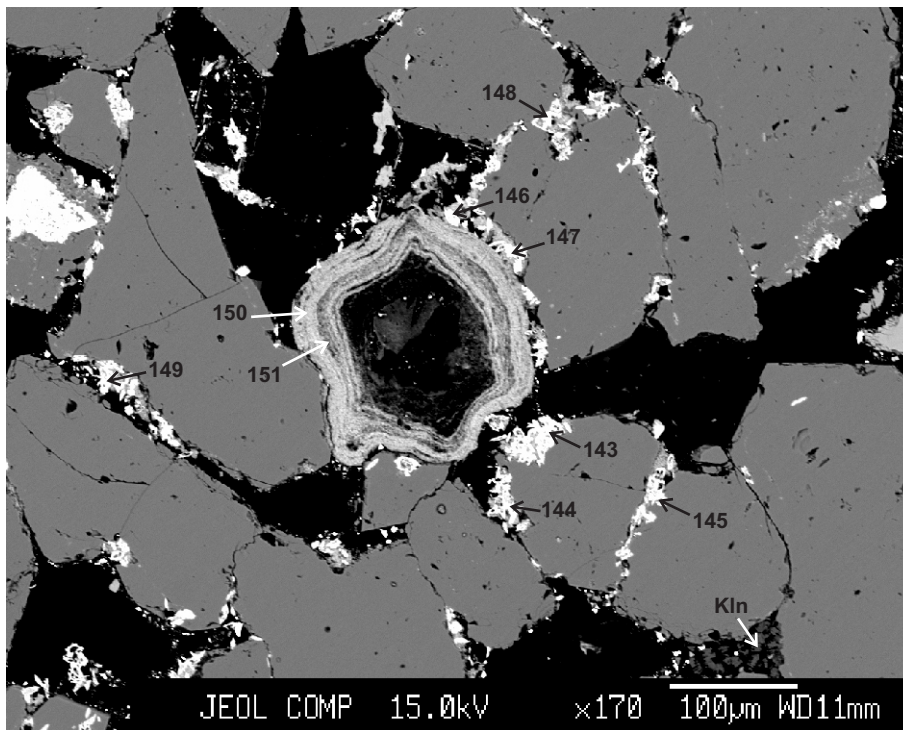
135: siderite  
 136: siderite  
 137: siderite

Figure 18: Panuke B-90-2223.78B



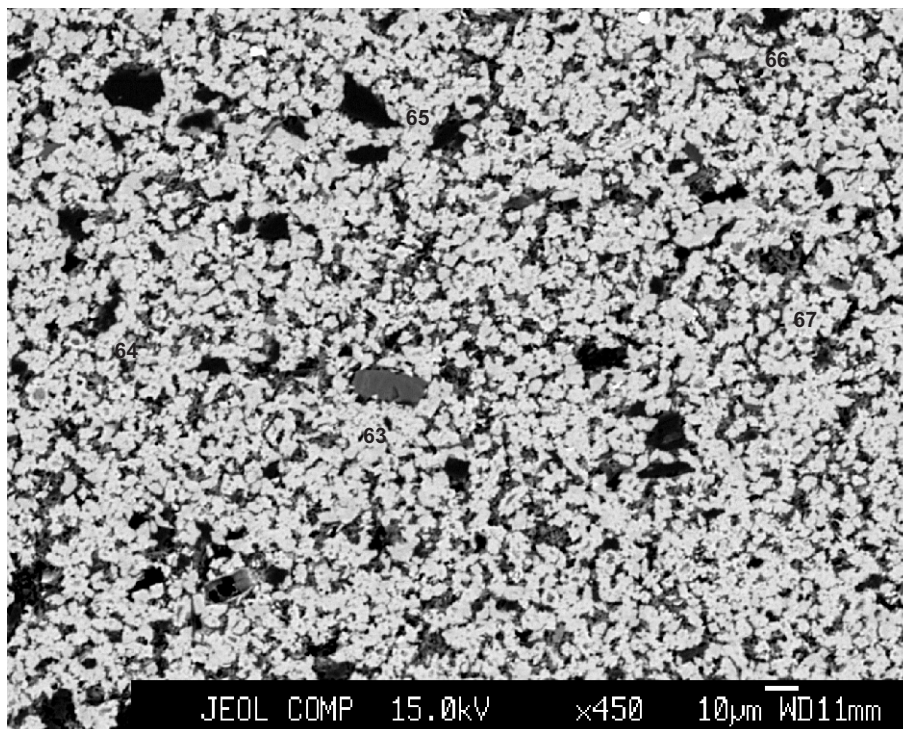
137: siderite  
 138: siderite  
 139: siderite  
 140: siderite  
 141: siderite  
 142: siderite

Figure 19: Panuke B-90-2223.78B



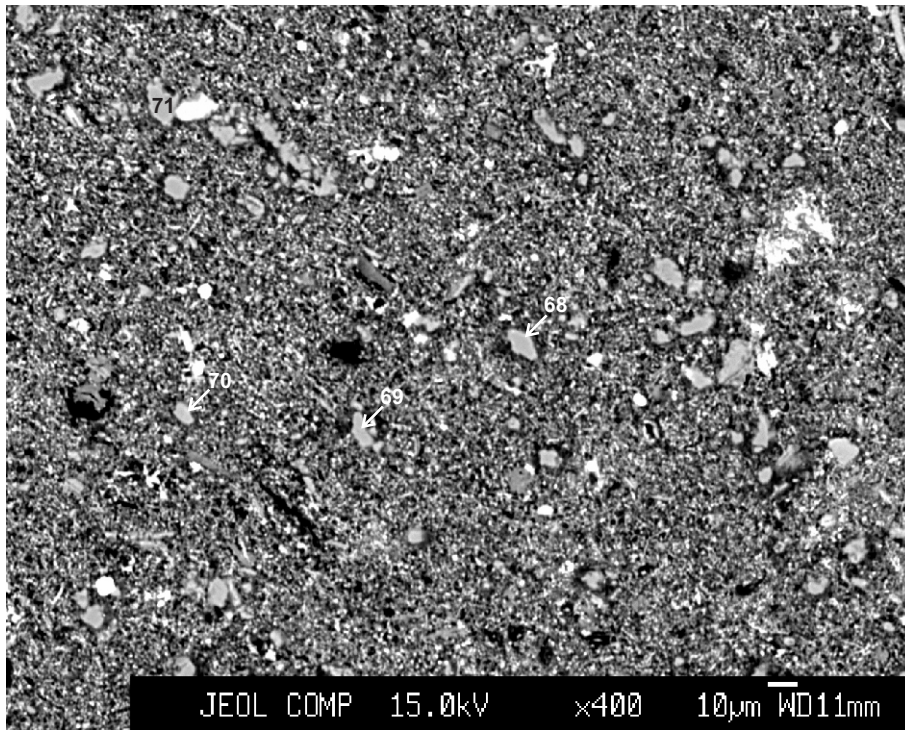
- 143: siderite
- 144: siderite
- 145: siderite
- 146: siderite
- 147: siderite
- 148: pseudorutile
- 149: siderite
- 150: chlorite
- 151: chlorite

Figure 20: Panuke B-90-2223.78B



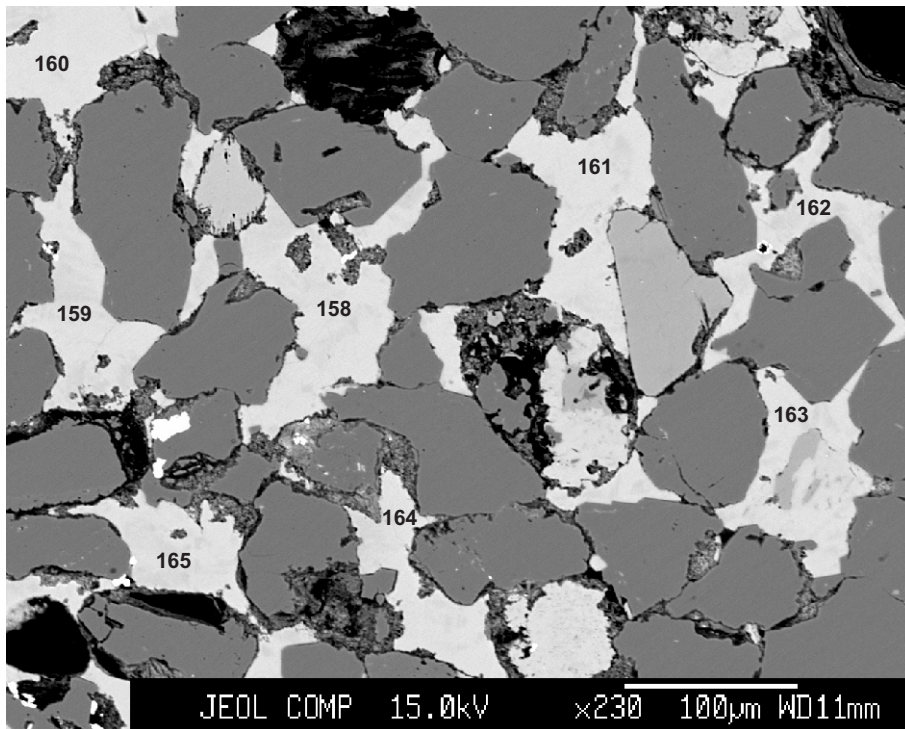
- 63: siderite
- 64: siderite
- 65: siderite
- 66: siderite
- 67: siderite

Figure 21: Panuke B-90-2242.47



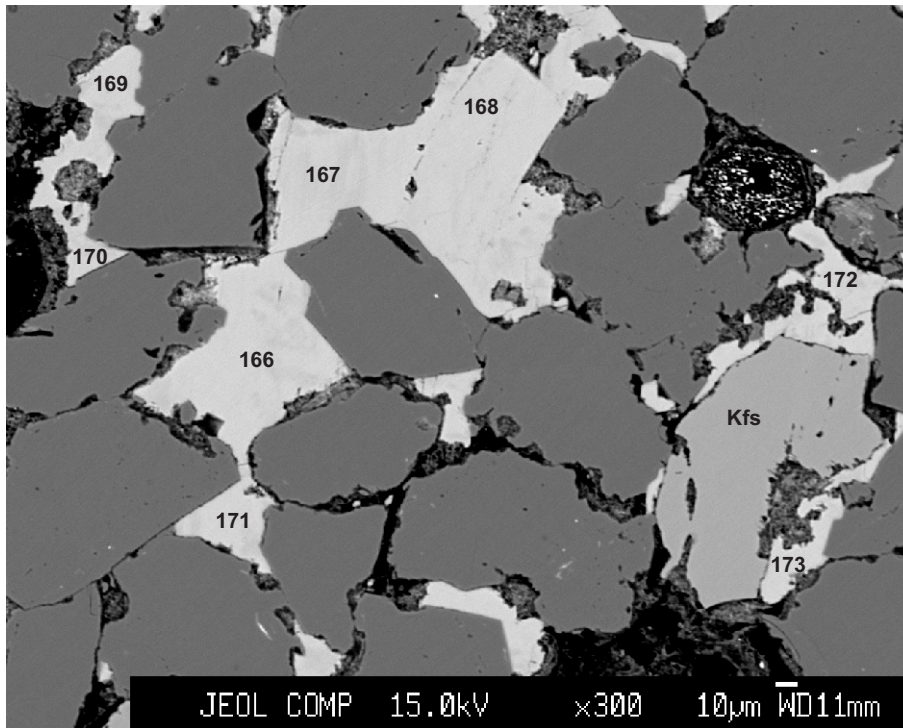
68: quartz  
 69: quartz  
 70: K-feldspar  
 71: quartz

Figure 22: Panuke B-90-2242.47



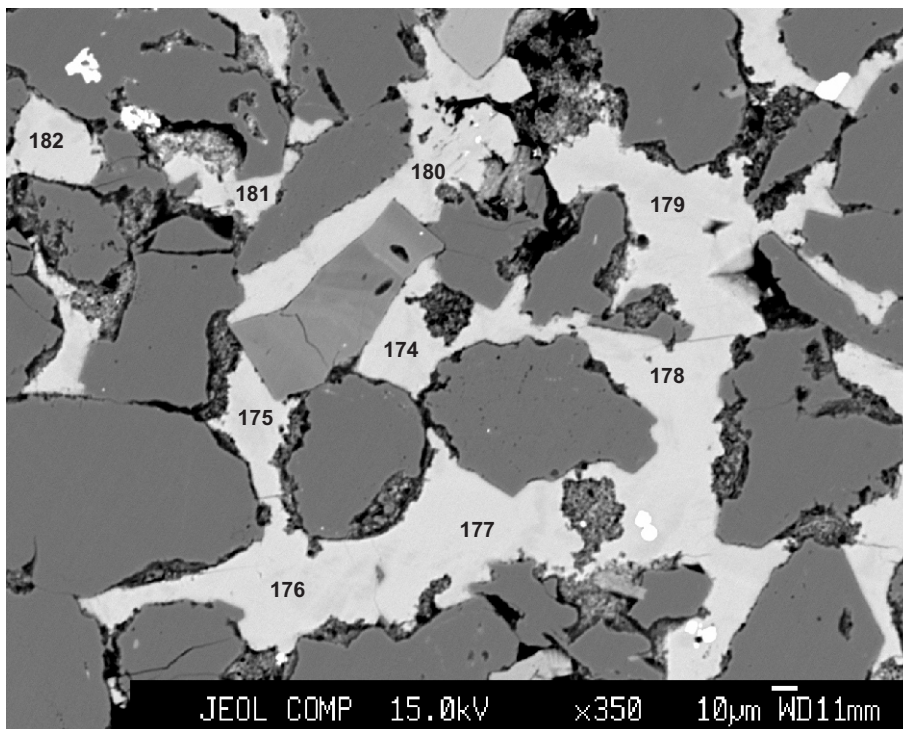
158: Fe-calcite  
 159: calcite  
 160: Fe-calcite  
 161: Fe-calcite  
 162: Fe-calcite  
 163: calcite  
 164: Fe-calcite  
 165: Fe-calcite

Figure 23: Panuke B-90-2281.68



- 166: calcite
- 167: Fe-calcite
- 168: Fe-calcite
- 169: Fe-calcite
- 170: Fe-calcite
- 171: Fe-calcite
- 172: Fe-calcite
- 173: Fe-calcite

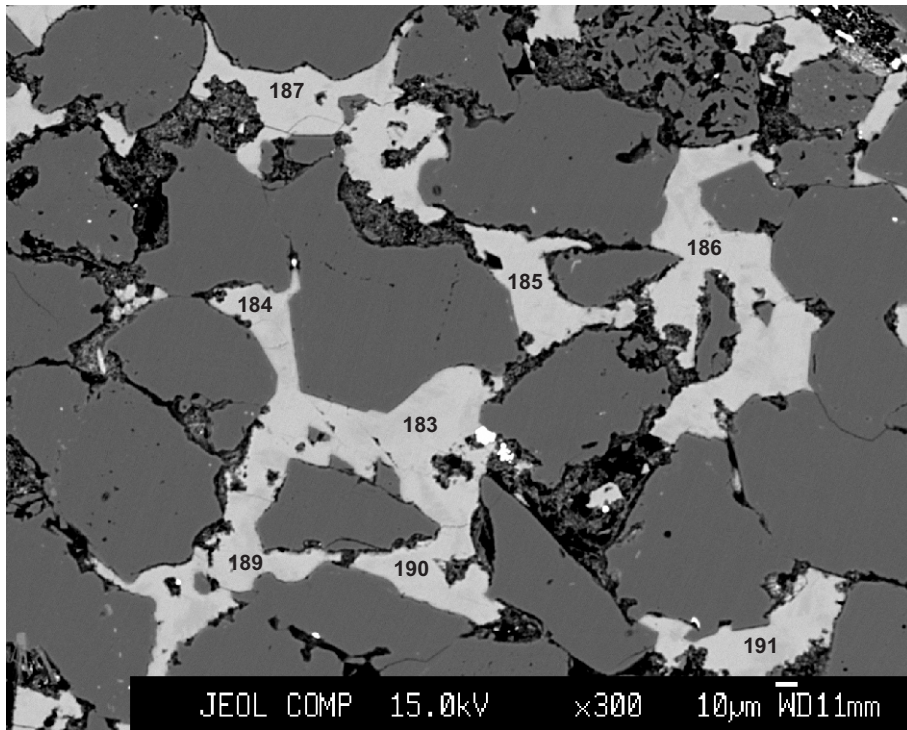
Figure 24: Panuke B-90-2281.68



- 174: Fe-calcite
- 175: calcite
- 176: Fe-calcite
- 177: Fe-calcite
- 178: Fe-calcite
- 179: calcite
- 180: calcite
- 181: Fe-calcite
- 182: Fe-calcite

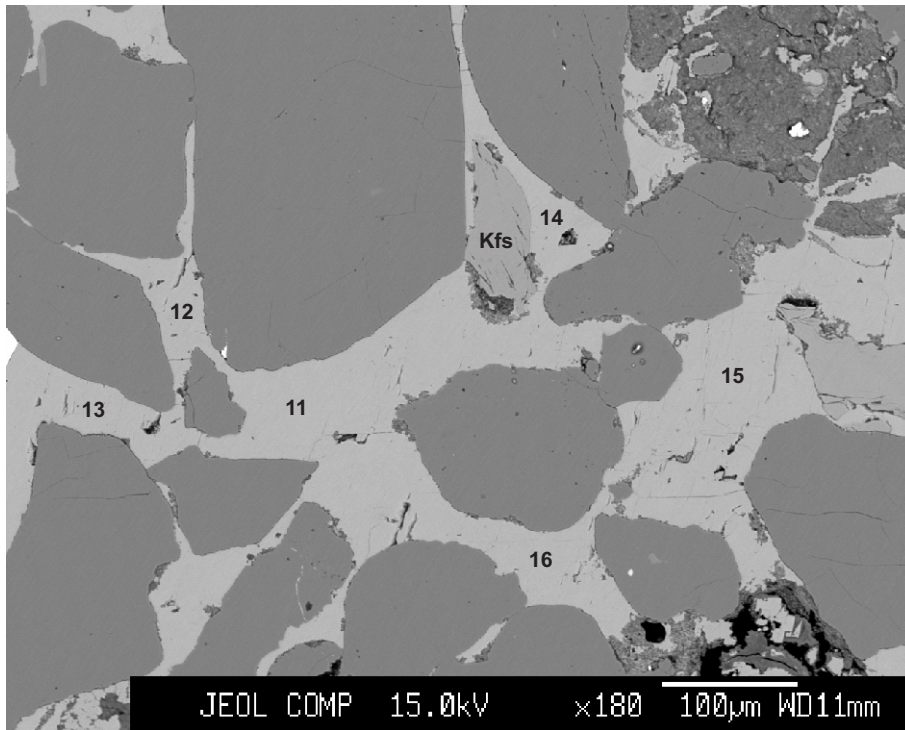
Figure 25: Panuke B-90-2281.68





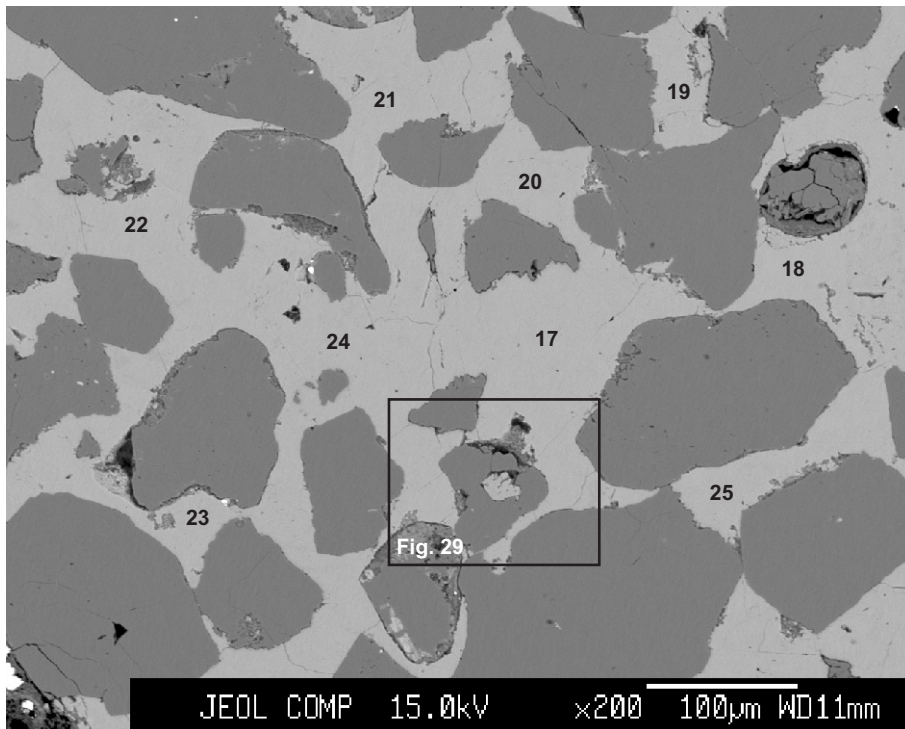
- 183: Fe-calcite
- 184: calcite
- 185: Fe-calcite
- 186: Fe-calcite
- 187: Fe-calcite
- 188: Fe-calcite
- 189: calcite
- 190: Fe-calcite
- 191: Fe-calcite

Figure 26: Panuke B-90-2281.68



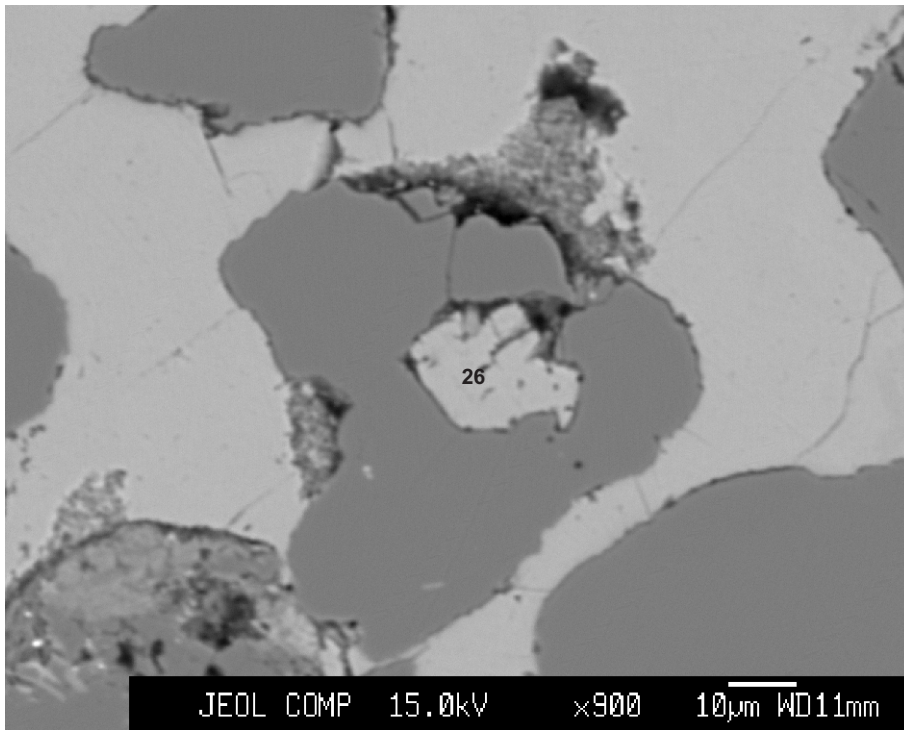
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite

Figure 27: Panuke B-90-2289.57



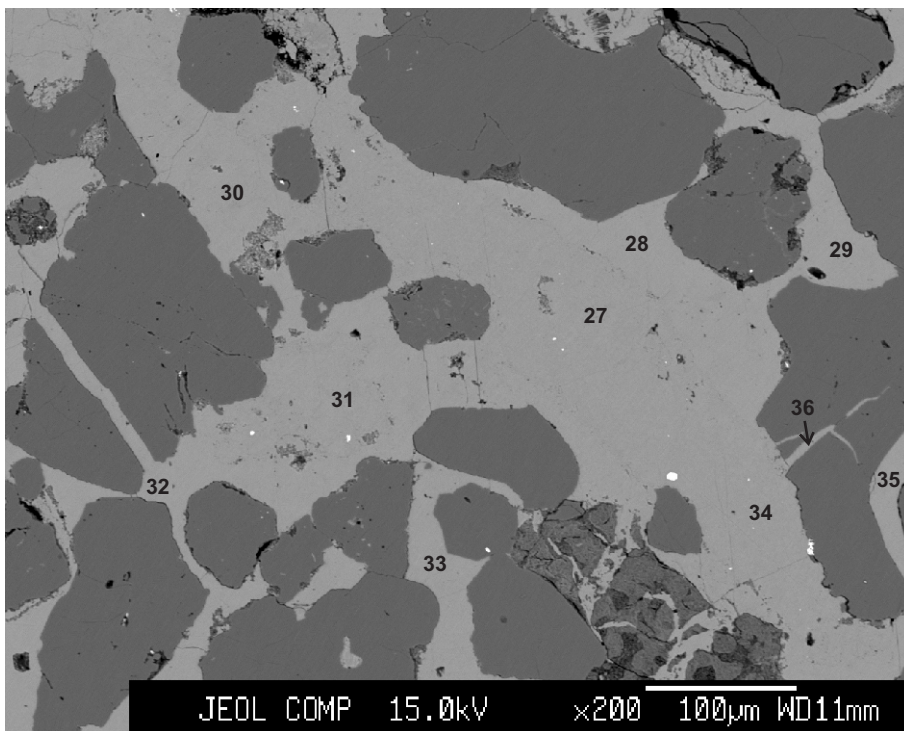
- 17: Fe-calcite
- 18: Fe-calcite
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite

Figure 28: Panuke B-90-2289.57



26: Fe-calcite

Figure 29: Panuke B-90-2289.57



27: Fe-calcite  
 28: Fe-calcite  
 29: Fe-calcite  
 30: Fe-calcite  
 31: Fe-calcite  
 32: Fe-calcite  
 33: Fe-calcite  
 34: Fe-calcite  
 35: Fe-calcite  
 36: Fe-calcite

Figure 30: Panuke B-90-2289.57

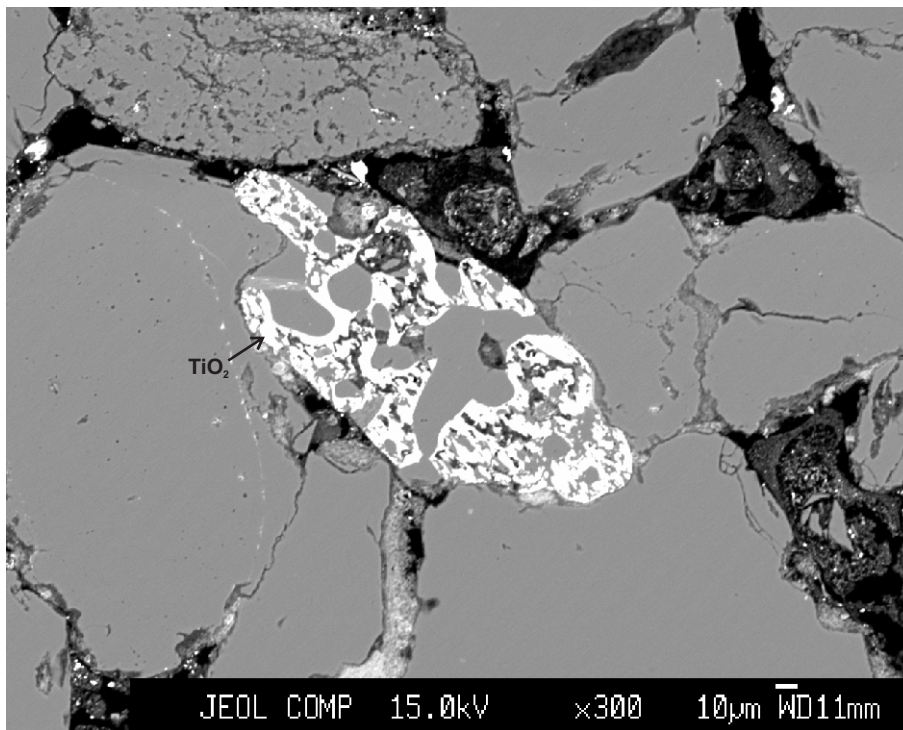
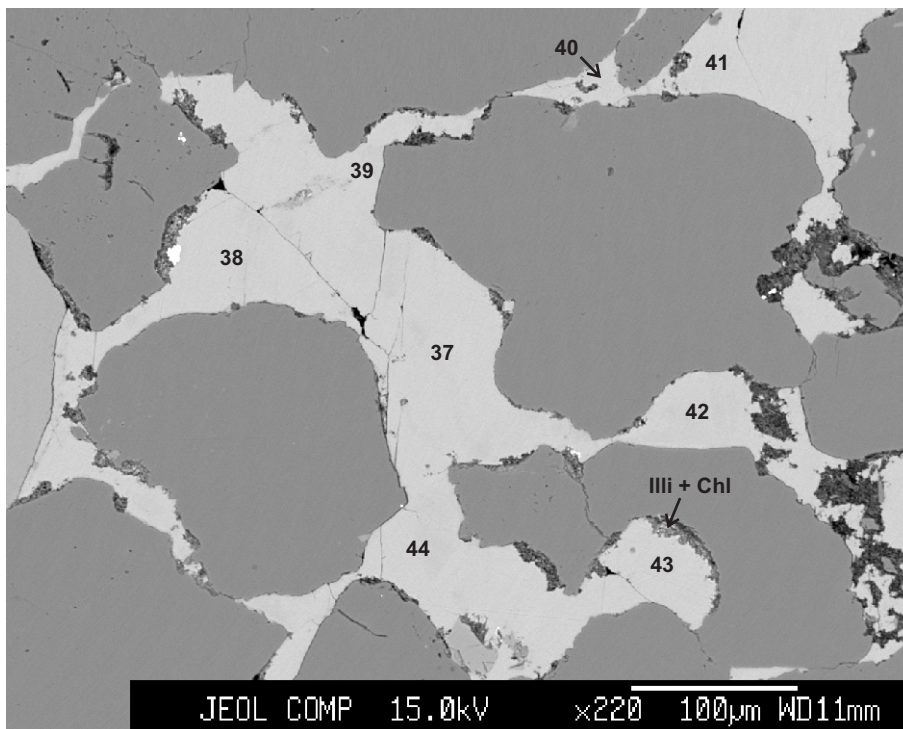
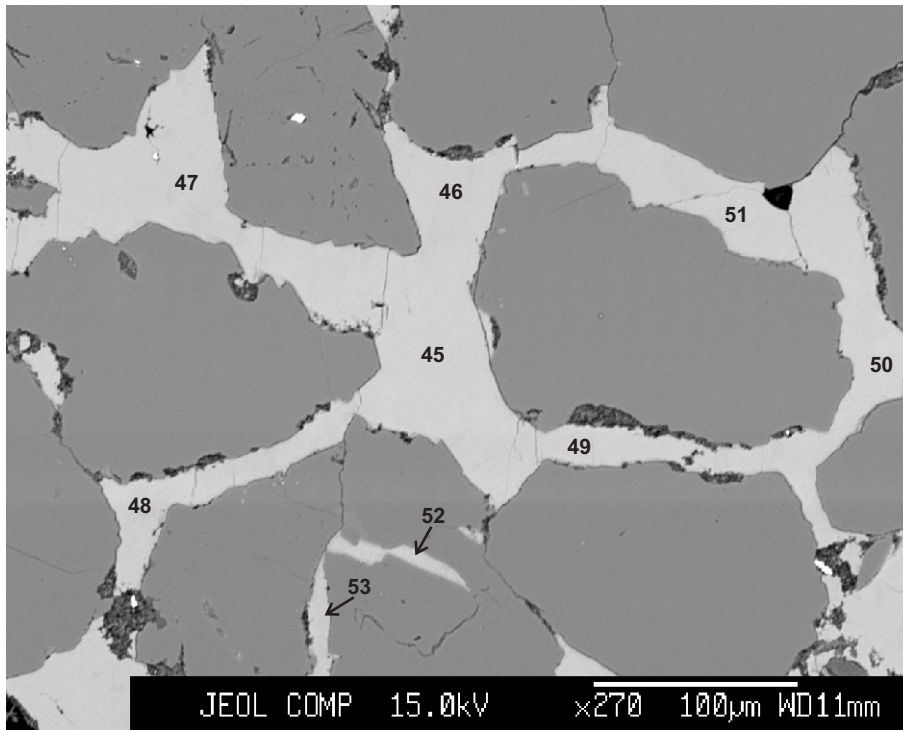


Figure 31: Panuke B-90-2291.26



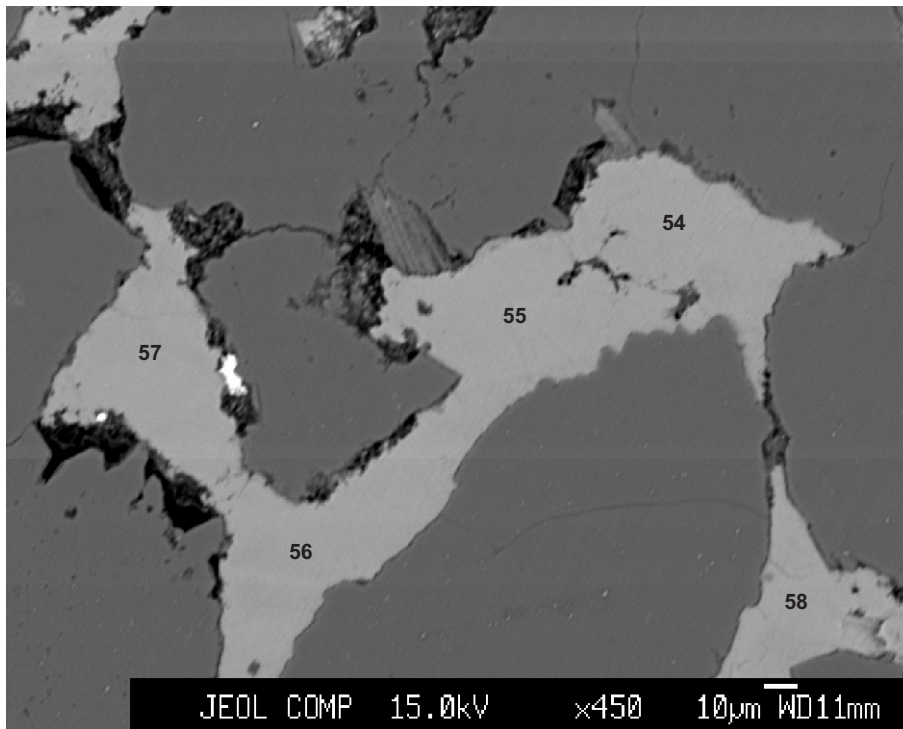
- 37: Fe-calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite
- 44: calcite

Figure 32: Panuke B-90-2292.85



- 45: Fe-calcite
- 46: Fe-calcite
- 47: Fe-calcite
- 48: calcite
- 49: Fe-calcite
- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite

Figure 33: Panuke B-90-2292.85



- 54: Fe-calcite
- 55: Fe-calcite
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite

Figure 34: Panuke B-90-2292.85

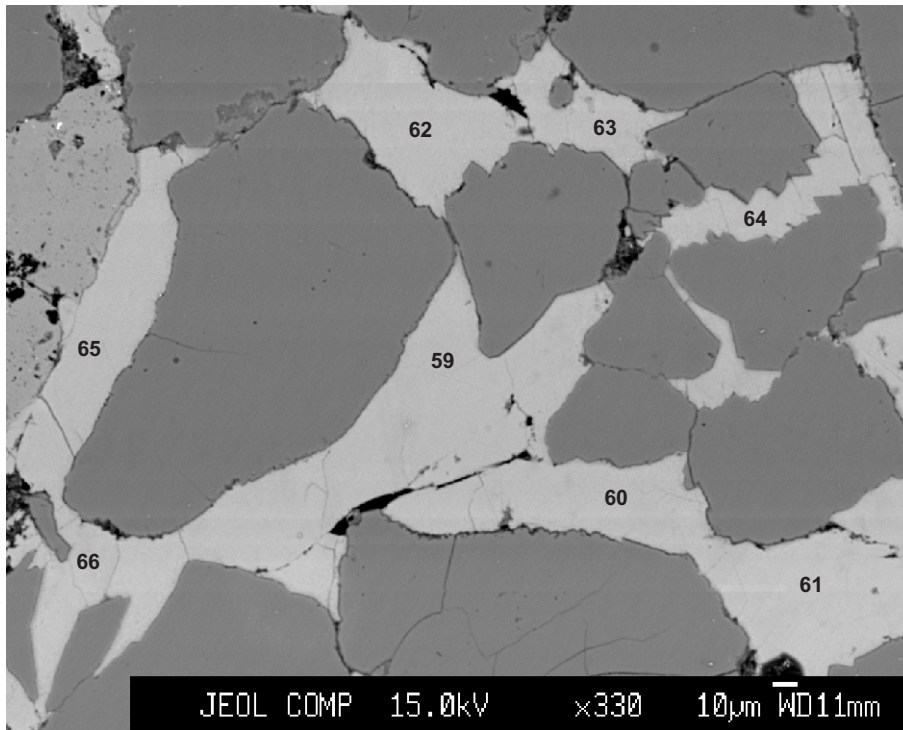


Figure 35: Panuke B-90-2292.85

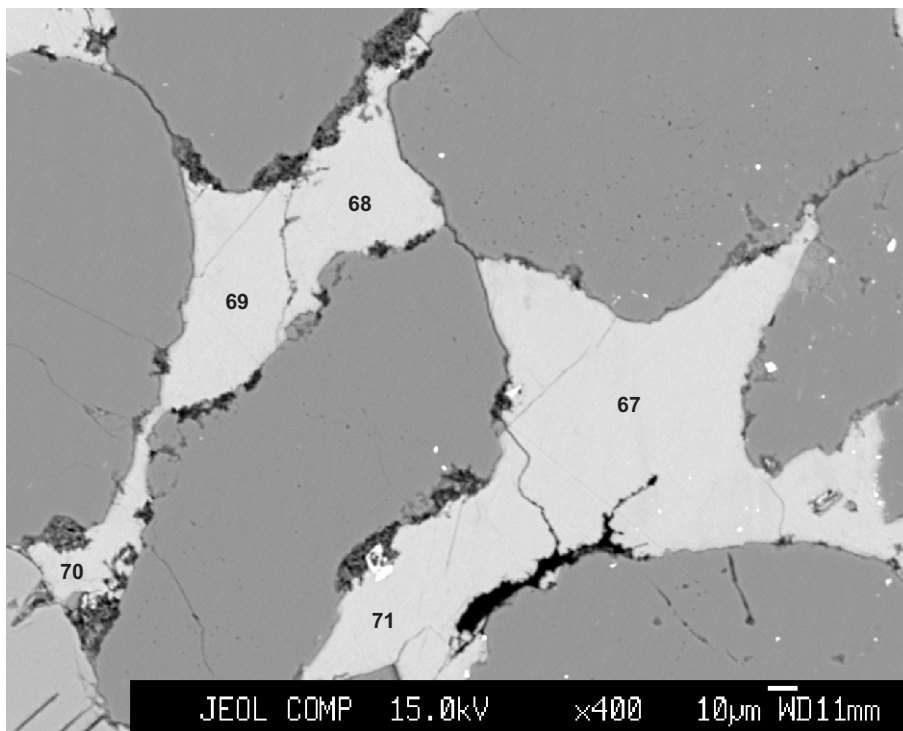


Figure 36: Panuke B-90-2292.85

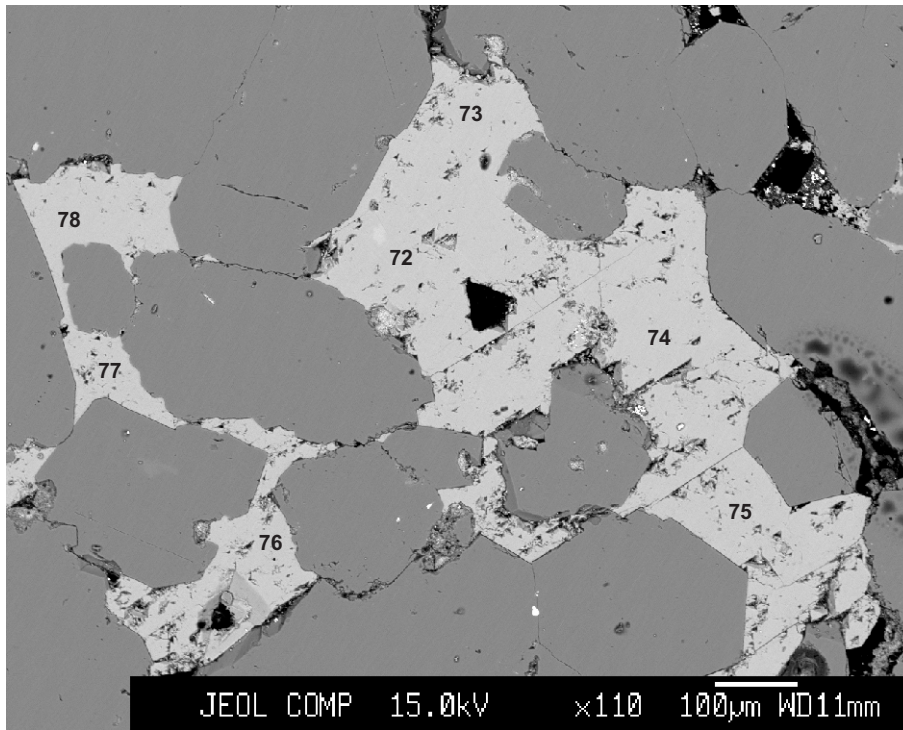


Figure 37: Panuke B-90-2320.51

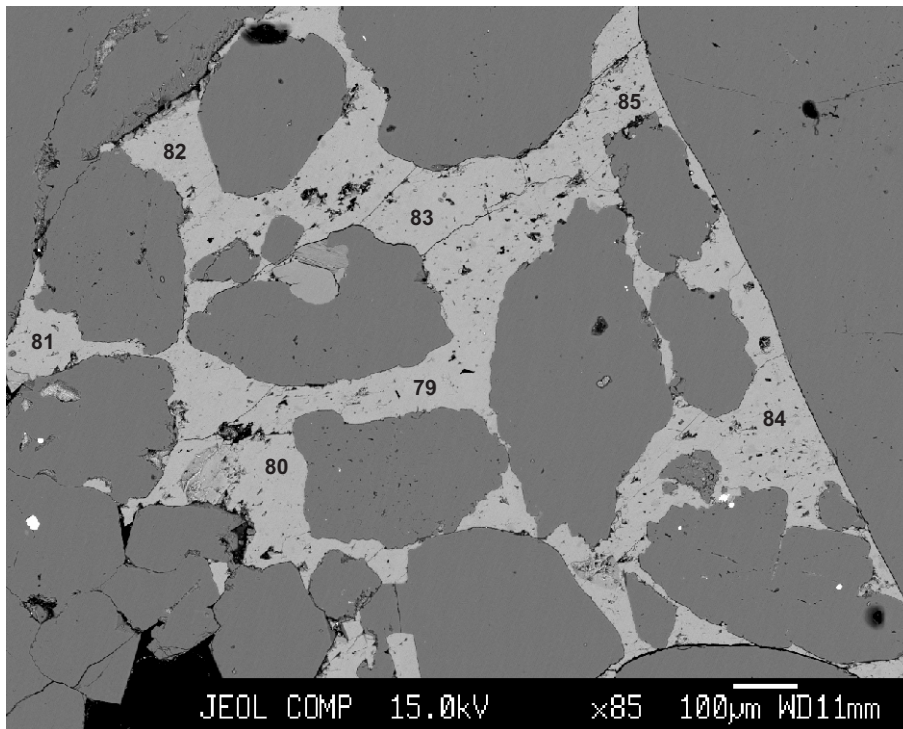
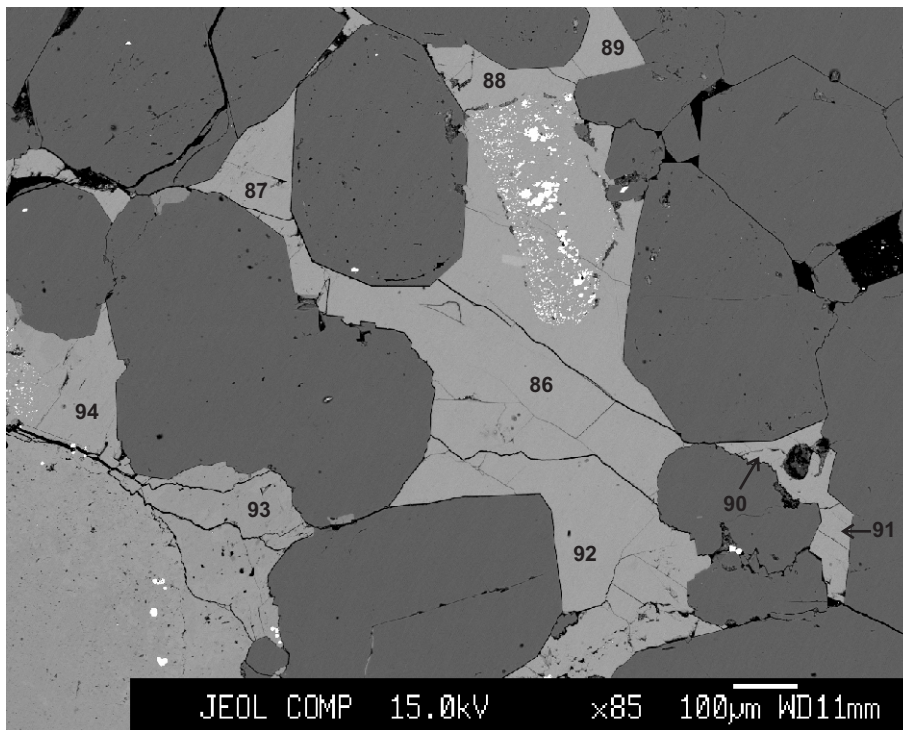
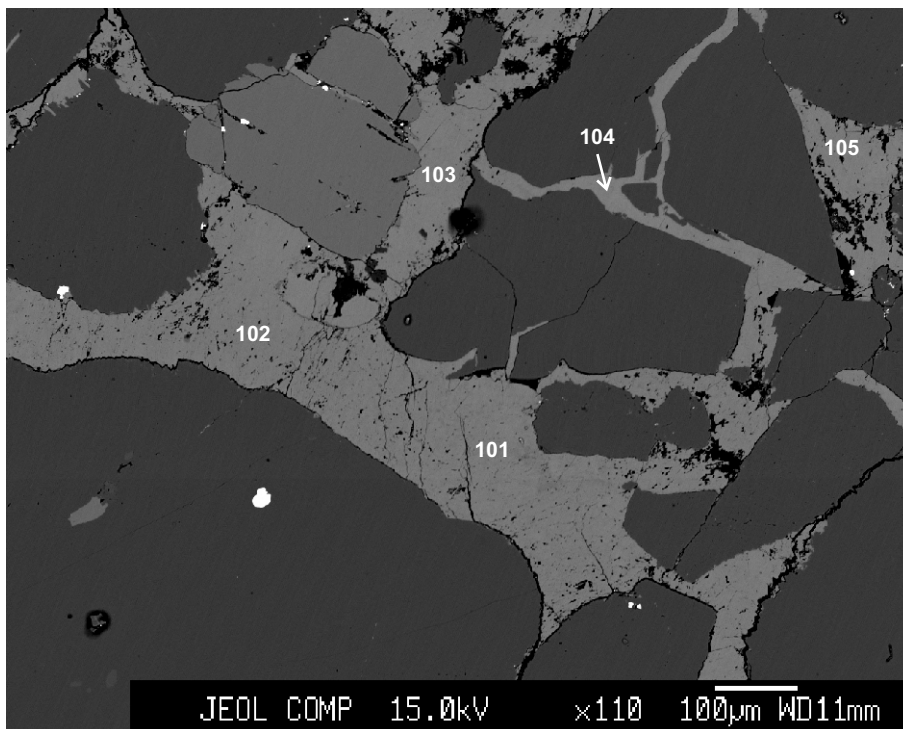


Figure 38: Panuke B-90-2320.51



- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite

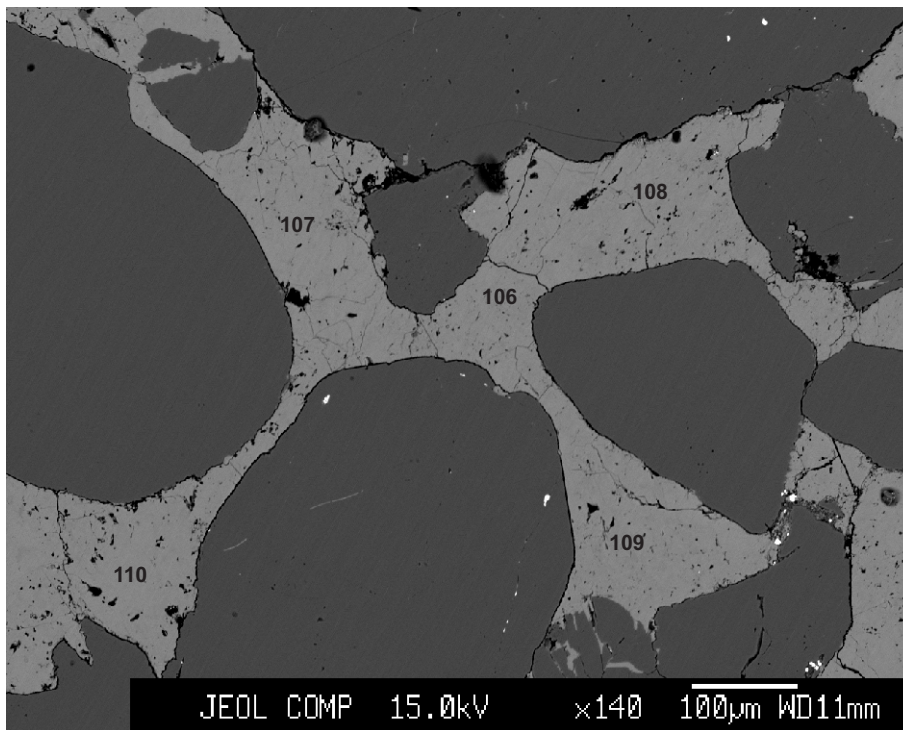
Figure 39: Panuke B-90-2320.51



- 101: Fe-calcite
- 102: Fe-calcite
- 103: calcite
- 104: Fe-calcite
- 105: Fe-calcite

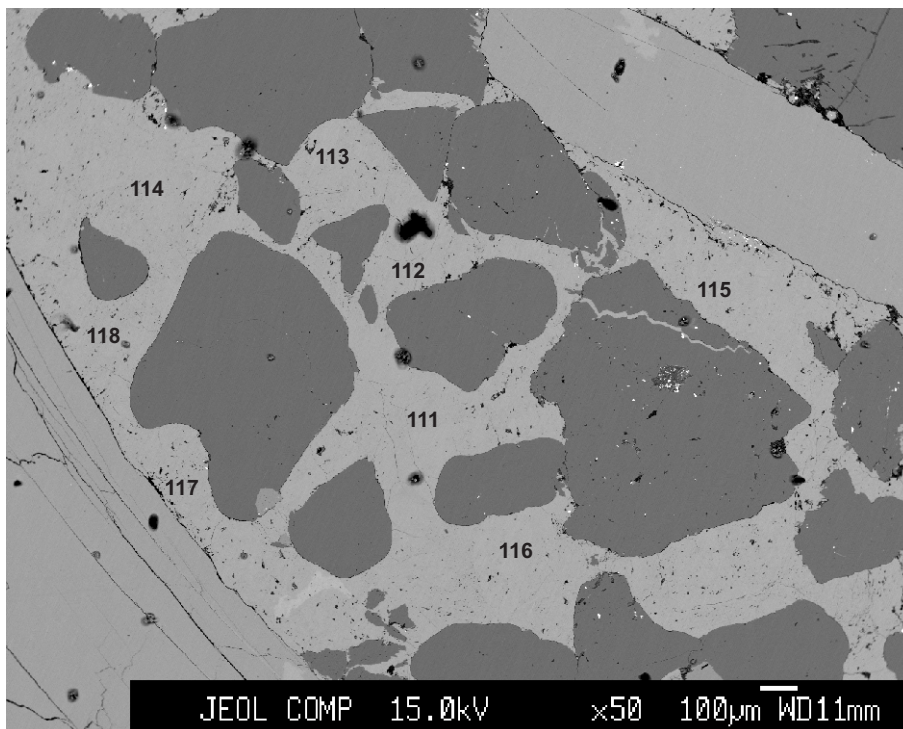
Figure 40: Panuke B-90-2379.2





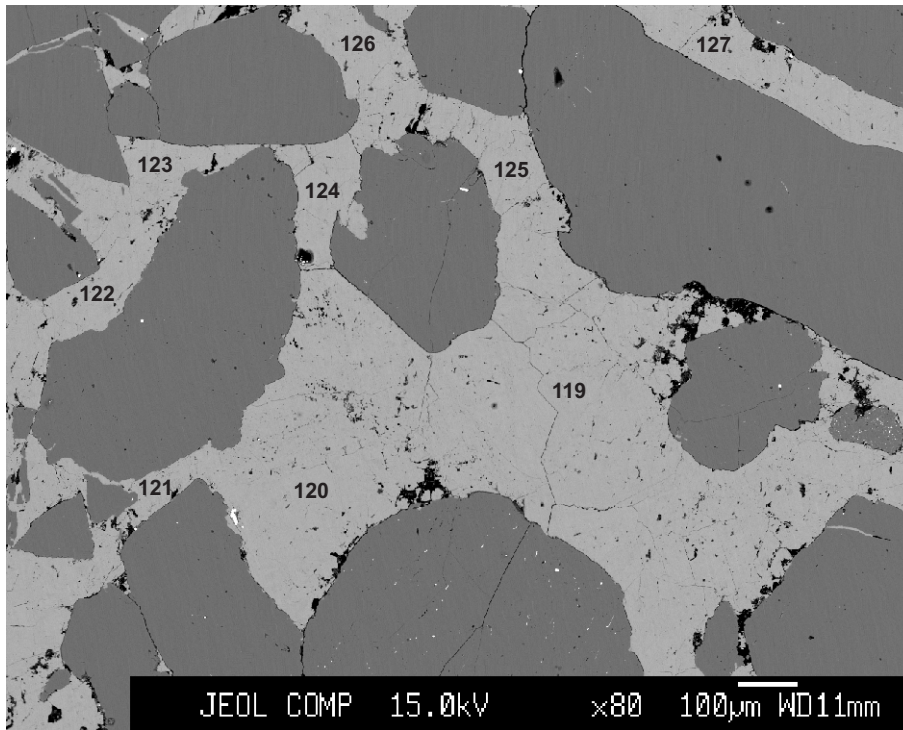
- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

Figure 41: Panuke B-90-2379.2



- 111: Fe-calcite
- 112: calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite

Figure 42: Panuke B-90-2379.2



- 119: calcite
- 120: calcite
- 121: calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: calcite
- 127: Fe-calcite

Figure 43: Panuke B-90-2379.2

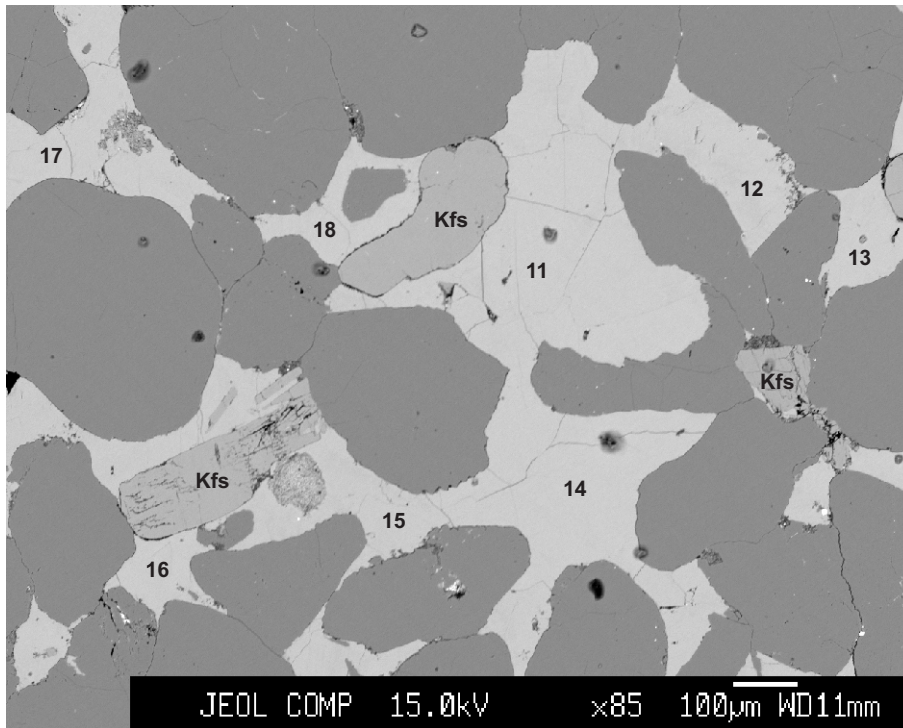


Figure 44: Panuke B-90-2393.92

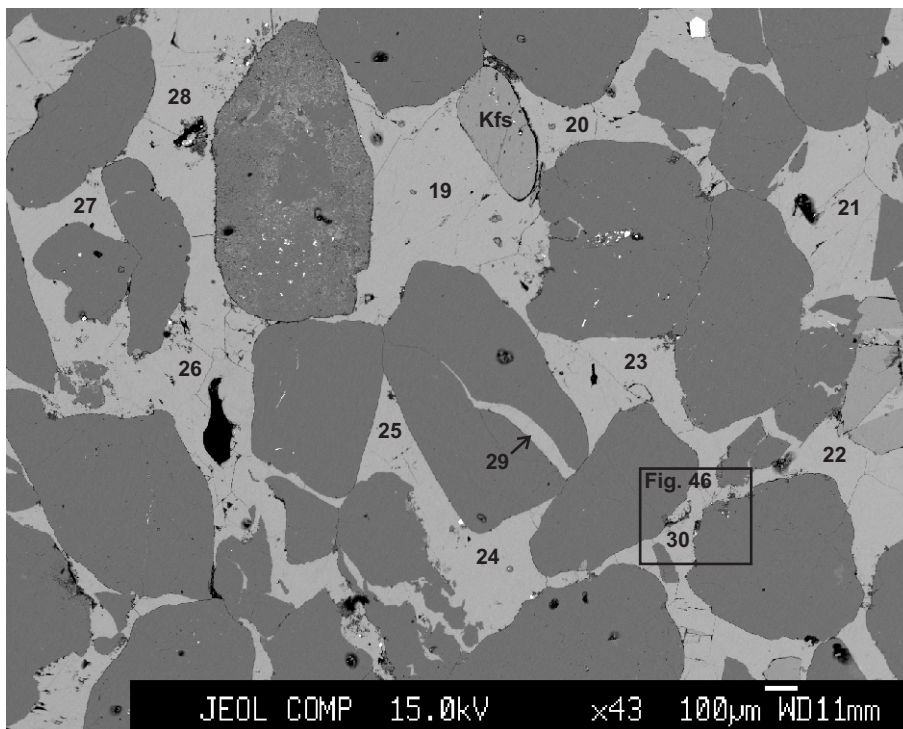
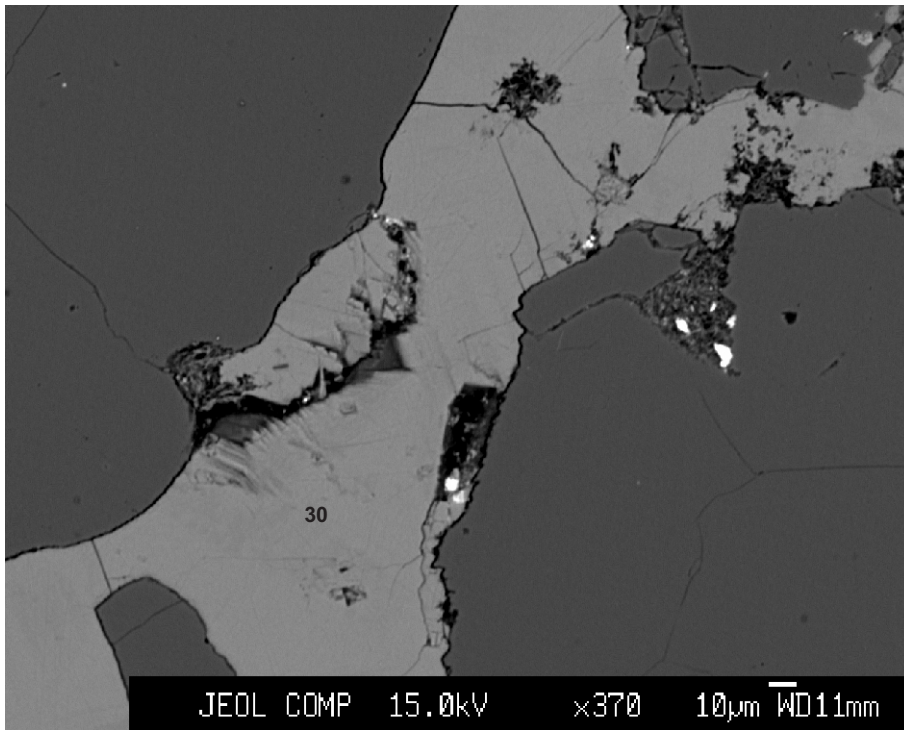
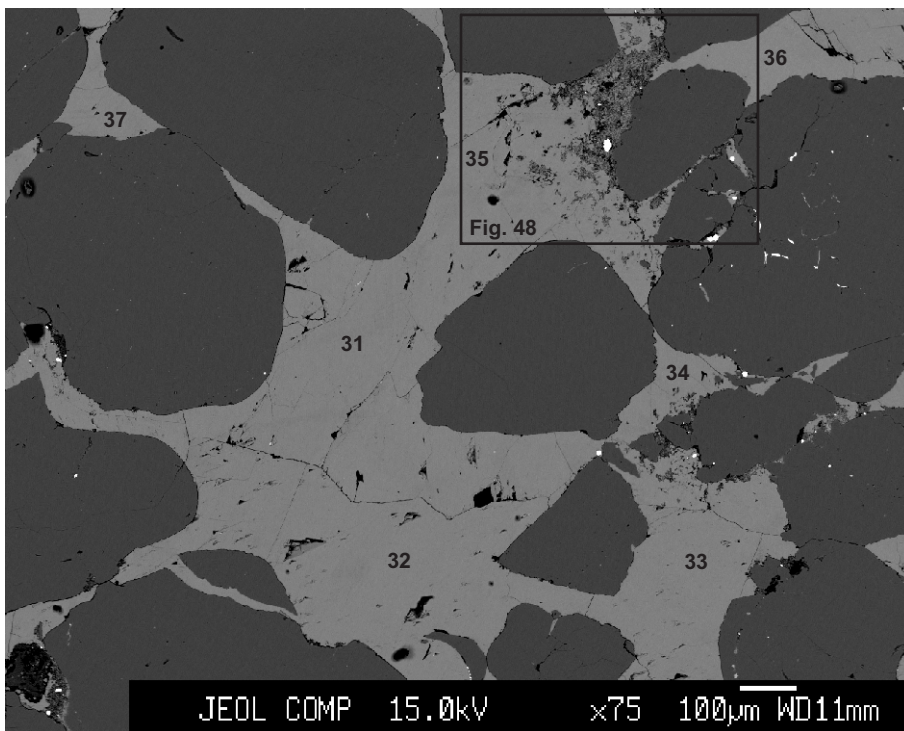


Figure 45: Panuke B-90-2393.92



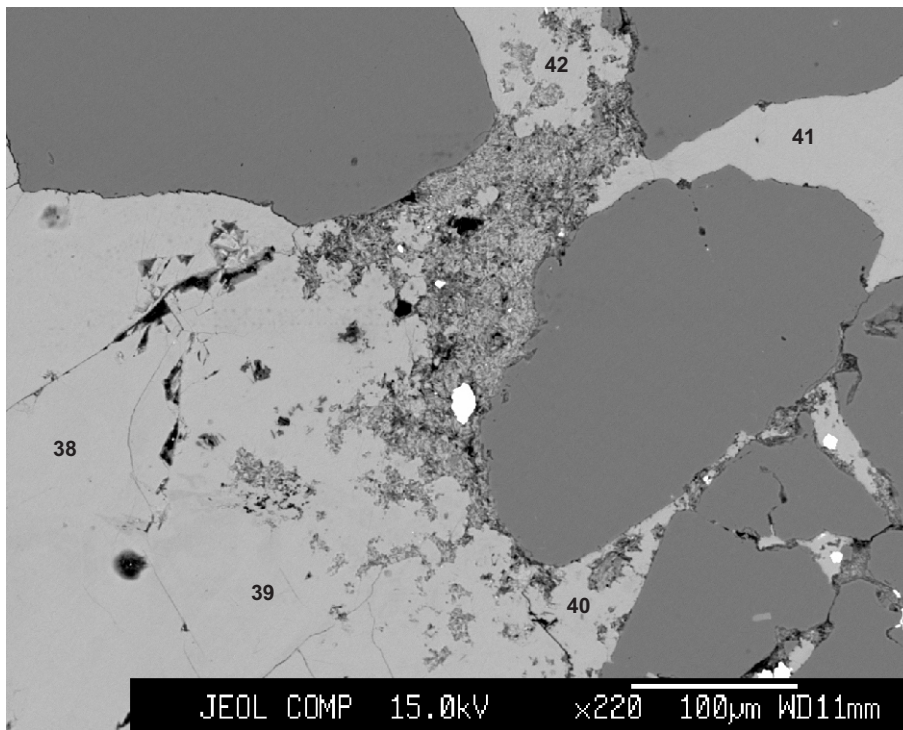
30: calcite

Figure 46: Panuke B-90-2393.92



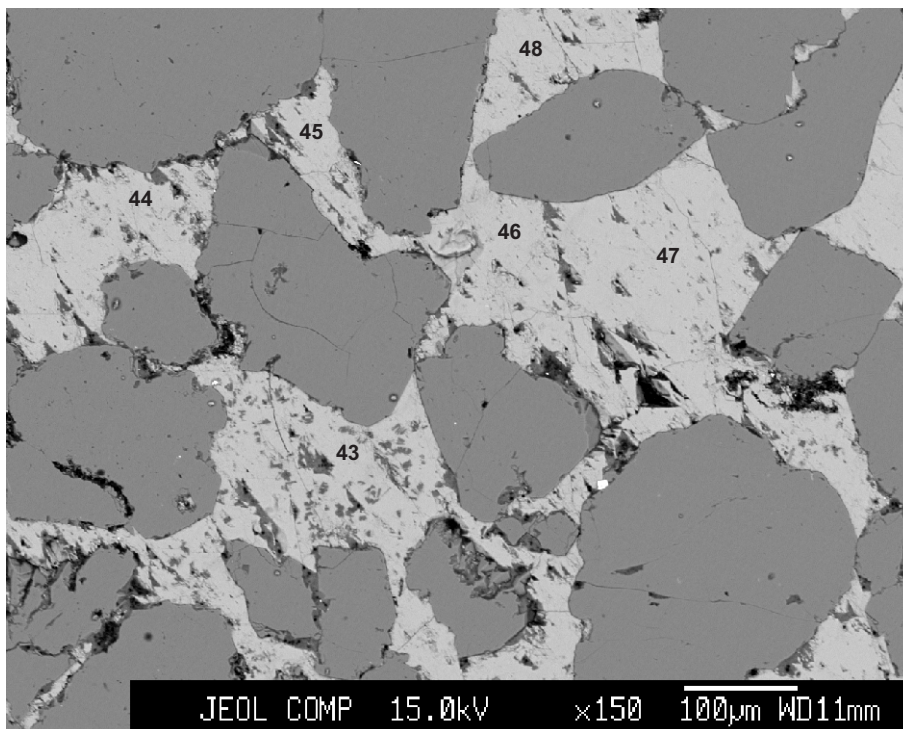
31: Fe-calcite  
 32: Fe-calcite  
 33: Fe-calcite  
 34: Fe-calcite  
 35: Fe-calcite  
 36: calcite  
 37: Fe-calcite

Figure 47: Panuke B-90-2393.92



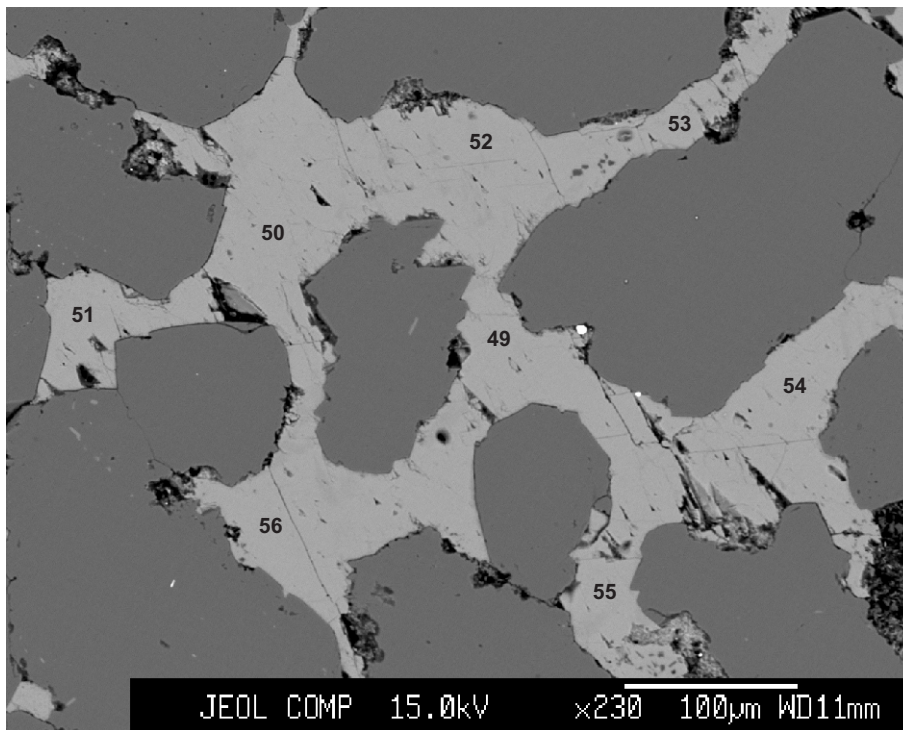
- 38: calcite
- 39: calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: calcite

Figure 48: Panuke B-90-2393.92



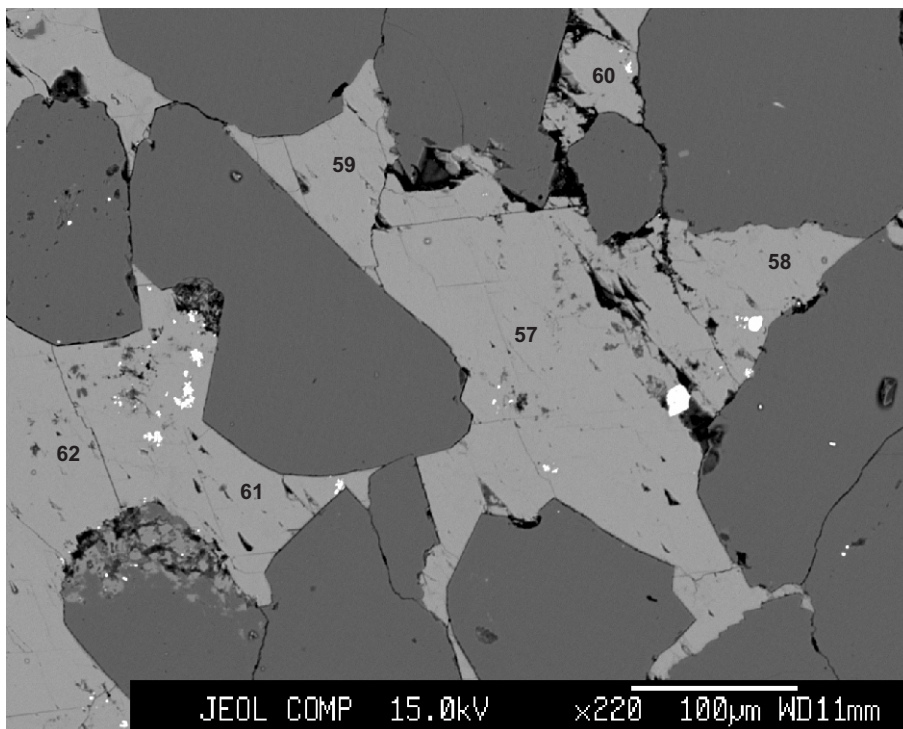
- 43: Fe-calcite
- 44: Fe-calcite
- 45: Fe-calcite
- 46: calcite
- 47: Fe-calcite
- 48: Fe-calcite

Figure 49: Panuke B-90-2403.21



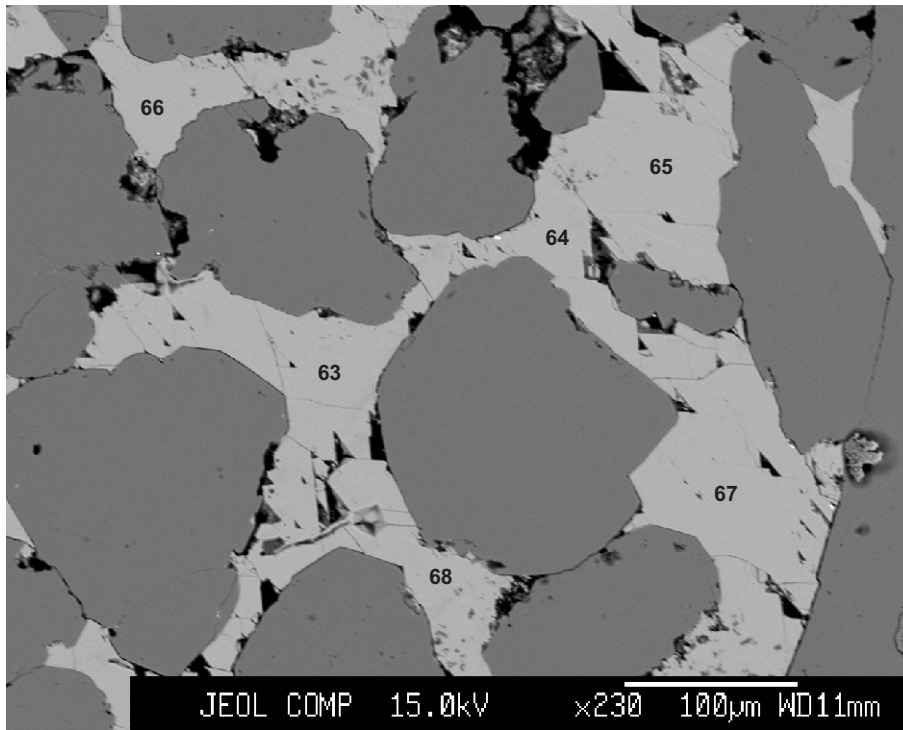
- 49: Fe-calcite
- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite
- 56: Fe-calcite

Figure 50: Panuke B-90-2403.21



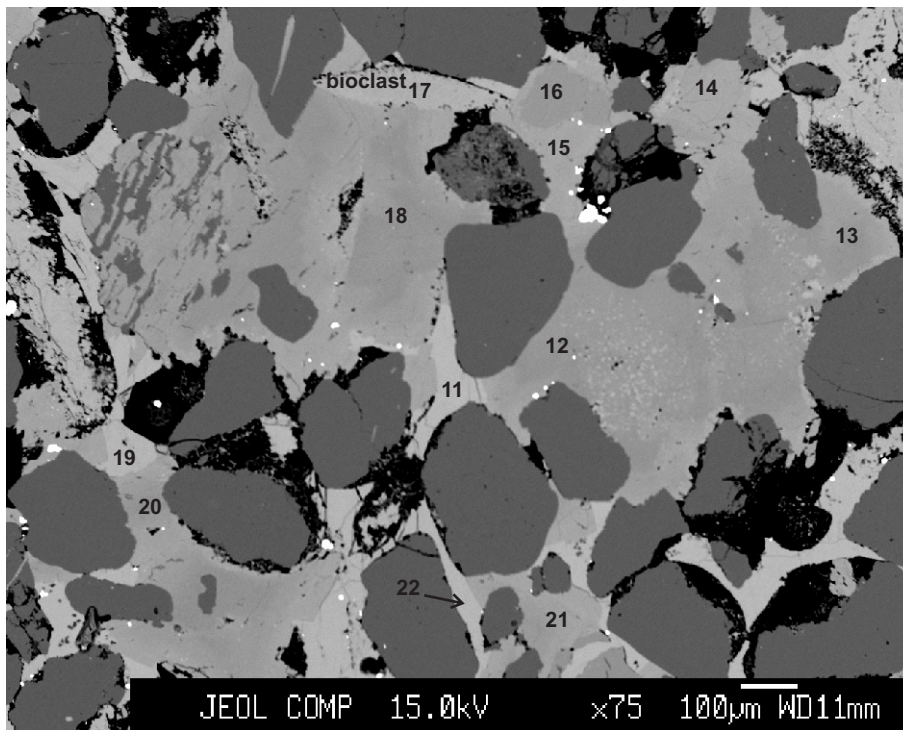
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite
- 62: Fe-calcite

Figure 51: Panuke B-90-2403.21



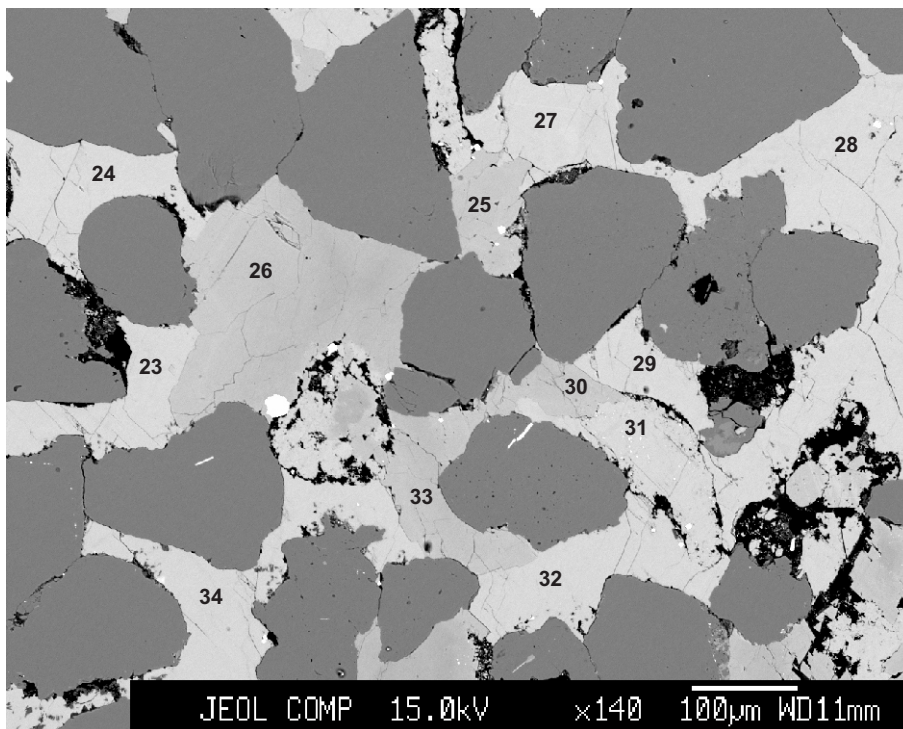
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: Fe-calcite
- 68: Fe-calcite

Figure 52: Panuke B-90-2403.21



- 11: Fe-calcite
- 12: ankerite
- 13: ankerite
- 14: ankerite
- 15: ankerite
- 16: K-feldspar
- 17: calcite (bioclast)
- 18: ankerite
- 19: Fe-calcite
- 20: ankerite
- 21: ankerite
- 22: Fe-calcite

Figure 53: Panuke B-90-2413.05



- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: ankerite
- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: ankerite
- 31: Fe-calcite
- 32: Fe-clcite
- 33: ankerite
- 34: Fe-calcite

Figure 54: Panuke B-90-2413.05



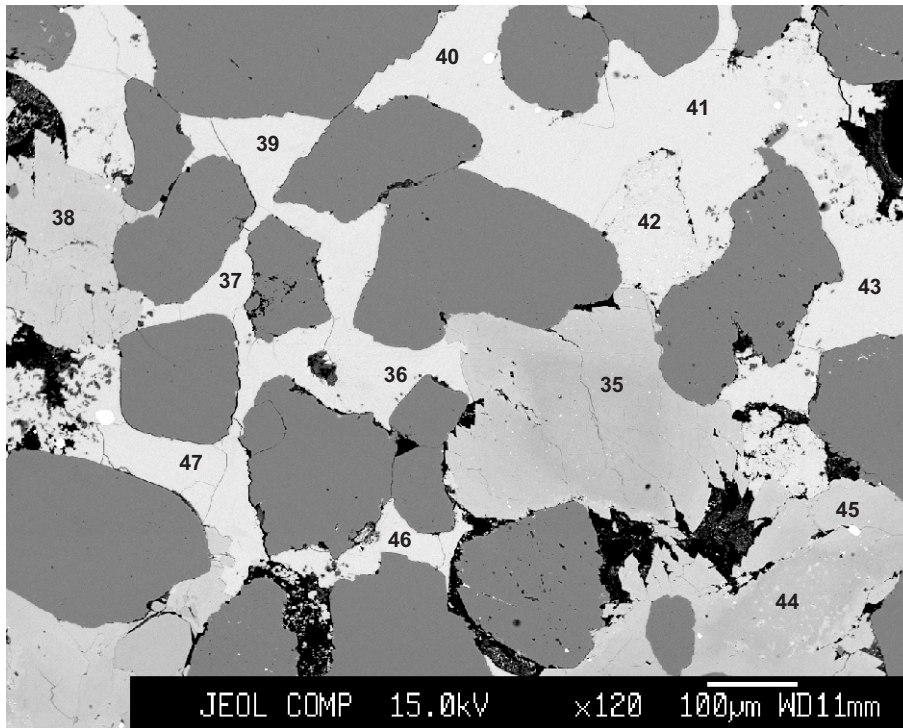


Figure 55: Panuke B-90-2413.05

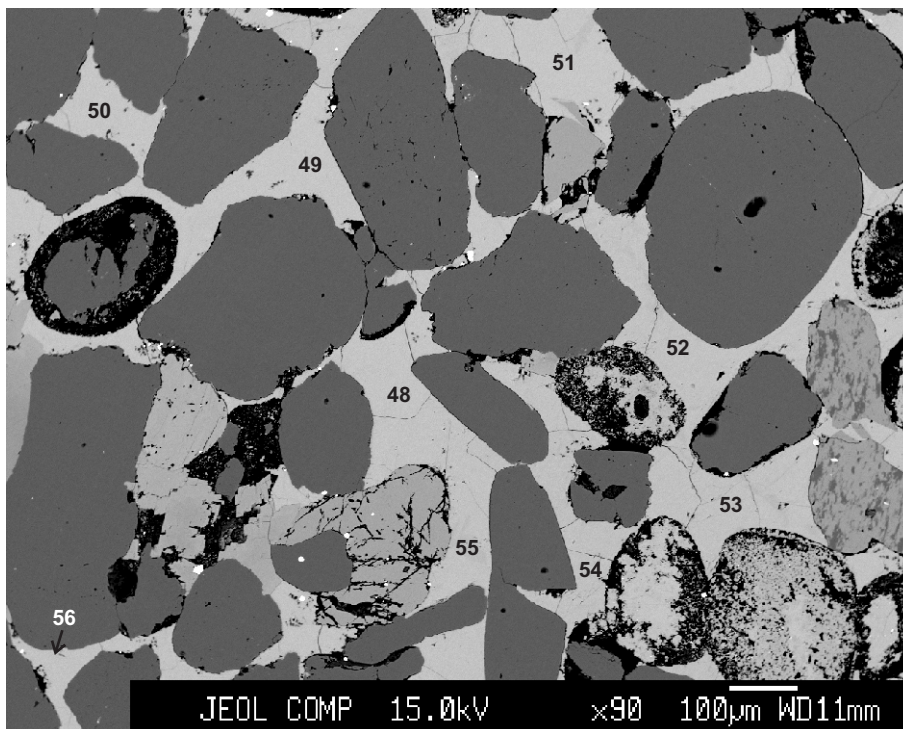
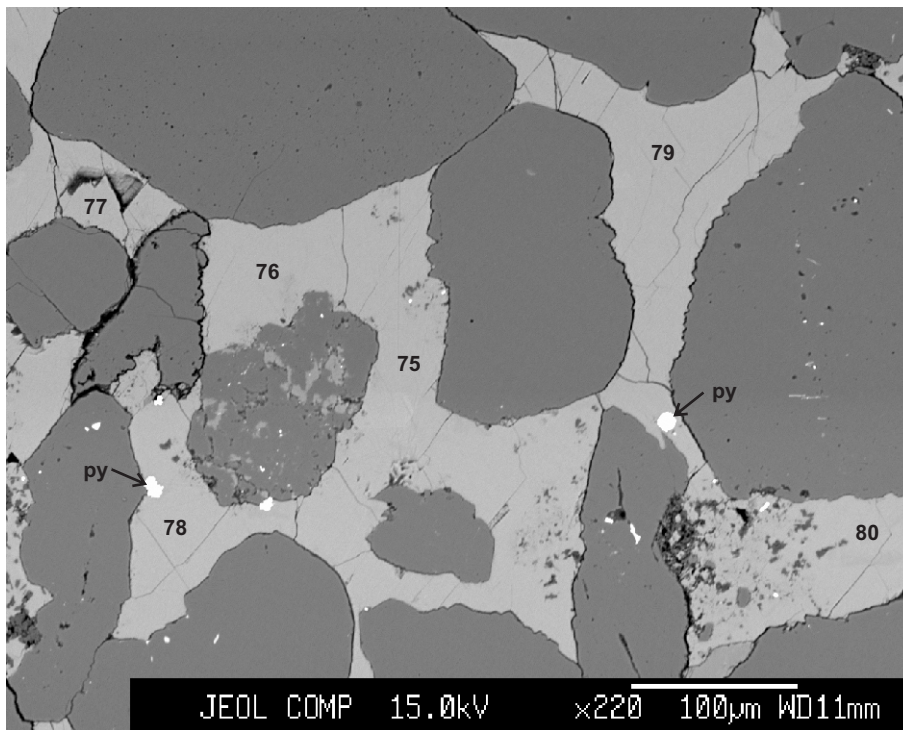
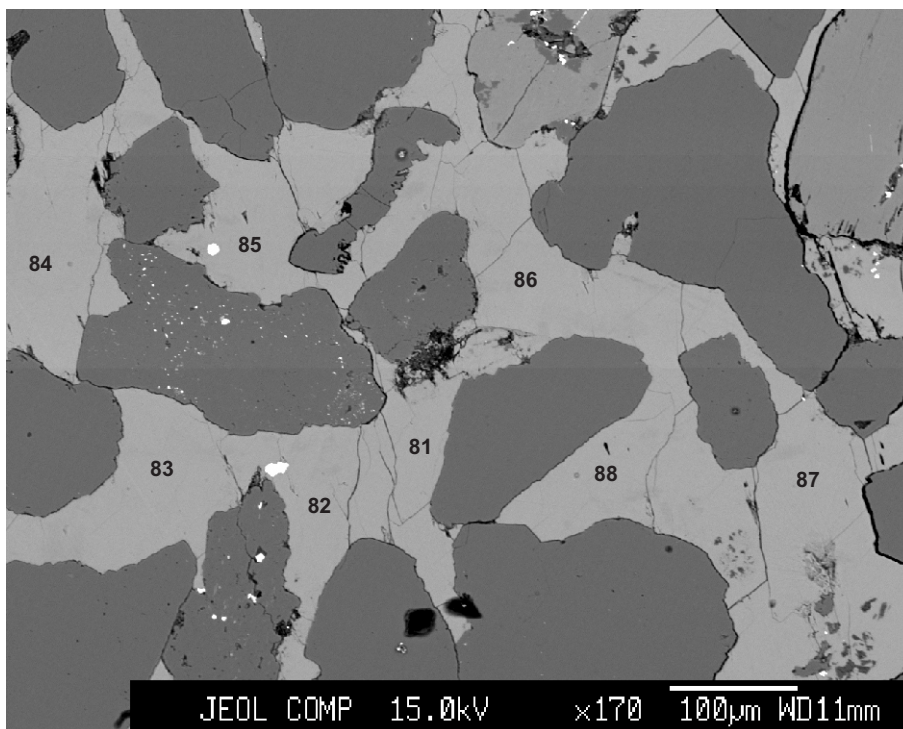


Figure 56: Panuke B-90-2413.05



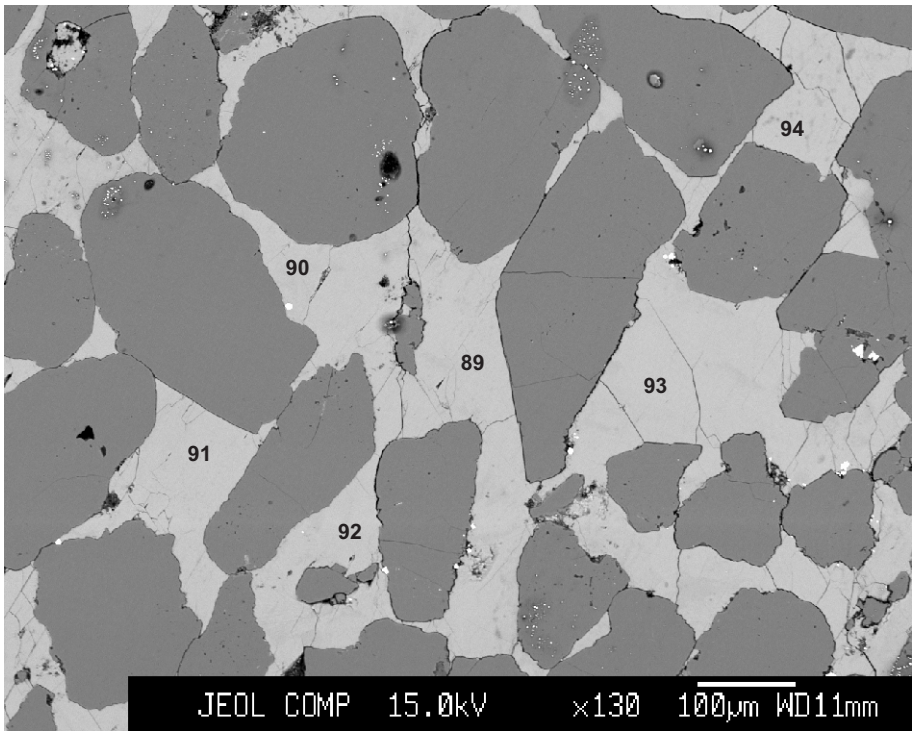
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite

Figure 57: Panuke B-90-2420.46



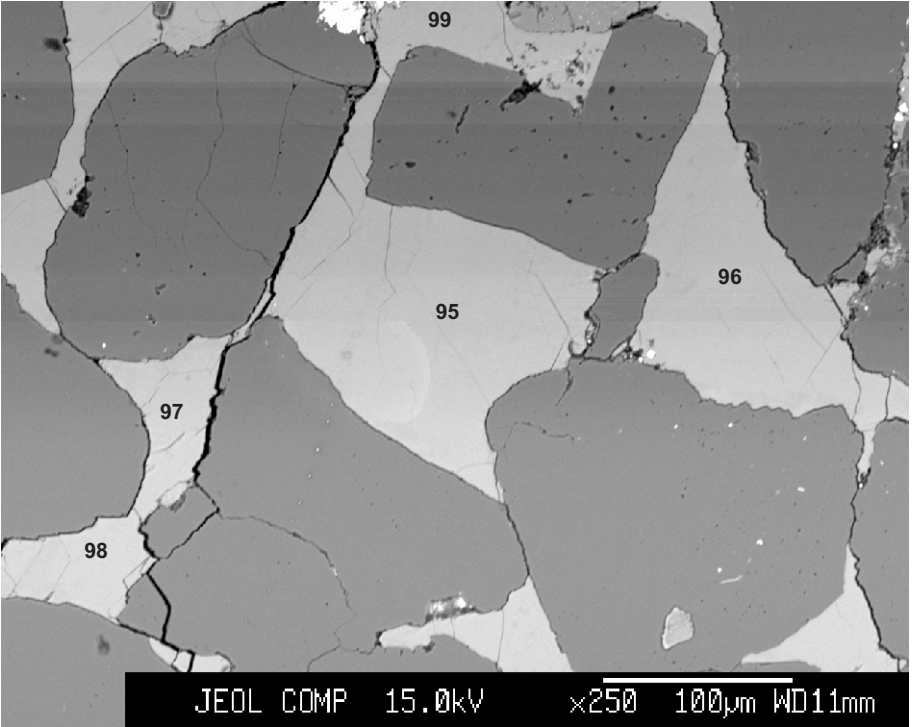
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite

Figure 58: Panuke B-90-2420.46



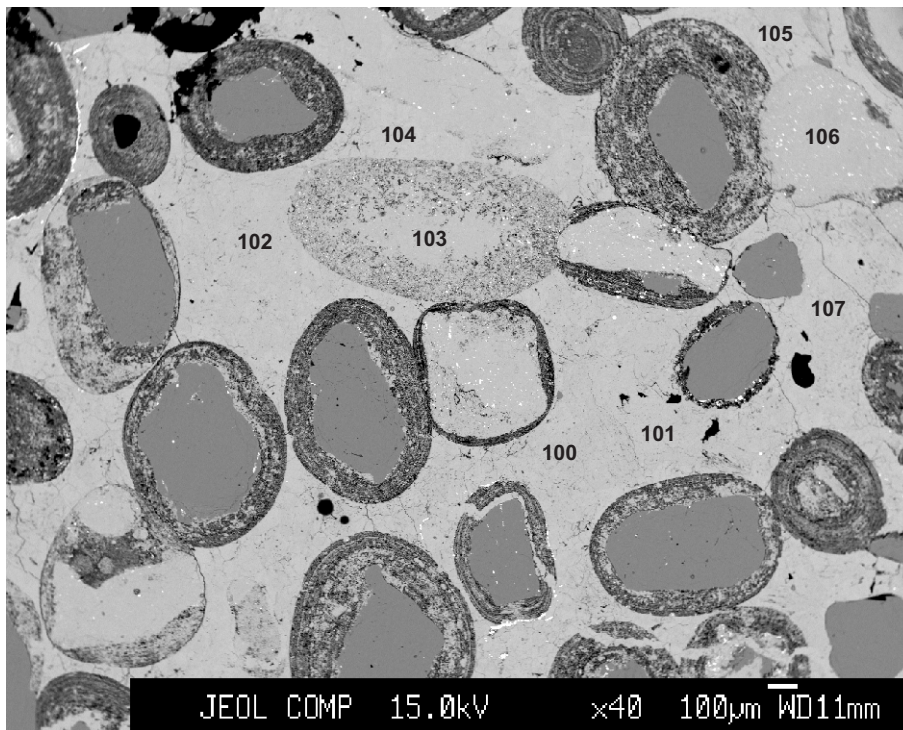
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite

Figure 59: Panuke B-90-2420.46



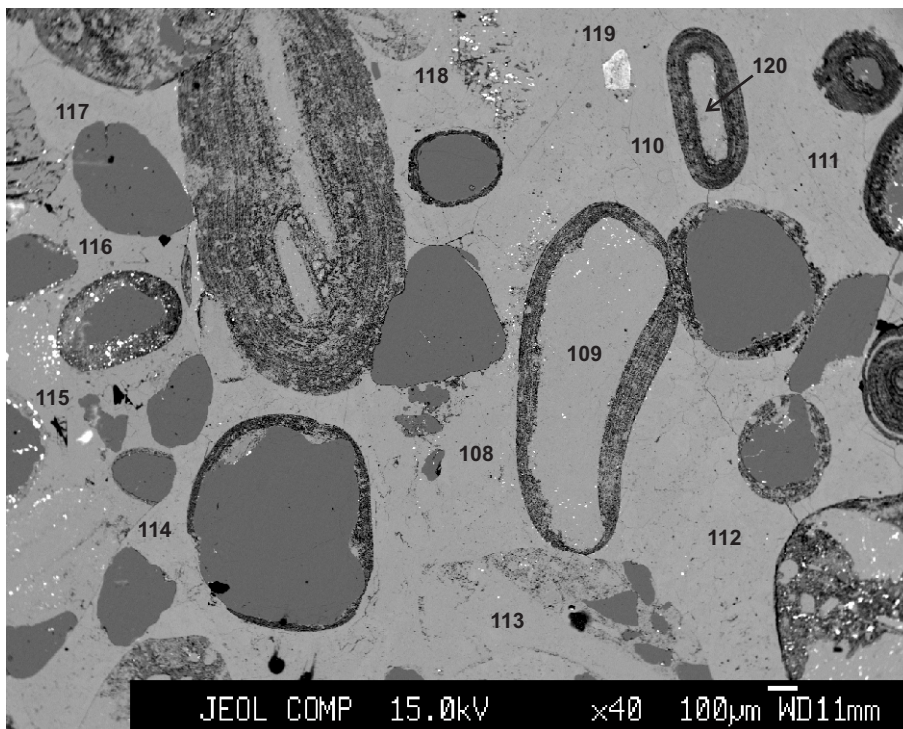
- 95: Fe-calcite
- 96: Fe-calcite
- 97: Fe-calcite
- 98: Fe-calcite
- 99: Fe-calcite

Figure 60: Panuke B-90-2420.46



- 100: calcite
- 101: calcite
- 102: calcite
- 103: calcite
- 104: calcite
- 105: Fe-calcite
- 106: calcite
- 107: calcite

Figure 61: Panuke B-90-2434.33



- 108: calcite
- 109: Mg-calcite
- 110: Mg-calcite
- 111: calcite
- 112: Fe-calcite
- 113: calcite
- 114: calcite
- 115: calcite
- 116: calcite
- 117: calcite
- 118: calcite
- 119: Mg-calcite
- 120: Mg-calcite

Figure 62: Panuke B-90-2434.33

Appendix 2C : Back-scattered electron (BSE) images for the  
Cohasset A-52 sandstones studied by electron microprobe

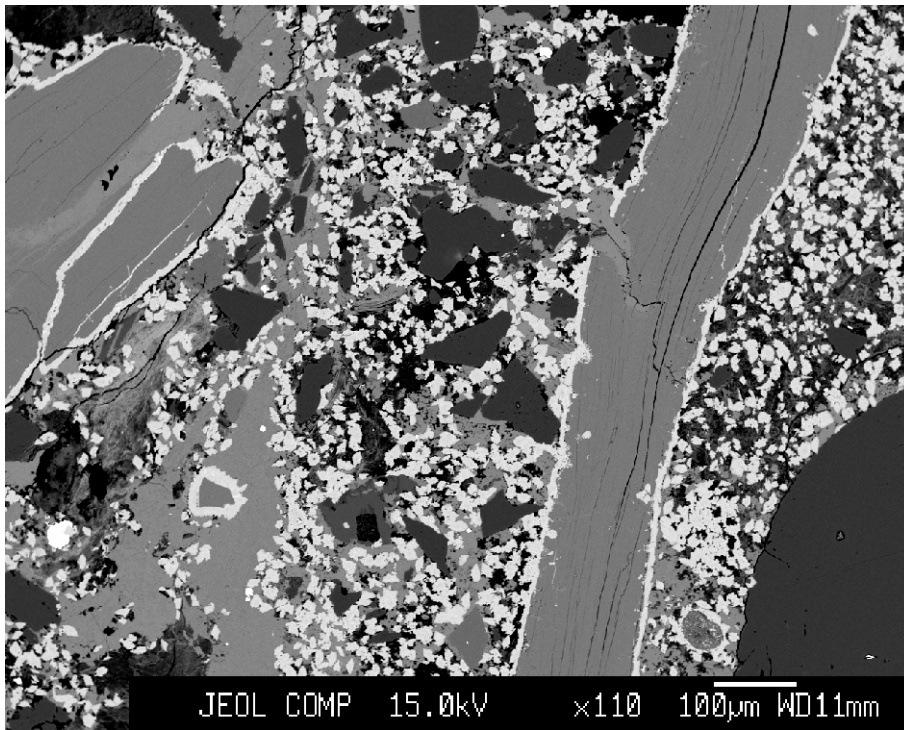
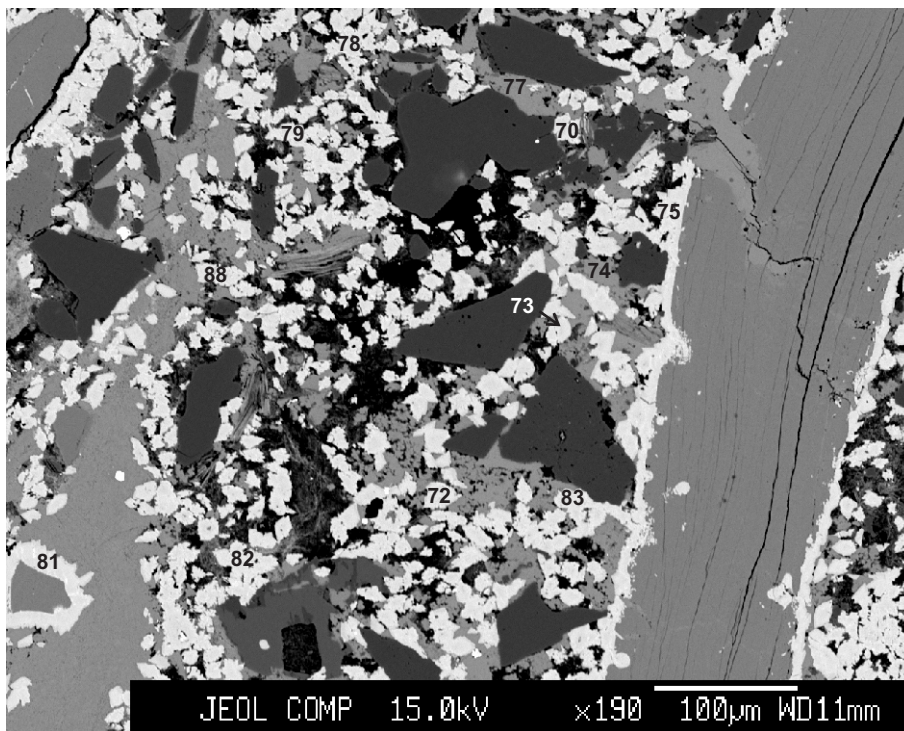
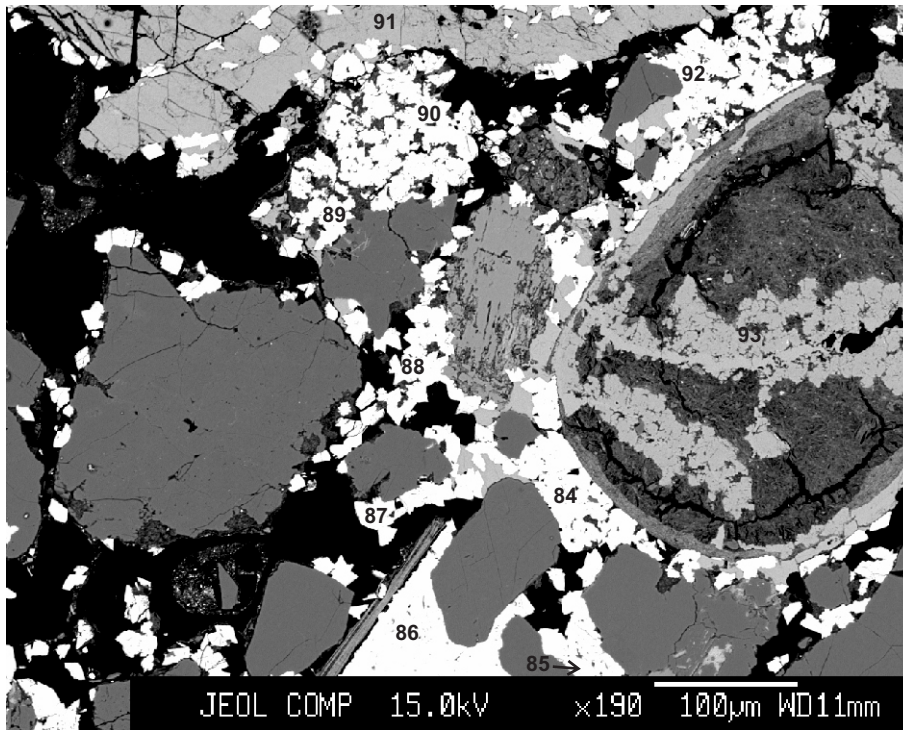


Figure 1: Cohasset A-52-2075.83



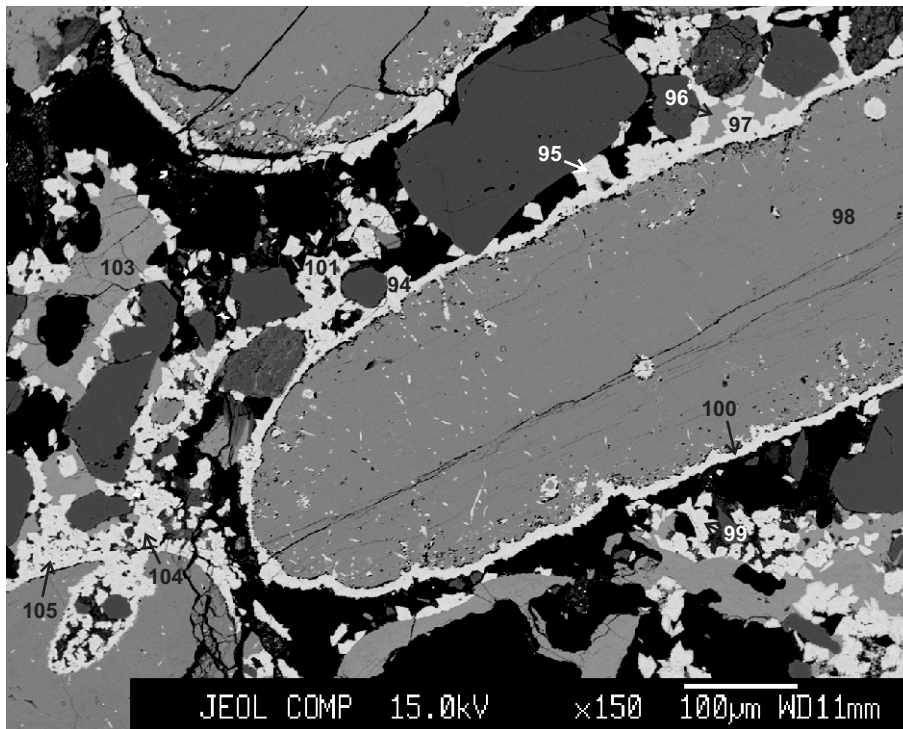
- 72: siderite
- 73: siderite
- 74: Fe-Mg-calcite
- 75: siderite
- 76: siderite
- 77: Fe-calcite
- 78: siderite
- 79: siderite
- 80: siderite
- 81: siderite
- 82: siderite
- 83: siderite

Figure 2: Cohasset A-52-2075.83



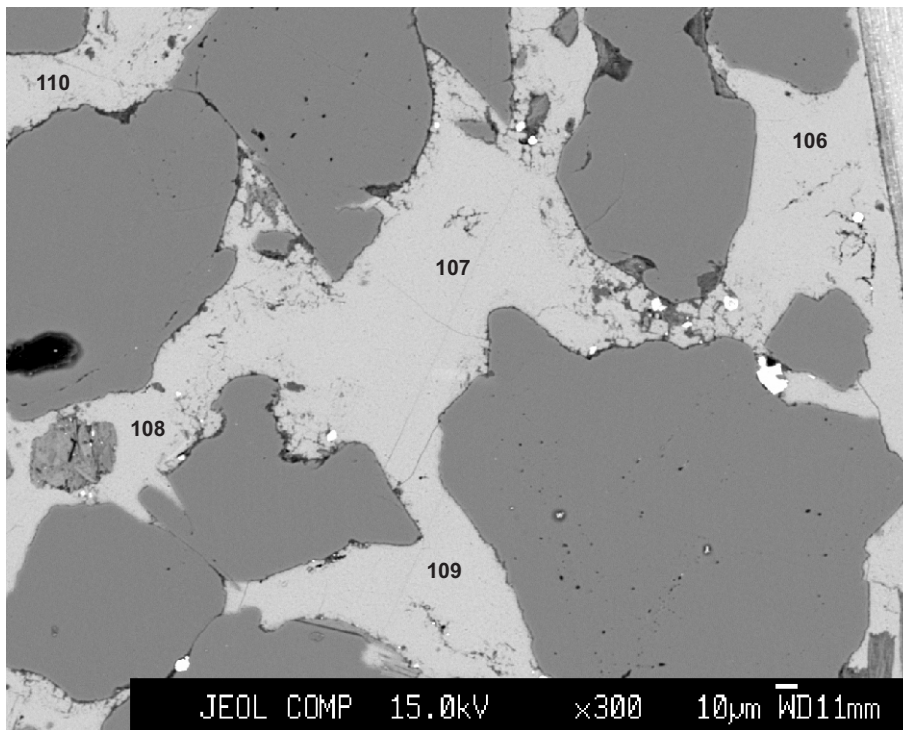
- 84: siderite
- 85: siderite
- 86: siderite
- 87: siderite
- 88: siderite
- 89: siderite
- 90: siderite
- 91: Fe-calcite
- 92: siderite
- 93: Fe-calcite

Figure 3: Cohasset A-52-2075.83



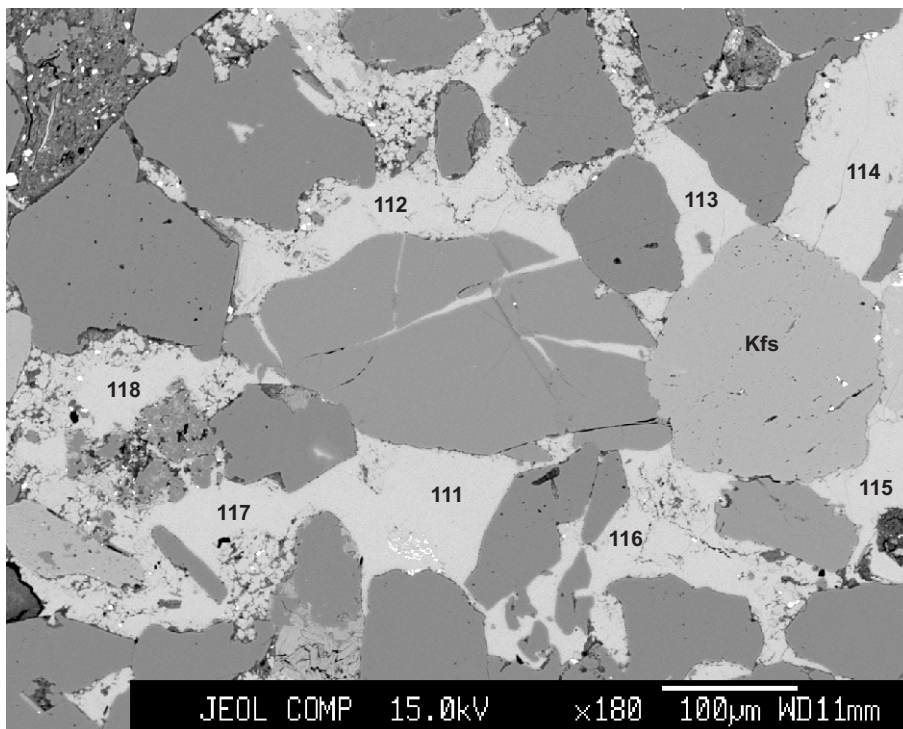
- 84: siderite
- 85: siderite
- 86: siderite
- 87: siderite
- 88: siderite
- 89: siderite
- 90: siderite
- 91: Fe-calcite
- 92: siderite
- 93: Fe-calcite
- 94: siderite
- 95: siderite
- 96: Fe-calcite
- 97: siderite
- 98: calcite (bioclast)
- 99: siderite
- 100: siderite
- 101: siderite
- 102: siderite
- 103: siderite
- 104: siderite
- 105: siderite

Figure 4: Cohasset A-52-2075.83



- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

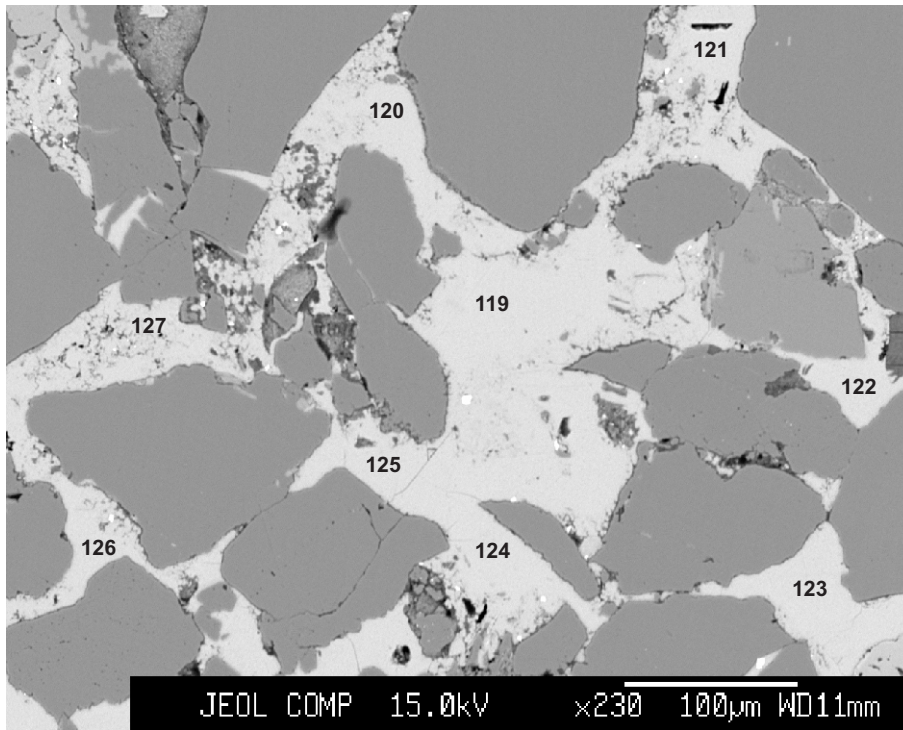
Figure 5: Cohasset A-52-2126.14



- 111: Fe-calcite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite

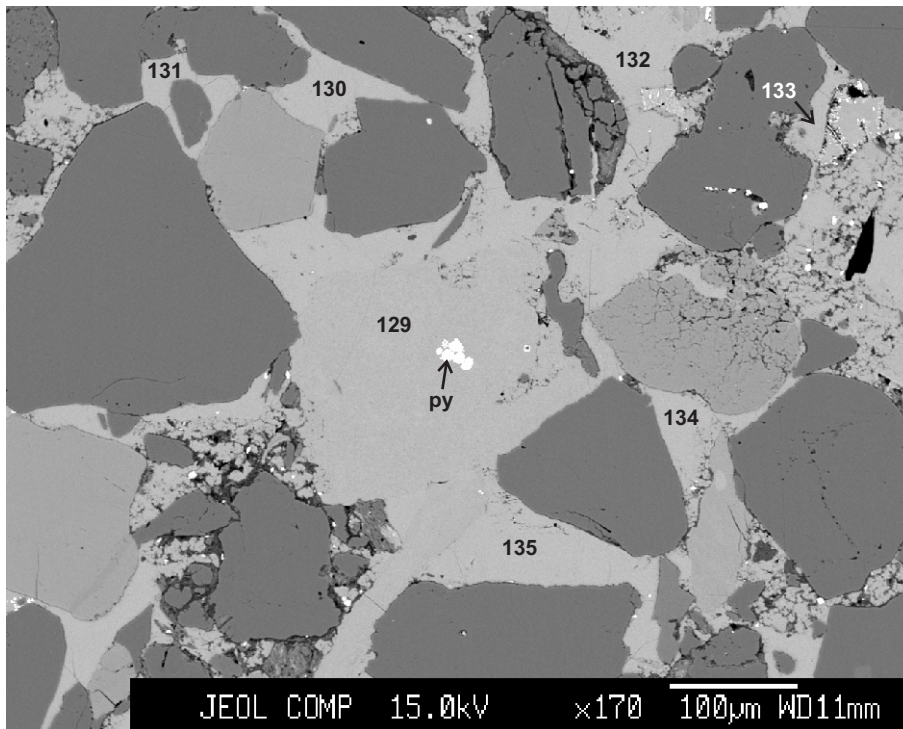
Figure 6: Cohasset A-52-2126.14





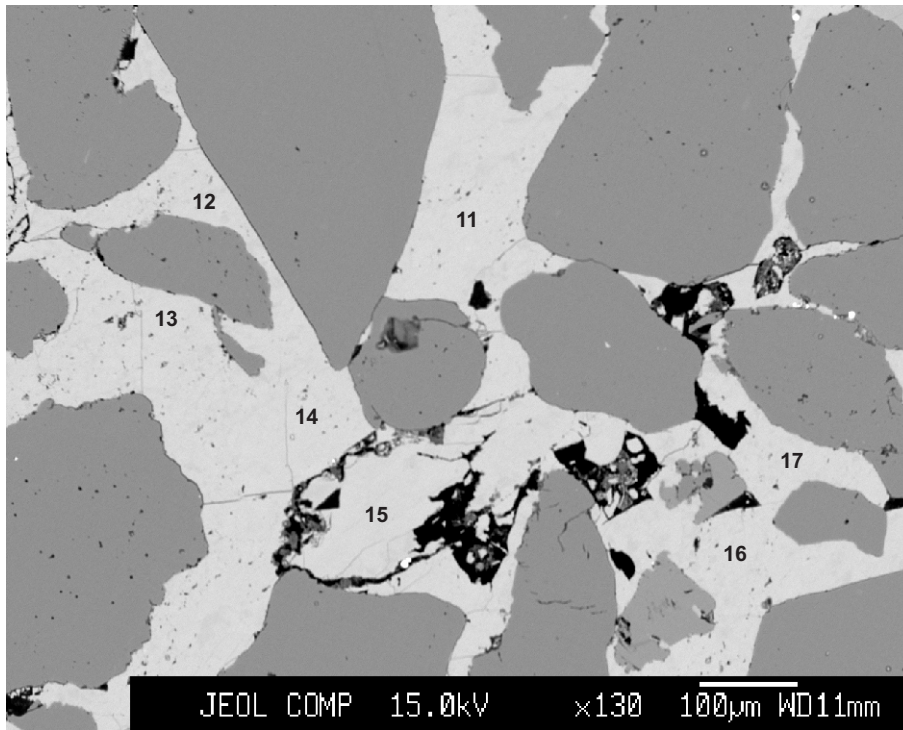
- 119: Fe-calcite
- 120: Fe-calcite
- 121: Fe-calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: Fe-calcite
- 127: Fe-calcite
- 128: Fe-calcite

Figure 7: Cohasset A-52-2126.14



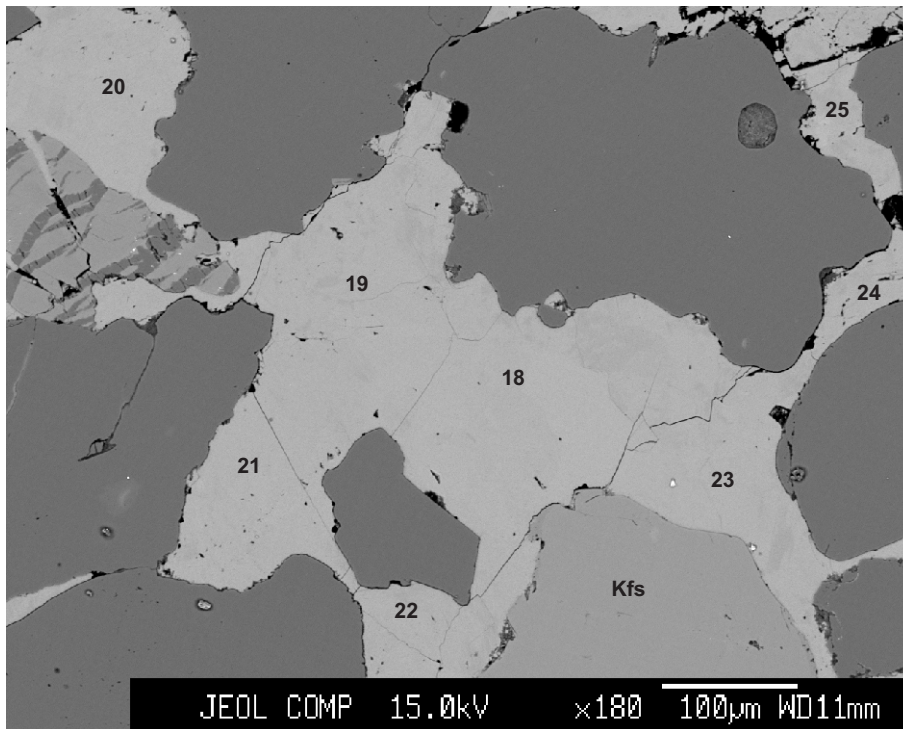
- 129: Fe-calcite
- 130: Fe-calcite
- 131: Fe-calcite
- 132: Fe-calcite
- 133: Fe-calcite
- 134: Fe-calcite
- 135: Fe-calcite

Figure 8: Cohasset A-52-2126.14



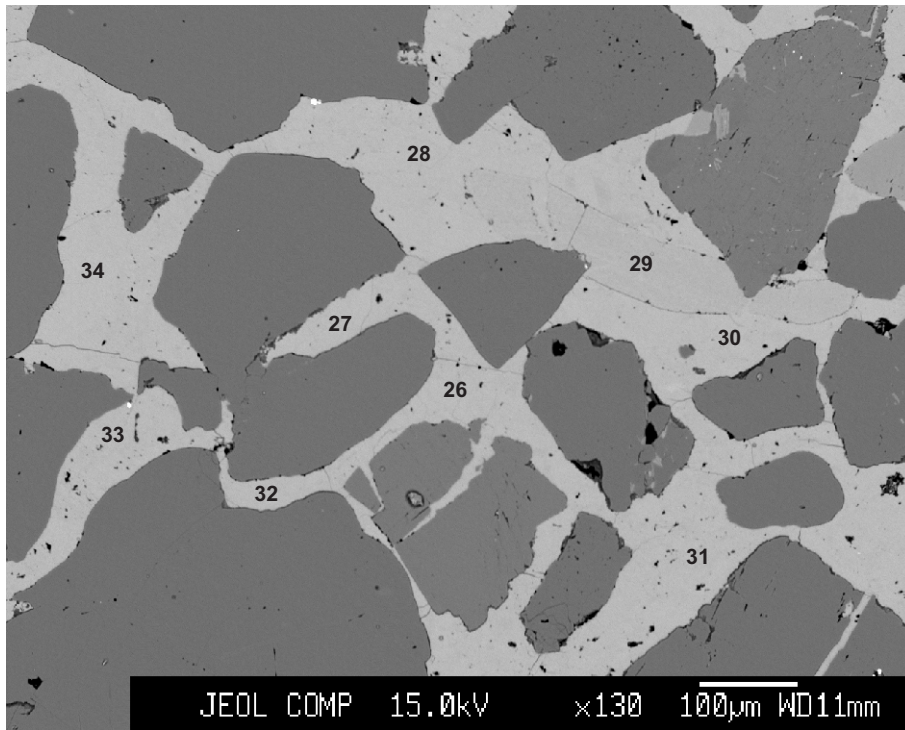
- 11: Fe-calcite
- 12: calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: calcite
- 16: Fe-calcite
- 17: Fe-calcite

Figure 9: Cohasset A-52-2130.04



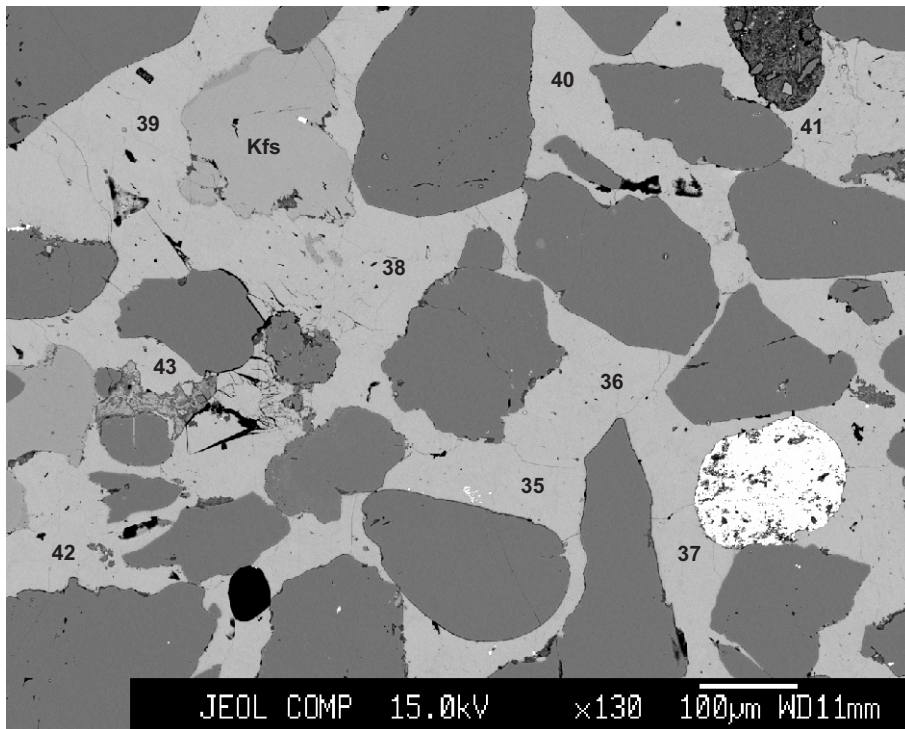
- 18: Fe-calcite
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: calcite
- 25: Fe-calcite

Figure 10: Cohasset A-52-2130.04



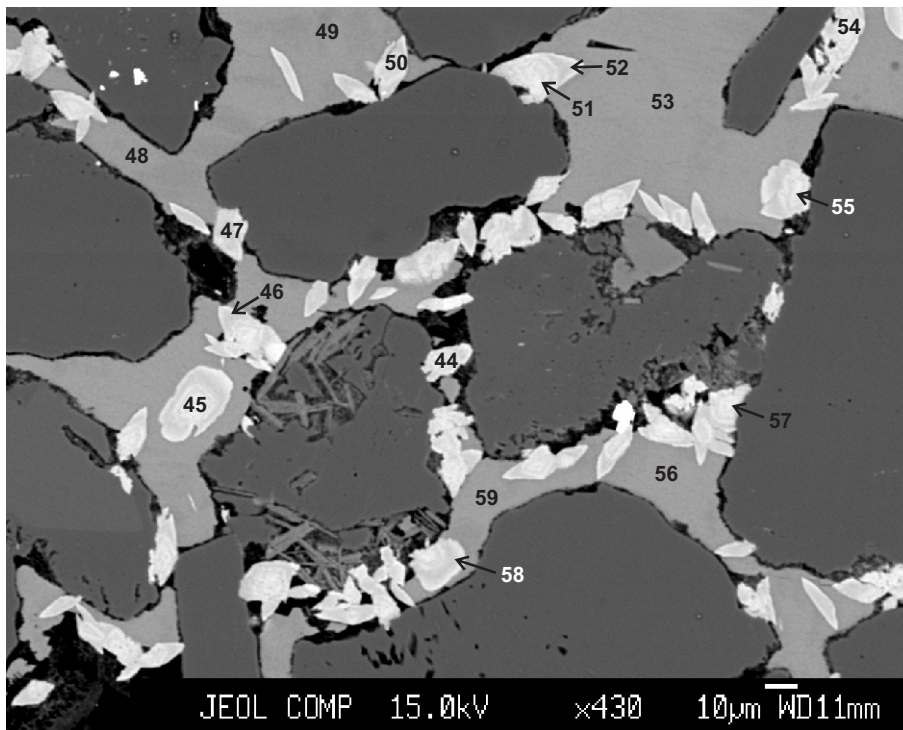
- 26: Fe-calcite
- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: Fe-calcite
- 33: Fe-calcite
- 34: Fe-Mg-calcite

Figure 11: Cohasset A-52-2130.04



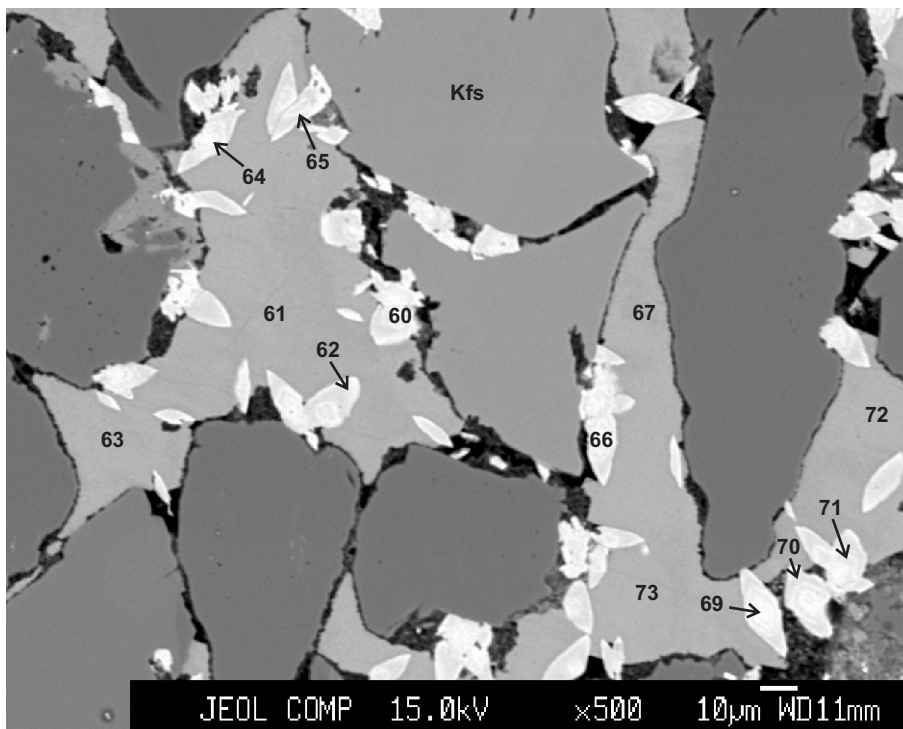
- 35: Fe-Mg-calcite
- 36: Fe-calcite
- 37: Fe-calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite

Figure 12: Cohasset A-52-2130.04



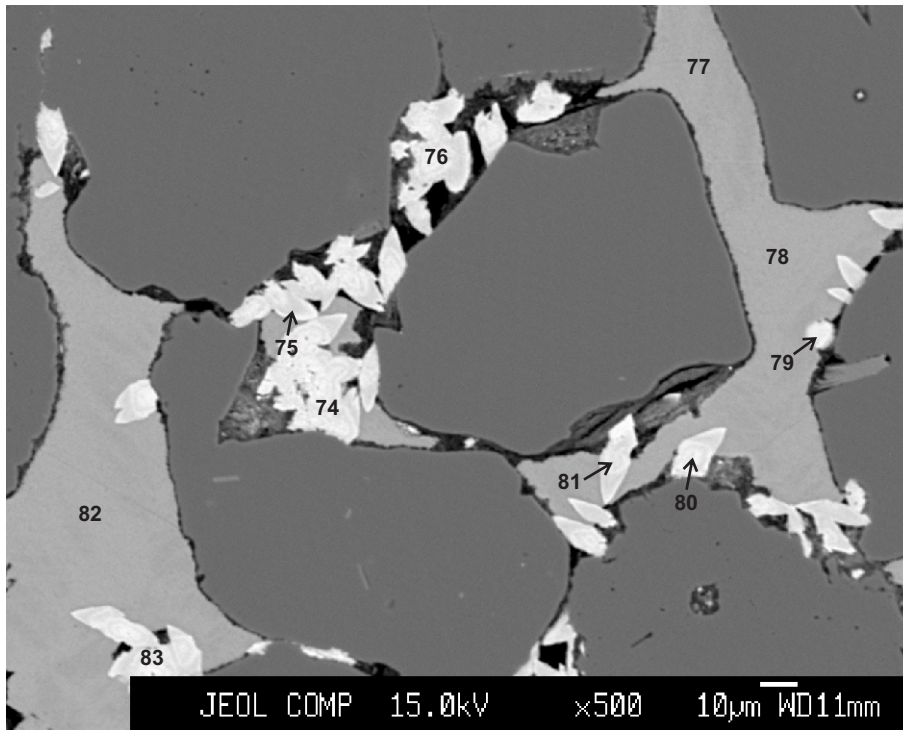
- 44: siderite
- 45: siderite
- 46: siderite
- 47: siderite
- 48: calcite
- 49: Fe-calcite
- 50: siderite
- 51: siderite
- 52: siderite
- 53: Fe-calcite
- 54: siderite
- 55: siderite
- 56: Fe-calcite
- 57: siderite
- 58: siderite
- 59: Fe-calcite

Figure 13: Cohasset A-52-2160.51



- 60: siderite
- 61: Fe-calcite
- 62: siderite
- 63: Fe-calcite
- 64: siderite
- 65: siderite
- 66: siderite
- 67: calcite
- 68: siderite
- 69: siderite
- 70: siderite
- 71: siderite
- 72: Fe-calcite
- 73: Fe-calcite

Figure 14: Cohasset A-52-2160.51



- 75: siderite
- 76: siderite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: siderite
- 80: siderite
- 81: siderite
- 82: Fe-calcite
- 83: siderite

Figure 15: Cohasset A-52-2160.51

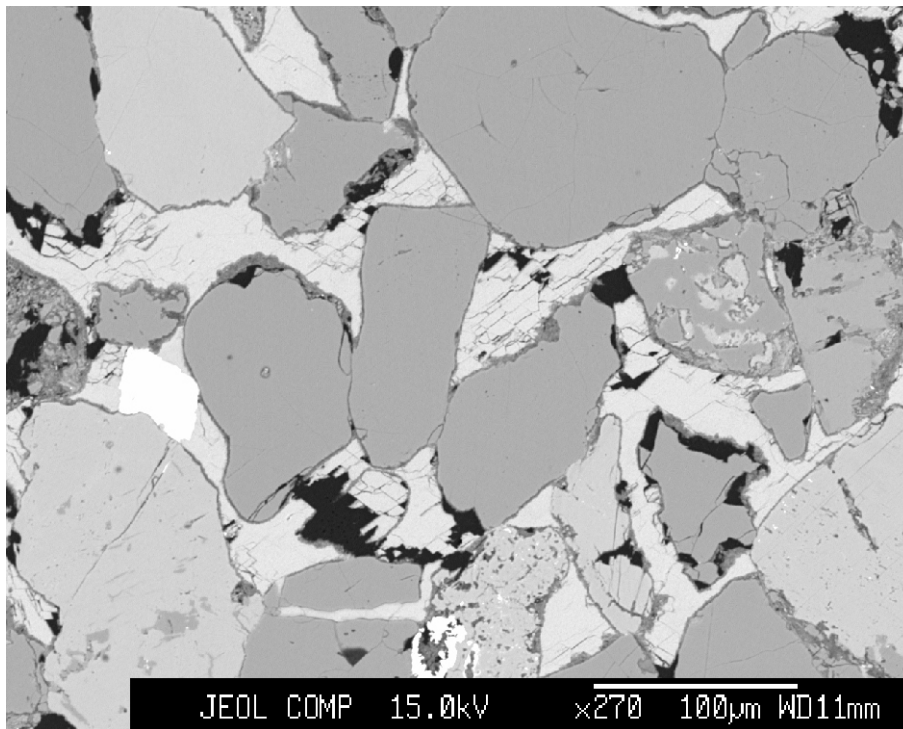
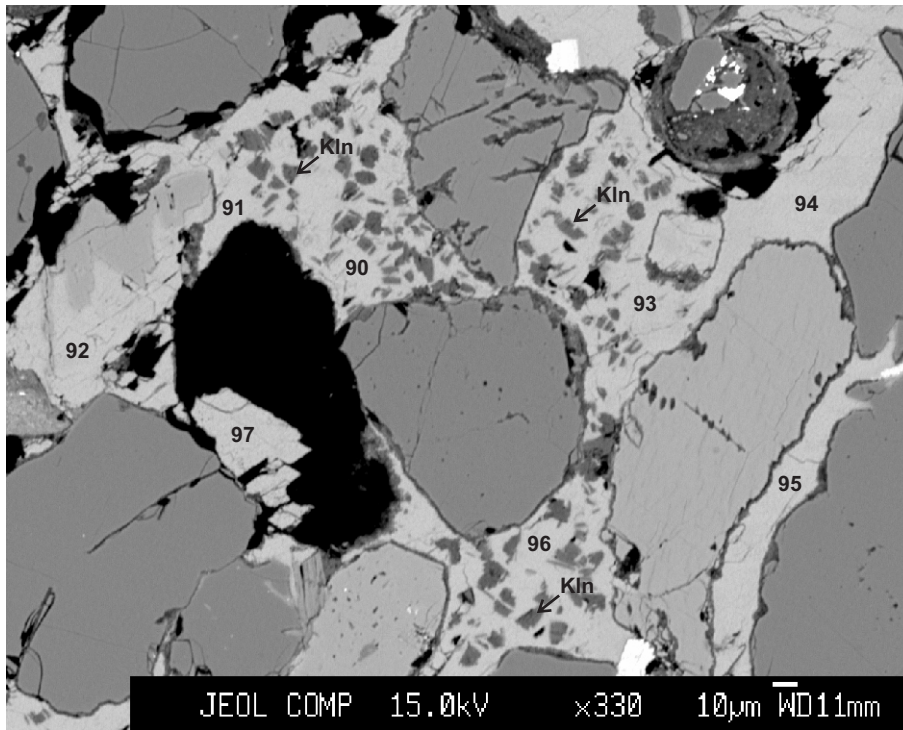
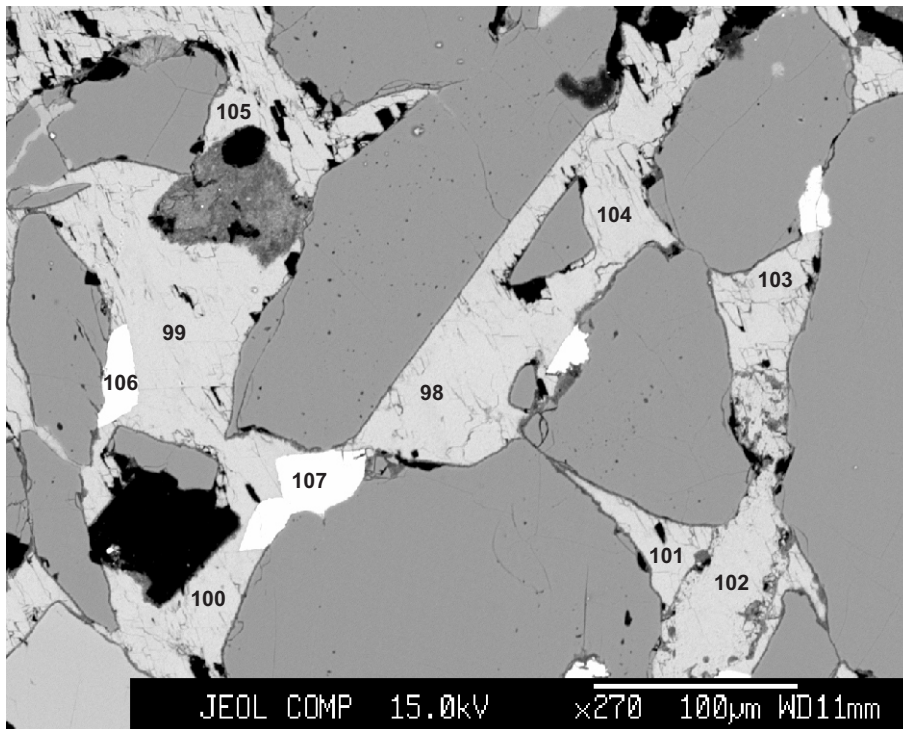


Figure 16: Cohasset A-52-2167.31



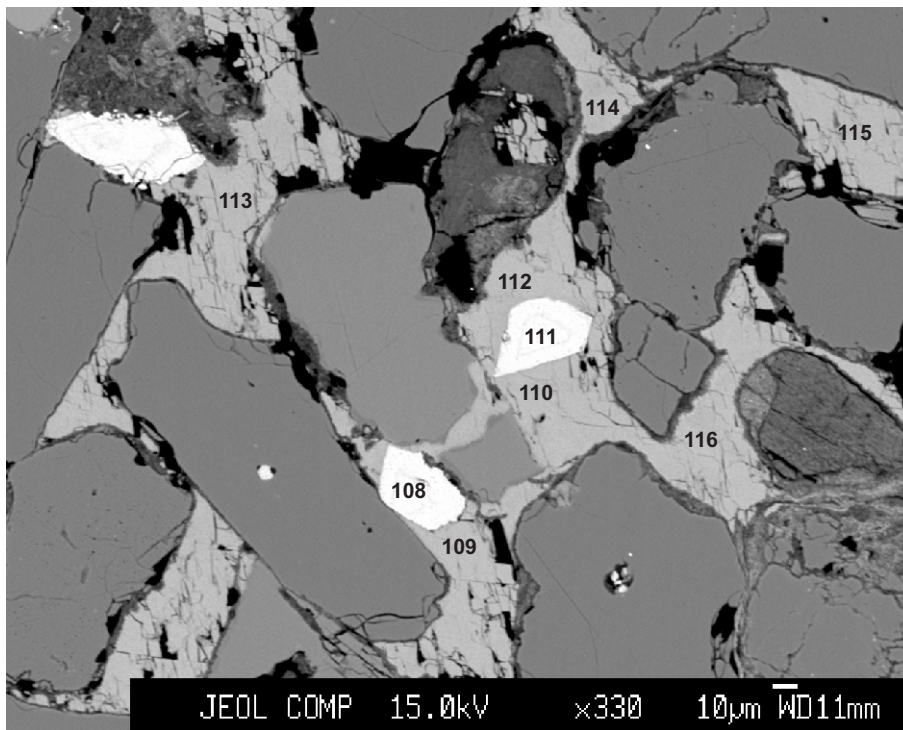
- 90: Fe-calcite
- 91: Fe-calcite
- 92: calcite
- 93: Fe-calcite
- 94: Fe-calcite
- 95: Fe-calcite
- 96: Fe-calcite
- 97: Fe-calcite

Figure 17: Cohasset A-52-2167.31



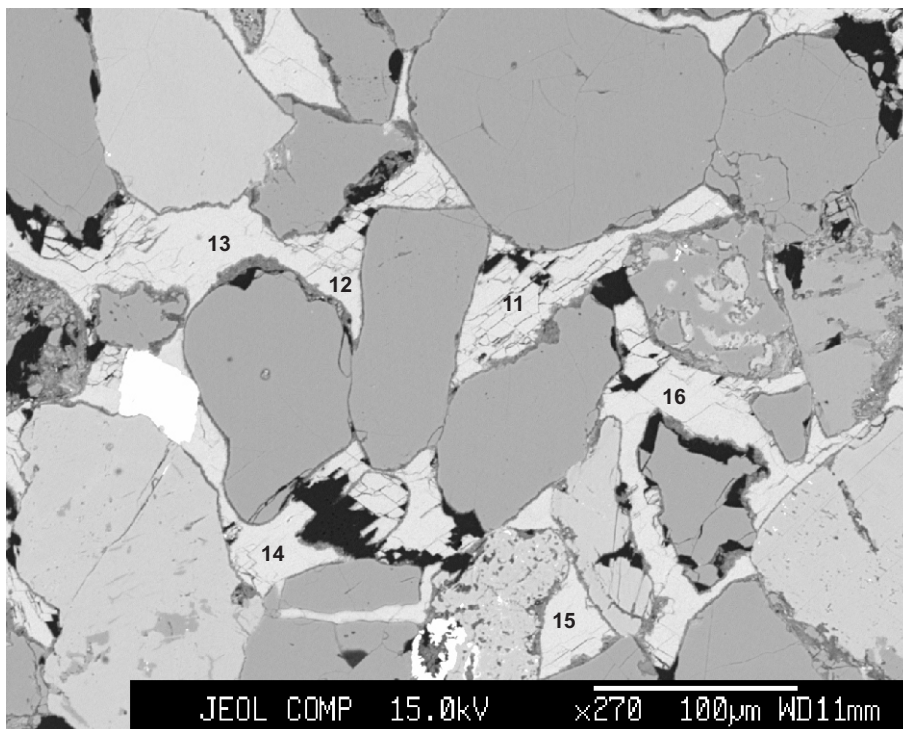
- 98: Fe-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: Fe-calcite
- 102: Fe-calcite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: Fe-calcite
- 106: siderite
- 107: siderite

Figure 18: Cohasset A-52-2167.31



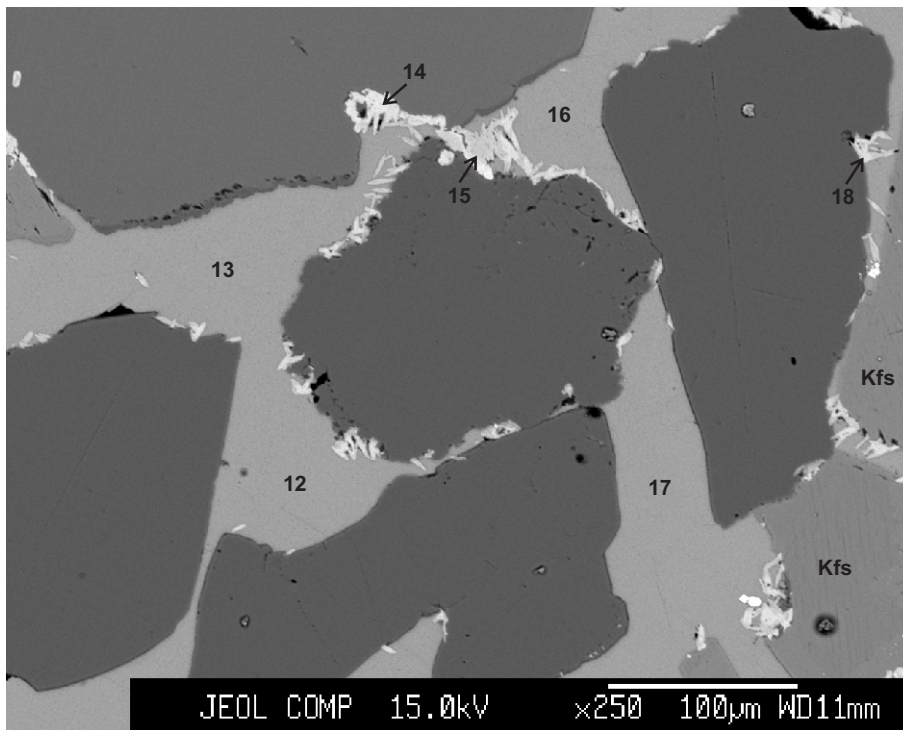
- 108: siderite
- 109: Fe-calcite
- 110: Fe-calcite
- 111: siderite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite

Figure 19: Cohasset A-52-2167.31



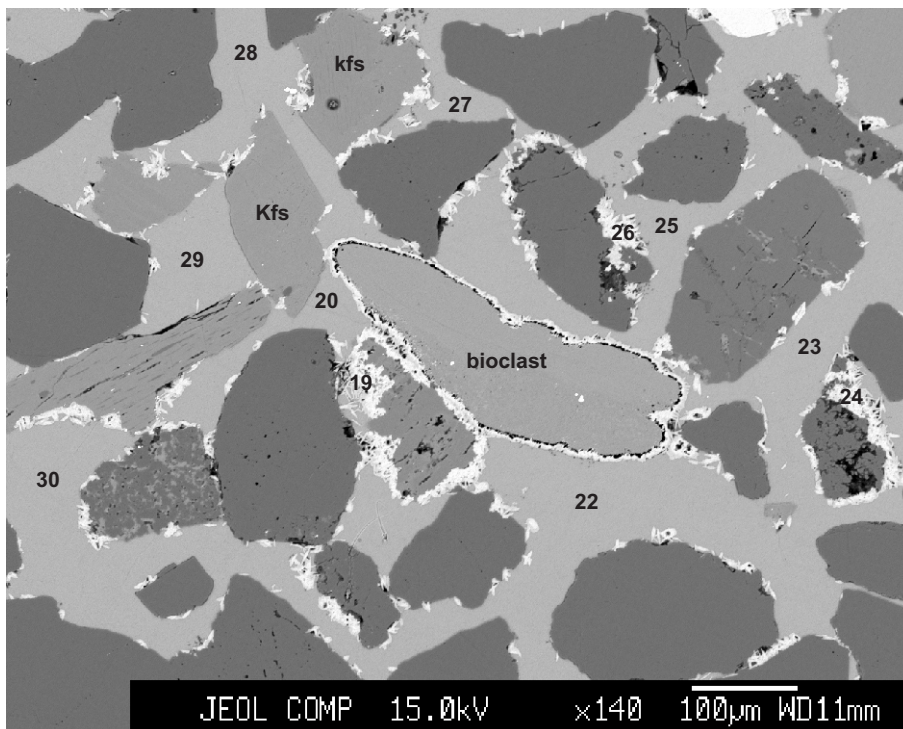
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite

Figure 20: Cohasset A-52-2167.31



- 12: Fe-Mg-calcite
- 13: Fe-Mg-calcite
- 14: siderite
- 15: siderite
- 16: Fe-Mg-calcite
- 17: Fe-Mg-calcite
- 18: siderite

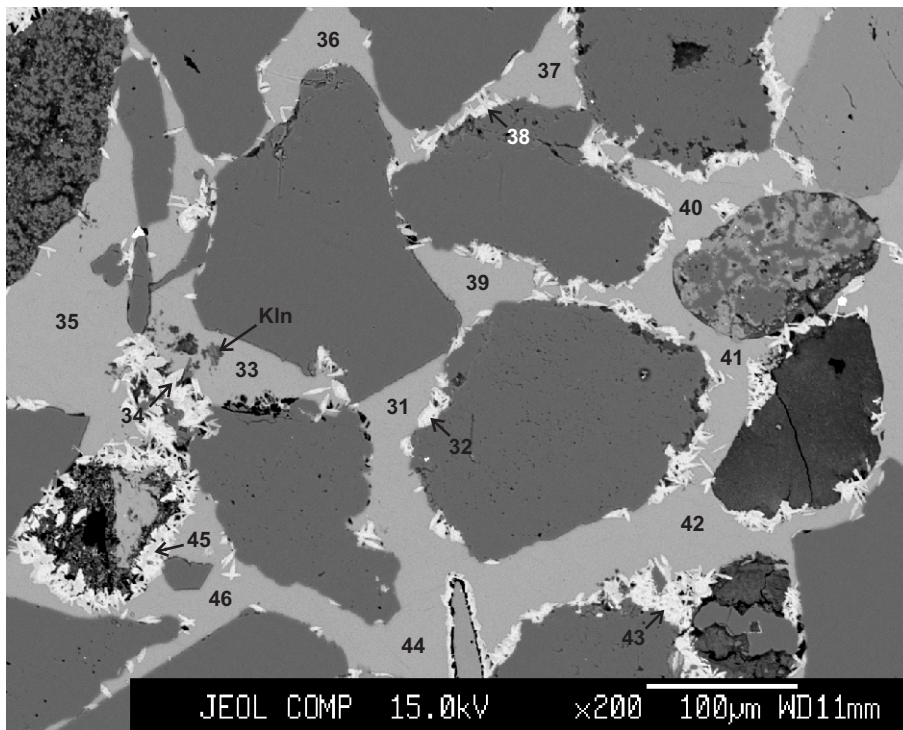
Figure 21: Cohasset A-52-2217.17



- 19: siderite
- 20: Fe-Mg-calcite
- 21: siderite
- 22: Fe-Mg-calcite
- 23: Fe-Mg-calcite
- 24: siderite
- 25: Fe-Mg-calcite
- 26: siderite
- 27: Fe-Mg-calcite
- 28: Fe-Mg-calcite
- 29: Fe-Mg-calcite
- 30: Fe-Mg-calcite

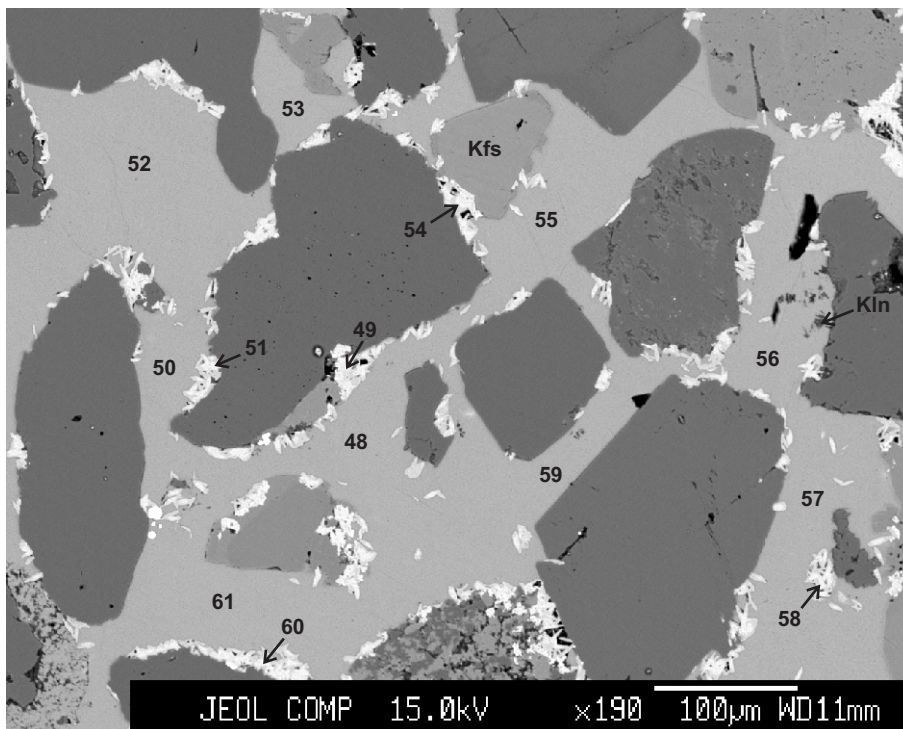
Figure 22: Cohasset A-52-2217.17





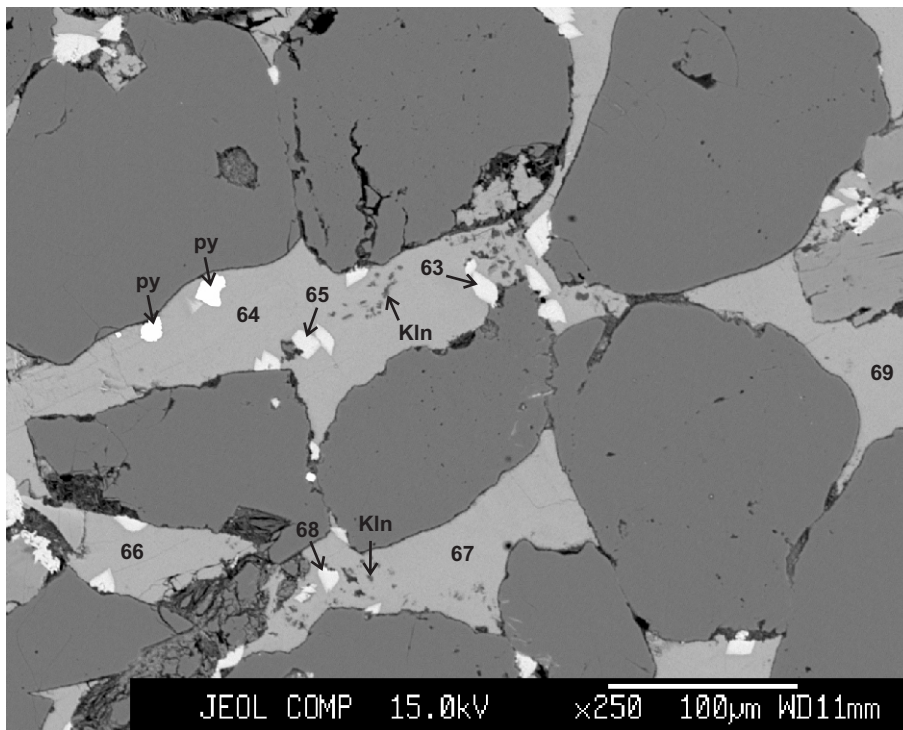
- 31: Fe-Mg-calcite
- 32: siderite
- 33: Fe-Mg-calcite
- 34: siderite
- 35: Fe-Mg-calcite
- 36: Fe-Mg-calcite
- 37: Fe-Mg-calcite
- 38: siderite
- 39: Fe-Mg-calcite
- 40: Fe-Mg-calcite
- 41: Fe-Mg-calcite
- 42: Fe-Mg-calcite
- 43: siderite
- 44: Fe-Mg-calcite
- 45: siderite
- 46: Fe-Mg-calcite

Figure 23: Cohasset A-52-2217.17



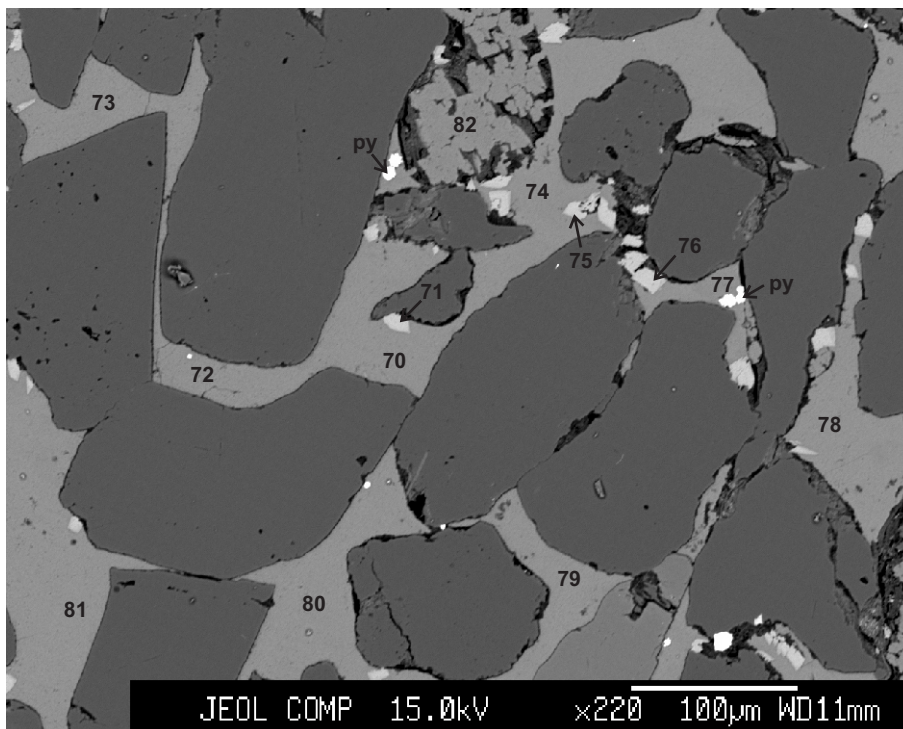
- 48: Fe-Mg-calcite
- 49: siderite
- 50: Fe-Mg-calcite
- 51: siderite
- 52: Fe-Mg-calcite
- 53: Fe-Mg-calcite
- 54: siderite
- 55: Fe-Mg-calcite
- 56: Fe-Mg-calcite
- 57: Fe-calcite
- 58: siderite
- 59: Fe-Mg-calcite
- 60: siderite
- 61: Fe-calcite

Figure 24: Cohasset A-52-2217.17



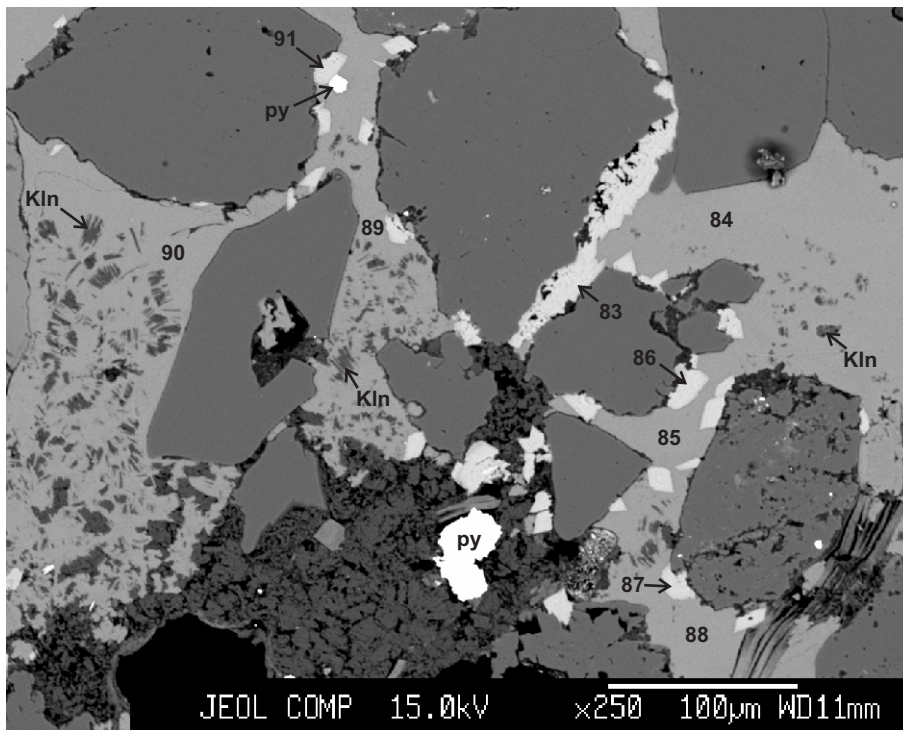
- 62: Fe-calcite
- 63: siderite
- 64: Fe-calcite
- 65: siderite
- 66: Fe-calcite
- 67: Fe-calcite
- 68: siderite
- 69: Fe-calcite

Figure 25: Cohasset A-52-2230.38



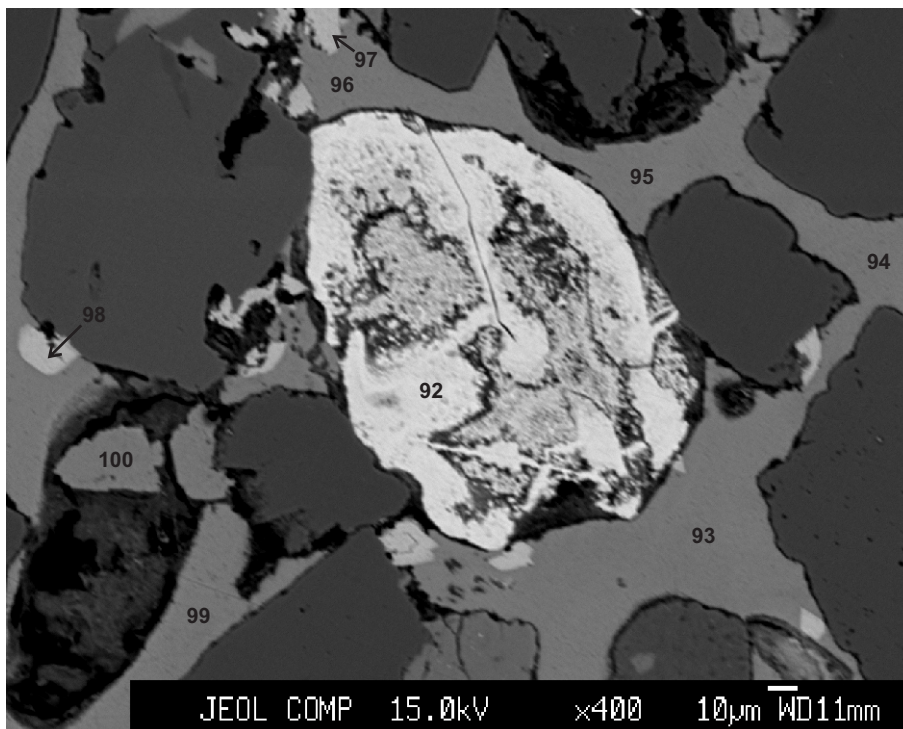
- 70: Fe-calcite
- 71: siderite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: siderite
- 76: siderite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite

Figure 26: Cohasset A-52-2230.38



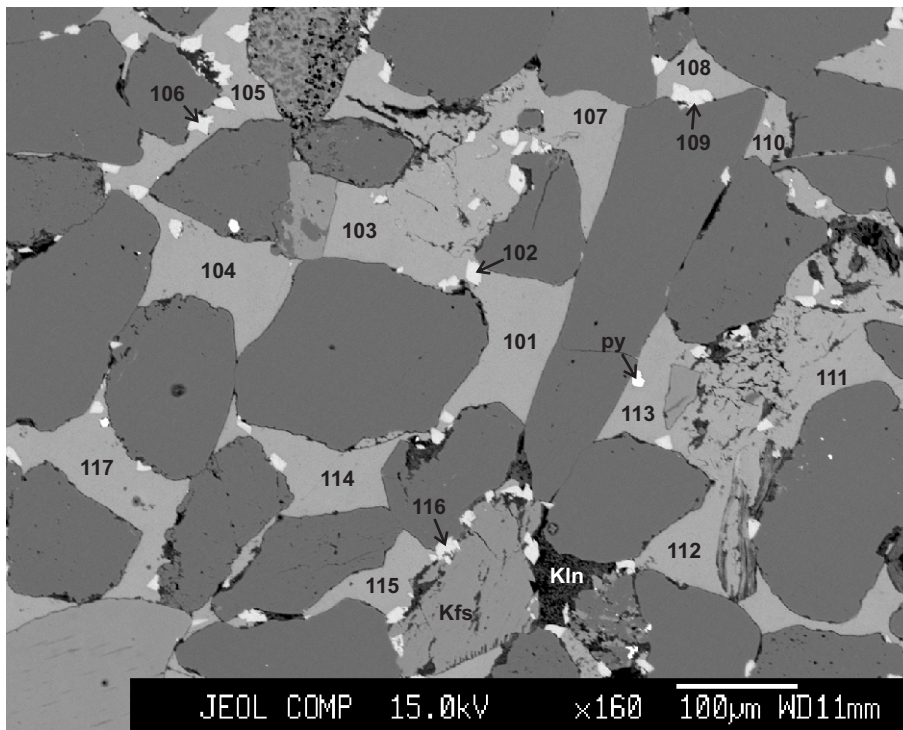
- 83: siderite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: siderite
- 87: siderite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: siderite

Figure 27: Cohasset A-52-2230.38



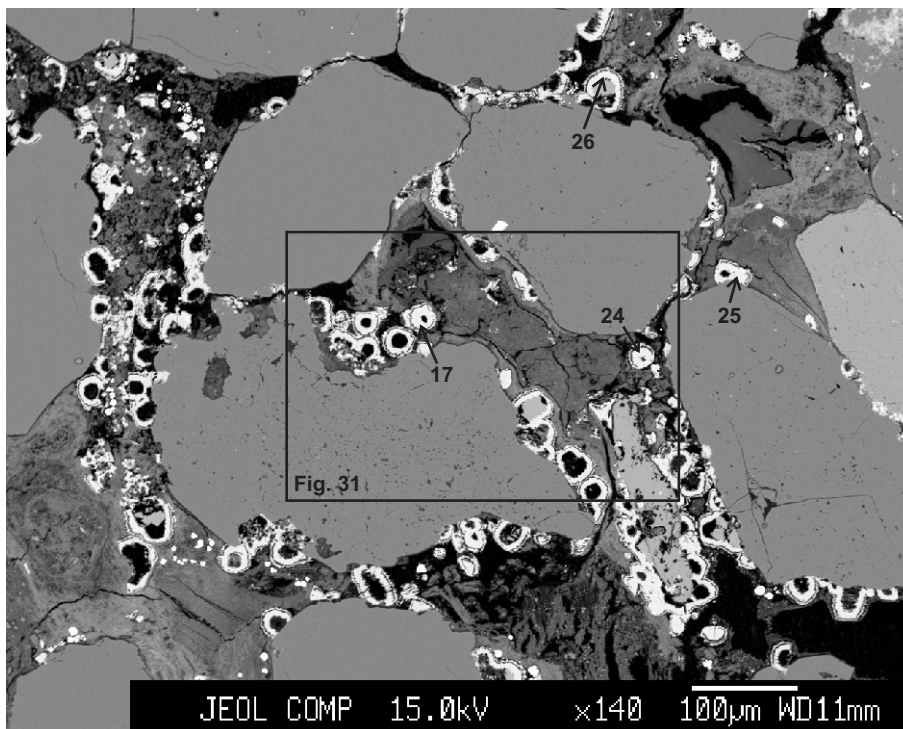
- 92: pseudorutile
- 93: Fe-calcite
- 94: Fe-calcite
- 95: Fe-calcite
- 96: Fe-calcite
- 97: siderite
- 98: siderite
- 99: Fe-calcite
- 100: Fe-calcite

Figure 28: Cohasset A-52-2230.38



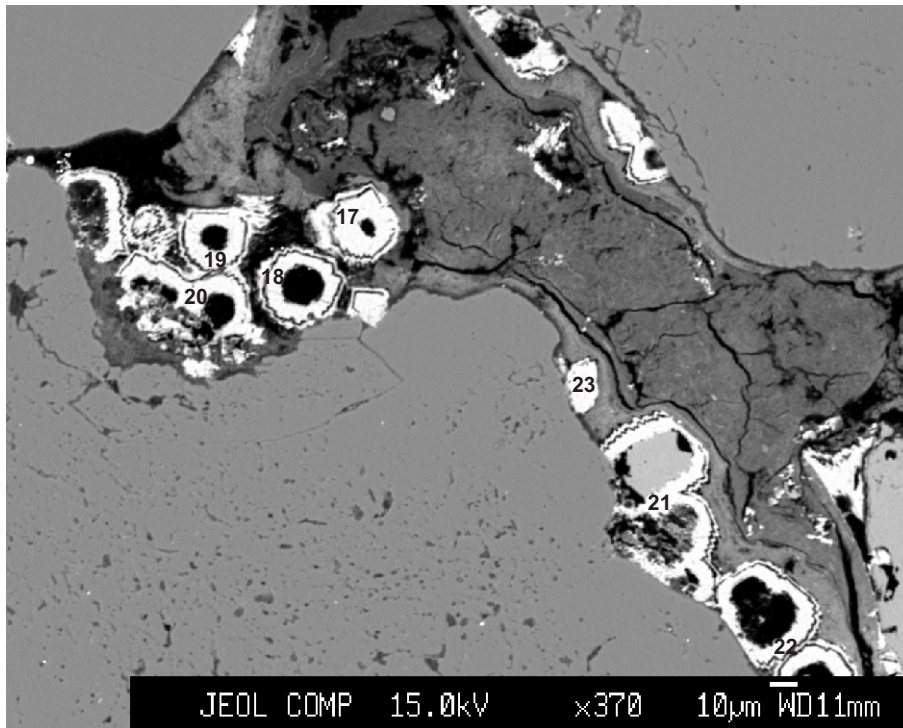
- 101: Fe-calcite
- 102: siderite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: Fe-calcite
- 106: siderite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: siderite
- 110: Fe-calcite
- 111: Fe-calcite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: siderite
- 117: Fe-calcite
- 118: Fe-calcite

Figure 29: Cohasset A-52-2230.38



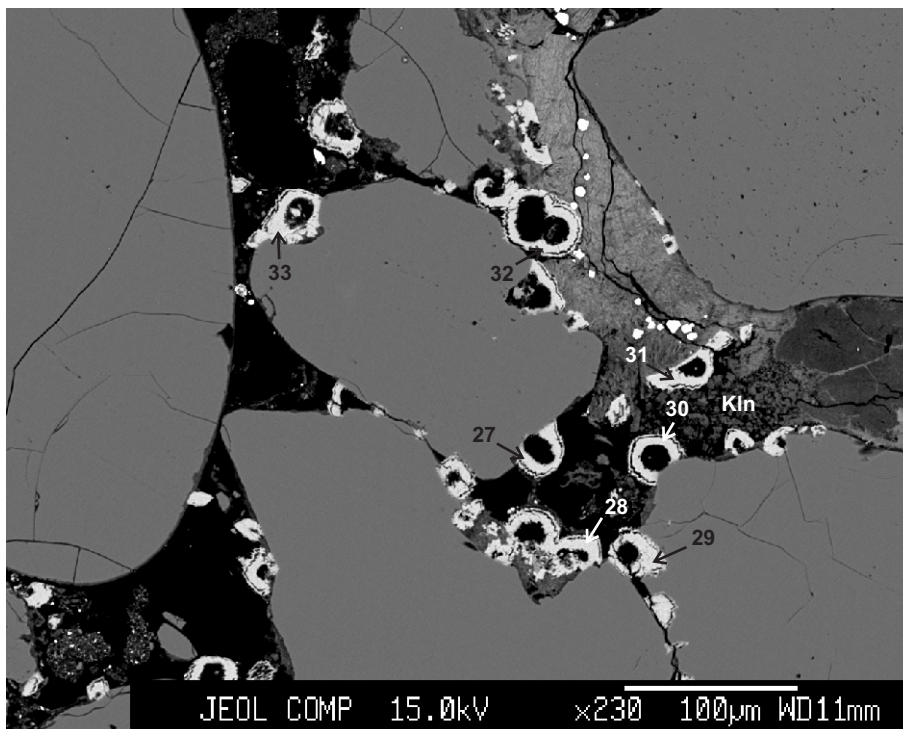
- 17: siderite
- 24: siderite
- 25: siderite
- 26: siderite

Figure 30: Cohasset A-52-2338.92



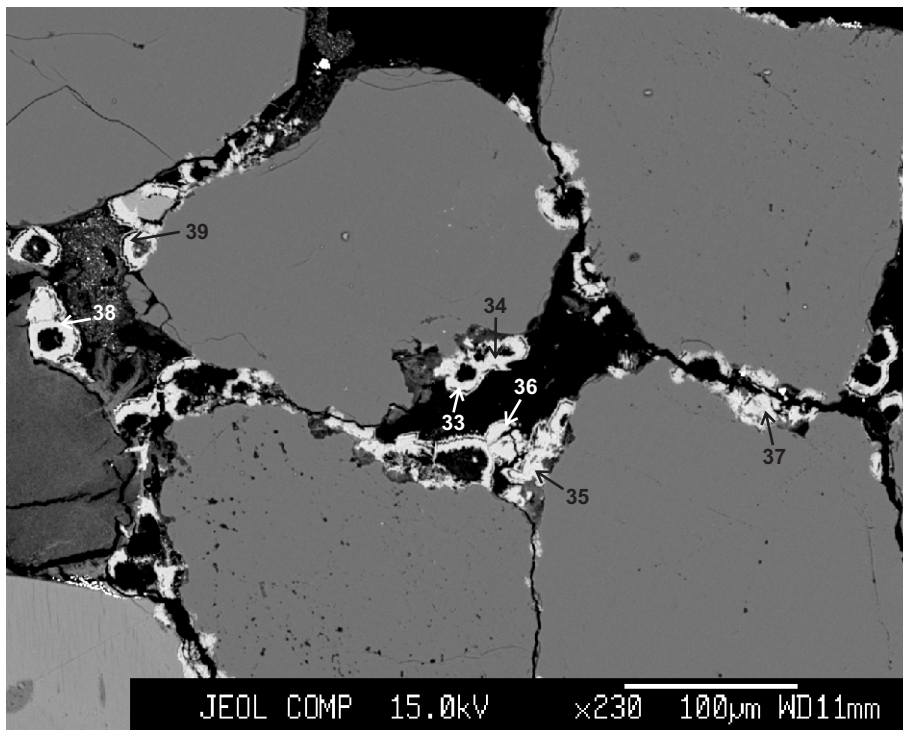
- 17: siderite
- 18: siderite
- 19: siderite
- 20: siderite
- 21: siderite
- 22: siderite
- 23: siderite

Figure 31: Cohasset A-52-2338.92



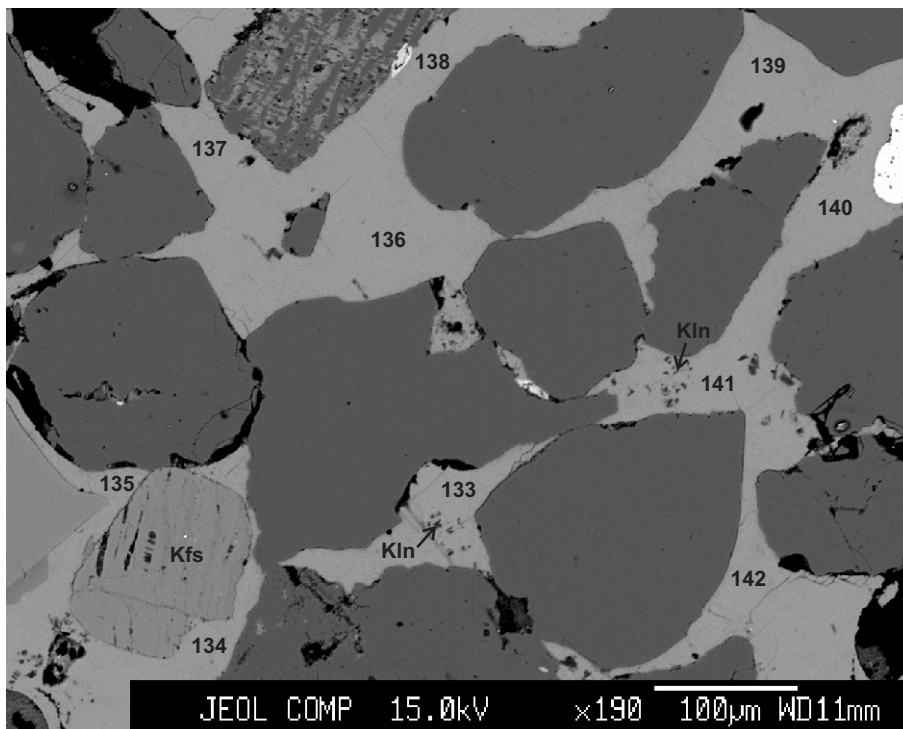
- 27: siderite
- 28: siderite
- 29: siderite
- 30: siderite
- 31: siderite
- 32: siderite
- 33: siderite

Figure 32: Cohasset A-52-2338.92



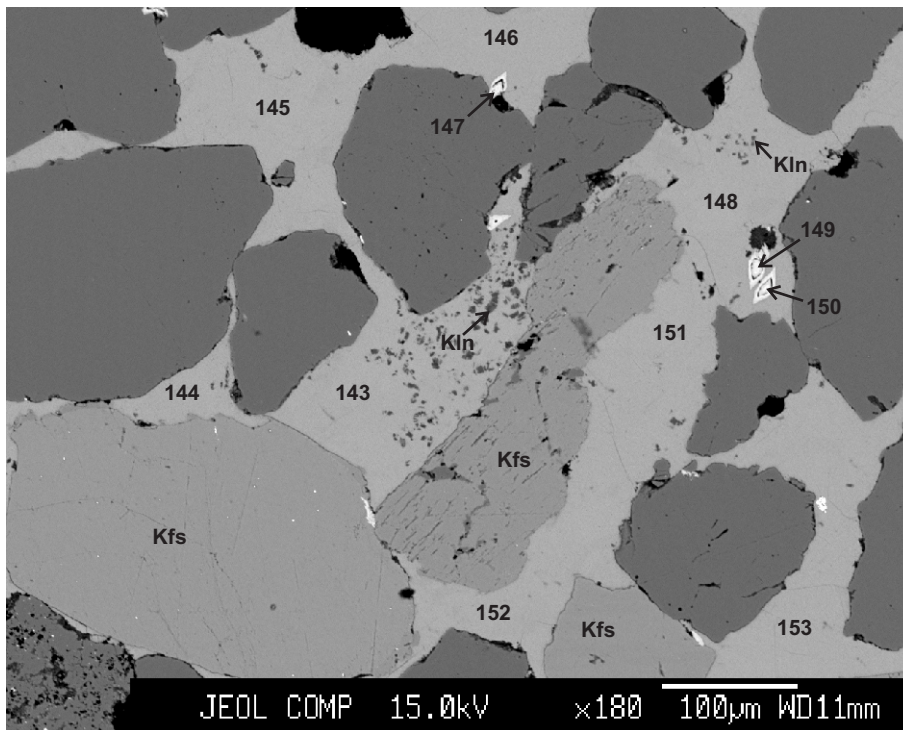
- 33: siderite
- 34: siderite
- 35: siderite
- 36: siderite
- 37: siderite
- 38: siderite
- 39: siderite

Figure 33: Cohasset A-52-2338.92



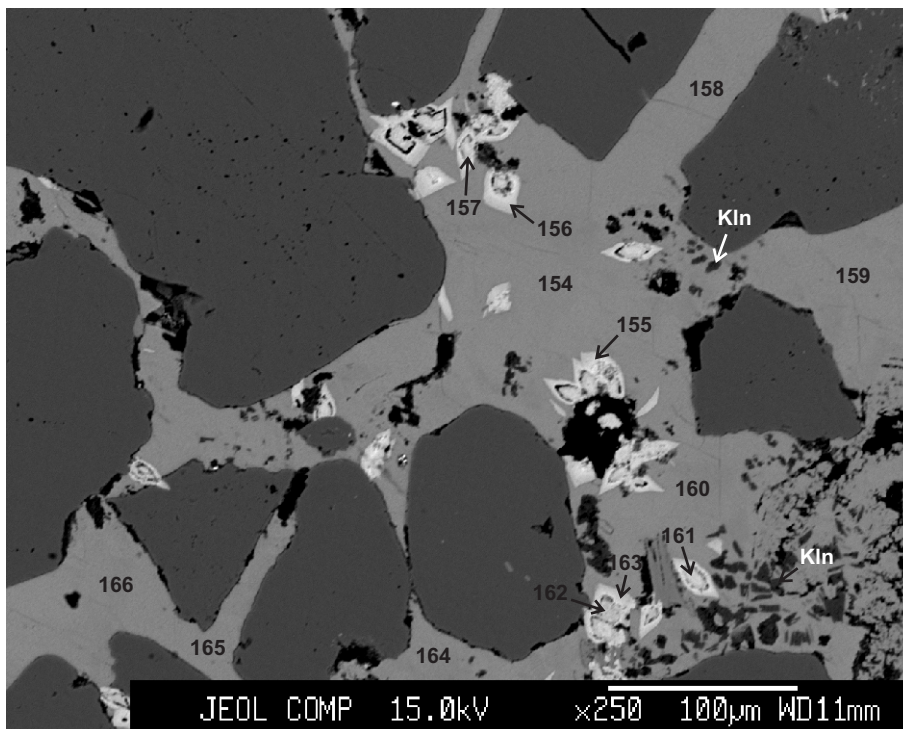
- 133: Fe-calcite
- 134: Fe-calcite
- 135: Fe-calcite
- 136: Fe-calcite
- 137: Fe-calcite
- 138: Fe-calcite
- 139: Fe-calcite
- 140: Fe-calcite
- 141: Fe-calcite
- 142: Fe-calcite

Figure 34: Cohasset A-52-2343.79



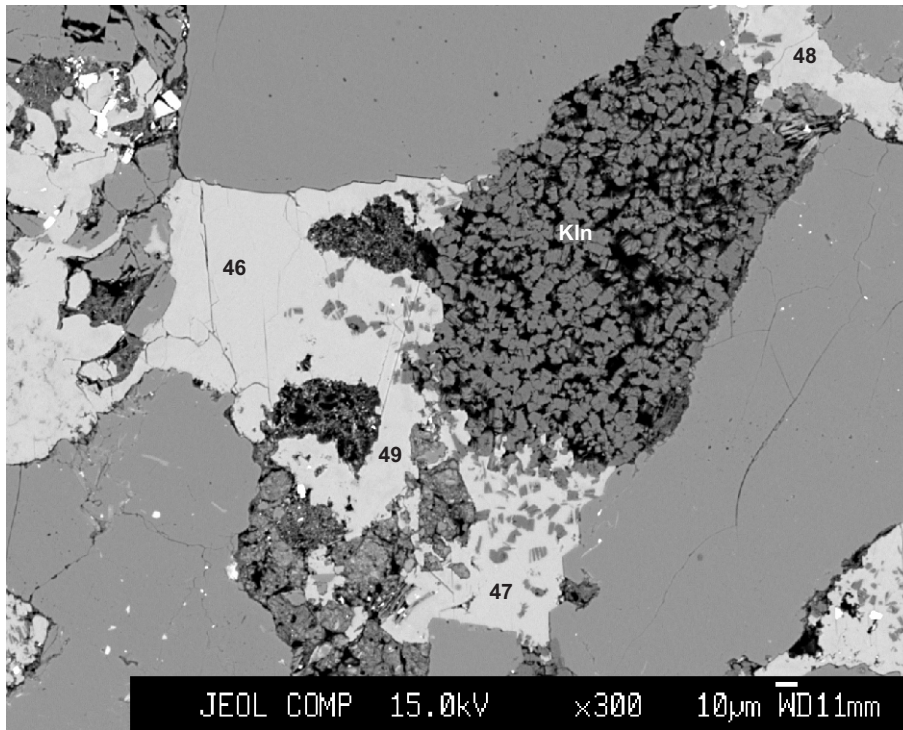
- 143: Fe-calcite
- 144: Fe-calcite
- 145: Fe-calcite
- 146: Fe-calcite
- 147: siderite
- 148: Fe-calcite
- 149: siderite
- 150: siderite
- 151: Fe-calcite
- 152: Fe-calcite
- 153: Fe-calcite

Figure 35: Cohasset A-52-2343.79



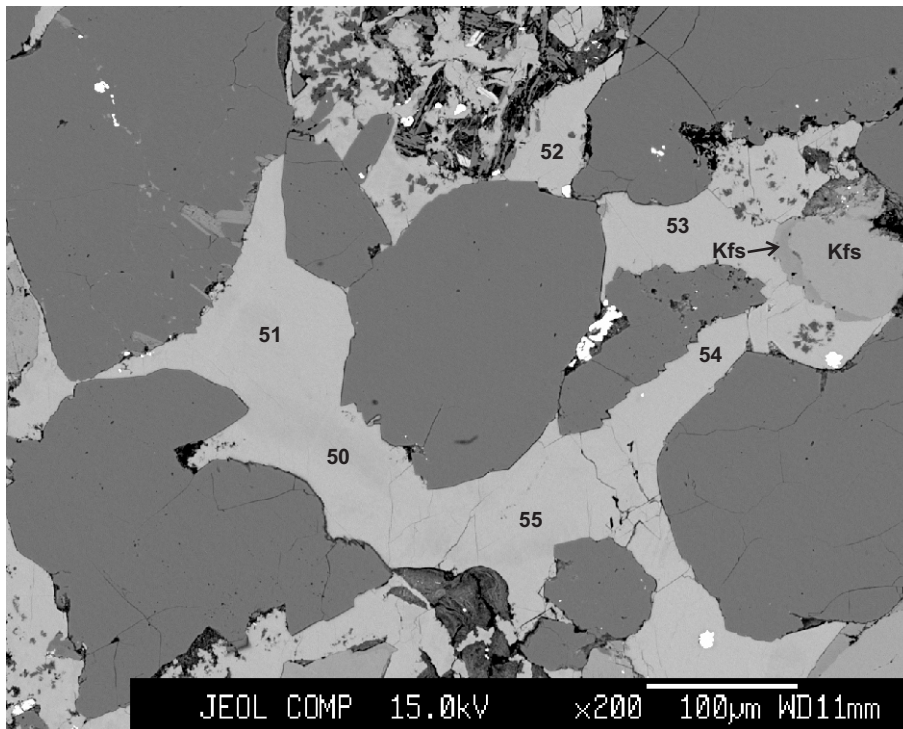
- 154: Fe-calcite
- 155: siderite
- 156: siderite
- 157: siderite
- 158: Fe-calcite
- 159: Fe-calcite
- 160: Fe-calcite
- 161: siderite
- 162: siderite
- 163: siderite
- 164: Fe-calcite
- 165: Fe-calcite
- 166: Fe-calcite

Figure 36: Cohasset A-52-2343.79



- 46: Fe-calcite
- 47: Fe-calcite
- 48: Fe-calcite
- 49: calcite

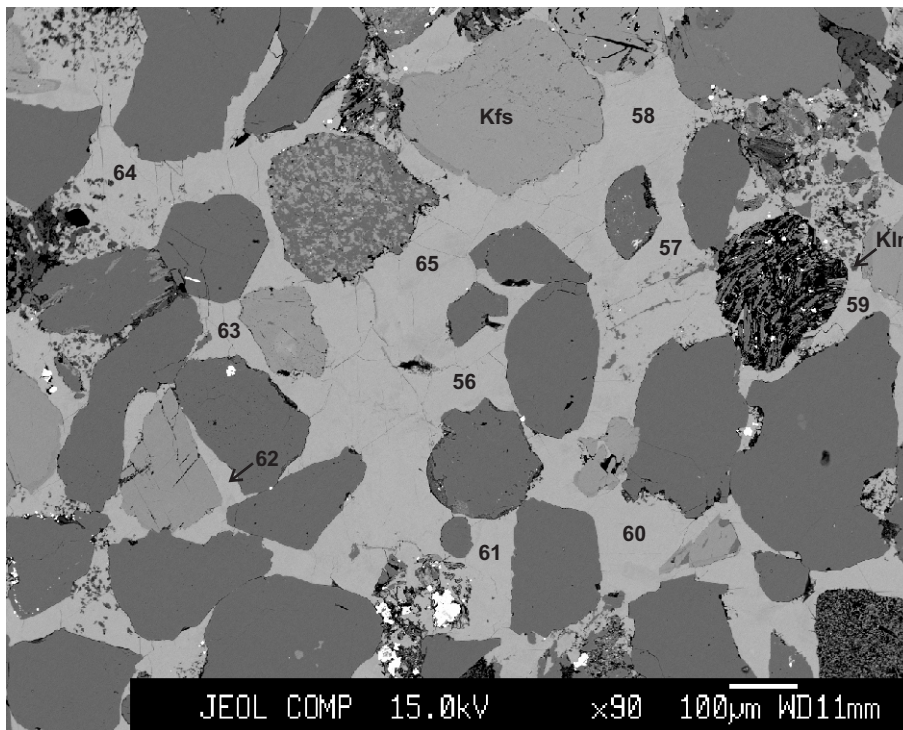
Figure 37: Cohasset A-52-2353.98



- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite

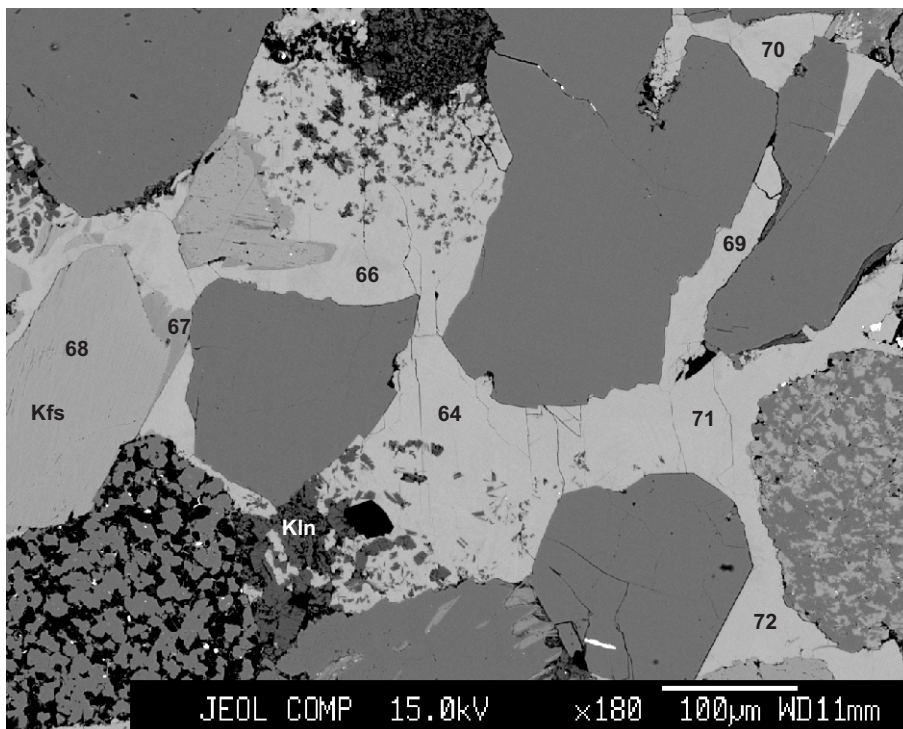
Figure 38: Cohasset A-52-2353.98





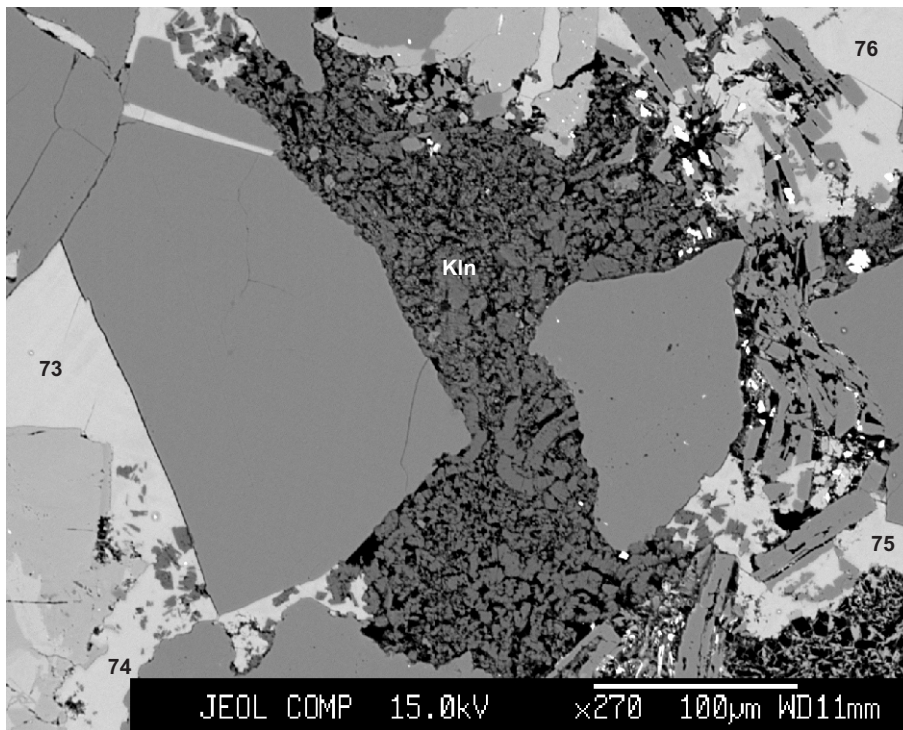
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite

Figure 39: Cohasset A-52-2353.98



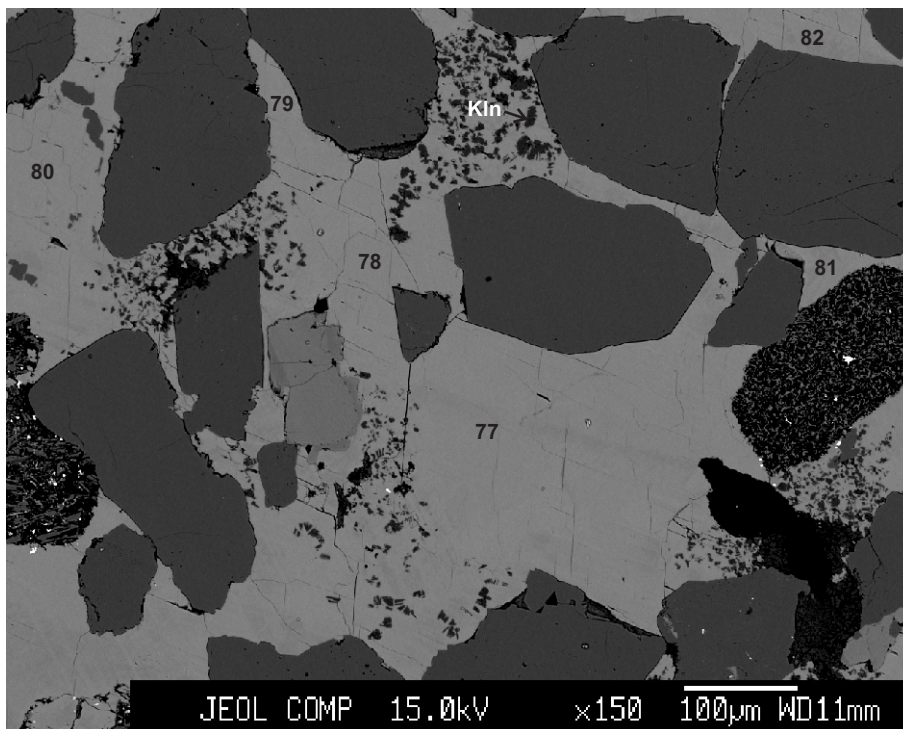
- 66: Fe-calcite
- 67: K-feldspar
- 68: K-feldspar
- 69: calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite

Figure 40: Cohasset A-52-2353.98



- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite
- 76: Fe-calcite

Figure 41: Cohasset A-52-2353.98



- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: calcite

Figure 42: Cohasset A-52-2353.98

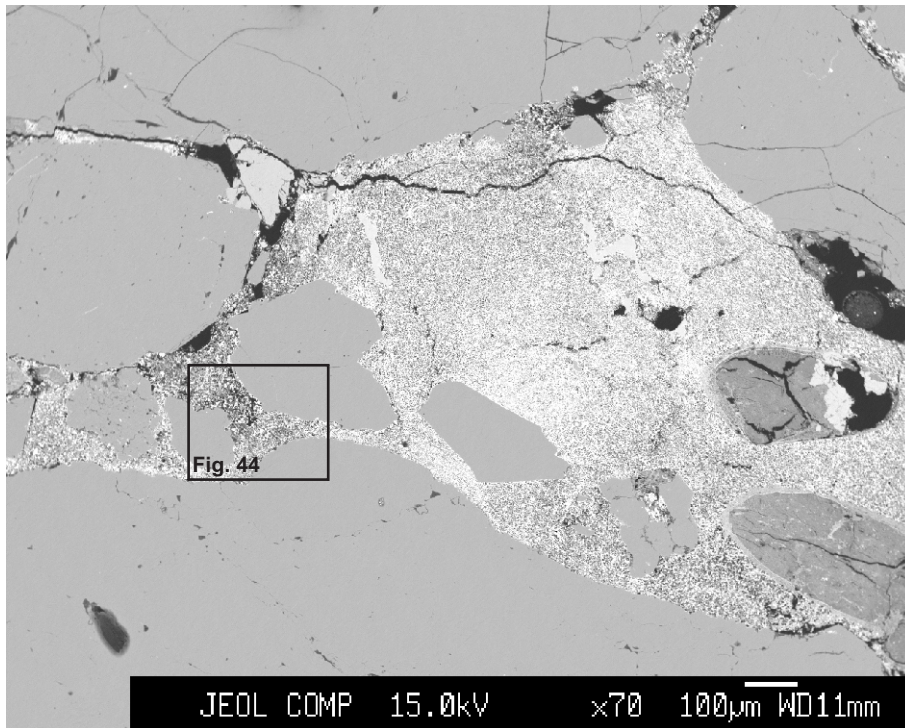
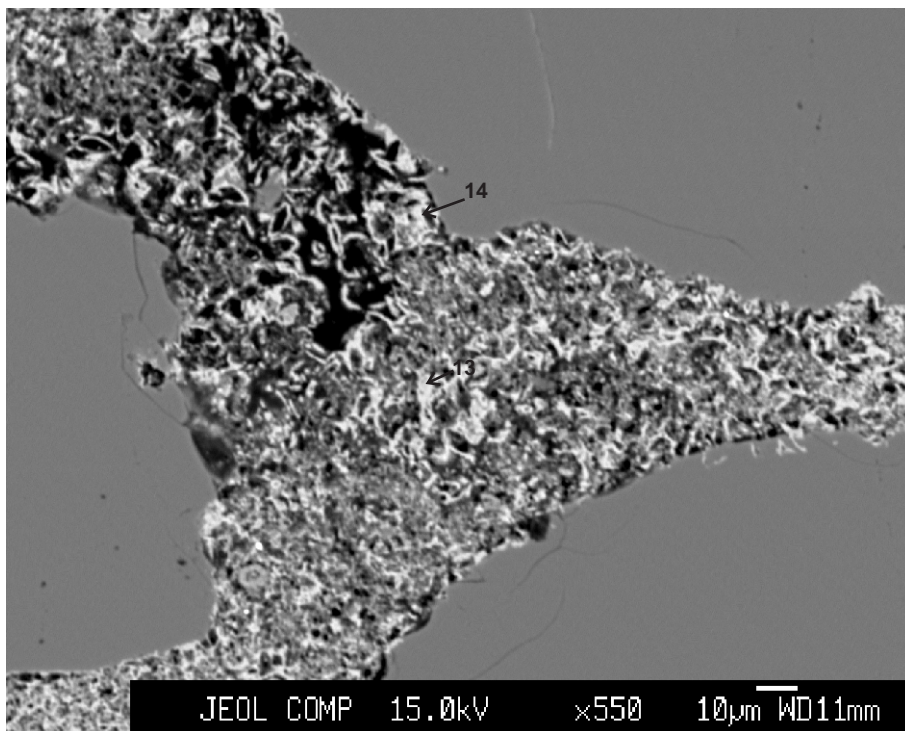
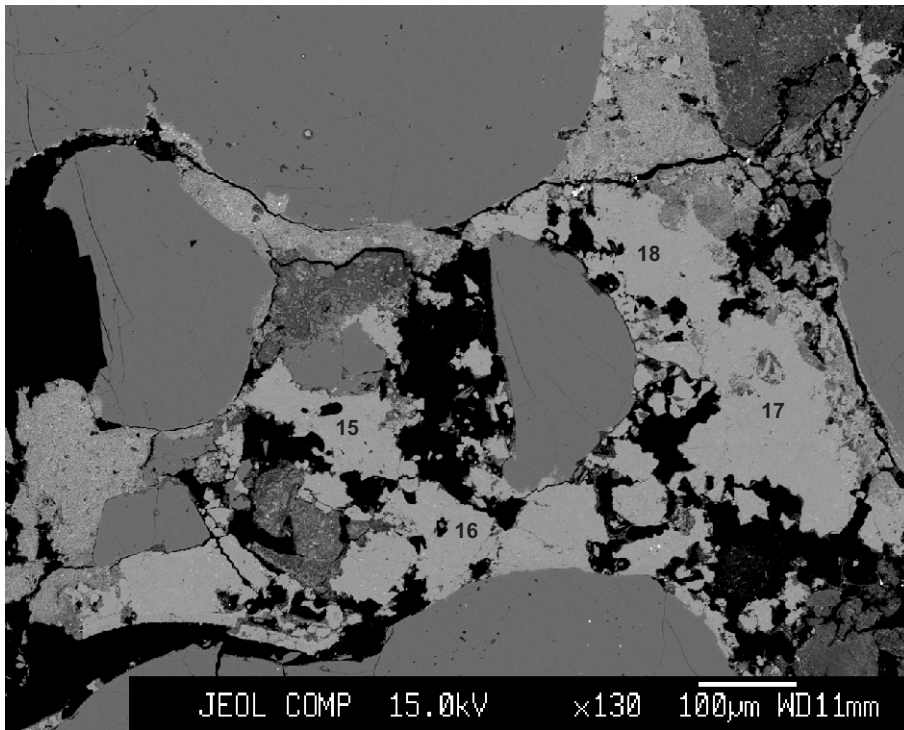


Figure 43: Cohasset A-52-2386.29



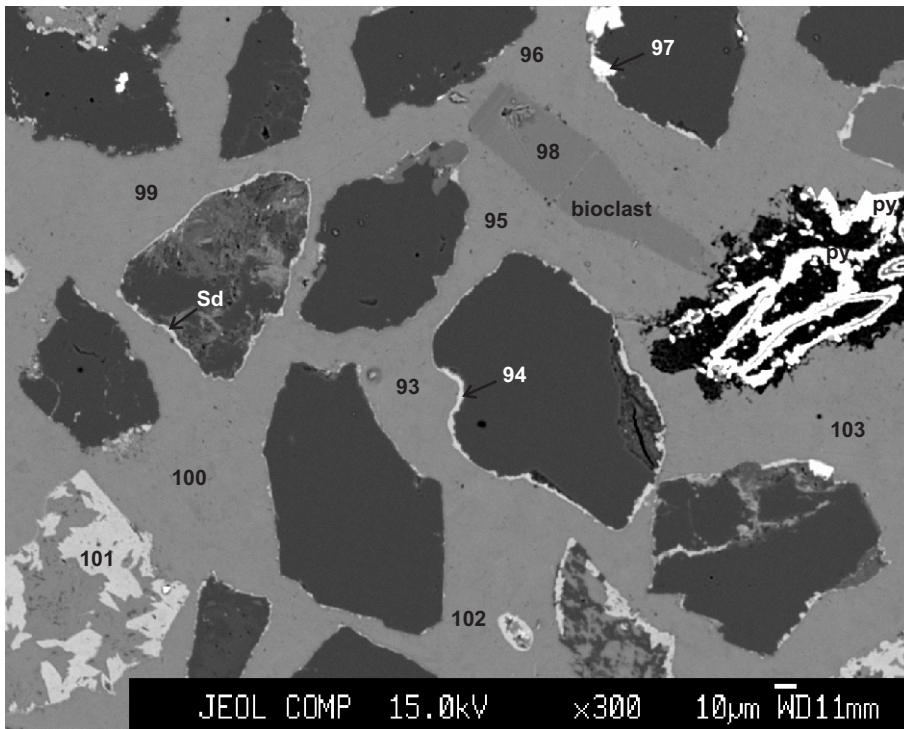
13: siderite  
14: siderite

Figure 44: Cohasset A-52-2386.29



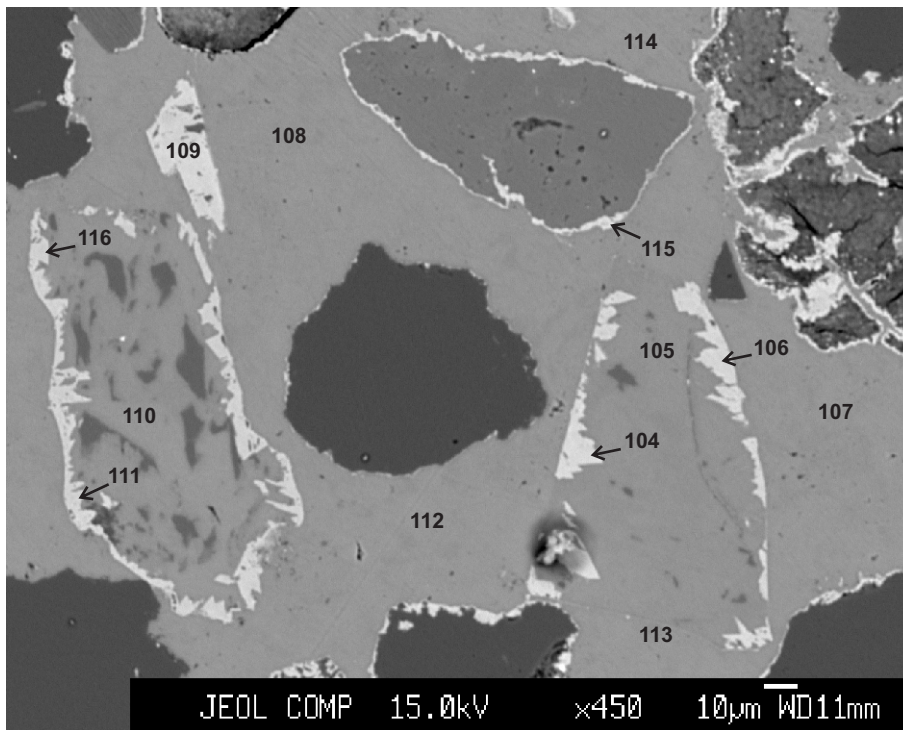
- 15: Fe-Mg-calcite
- 16: Fe-Mg-calcite
- 17: Fe-Mg-calcite
- 18: Fe-Mg-calcite

Figure 45: Cohasset A-52-2386.29



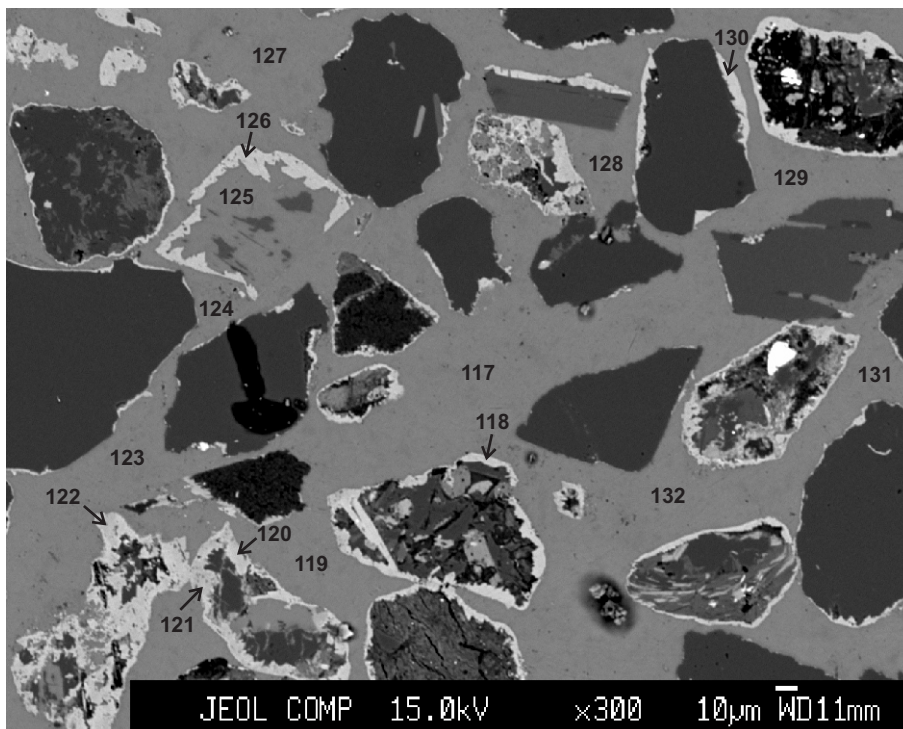
- 93: Fe-calcite
- 94: siderite + Qz
- 95: Fe-calcite
- 96: Fe-calcite
- 97: pseudorutile
- 98: Mg-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: siderite
- 102: Fe-calcite
- 103: Fe-calcite

Figure 46: Cohasset A-52-2421.04



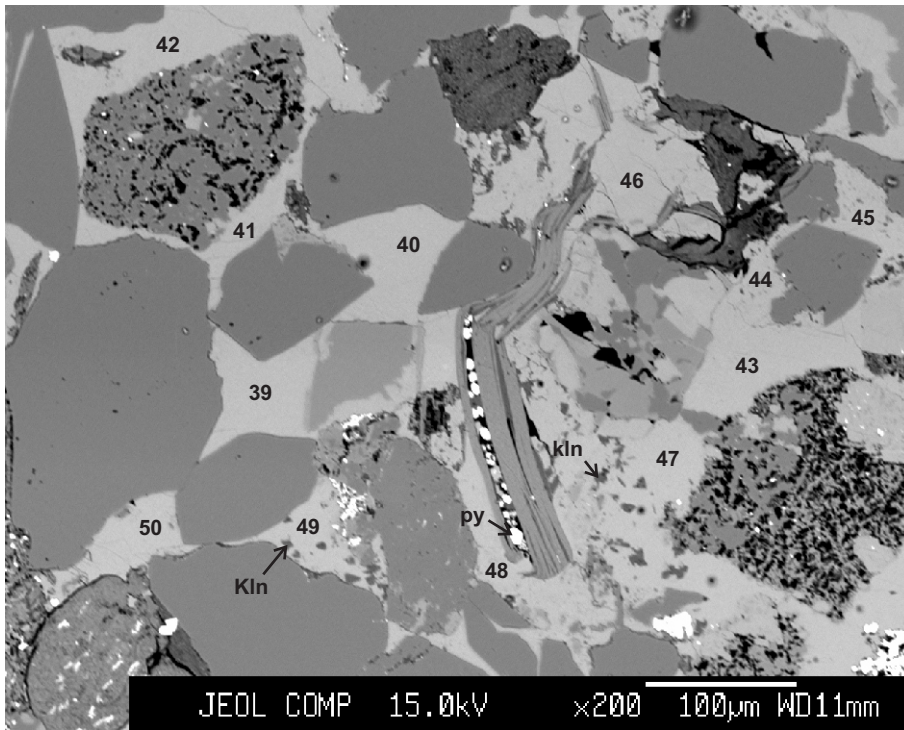
- 104: siderite
- 105: Fe-calcite
- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: siderite
- 110: Fe-calcite
- 111: siderite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: siderite + Qz
- 116: siderite

Figure 47: Cohasset A-52-2421.04



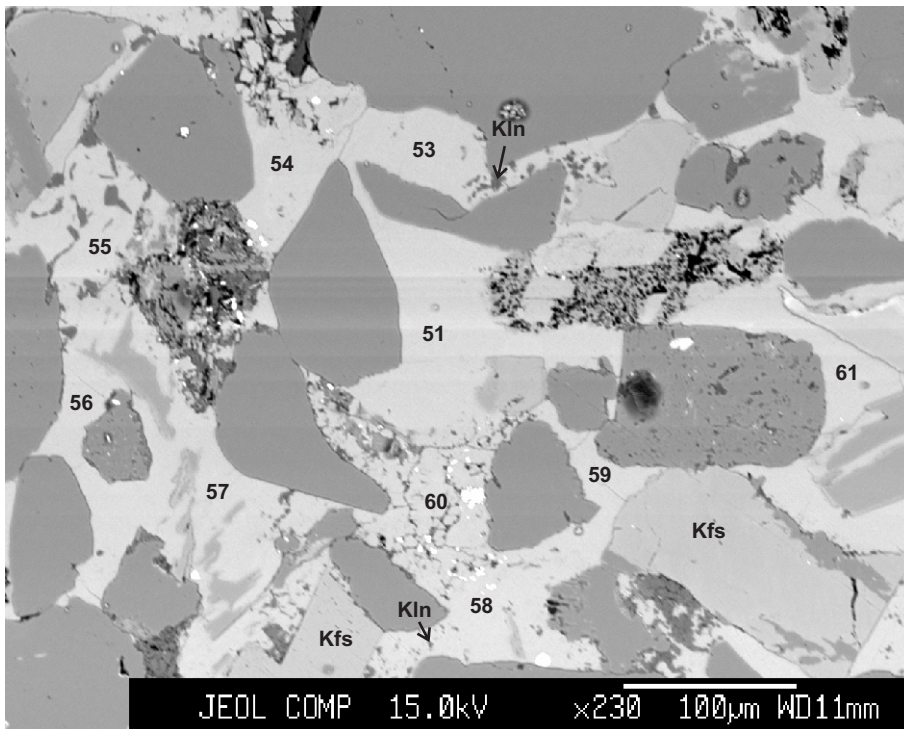
- 117: Fe-calcite
- 118: siderite
- 119: Fe-calcite
- 120: siderite
- 121: siderite
- 122: siderite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: siderite
- 127: Fe-calcite
- 128: Fe-calcite
- 129: Fe-calcite
- 130: siderite
- 131: Fe-calcite
- 132: Fe-calcite

Figure 48: Cohasset A-52-2421.04



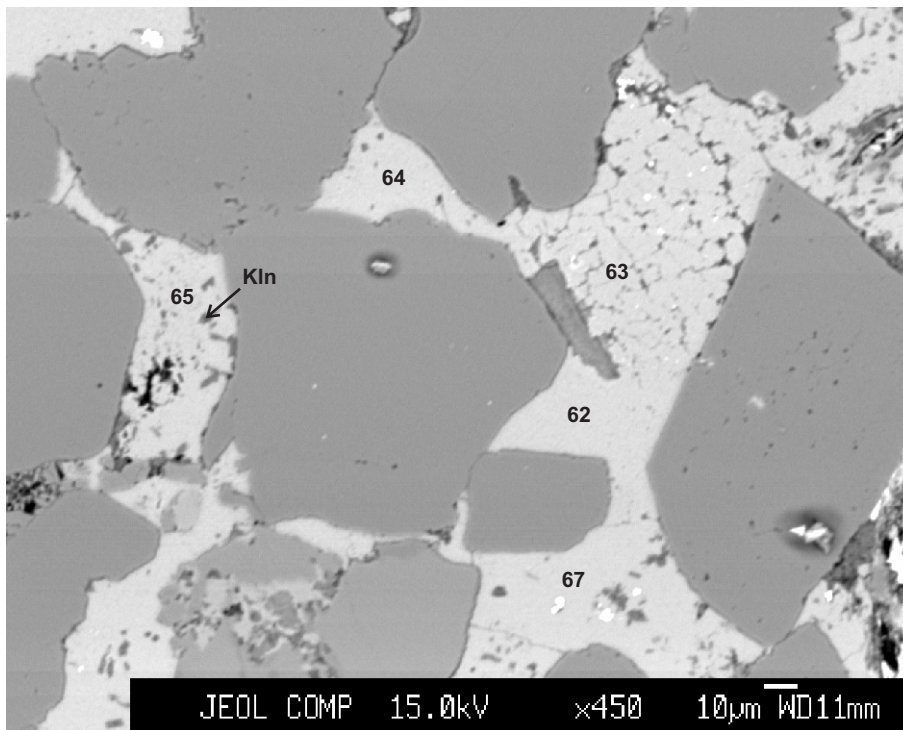
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite
- 44: Fe-calcite
- 45: Fe-calcite
- 46: Fe-calcite
- 47: Fe-calcite
- 48: Fe-calcite
- 49: Fe-calcite
- 50: Fe-calcite

Figure 49: Cohasset A-52-2440.04



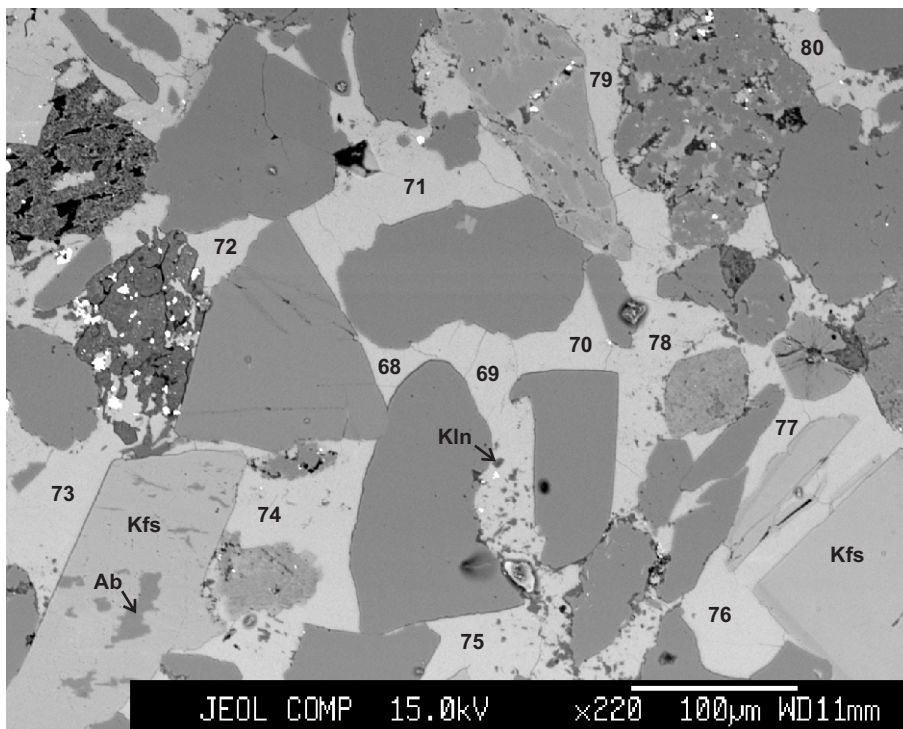
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite

Figure 50: Cohasset A-52-2440.04



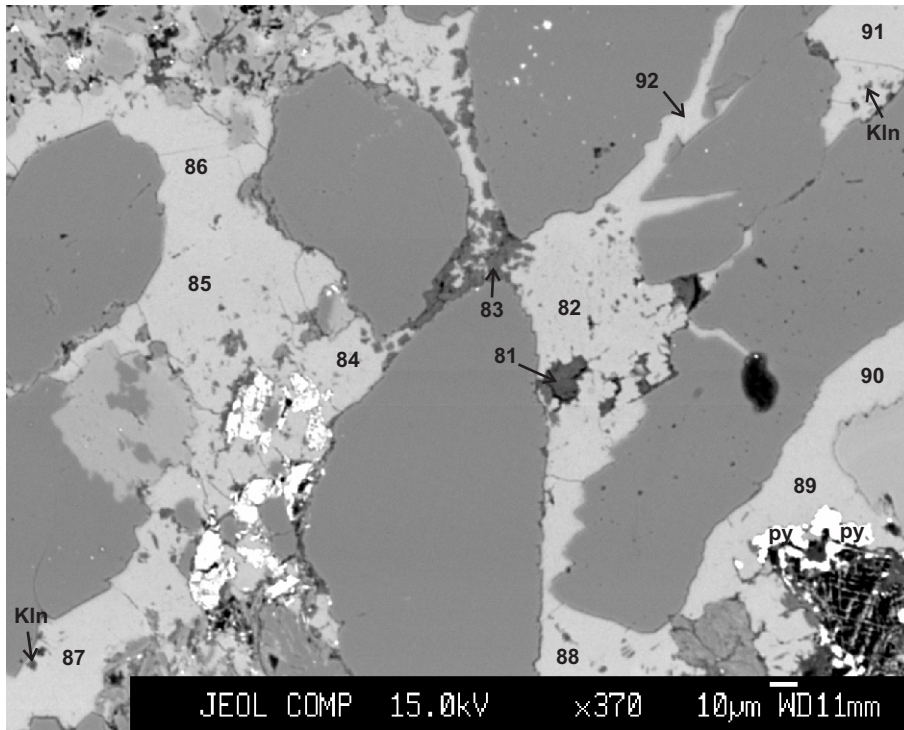
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: Fe-calcite

Figure 51: Cohasset A-52-2440.04



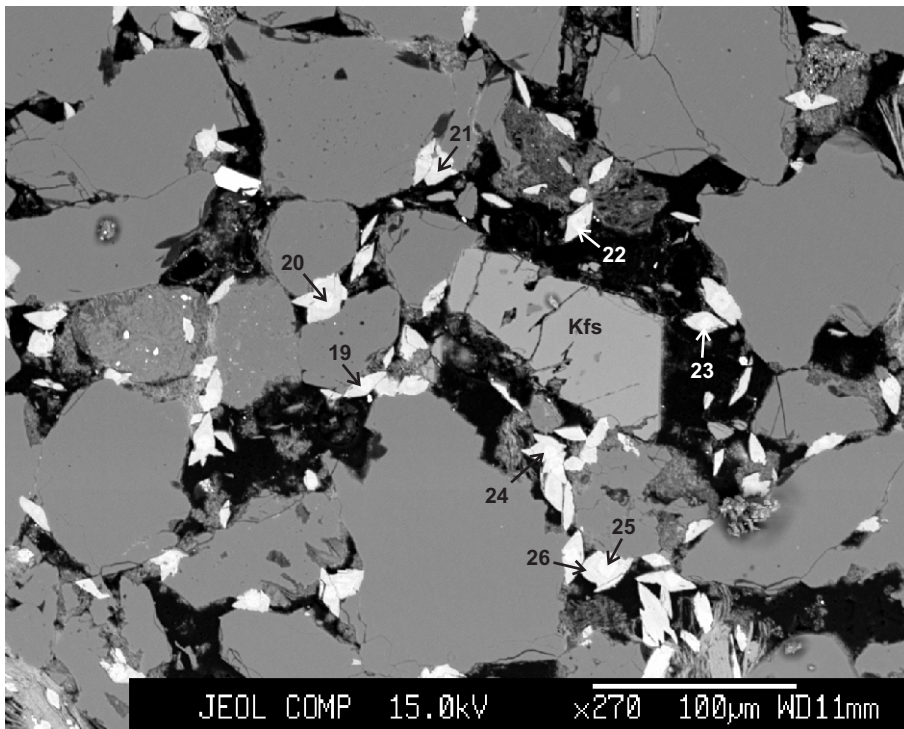
- 68: Fe-calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite

Figure 52: Cohasset A-52-2440.04



- 81: chlorite
- 82: Fe-calcite
- 83: kaolinite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite

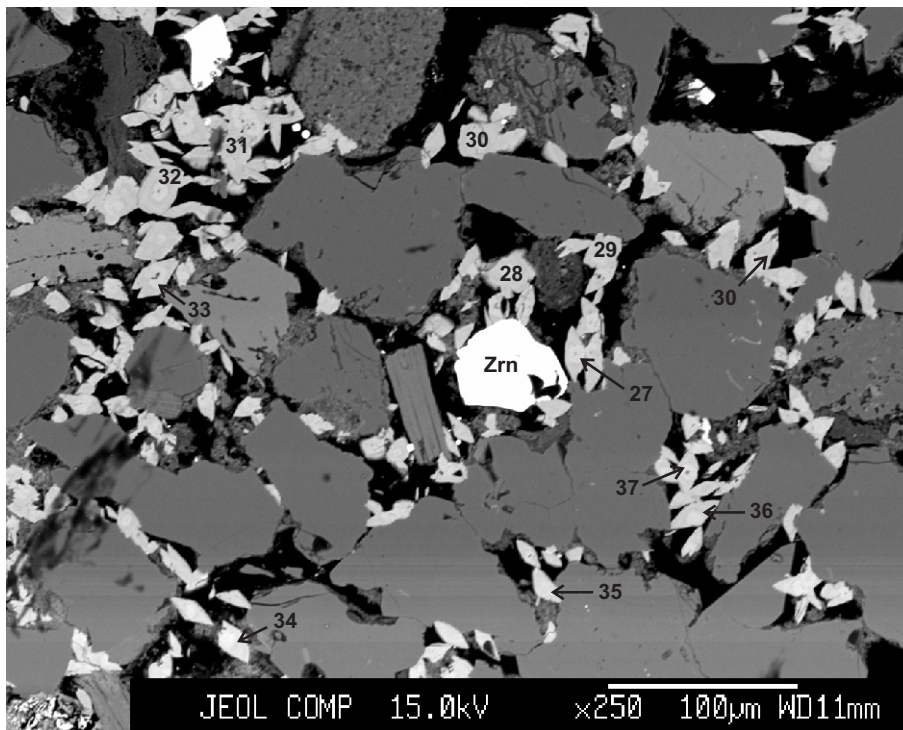
Figure 53: Cohasset A-52-2440.04



- 19: siderite
- 20: siderite
- 21: siderite
- 22: siderite
- 23: siderite
- 24: siderite
- 25: siderite
- 26: siderite

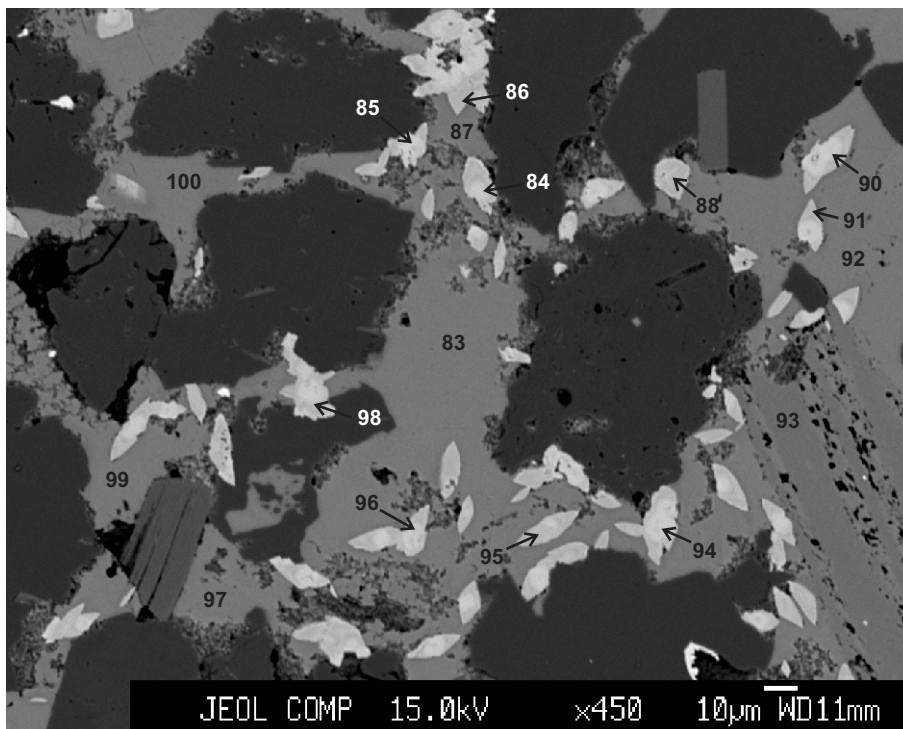
Figure 54: Cohasset A-52-2602.65





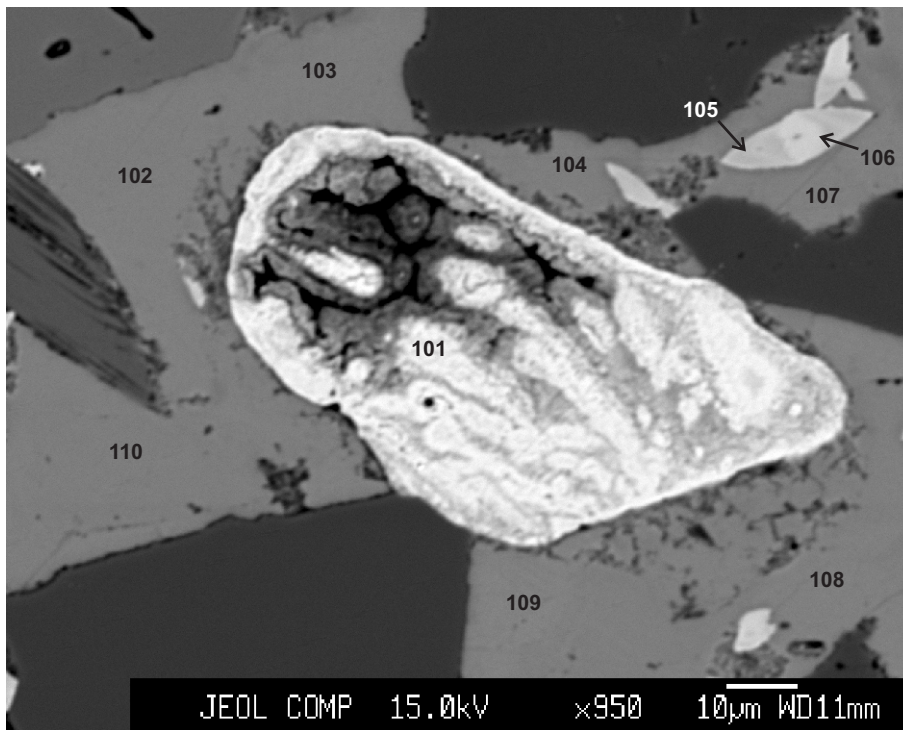
- 27: siderite
- 28: siderite
- 29: siderite
- 30: siderite
- 31: siderite
- 32: siderite
- 33: siderite
- 34: siderite
- 35: siderite
- 36: siderite
- 37: siderite
- 38: siderite

Figure 55: Cohasset A-52-2602.65



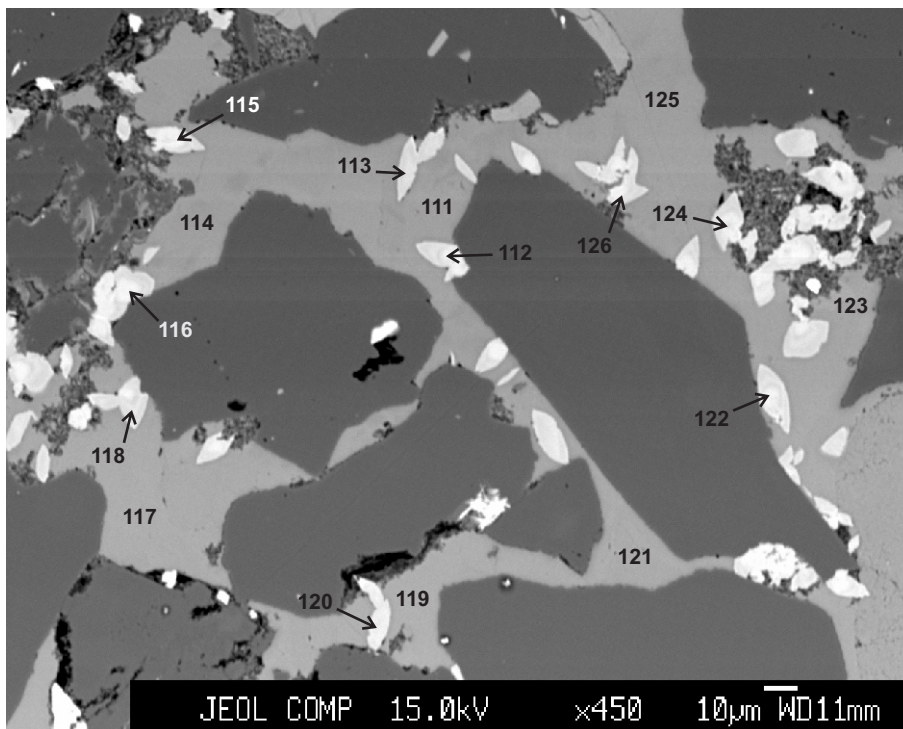
- 83: Fe-calcite
- 84: siderite
- 85: siderite
- 86: siderite
- 87: Fe-calcite
- 88: siderite
- 89: Fe-calcite
- 90: siderite
- 91: siderite
- 92: Fe-calcite
- 93: calcite
- 94: siderite
- 95: siderite
- 96: siderite
- 97: Fe-calcite
- 98: siderite
- 99: Fe-calcite
- 100: Fe-calcite

Figure 56: Cohasset A-52-2603.49



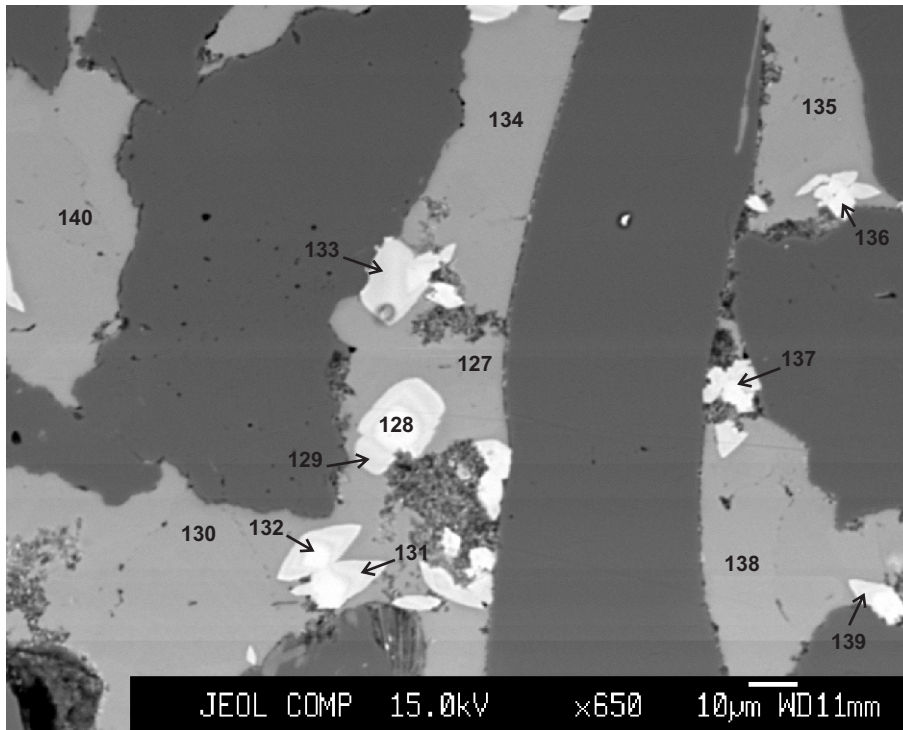
- 101: pseudorutile
- 102: Fe-calcite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: siderite
- 106: siderite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

Figure 57: Cohasset A-52-2603.49



- 111: Fe-calcite
- 112: siderite
- 113: siderite
- 114: Fe-calcite
- 115: siderite
- 116: siderite
- 117: Fe-calcite
- 118: siderite
- 119: Fe-calcite
- 120: siderite
- 121: Fe-calcite
- 122: siderite
- 123: Fe-calcite
- 124: siderite
- 125: Fe-calcite
- 126: siderite

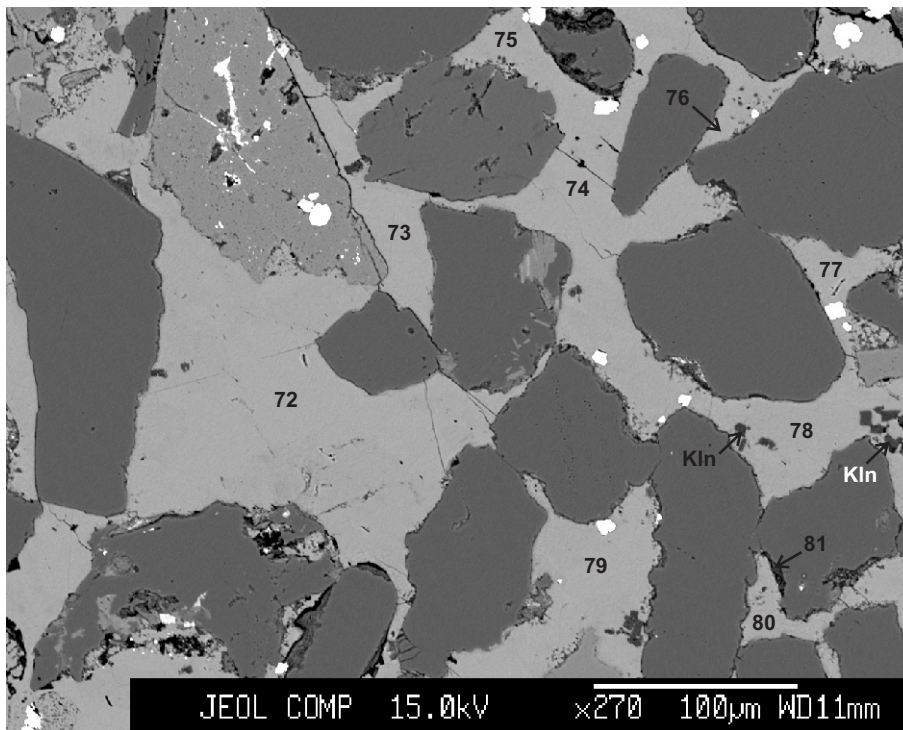
Figure 58: Cohasset A-52-2603.49



- 127: Fe-calcite
- 128: siderite
- 129: siderite
- 130: Fe-calcite
- 131: siderite
- 132: siderite
- 133: siderite
- 134: Fe-calcite
- 135: Fe-calcite
- 136: siderite
- 137: siderite
- 138: Fe-calcite
- 139: siderite
- 140: Fe-calcite

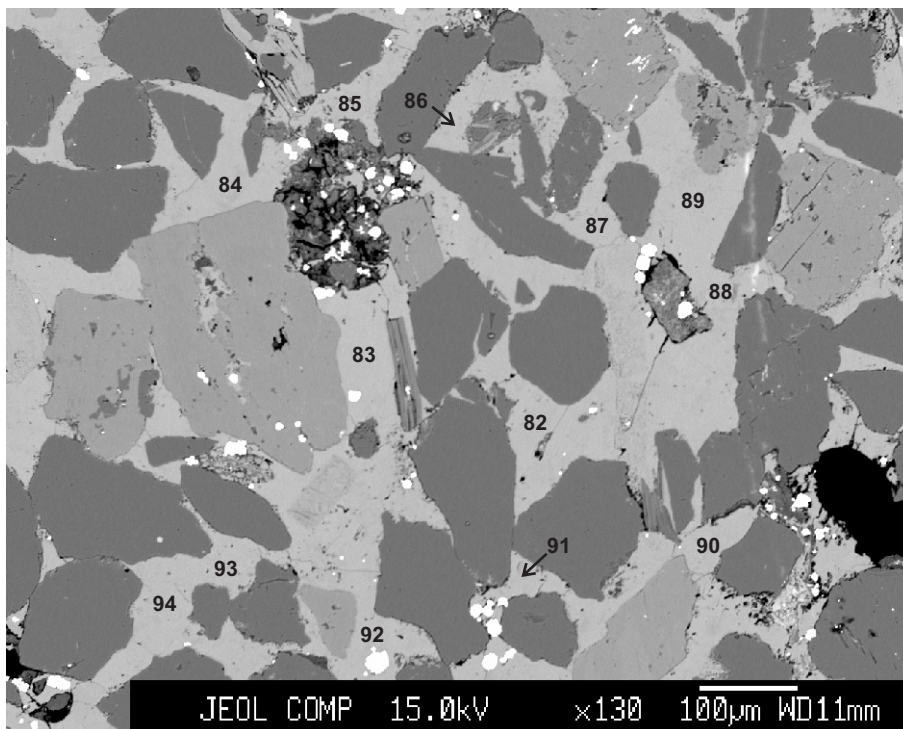
Figure 59: Cohasset A-52-2603.49

Appendix 2D : Back-scattered electron (BSE) images for the  
Balmoral M-32 sandstones studied by electron microprobe



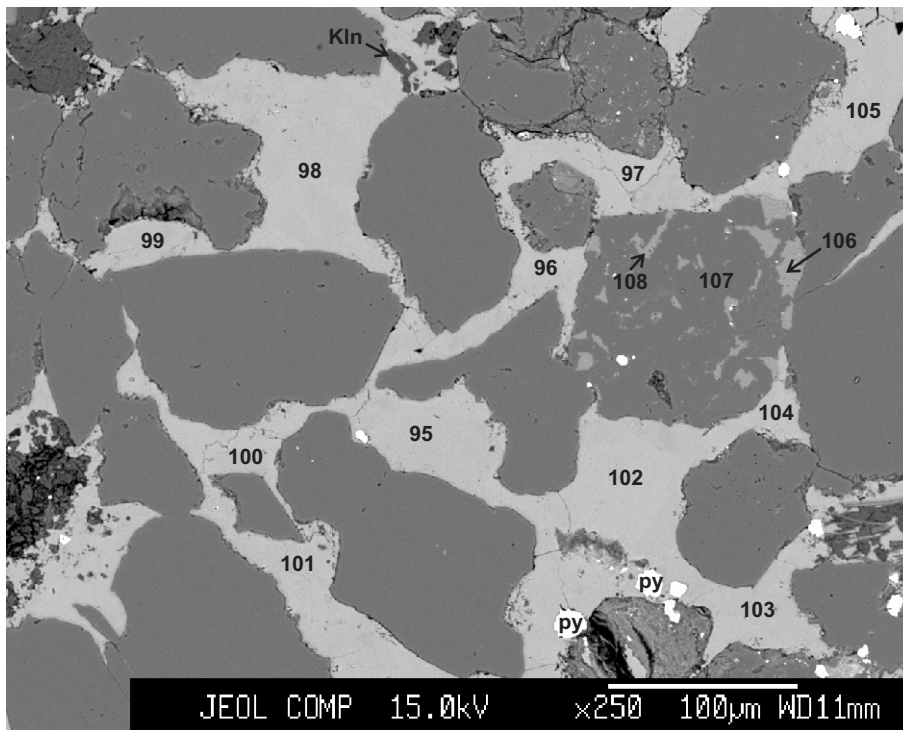
- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: clay (illite + chlorite)

Figure 1: Balmoral M-32-1971.88



- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: calcite

Figure 2: Balmoral M-32-1971.88



- 95: Fe-calcite
- 96: Fe-calcite
- 97: Fe-calcite
- 98: Fe-calcite
- 99: calcite
- 100: Fe-calcite
- 101: Fe-calcite
- 102: Fe-calcite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: Fe-calcite
- 106: K-feldspar
- 107: albite
- 108: K-feldspar

Figure 3: Balmoral M-32-1971.88

Appendix 2 : Back-scattered electron (BSE) images for the sandstones  
from the studied wells studied by electron microprobe

A: Como P-21

B: Panuke B-90

C: Cohasset A-52

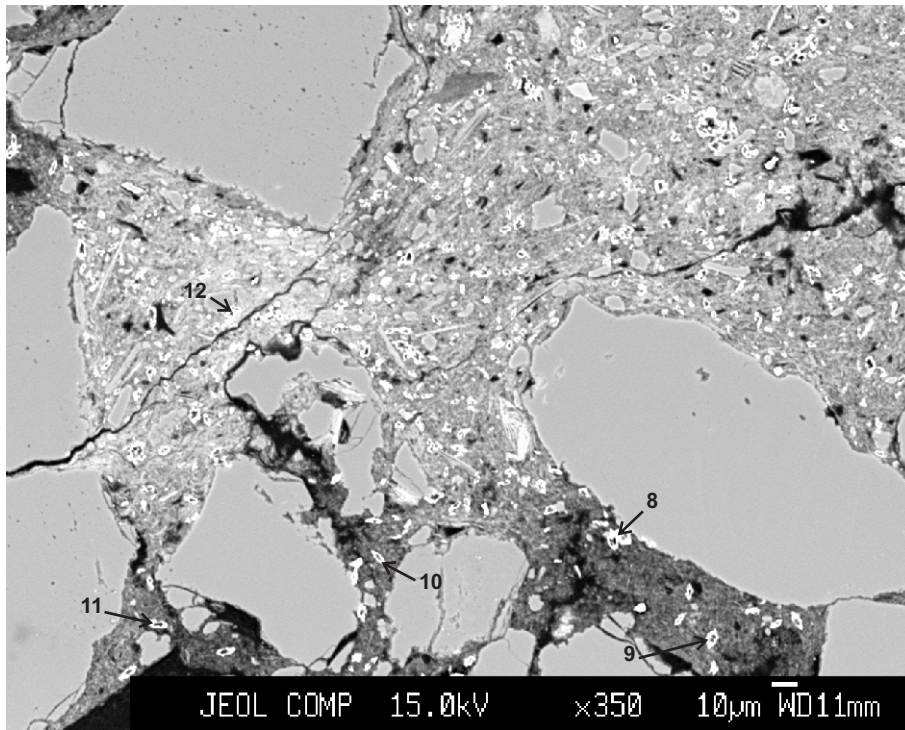
D: Balmoral M-32

E: Lawrence D-14

Note: Mineral symbols after Whitney and Evans (2010)

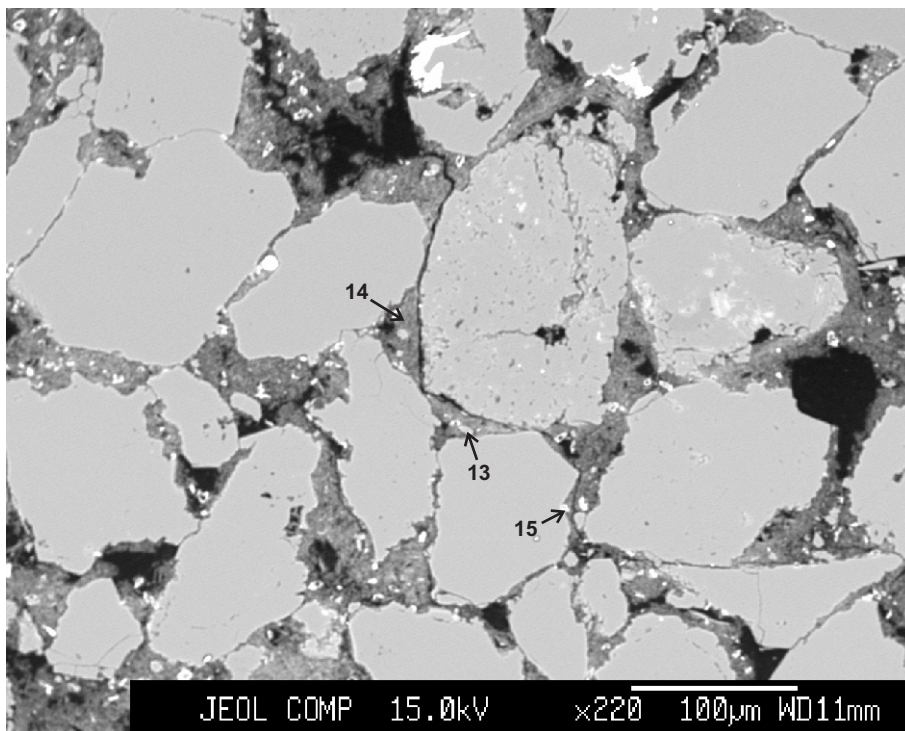
Appendix 2A : Back-scattered electron (BSE) images for the Como P-21 sandstones studied by electron microprobe





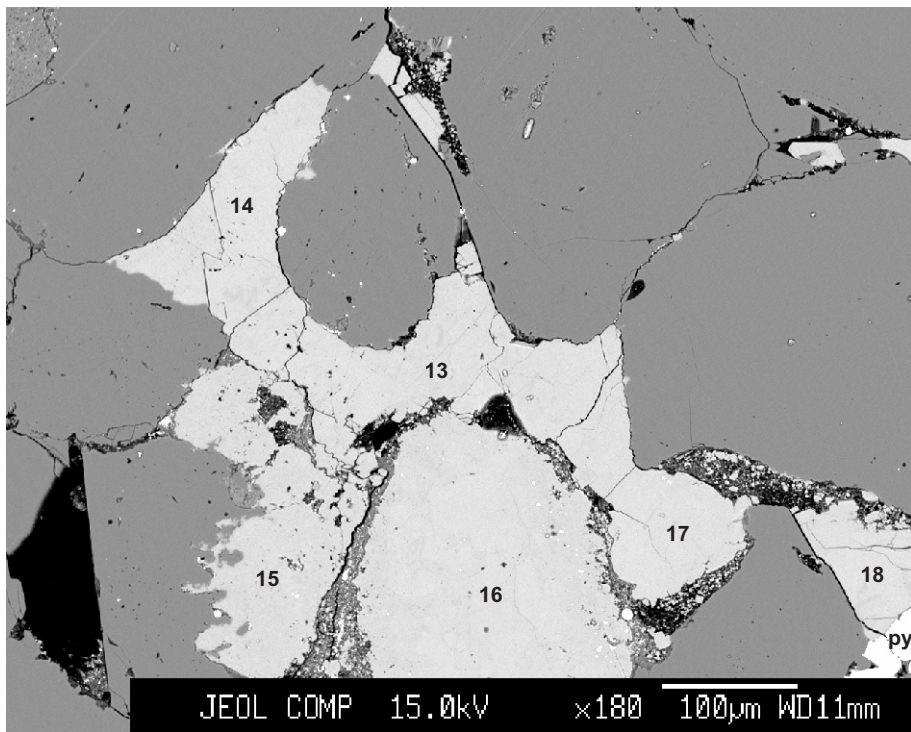
- 8: siderite + clay
- 9: siderite + clay
- 10: siderite + clay
- 11: siderite + clay
- 12: siderite + clay

Figure 1: Como P-21-2193.7



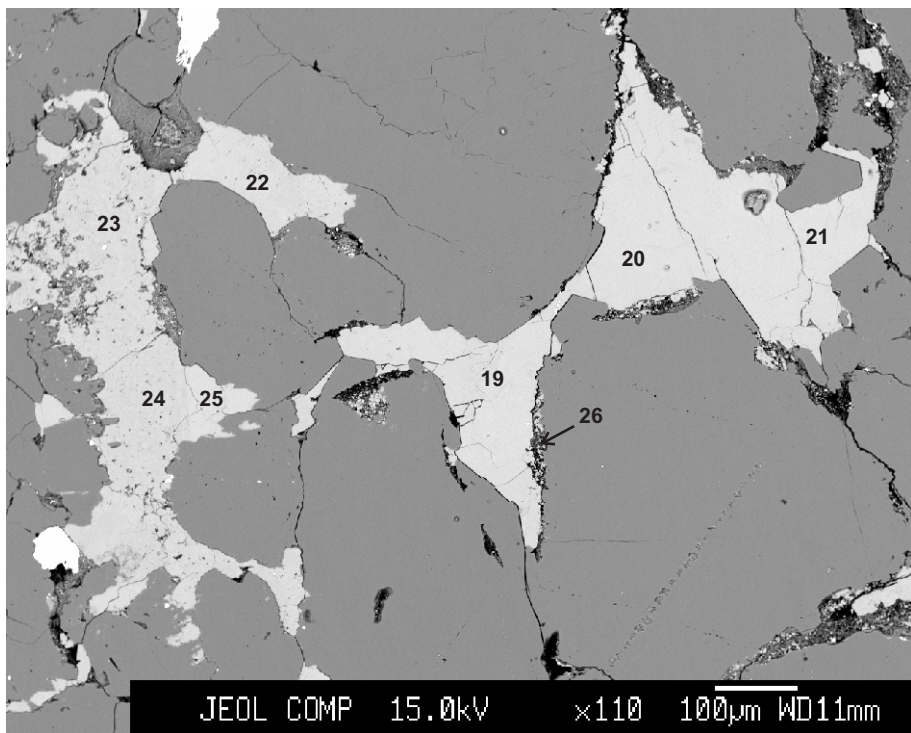
- 13: siderite + clay
- 14: clay
- 15: siderite + clay

Figure 2: Como P-21-2193.7



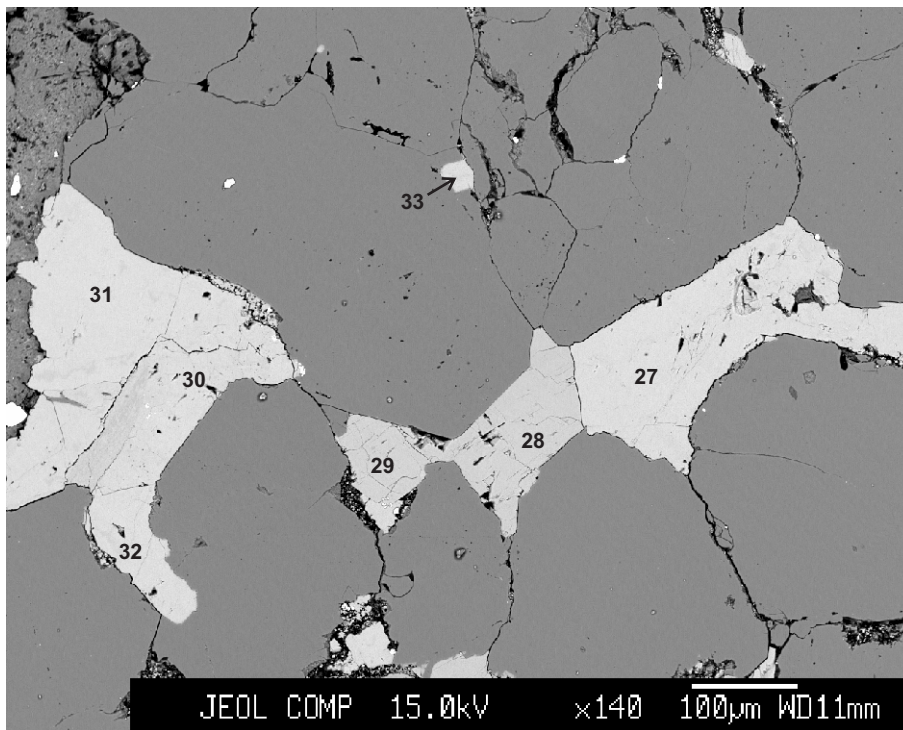
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite
- 17: Fe-calcite
- 18: Fe-calcite

Figure 3: Como P-21-2956.93



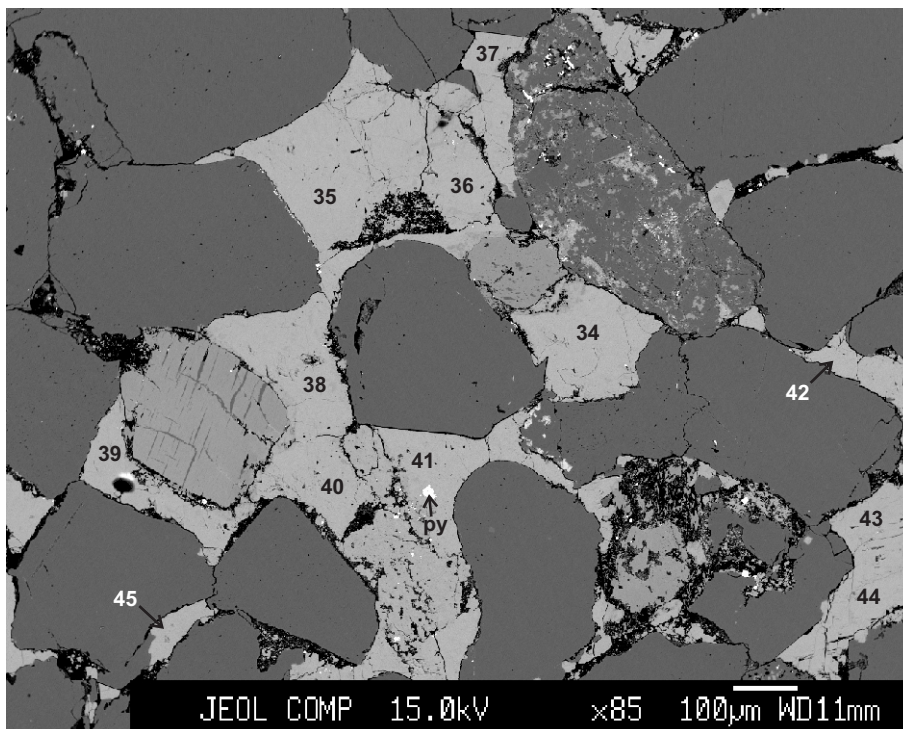
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: clay

Figure 4: Como P-21-2956.93



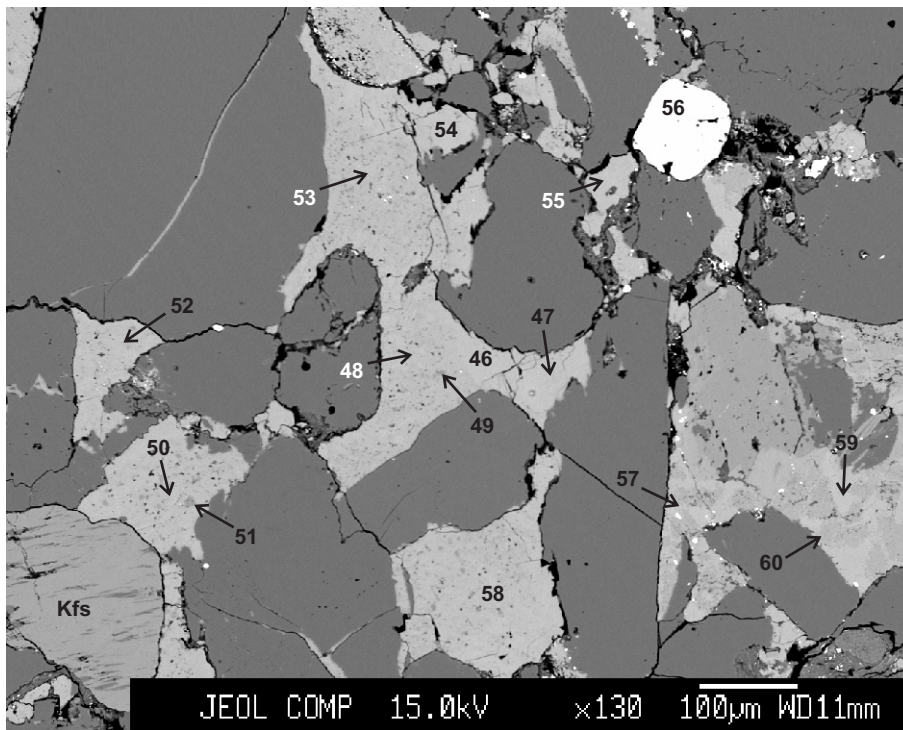
- 27: Fe-calcite
- 28: ankerite
- 29: ankerite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: calcite
- 33: calcite

Figure 5: Como P-21-2956.93



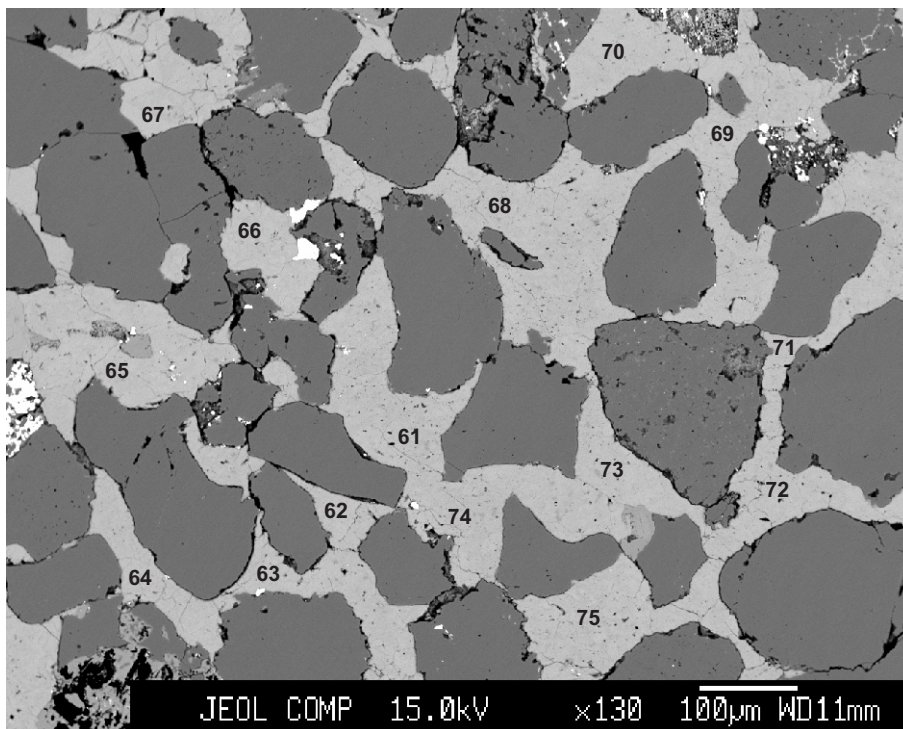
- 34: Fe-calcite
- 35: Fe-calcite
- 36: Fe-calcite
- 37: calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: calcite
- 44: Fe-calcite
- 45: Fe-calcite

Figure 6: Como P-21-2956.93



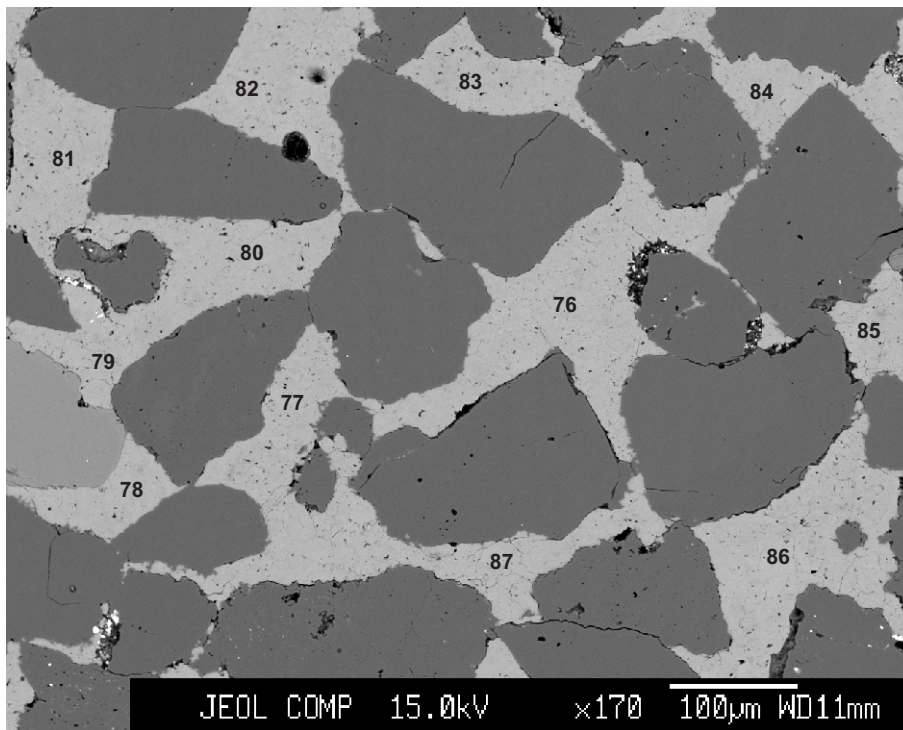
- 46: calcite
- 47: calcite
- 48: calcite
- 49: ankerite
- 50: calcite
- 51: ankerite
- 52: calcite
- 53: calcite
- 54: calcite
- 55: calcite
- 56: chromite
- 57: ankerite
- 58: Fe-Mg-calcite
- 59: ankerite
- 60: Fe-Mg-calcite

Figure 7: Como P-21-2969.48



- 61: calcite
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: calcite
- 68: calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: calcite
- 75: Fe-calcite

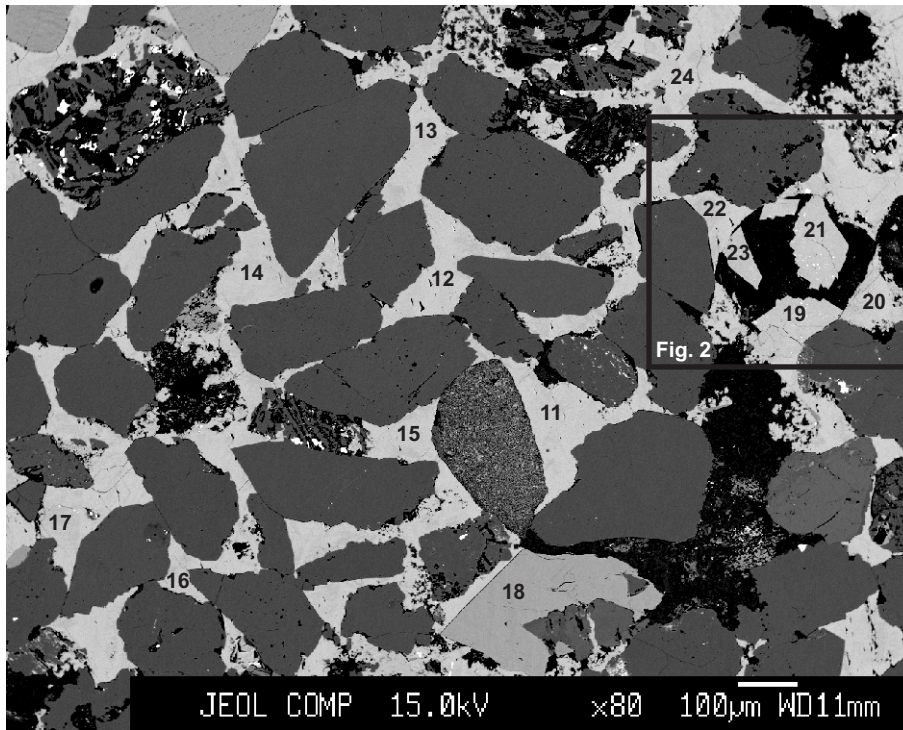
Figure 8: Como P-21-2969.48



- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite

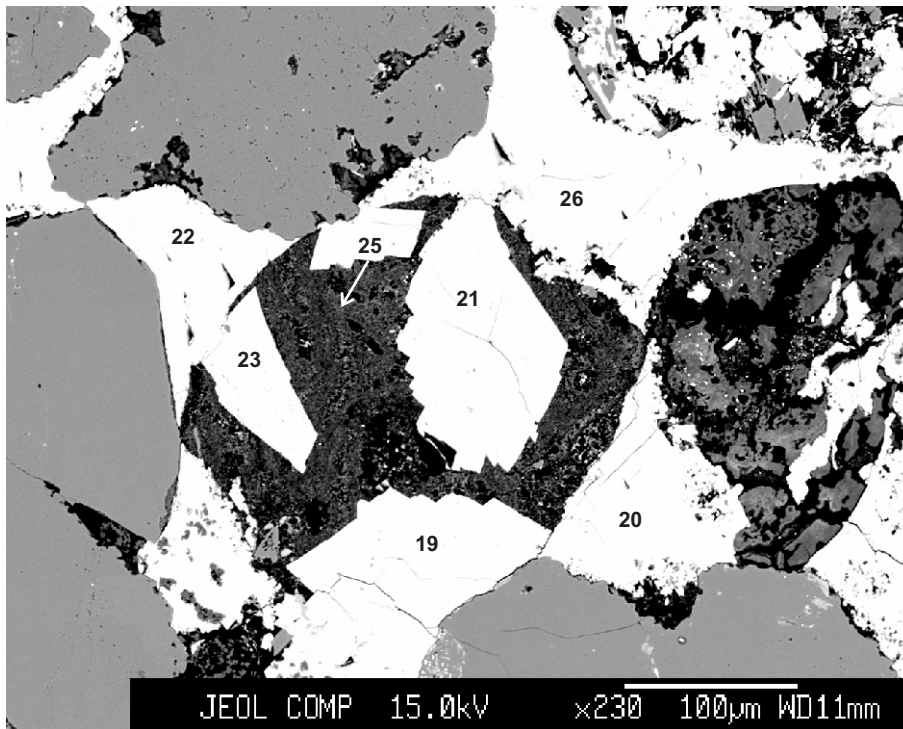
Figure 9: Como P-21-2969.48

Appendix 2B : Back-scattered electron (BSE) images for the Panuke  
B-90 sandstones studied by electron microprobe



- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite
- 17: calcite
- 18: K-feldspar
- 19: ankerite
- 20: Fe-calcite
- 21: ankerite
- 22: calcite
- 23: ankerite
- 24: Fe-calcite

Figure 1: Panuke B-90-2069.01



- 19: ankerite
- 20: Fe-calcite
- 21: ankerite
- 22: calcite
- 23: ankerite
- 24: Fe-calcite
- 25: illite
- 26: Fe-calcite

Figure 2: Panuke B-90-2069.01

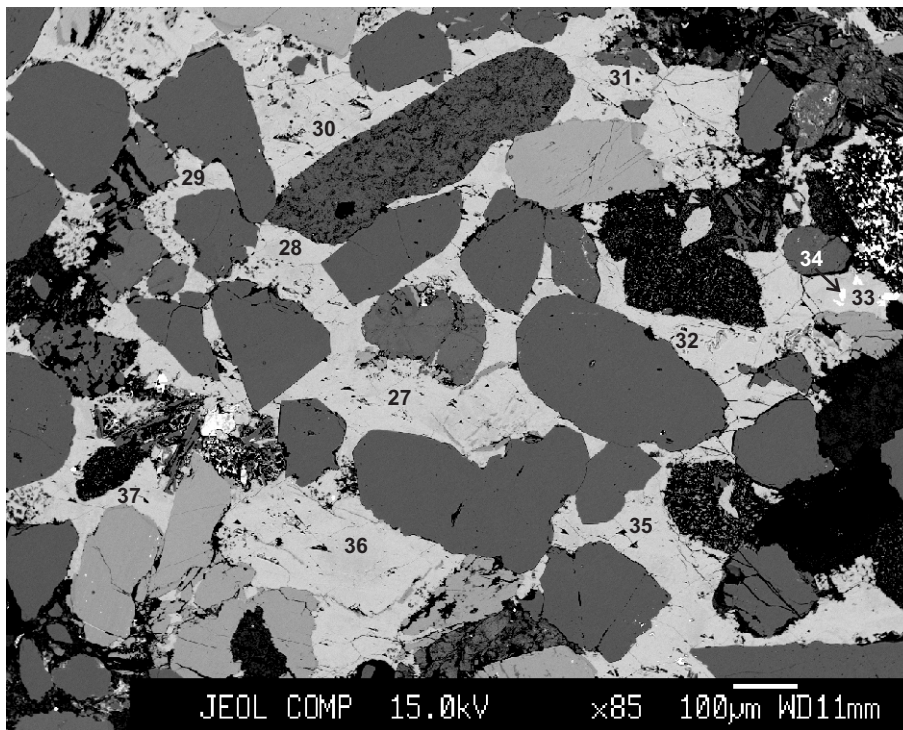


Figure 3: Panuke B-90-2069.01

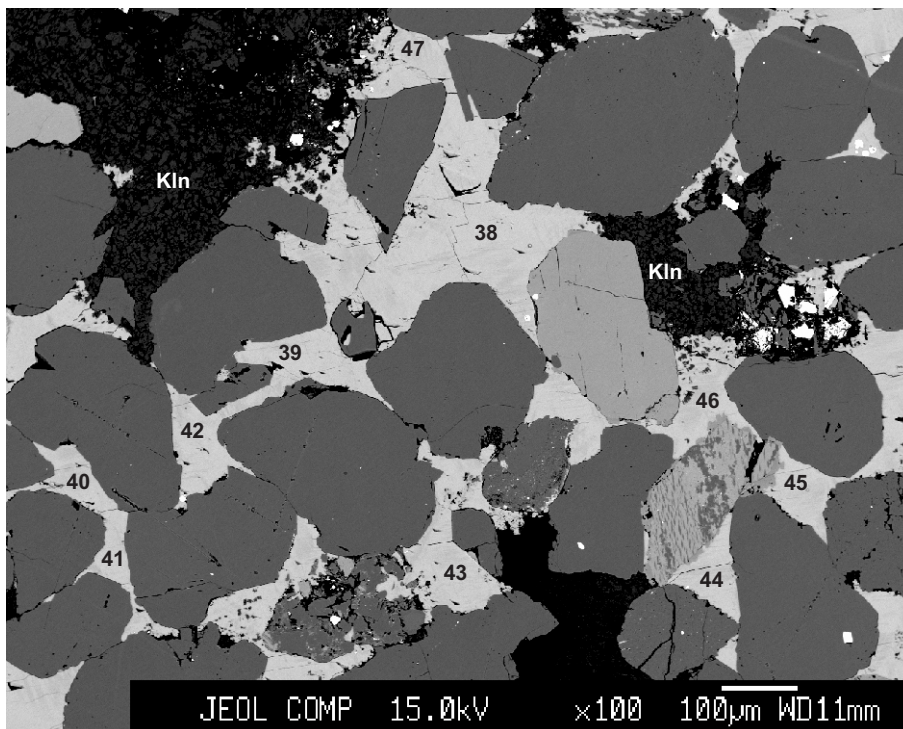
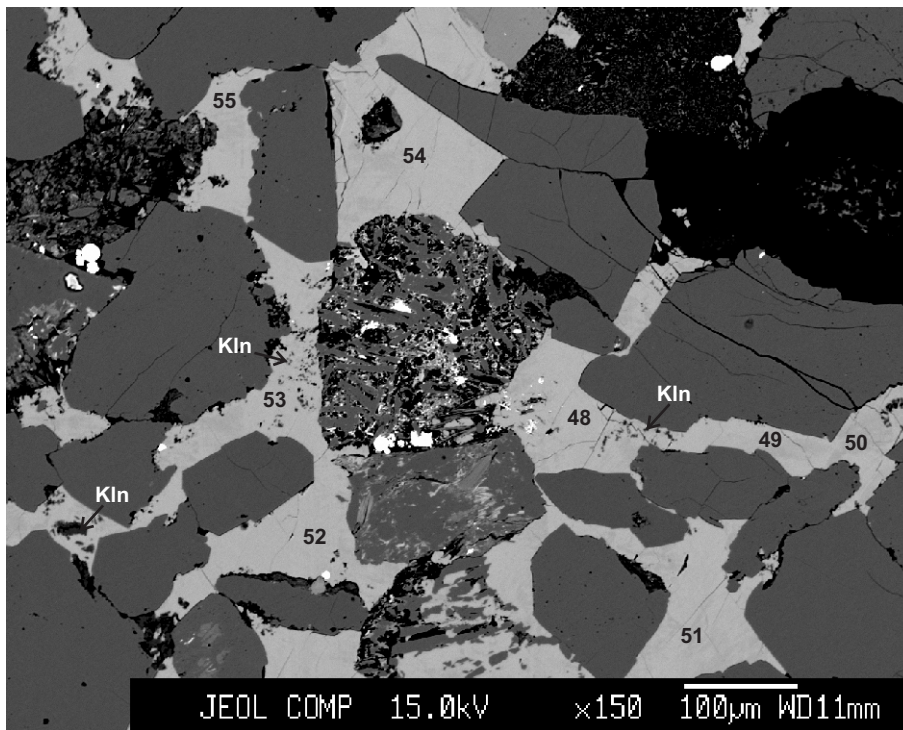


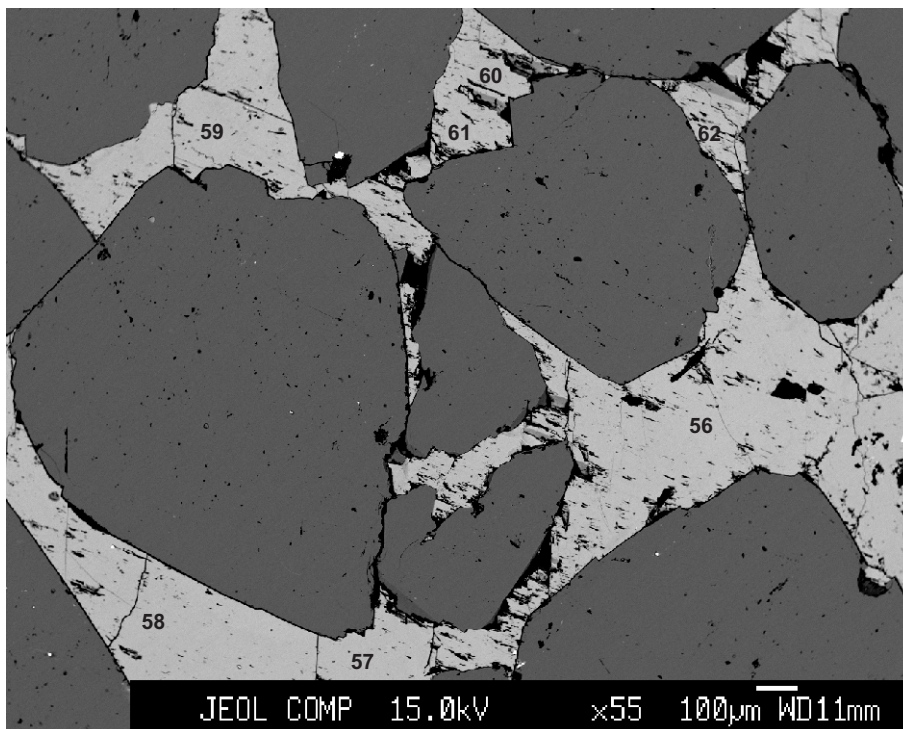
Figure 4: Panuke B-90-2069.01





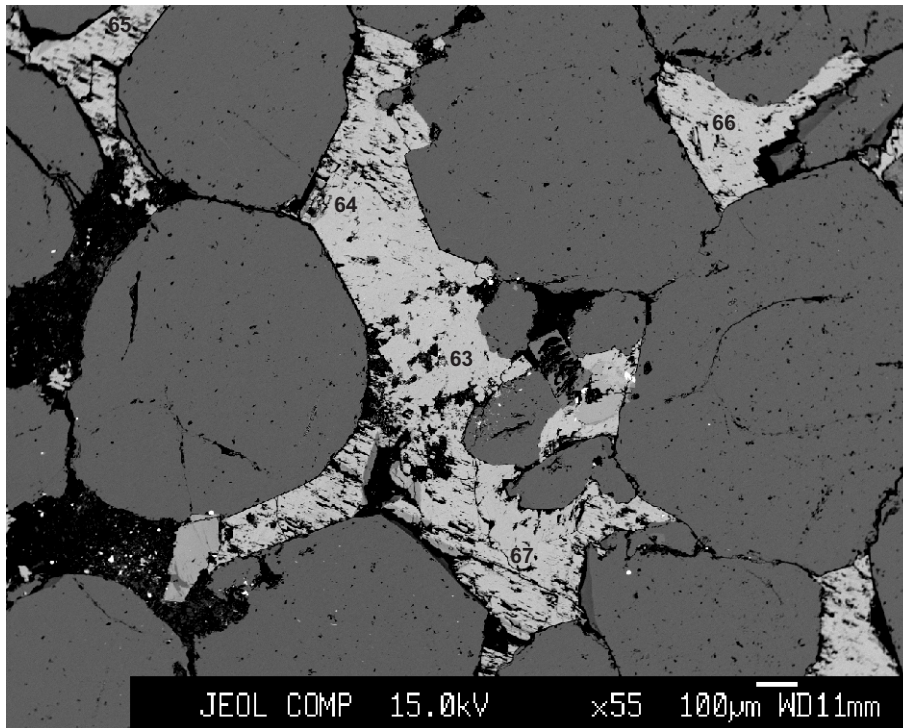
- 48: Fe-calcite
- 49: calcite
- 50: calcite
- 51: calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite

Figure 5: Panuke B-90-2069.01



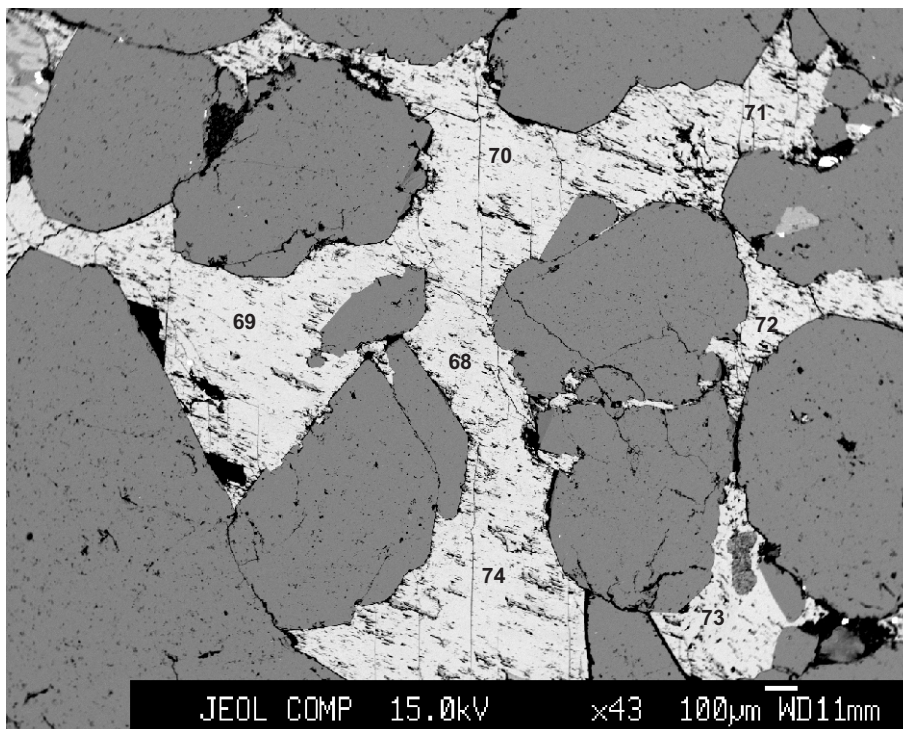
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: calcite
- 61: Fe-calcite
- 62: Fe-calcite

Figure 6: Panuke B-90-2099.21



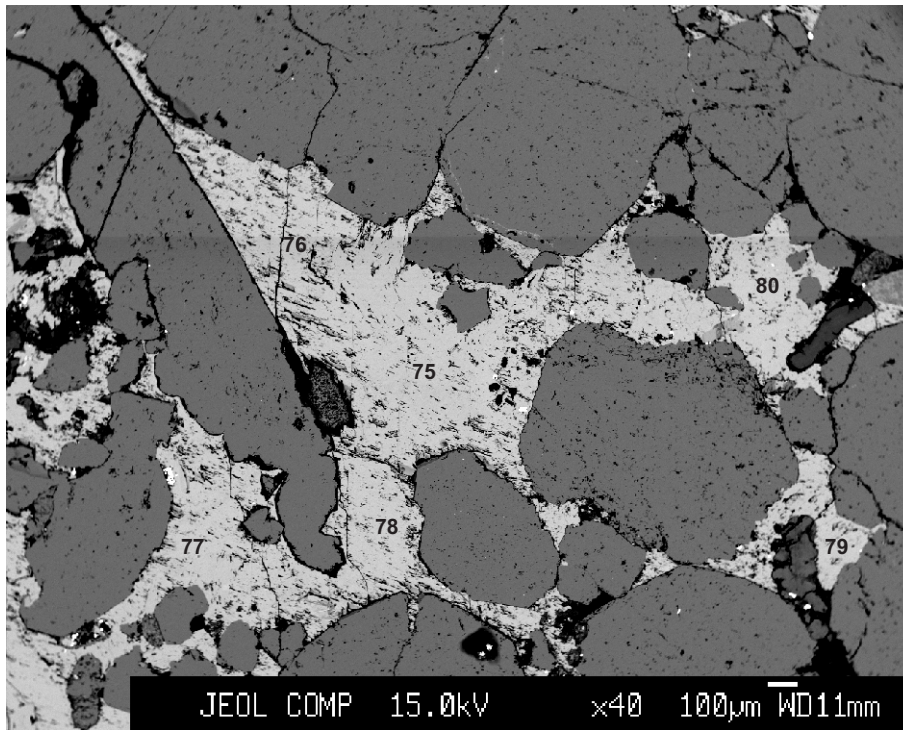
- 63: ankerite
- 64: ankerite
- 65: Fe-calcite
- 66: ankerite
- 67: ankerite

Figure 7: Panuke B-90-2099.21



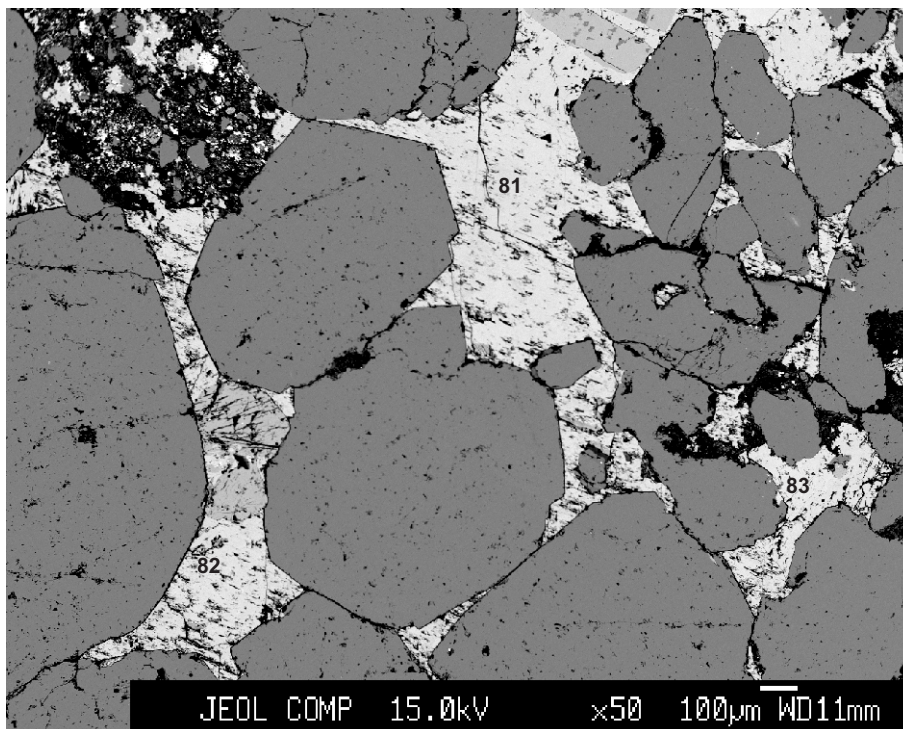
- 68: Fe-calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: ankerite
- 74: Fe-calcite

Figure 8: Panuke B-90-2099.21



- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: ankerite
- 80: ankerite

Figure 9: Panuke B-90-2099.21



- 81: Fe-calcite
- 82: Fe-calcite
- 83: ankerite

Figure 10: Panuke B-90-2099.21

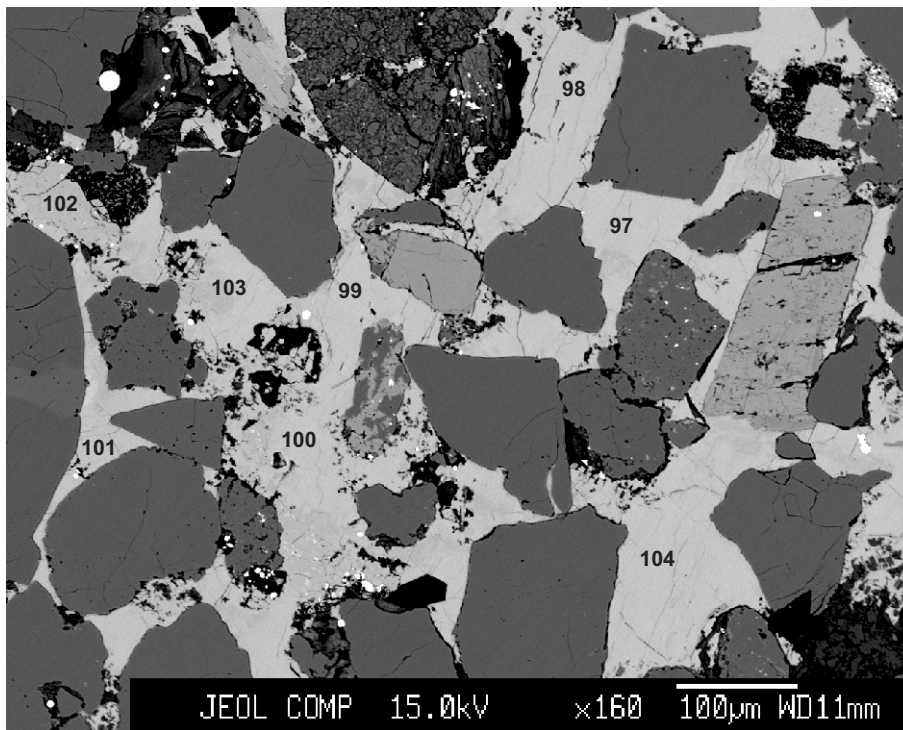


Figure 11: Panuke B-90-2099.69

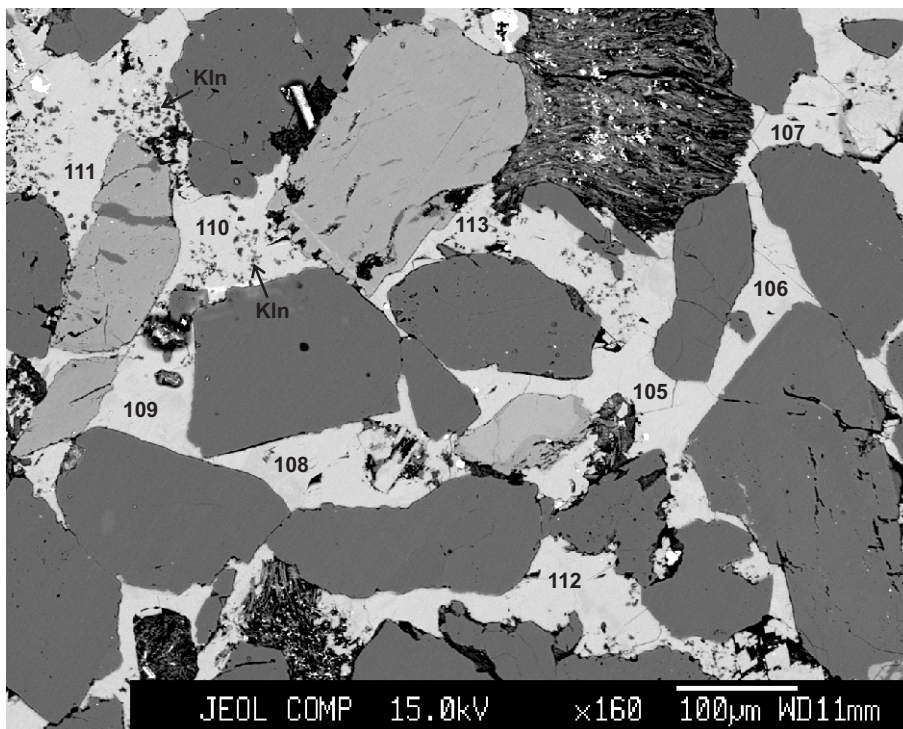
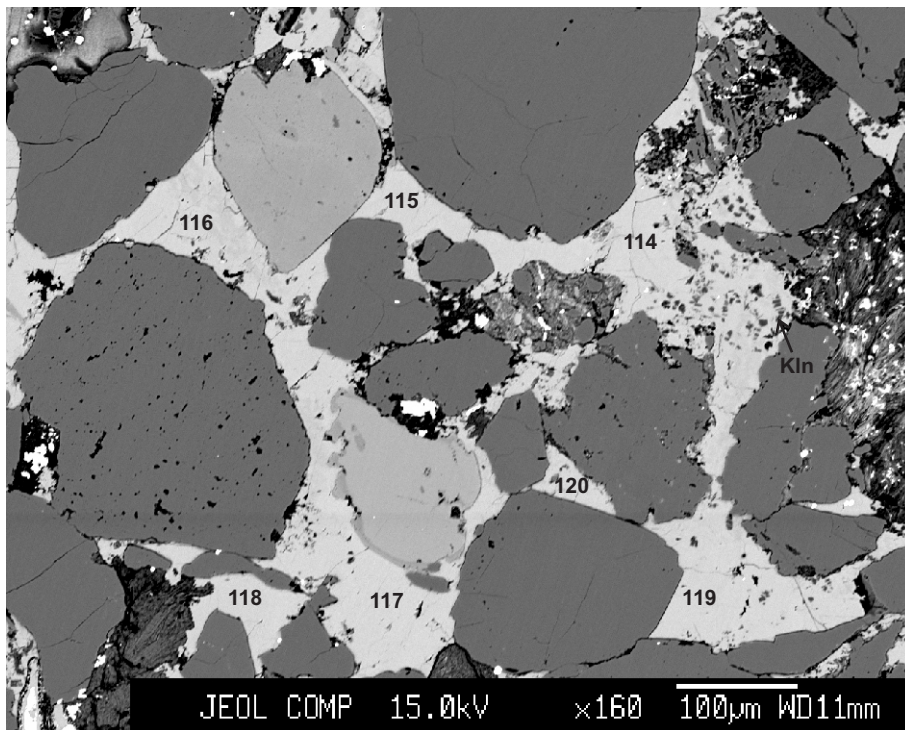
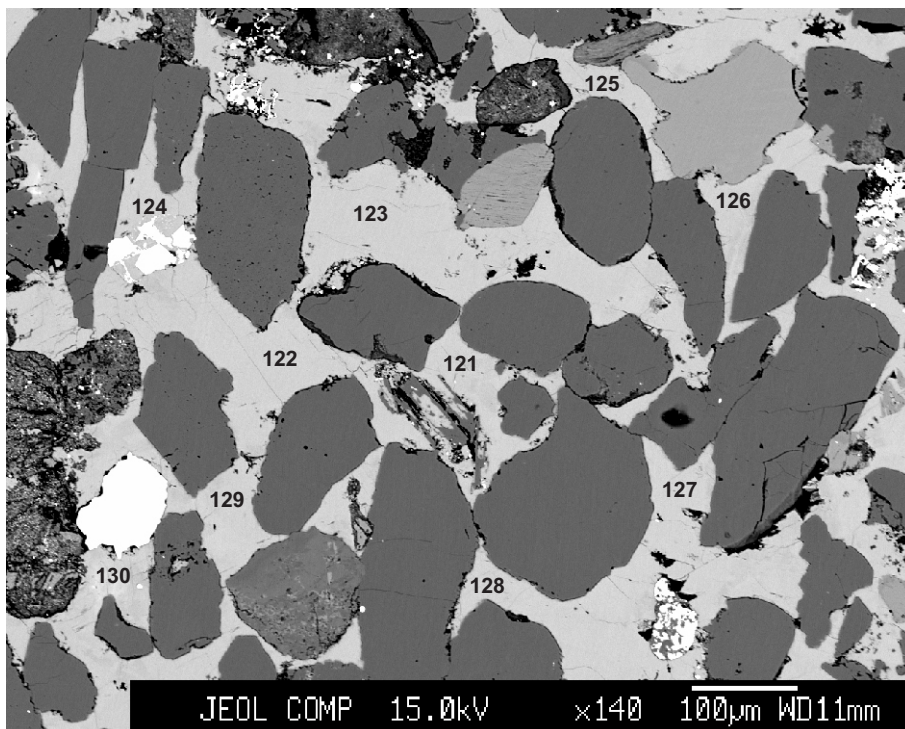


Figure 12: Panuke B-90-2099.69



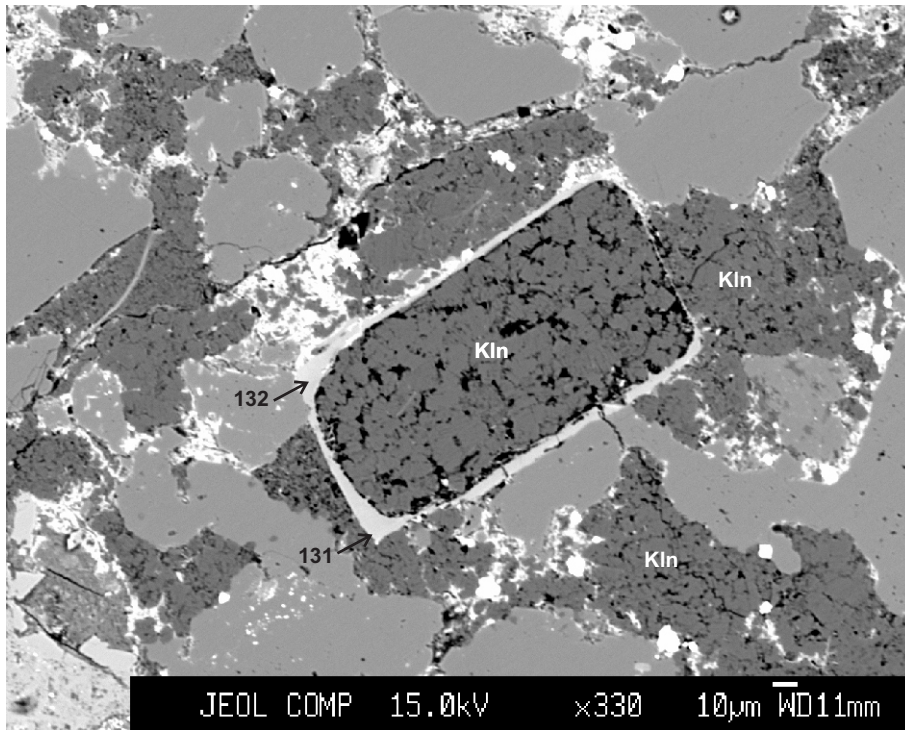
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite
- 119: Fe-calcite
- 120: ankerite

Figure 13: Panuke B-90-2099.69



- 121: Fe-calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: Fe-calcite
- 127: Fe-calcite
- 128: Fe-calcite
- 129: Fe-calcite
- 130: Fe-calcite

Figure 14: Panuke B-90-2099.69



131: K-feldspar  
115: K-feldspar

Figure 15: Panuke B-90-2107.7

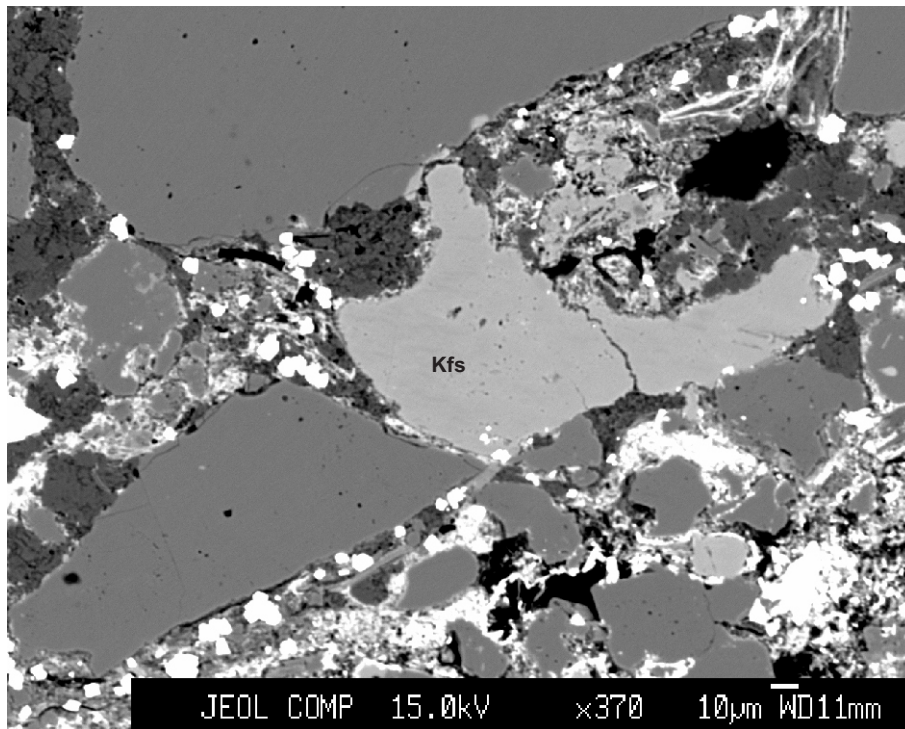
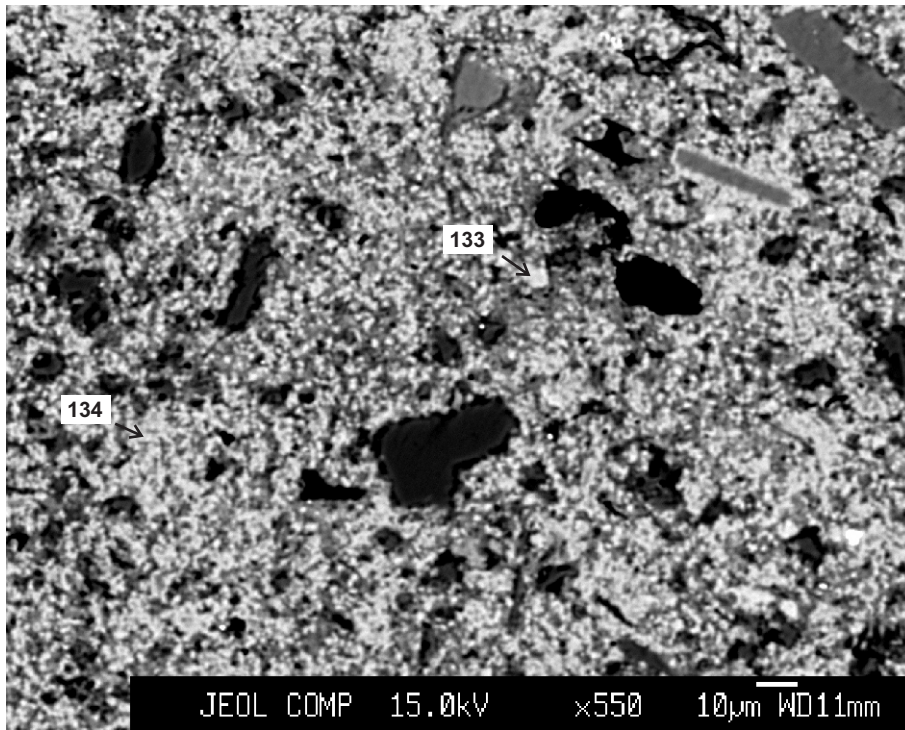
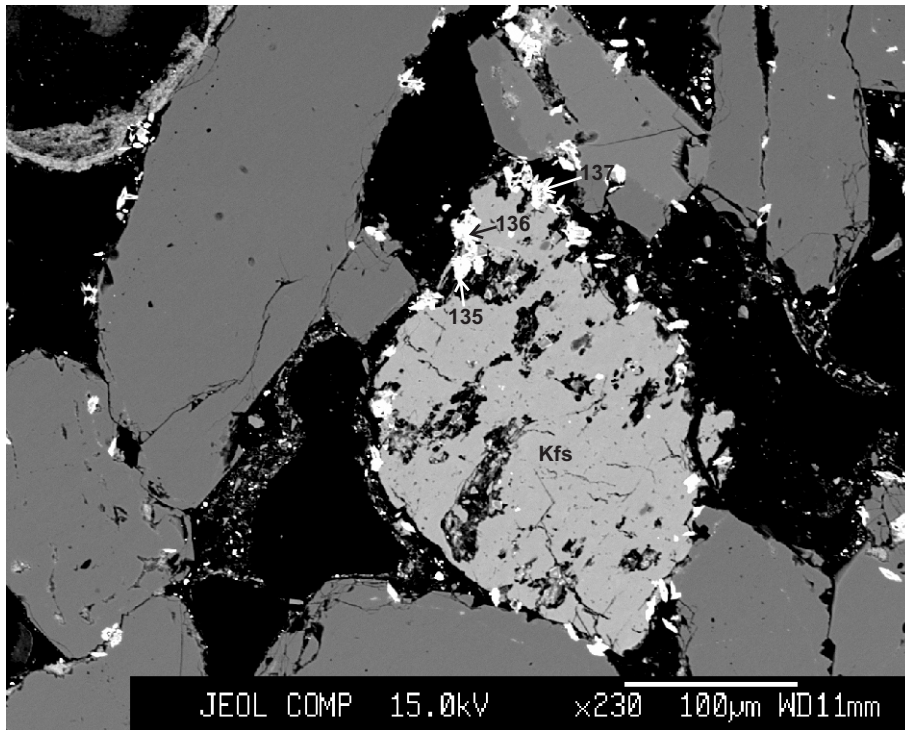


Figure 16: Panuke B-90-2107.7



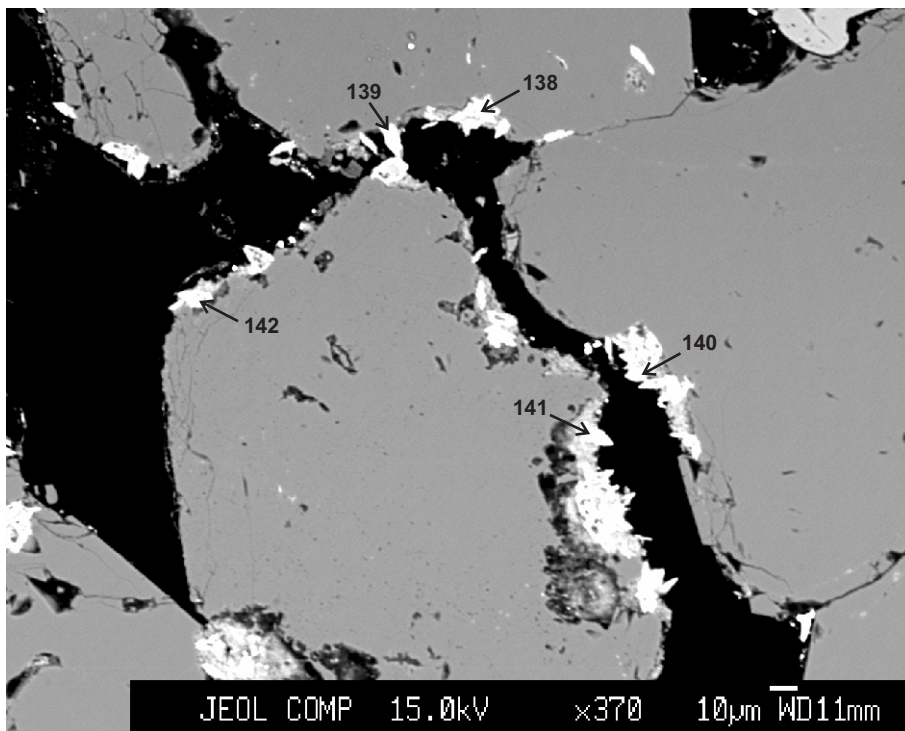
133: siderite  
134: siderite

Figure 17: Panuke B-90-2217.93



135: siderite  
 136: siderite  
 137: siderite

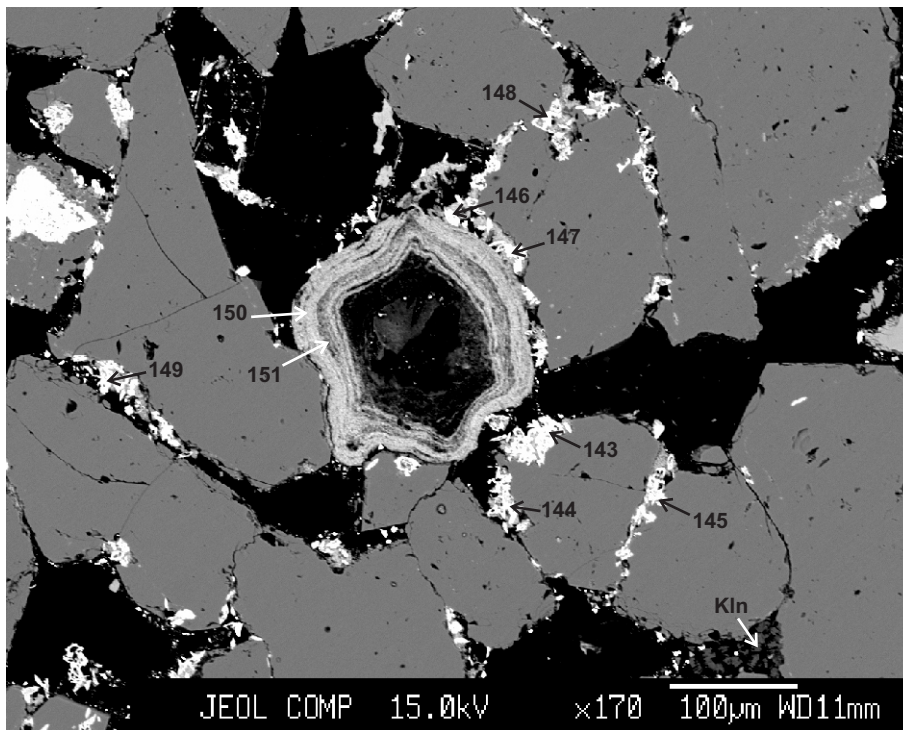
Figure 18: Panuke B-90-2223.78B



137: siderite  
 138: siderite  
 139: siderite  
 140: siderite  
 141: siderite  
 142: siderite

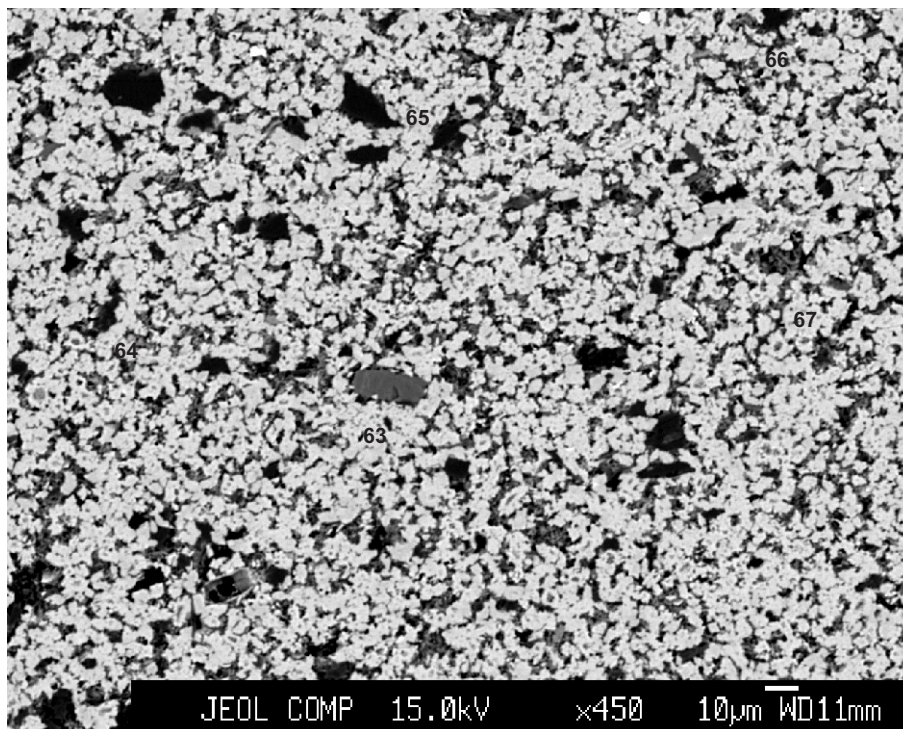
Figure 19: Panuke B-90-2223.78B





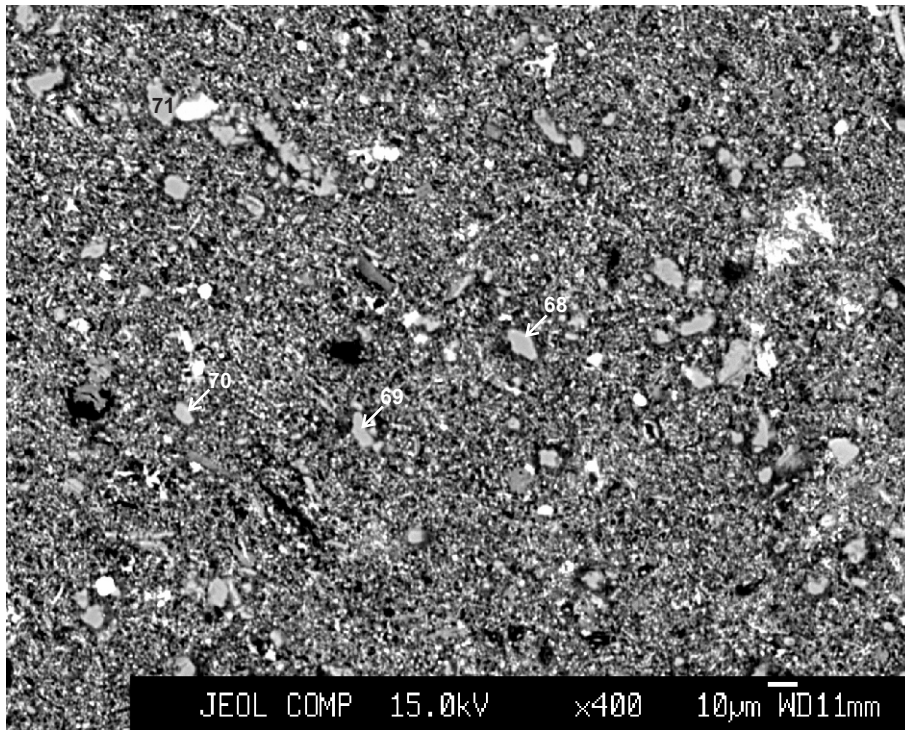
- 143: siderite
- 144: siderite
- 145: siderite
- 146: siderite
- 147: siderite
- 148: pseudorutile
- 149: siderite
- 150: chlorite
- 151: chlorite

Figure 20: Panuke B-90-2223.78B



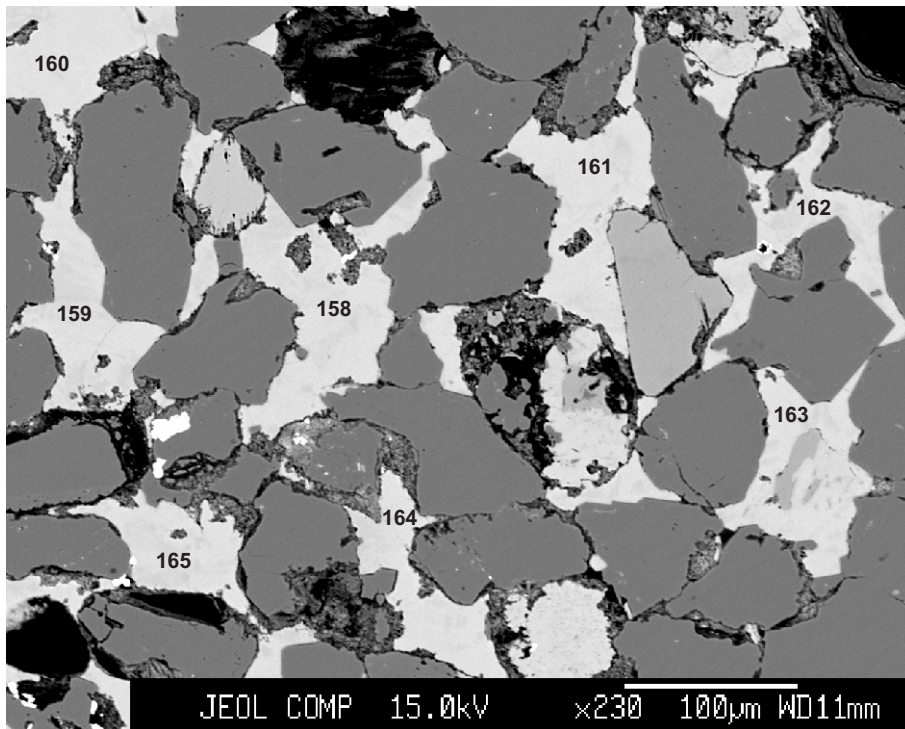
- 63: siderite
- 64: siderite
- 65: siderite
- 66: siderite
- 67: siderite

Figure 21: Panuke B-90-2242.47



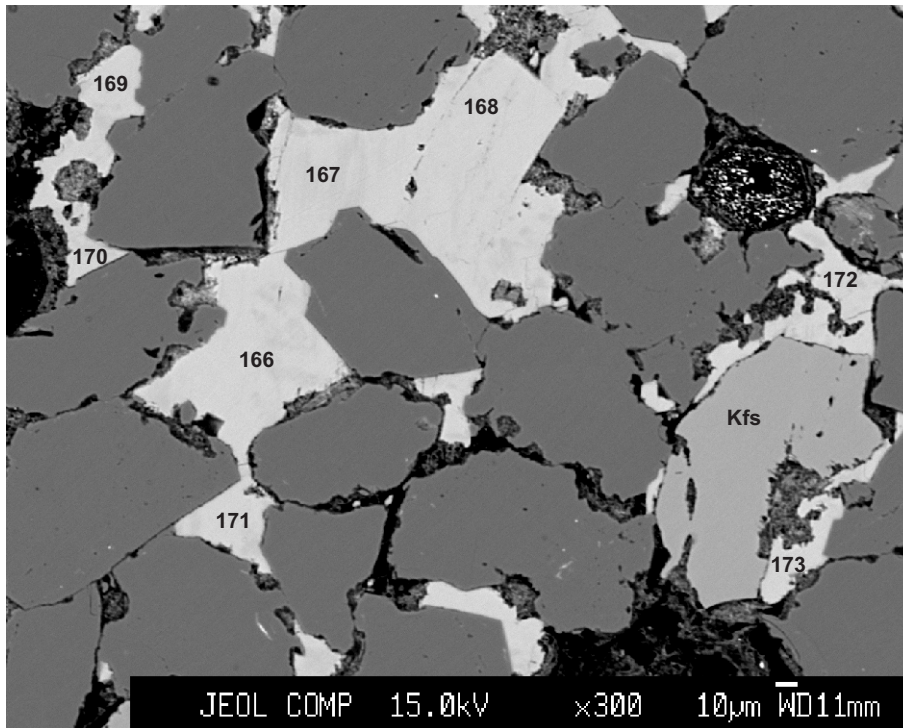
- 68: quartz
- 69: quartz
- 70: K-feldspar
- 71: quartz

Figure 22: Panuke B-90-2242.47



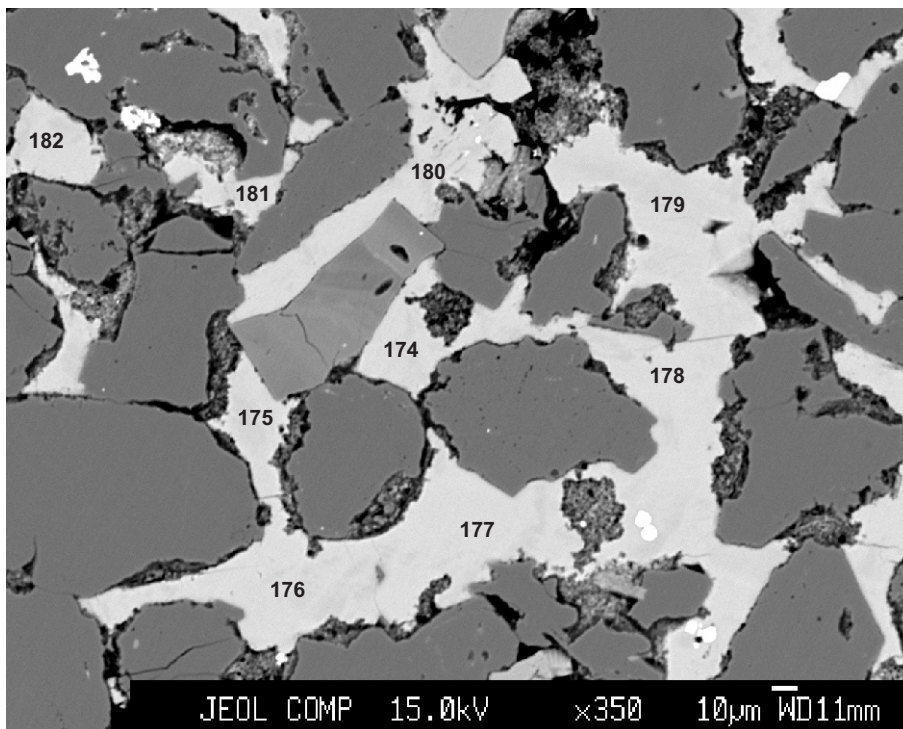
- 158: Fe-calcite
- 159: calcite
- 160: Fe-calcite
- 161: Fe-calcite
- 162: Fe-calcite
- 163: calcite
- 164: Fe-calcite
- 165: Fe-calcite

Figure 23: Panuke B-90-2281.68



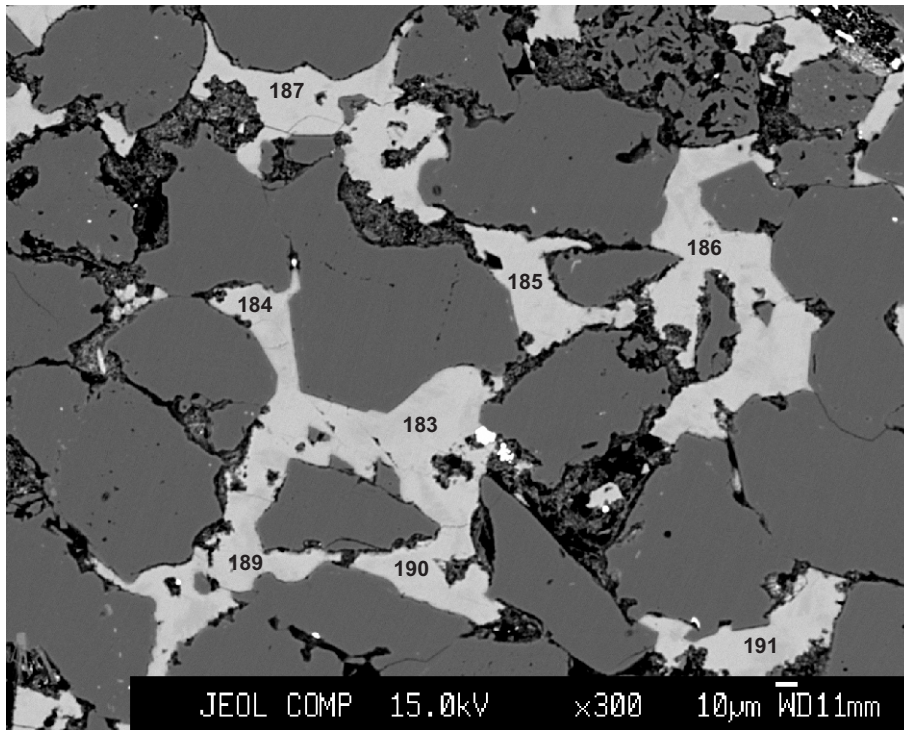
- 166: calcite
- 167: Fe-calcite
- 168: Fe-calcite
- 169: Fe-calcite
- 170: Fe-calcite
- 171: Fe-calcite
- 172: Fe-calcite
- 173: Fe-calcite

Figure 24: Panuke B-90-2281.68



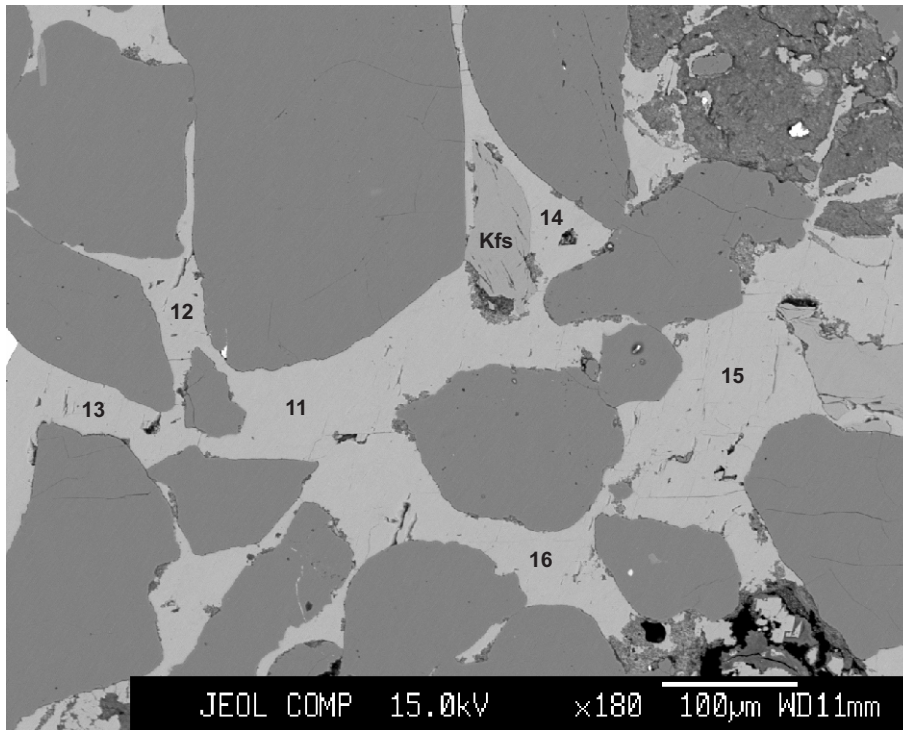
- 174: Fe-calcite
- 175: calcite
- 176: Fe-calcite
- 177: Fe-calcite
- 178: Fe-calcite
- 179: calcite
- 180: calcite
- 181: Fe-calcite
- 182: Fe-calcite

Figure 25: Panuke B-90-2281.68



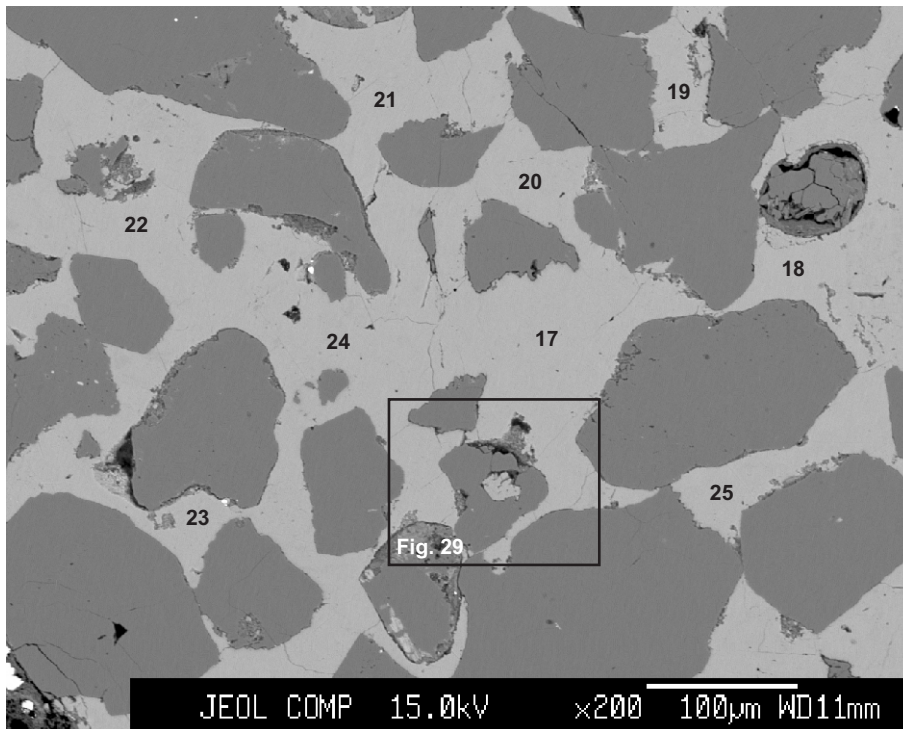
- 183: Fe-calcite
- 184: calcite
- 185: Fe-calcite
- 186: Fe-calcite
- 187: Fe-calcite
- 188: Fe-calcite
- 189: calcite
- 190: Fe-calcite
- 191: Fe-calcite

Figure 26: Panuke B-90-2281.68



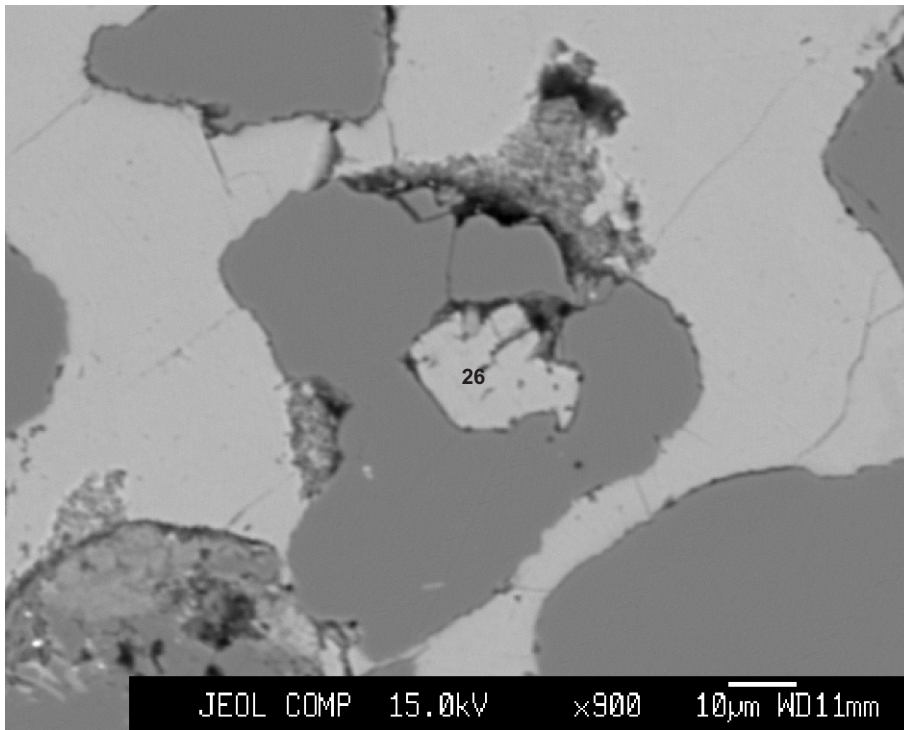
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite

Figure 27: Panuke B-90-2289.57



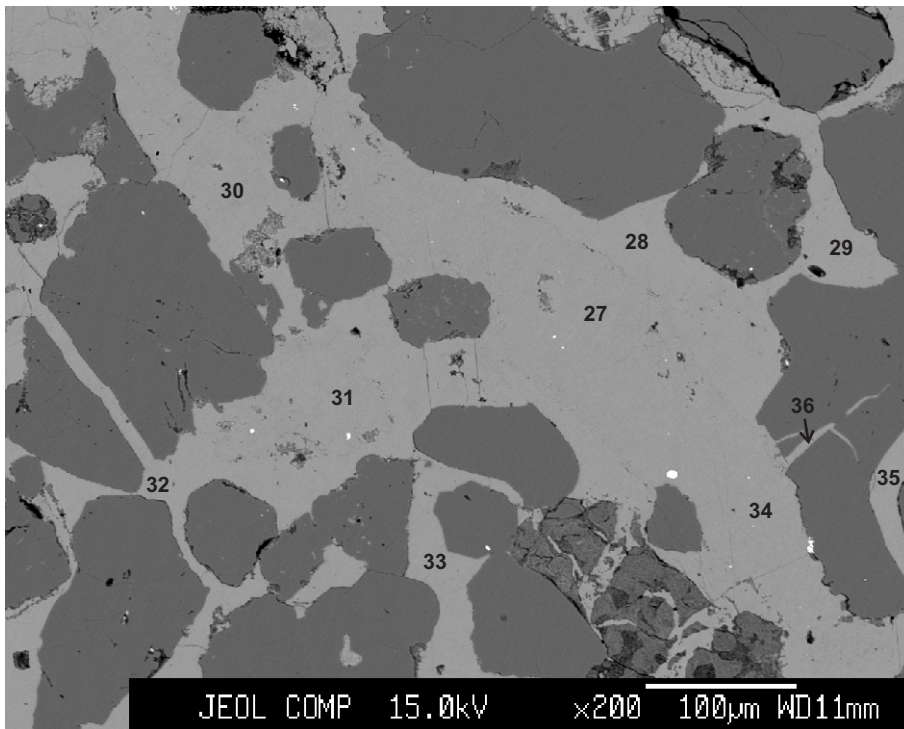
- 17: Fe-calcite
- 18: Fe-calcite
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite

Figure 28: Panuke B-90-2289.57



26: Fe-calcite

Figure 29: Panuke B-90-2289.57



- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: Fe-calcite
- 33: Fe-calcite
- 34: Fe-calcite
- 35: Fe-calcite
- 36: Fe-calcite

Figure 30: Panuke B-90-2289.57

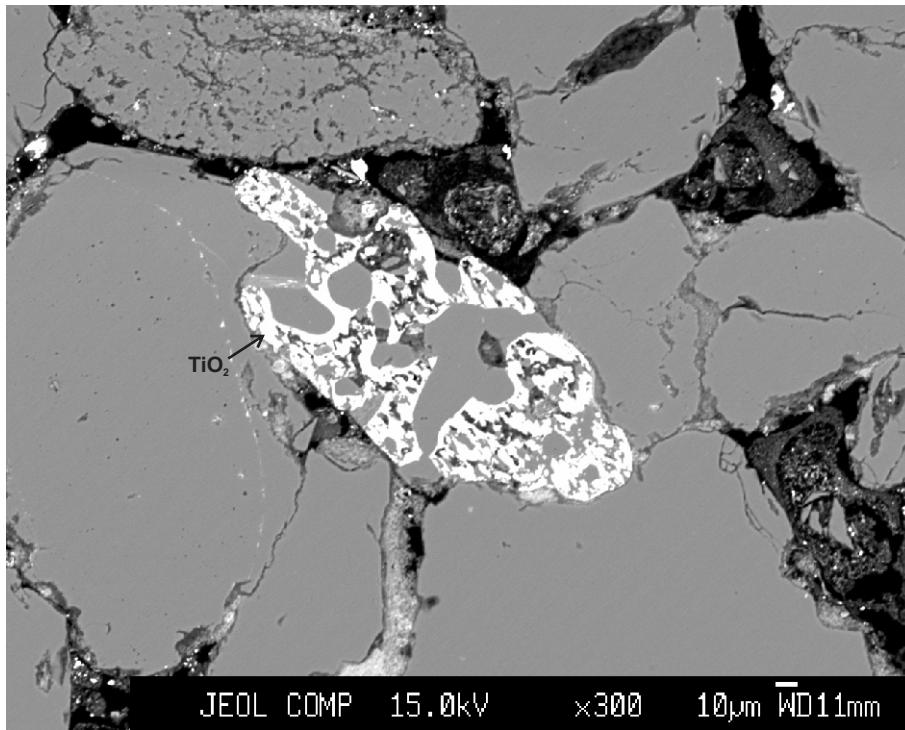
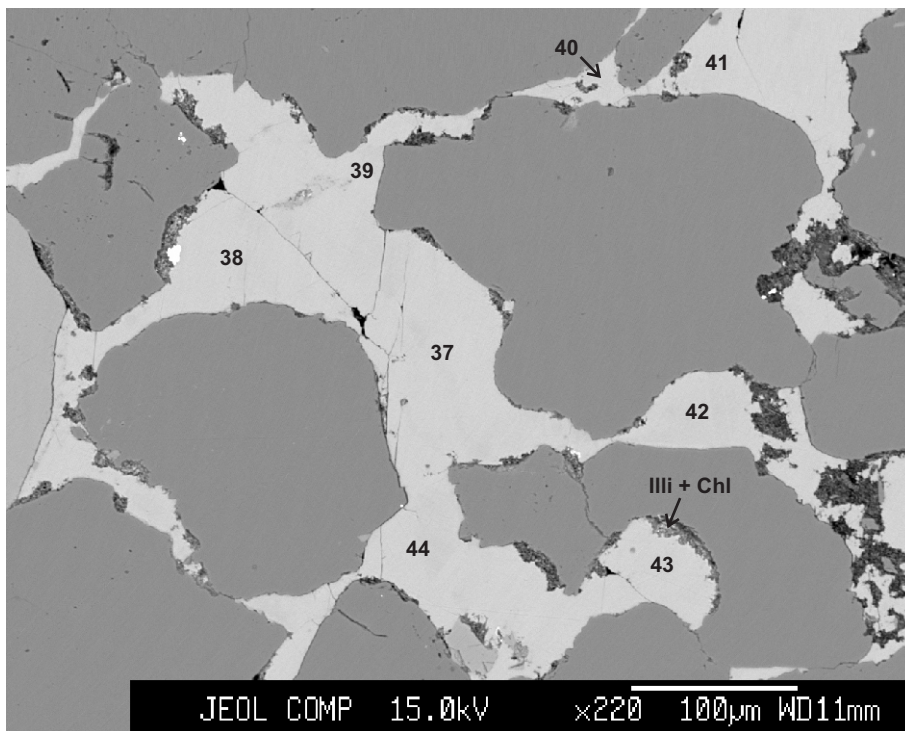
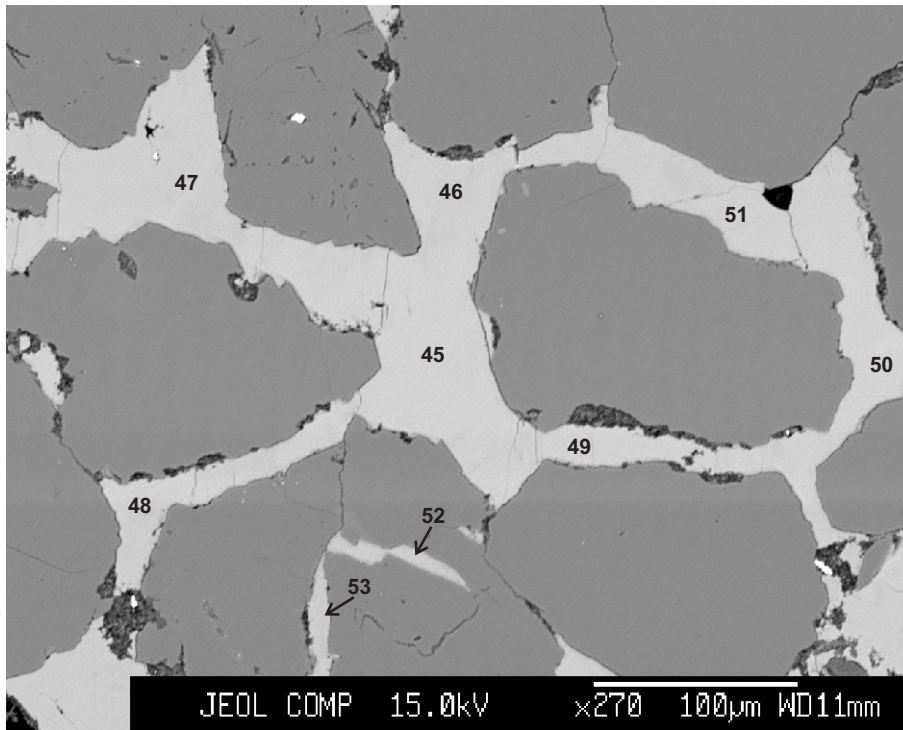


Figure 31: Panuke B-90-2291.26



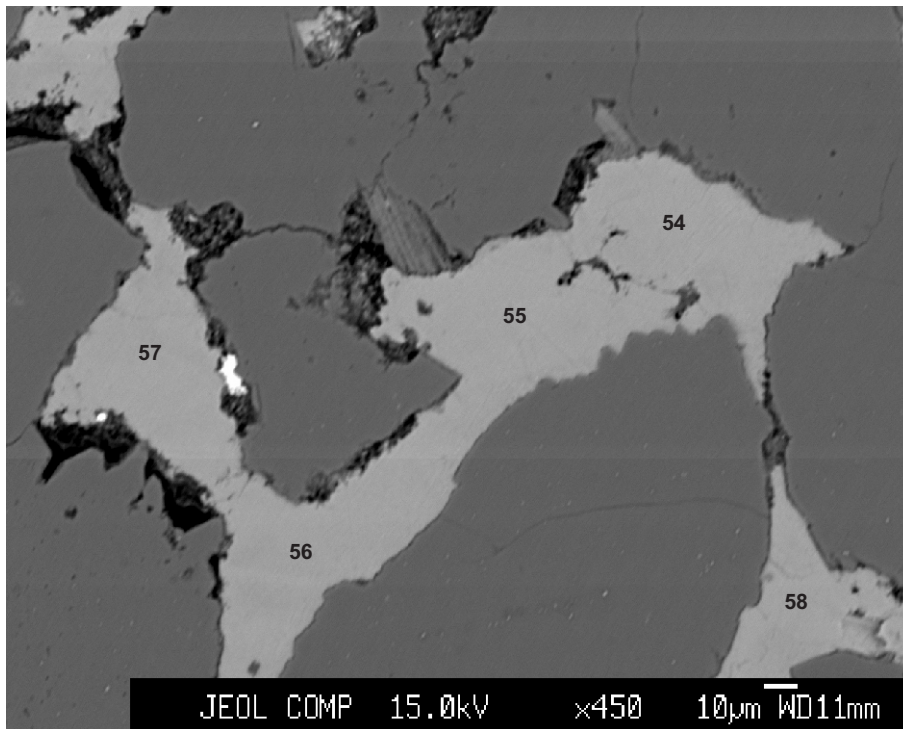
- 37: Fe-calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite
- 44: calcite

Figure 32: Panuke B-90-2292.85



- 45: Fe-calcite
- 46: Fe-calcite
- 47: Fe-calcite
- 48: calcite
- 49: Fe-calcite
- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite

Figure 33: Panuke B-90-2292.85



- 54: Fe-calcite
- 55: Fe-calcite
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite

Figure 34: Panuke B-90-2292.85



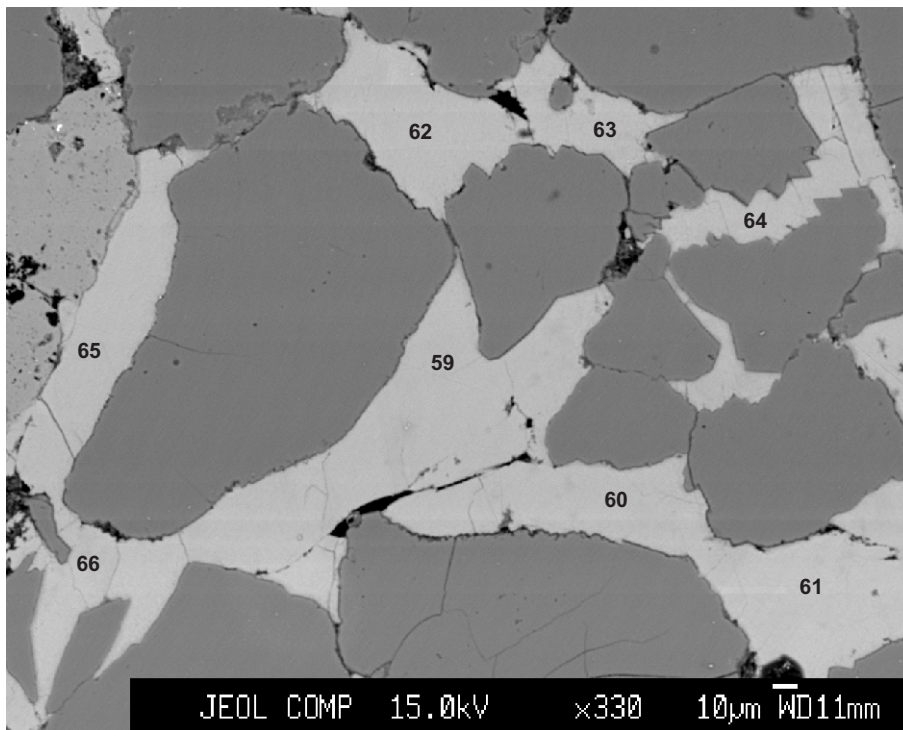


Figure 35: Panuke B-90-2292.85

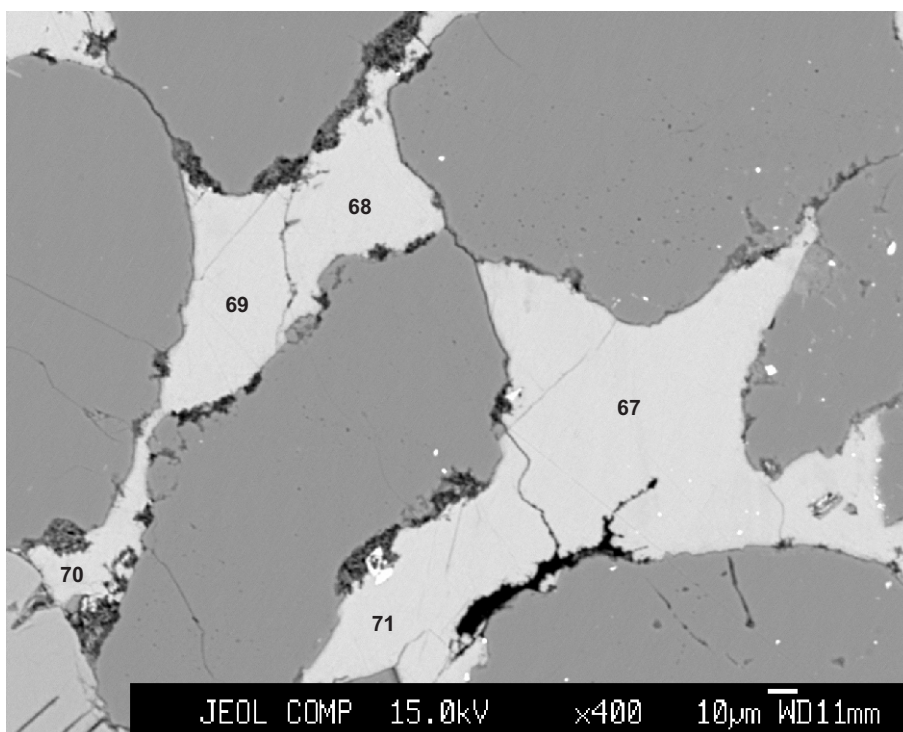
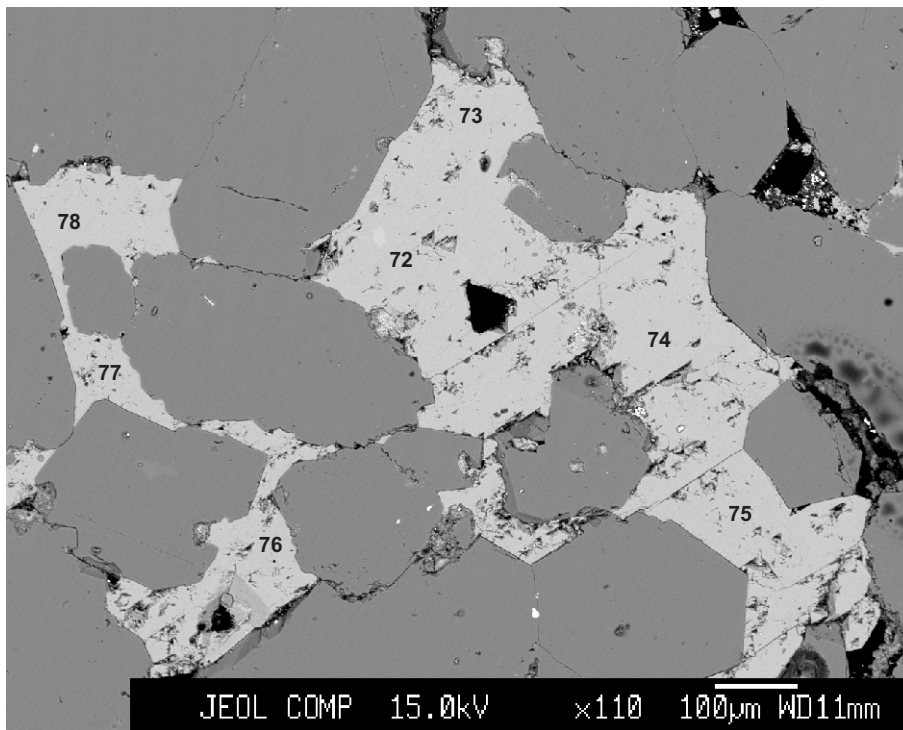
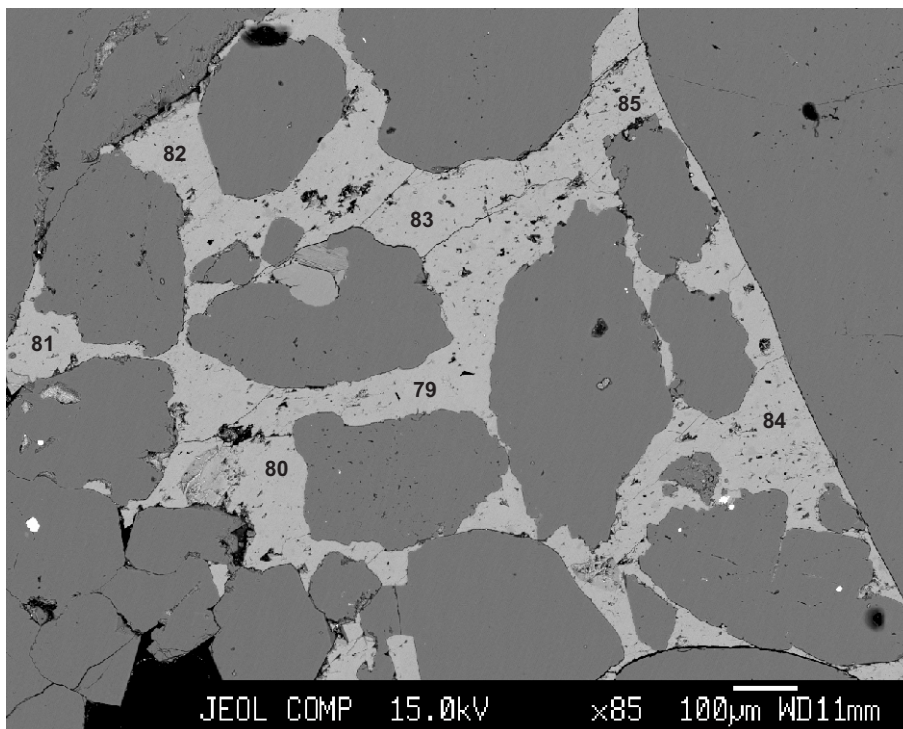


Figure 36: Panuke B-90-2292.85



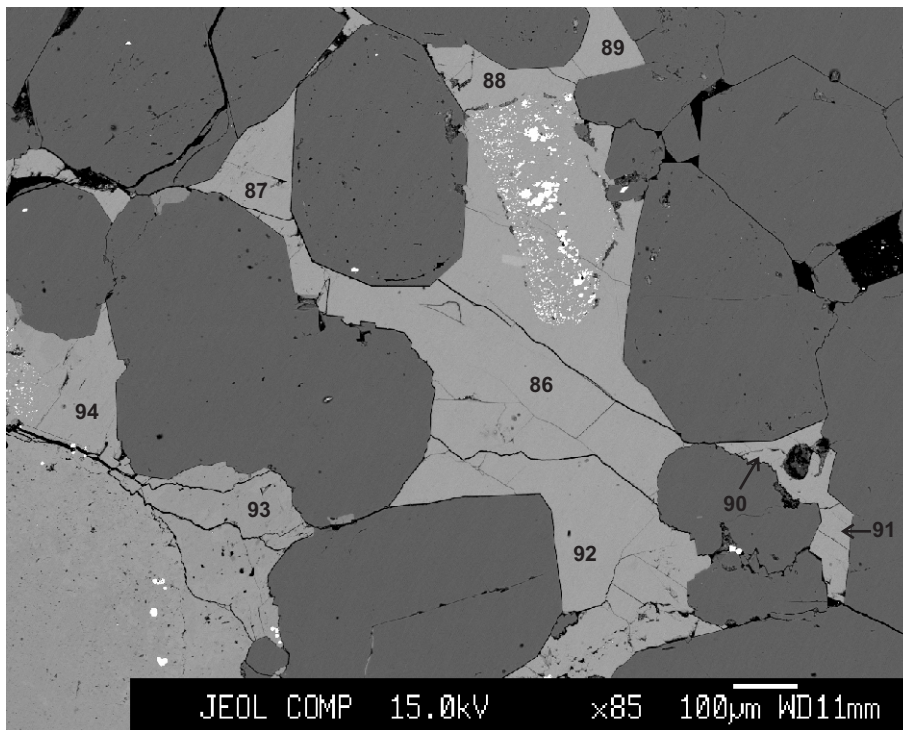
- 72: calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: calcite

Figure 37: Panuke B-90-2320.51



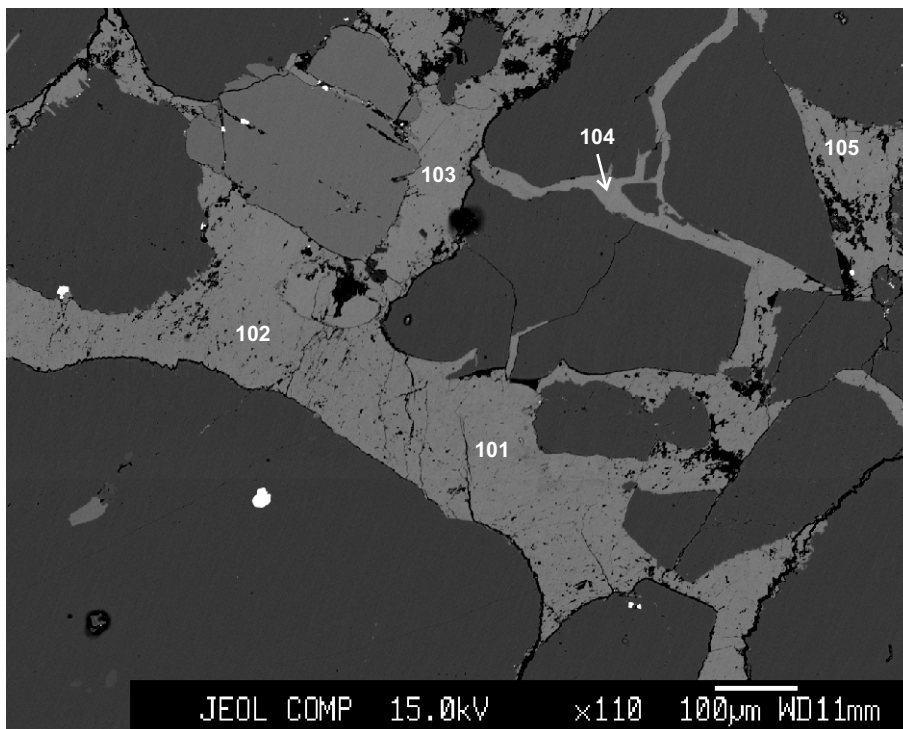
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite

Figure 38: Panuke B-90-2320.51



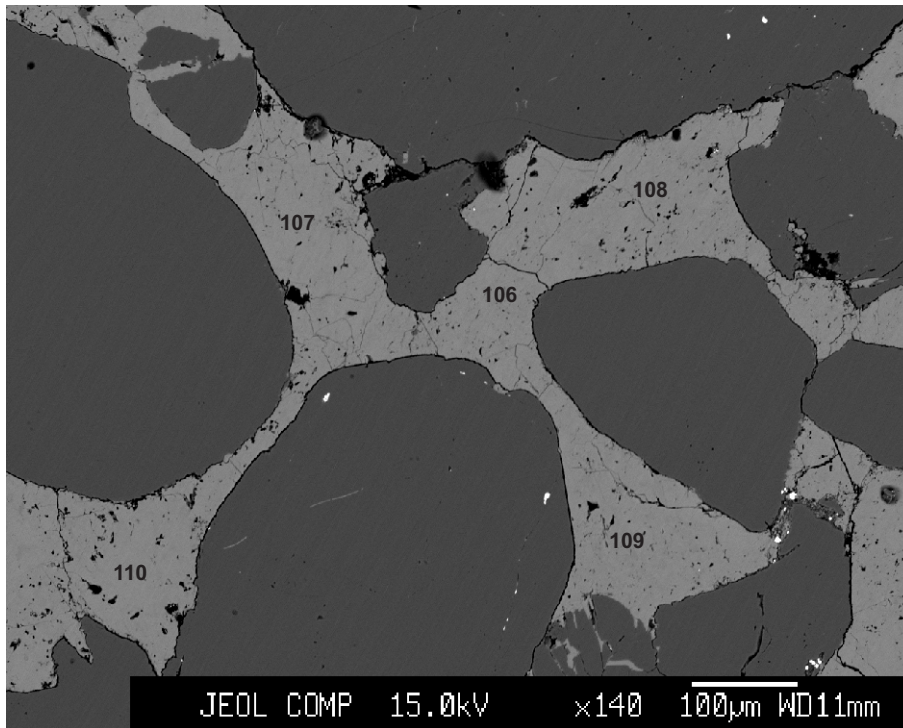
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite

Figure 39: Panuke B-90-2320.51



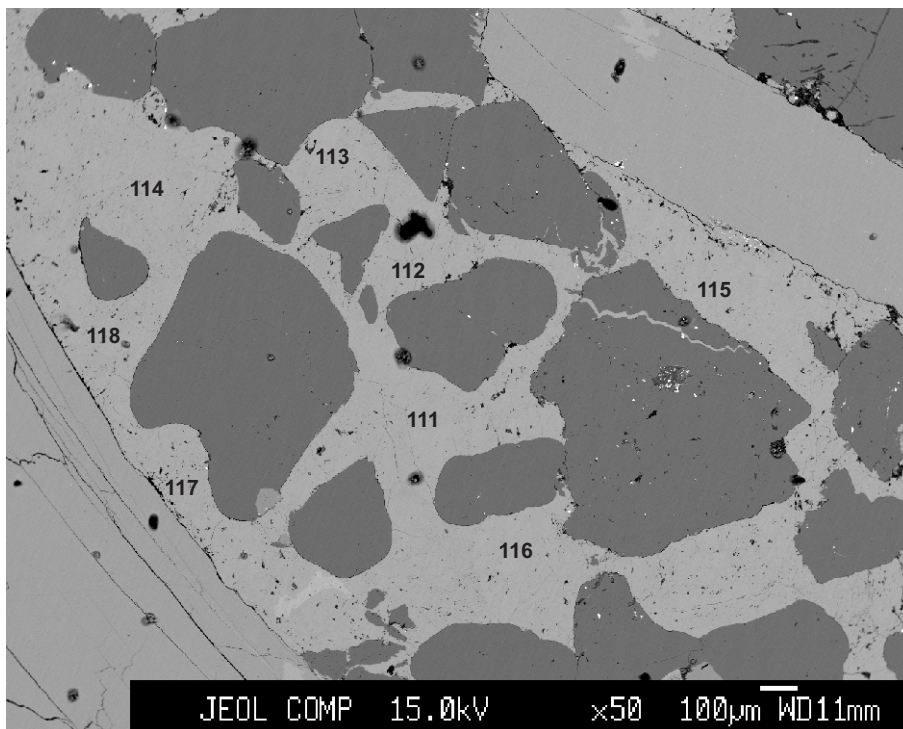
- 101: Fe-calcite
- 102: Fe-calcite
- 103: calcite
- 104: Fe-calcite
- 105: Fe-calcite

Figure 40: Panuke B-90-2379.2



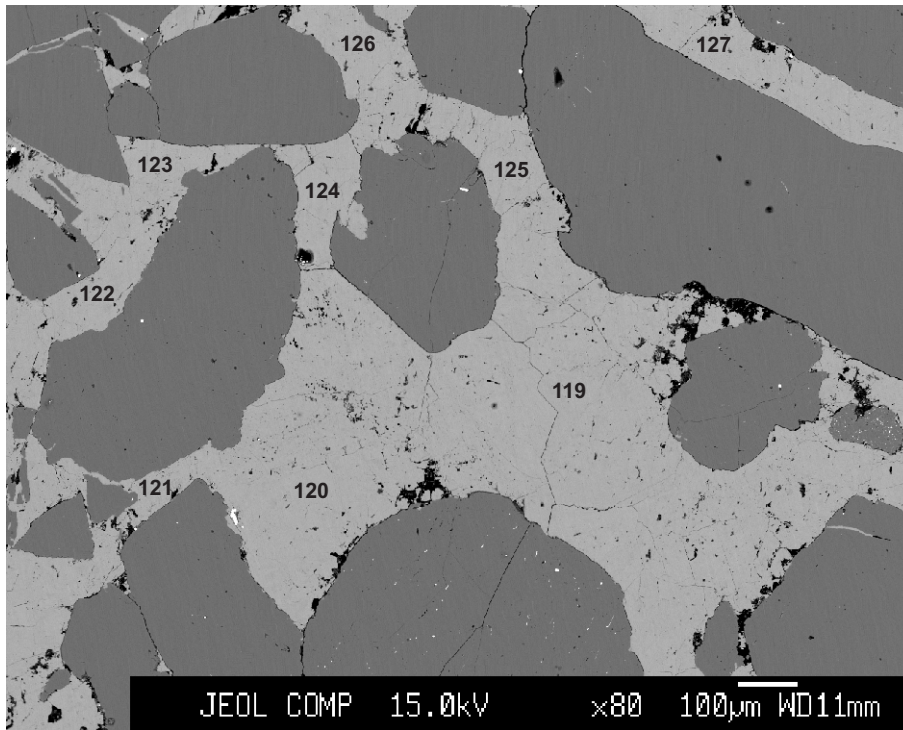
- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

Figure 41: Panuke B-90-2379.2



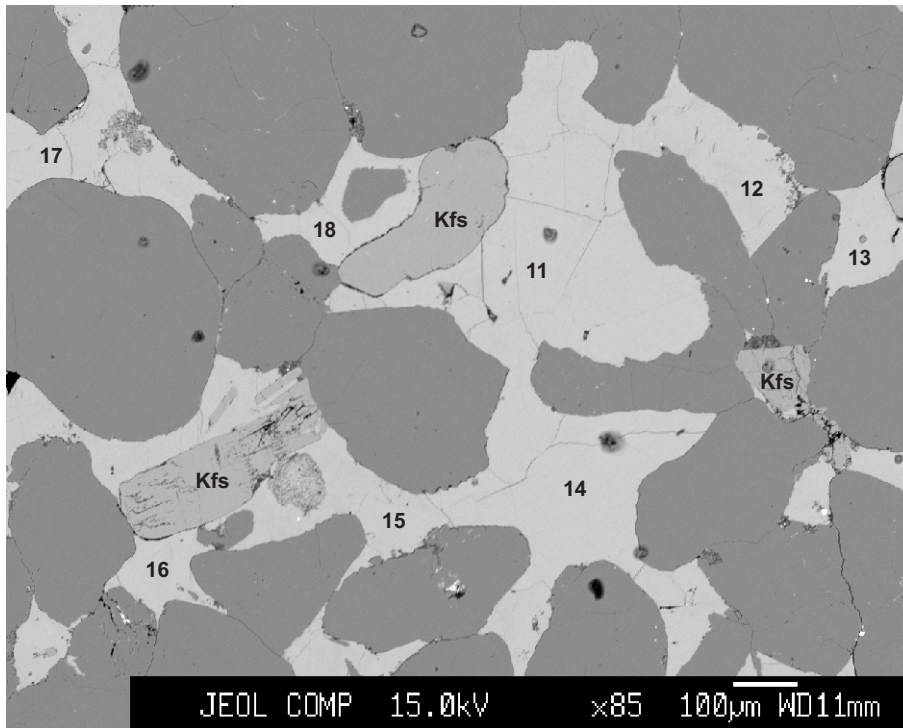
- 111: Fe-calcite
- 112: calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite

Figure 42: Panuke B-90-2379.2



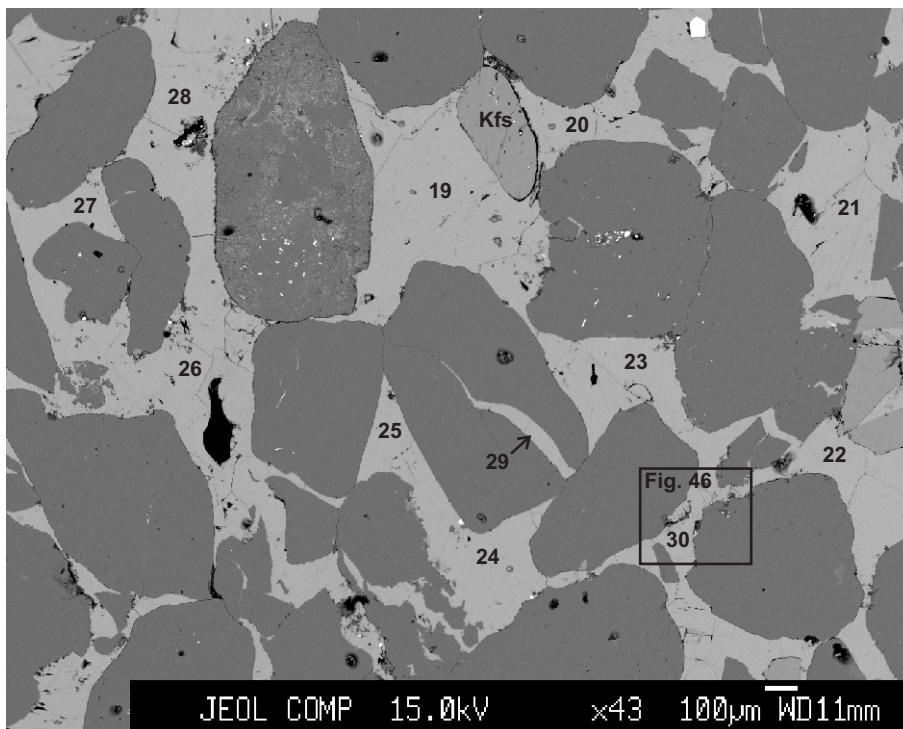
- 119: calcite
- 120: calcite
- 121: calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: calcite
- 127: Fe-calcite

Figure 43: Panuke B-90-2379.2



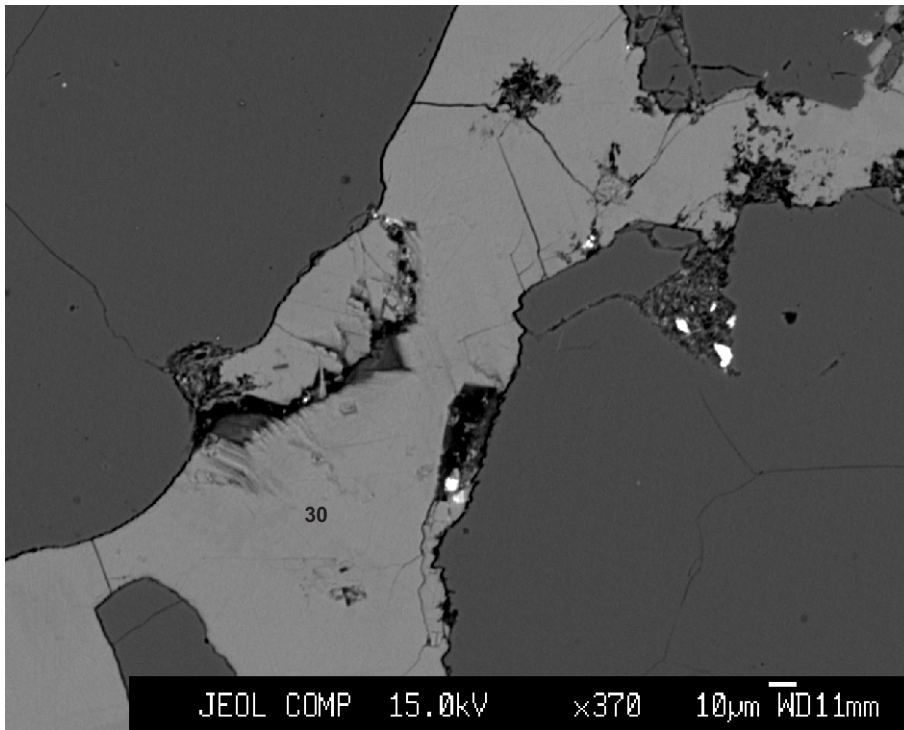
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: calcite
- 17: Fe-calcite
- 18: calcite

Figure 44: Panuke B-90-2393.92



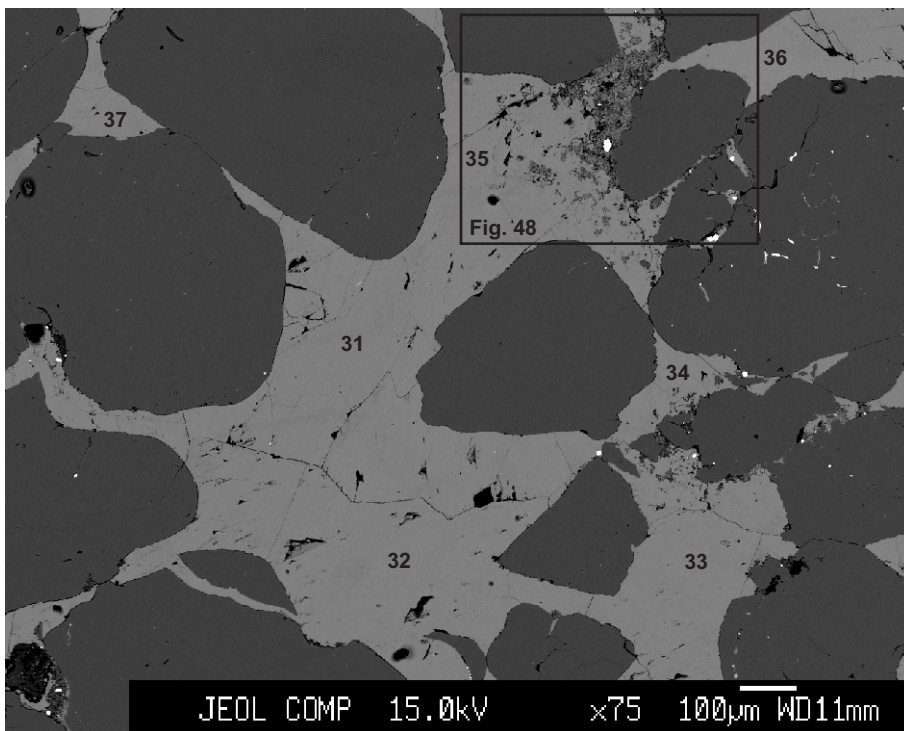
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: Fe-calcite
- 27: calcite
- 28: Fe-calcite
- 29: calcite
- 30: calcite

Figure 45: Panuke B-90-2393.92



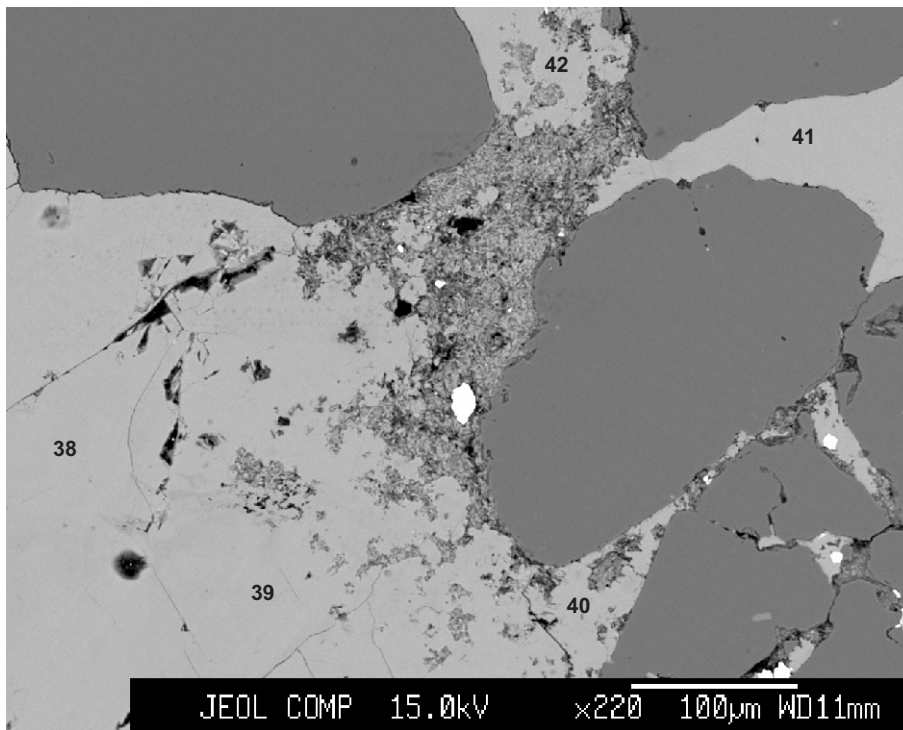
30: calcite

Figure 46: Panuke B-90-2393.92



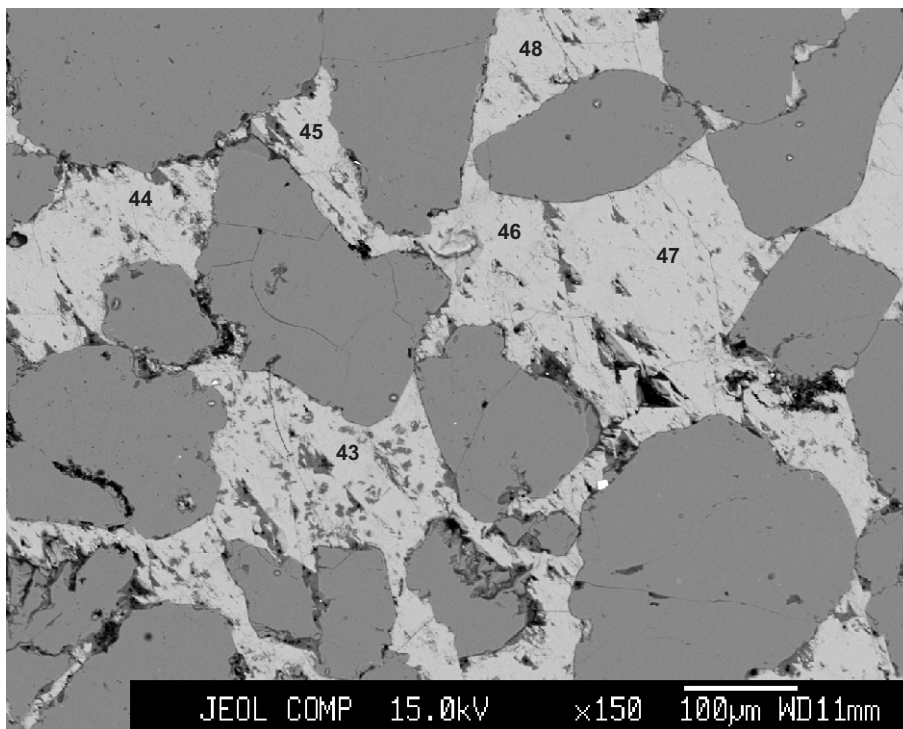
31: Fe-calcite  
 32: Fe-calcite  
 33: Fe-calcite  
 34: Fe-calcite  
 35: Fe-calcite  
 36: calcite  
 37: Fe-calcite

Figure 47: Panuke B-90-2393.92



- 38: calcite
- 39: calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: calcite

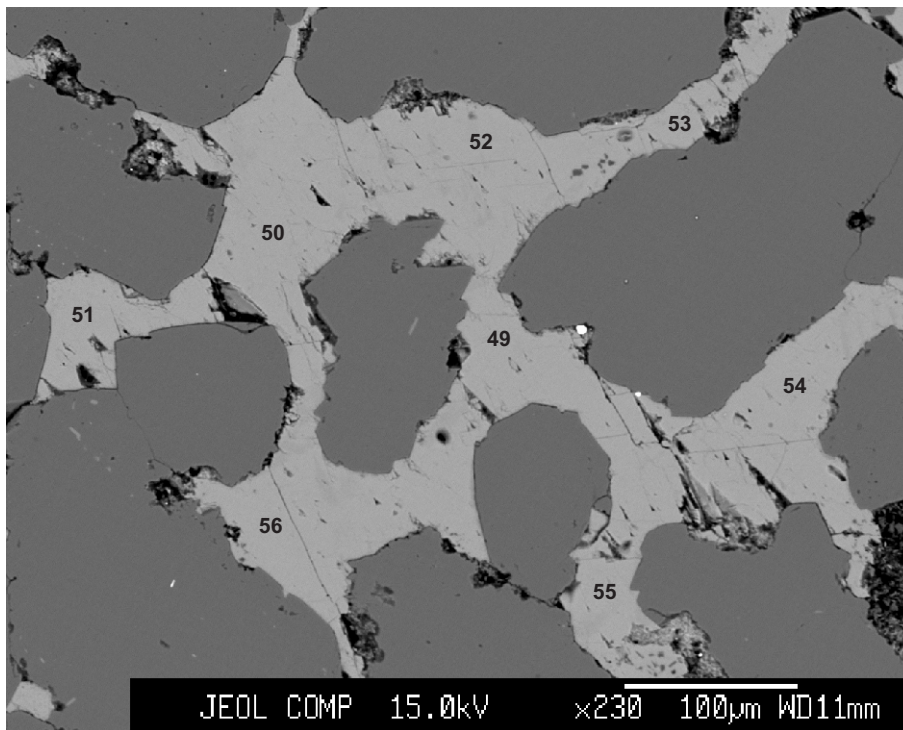
Figure 48: Panuke B-90-2393.92



- 43: Fe-calcite
- 44: Fe-calcite
- 45: Fe-calcite
- 46: calcite
- 47: Fe-calcite
- 48: Fe-calcite

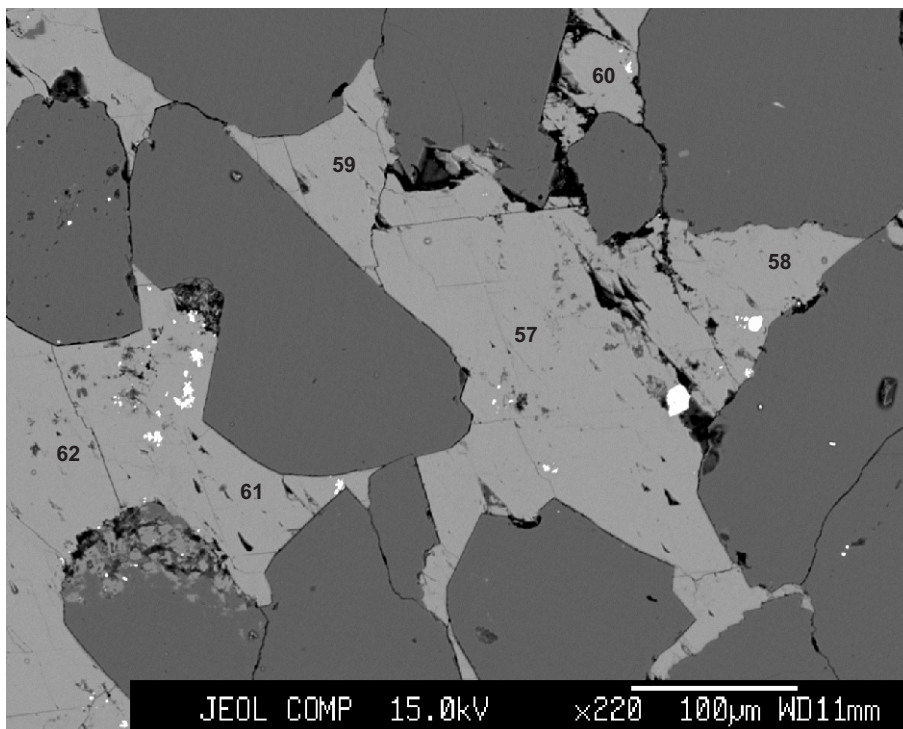
Figure 49: Panuke B-90-2403.21





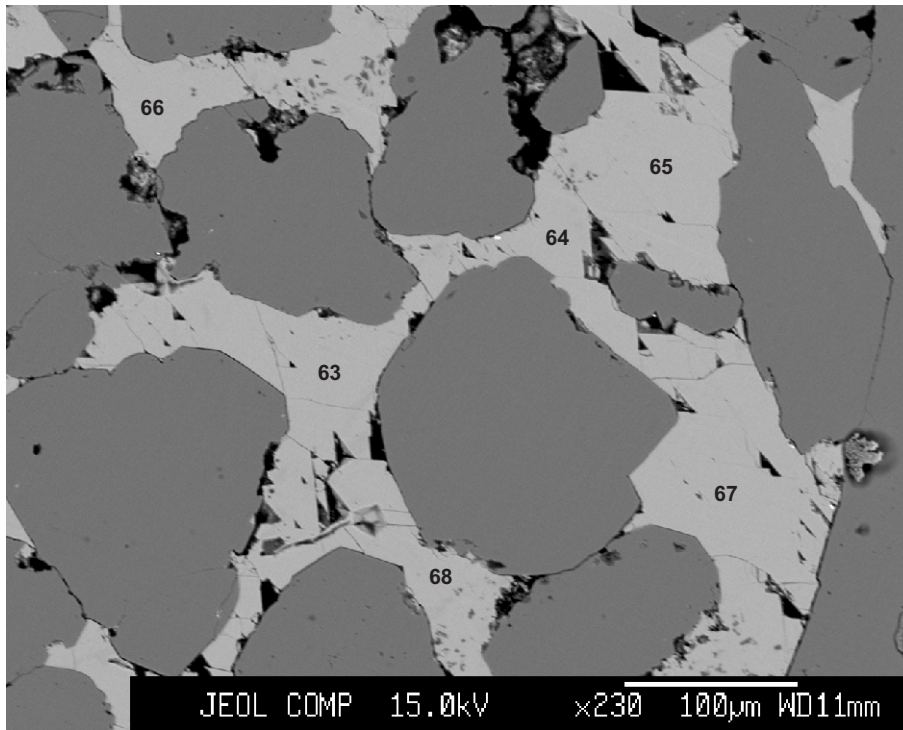
- 49: Fe-calcite
- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite
- 56: Fe-calcite

Figure 50: Panuke B-90-2403.21



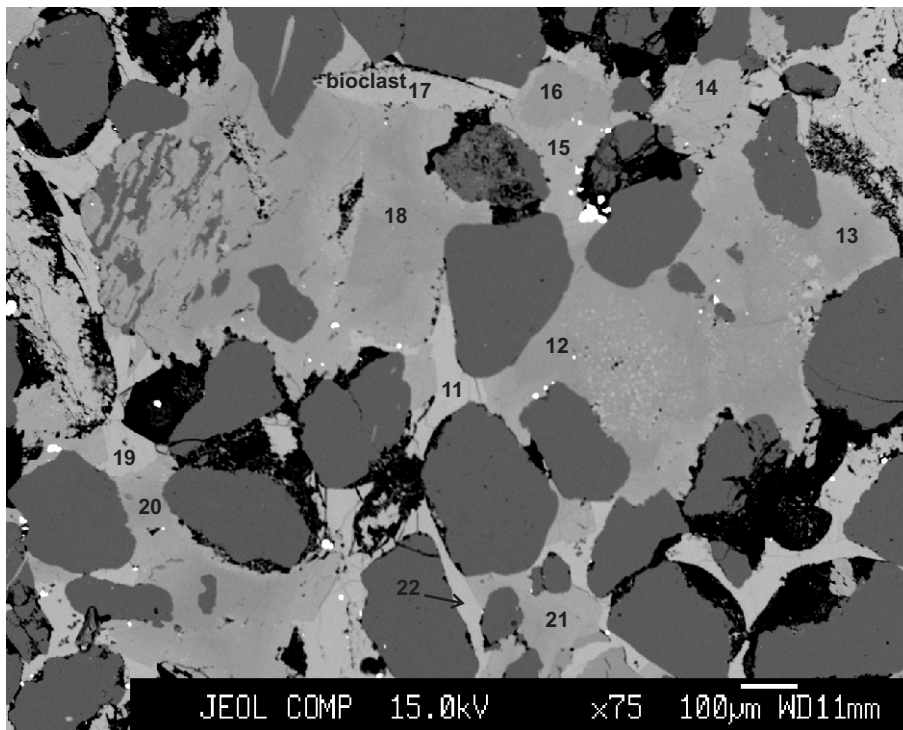
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite
- 62: Fe-calcite

Figure 51: Panuke B-90-2403.21



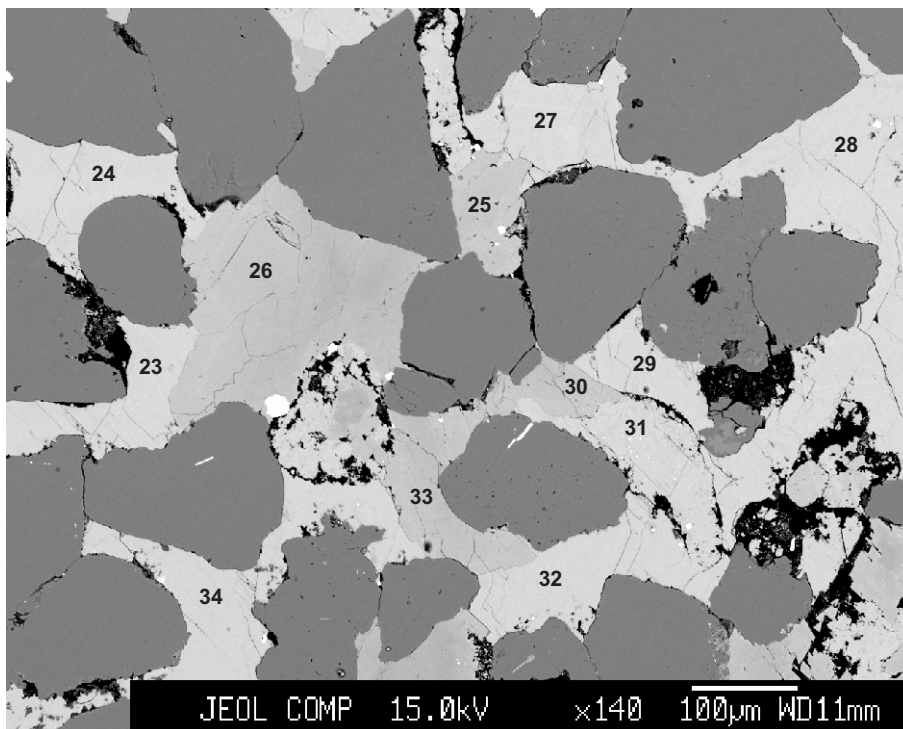
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: Fe-calcite
- 68: Fe-calcite

Figure 52: Panuke B-90-2403.21



- 11: Fe-calcite
- 12: ankerite
- 13: ankerite
- 14: ankerite
- 15: ankerite
- 16: K-feldspar
- 17: calcite (bioclast)
- 18: ankerite
- 19: Fe-calcite
- 20: ankerite
- 21: ankerite
- 22: Fe-calcite

Figure 53: Panuke B-90-2413.05



- 23: Fe-calcite
- 24: Fe-calcite
- 25: Fe-calcite
- 26: ankerite
- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: ankerite
- 31: Fe-calcite
- 32: Fe-clcrite
- 33: ankerite
- 34: Fe-calcite

Figure 54: Panuke B-90-2413.05

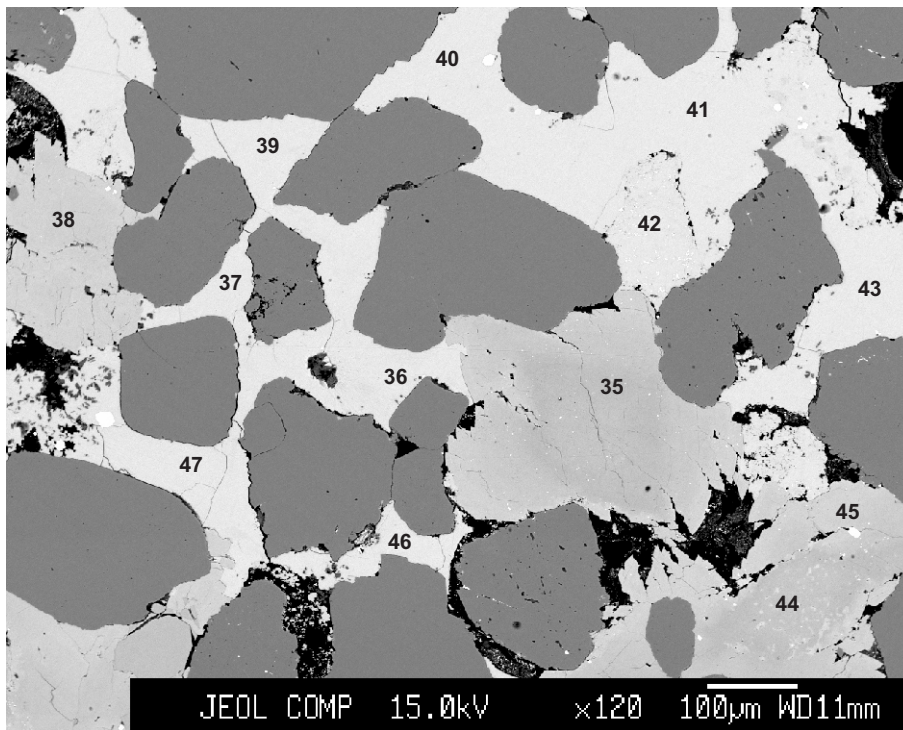


Figure 55: Panuke B-90-2413.05

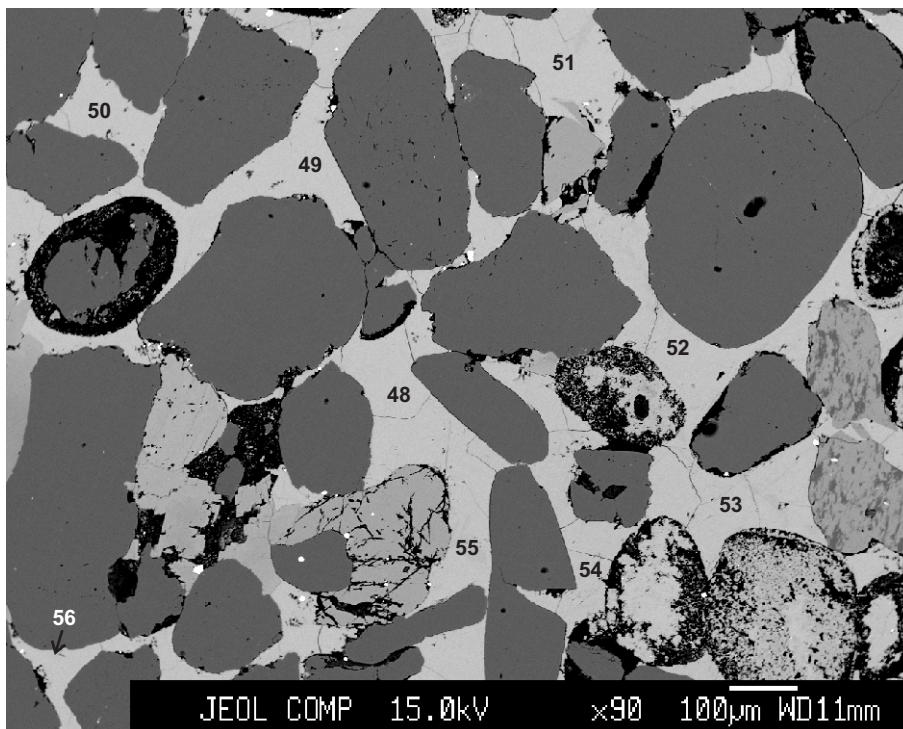
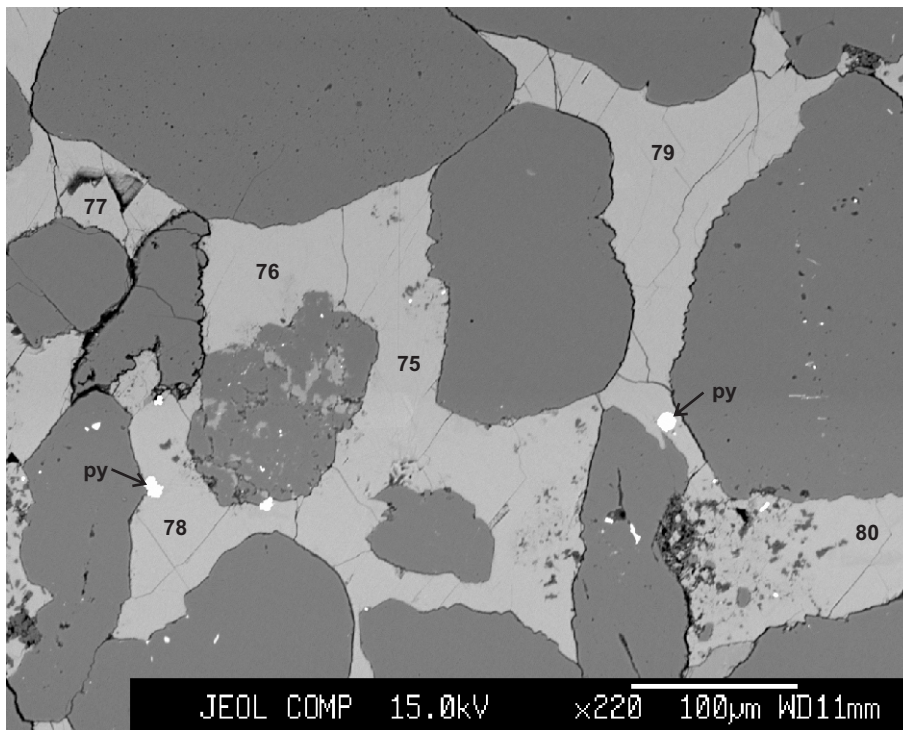
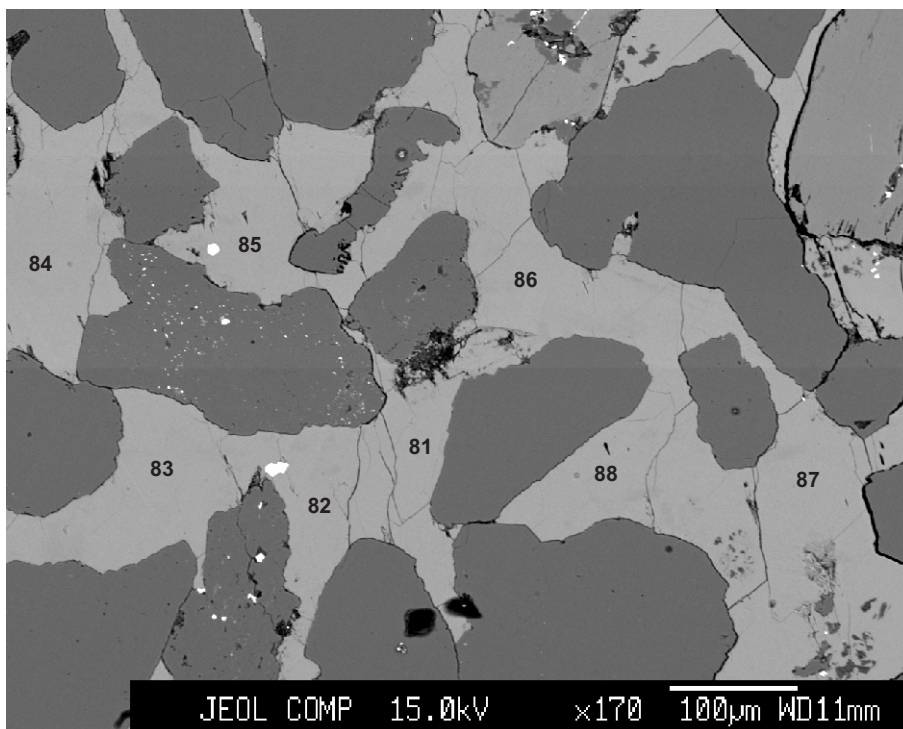


Figure 56: Panuke B-90-2413.05



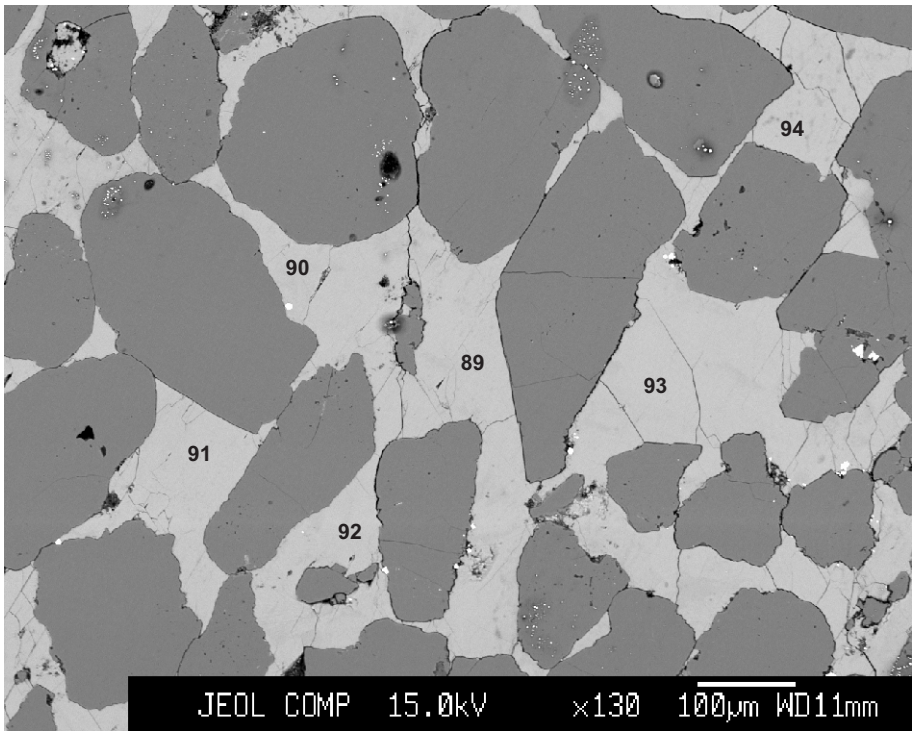
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite

Figure 57: Panuke B-90-2420.46



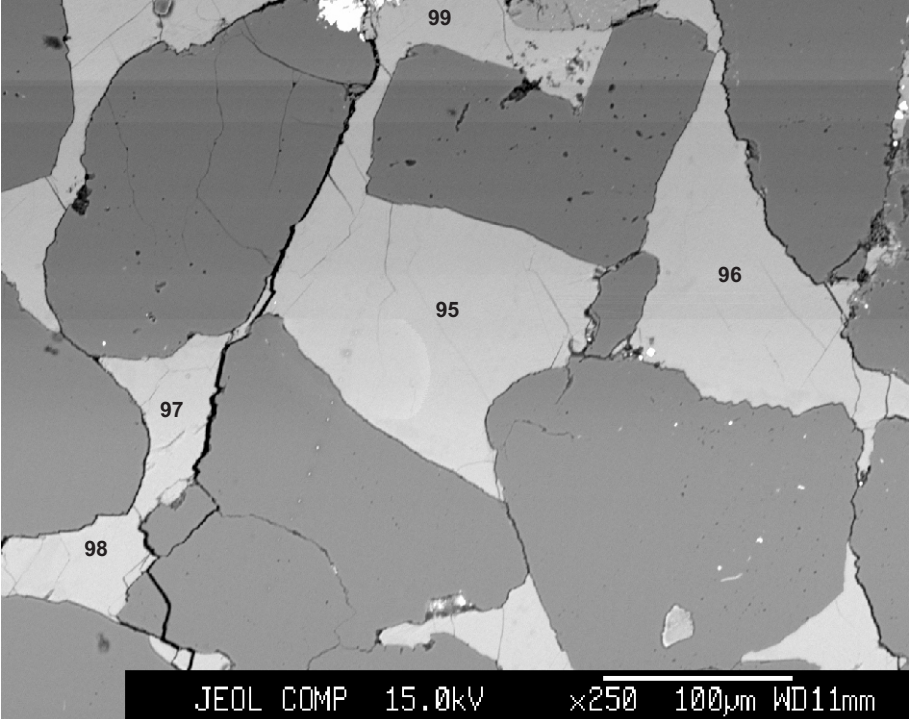
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite

Figure 58: Panuke B-90-2420.46



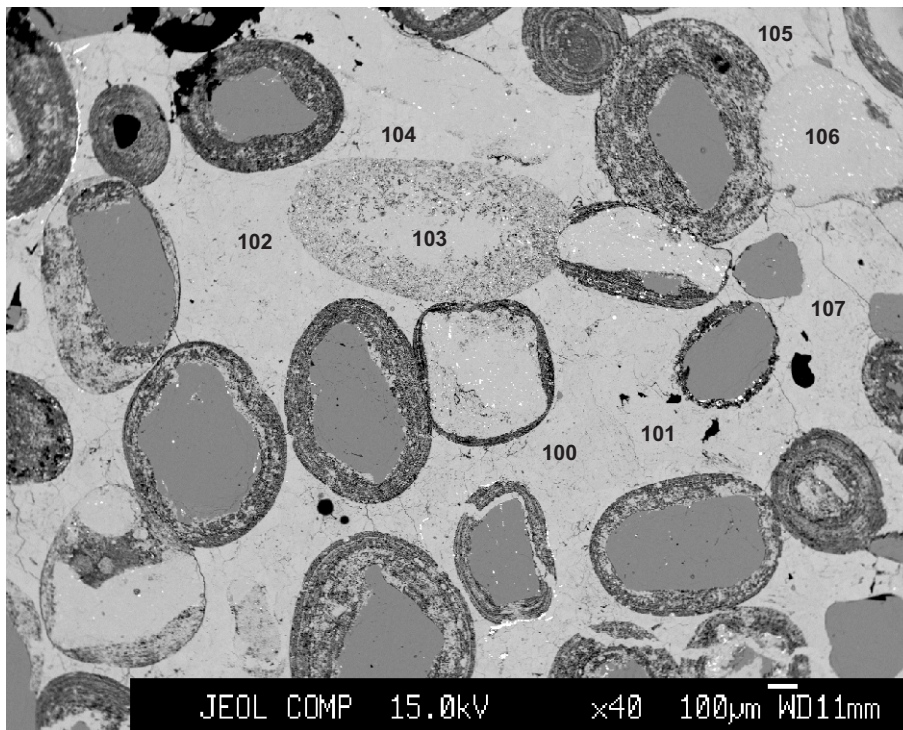
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite

Figure 59: Panuke B-90-2420.46



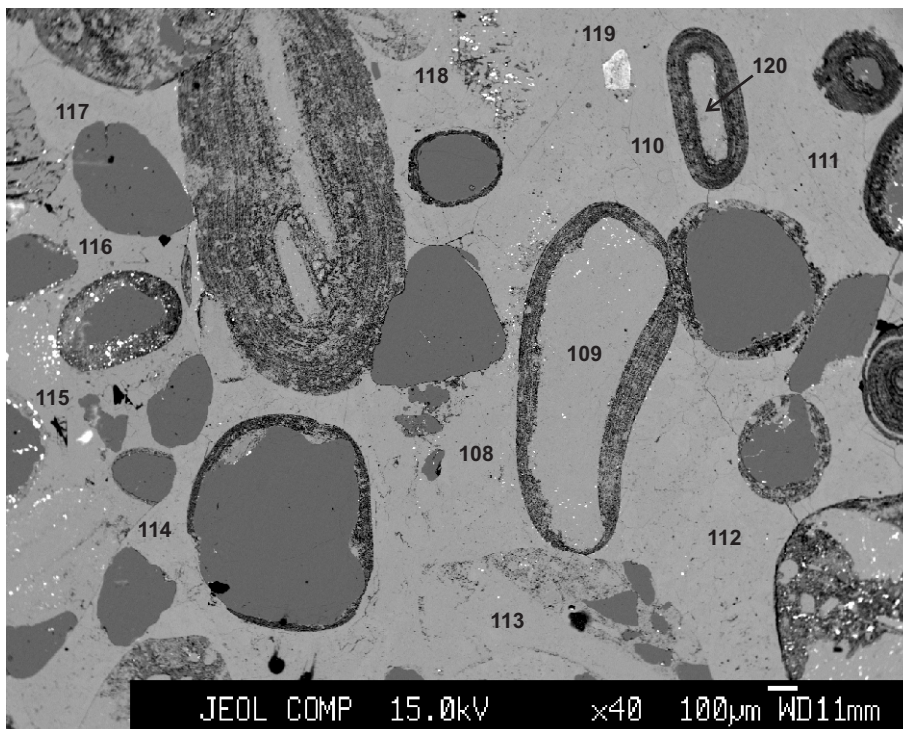
- 95: Fe-calcite
- 96: Fe-calcite
- 97: Fe-calcite
- 98: Fe-calcite
- 99: Fe-calcite

Figure 60: Panuke B-90-2420.46



- 100: calcite
- 101: calcite
- 102: calcite
- 103: calcite
- 104: calcite
- 105: Fe-calcite
- 106: calcite
- 107: calcite

Figure 61: Panuke B-90-2434.33



- 108: calcite
- 109: Mg-calcite
- 110: Mg-calcite
- 111: calcite
- 112: Fe-calcite
- 113: calcite
- 114: calcite
- 115: calcite
- 116: calcite
- 117: calcite
- 118: calcite
- 119: Mg-calcite
- 120: Mg-calcite

Figure 62: Panuke B-90-2434.33

Appendix 2C : Back-scattered electron (BSE) images for the  
Cohasset A-52 sandstones studied by electron microprobe



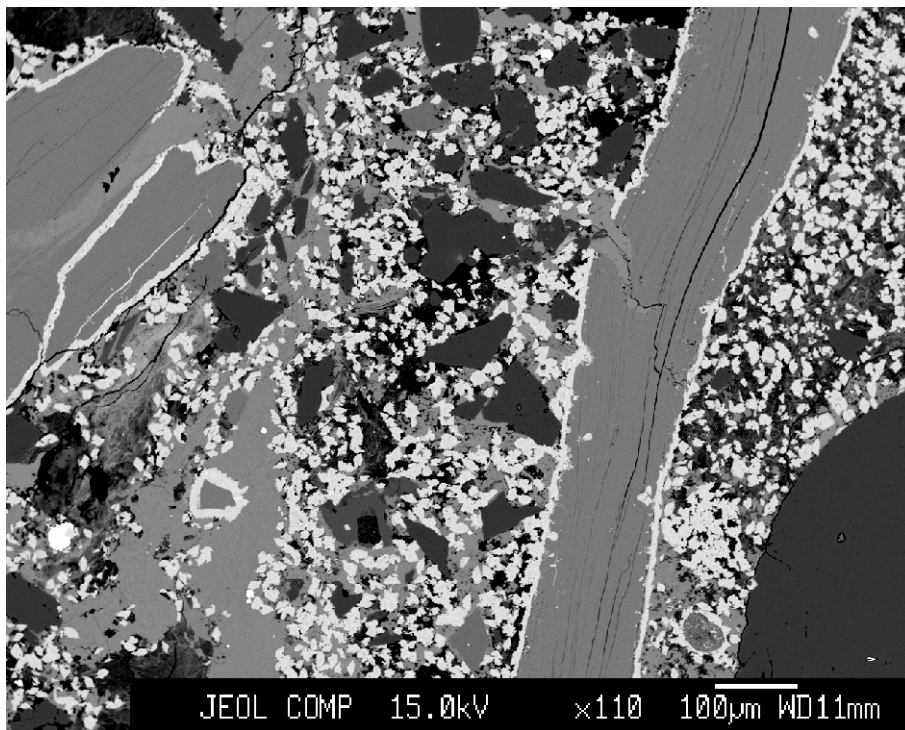
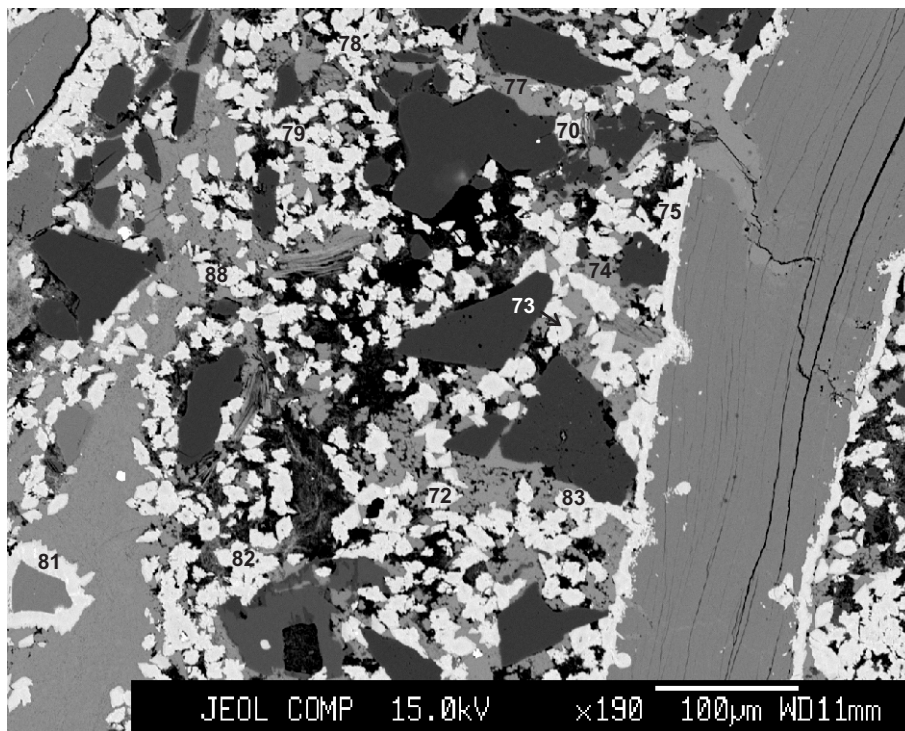
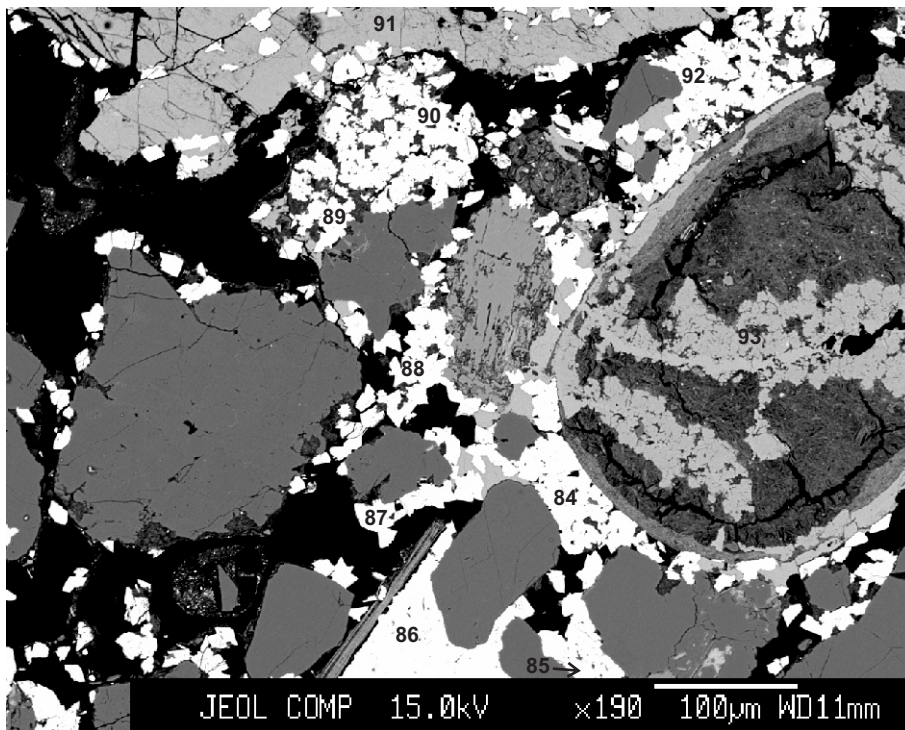


Figure 1: Cohasset A-52-2075.83



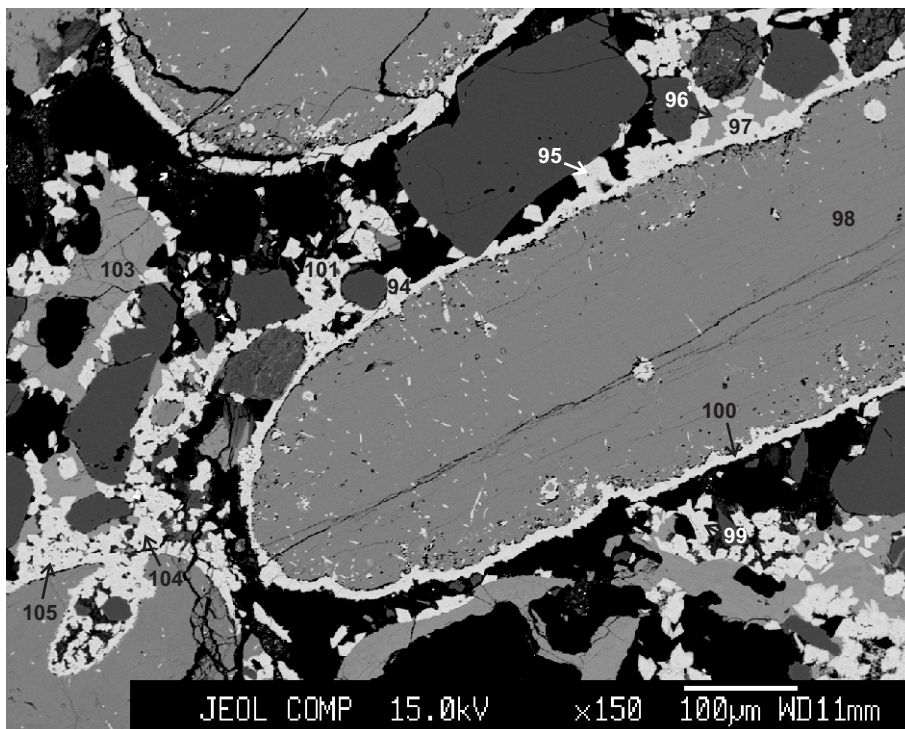
- 72: siderite
- 73: siderite
- 74: Fe-Mg-calcite
- 75: siderite
- 76: siderite
- 77: Fe-calcite
- 78: siderite
- 79: siderite
- 80: siderite
- 81: siderite
- 82: siderite
- 83: siderite

Figure 2: Cohasset A-52-2075.83



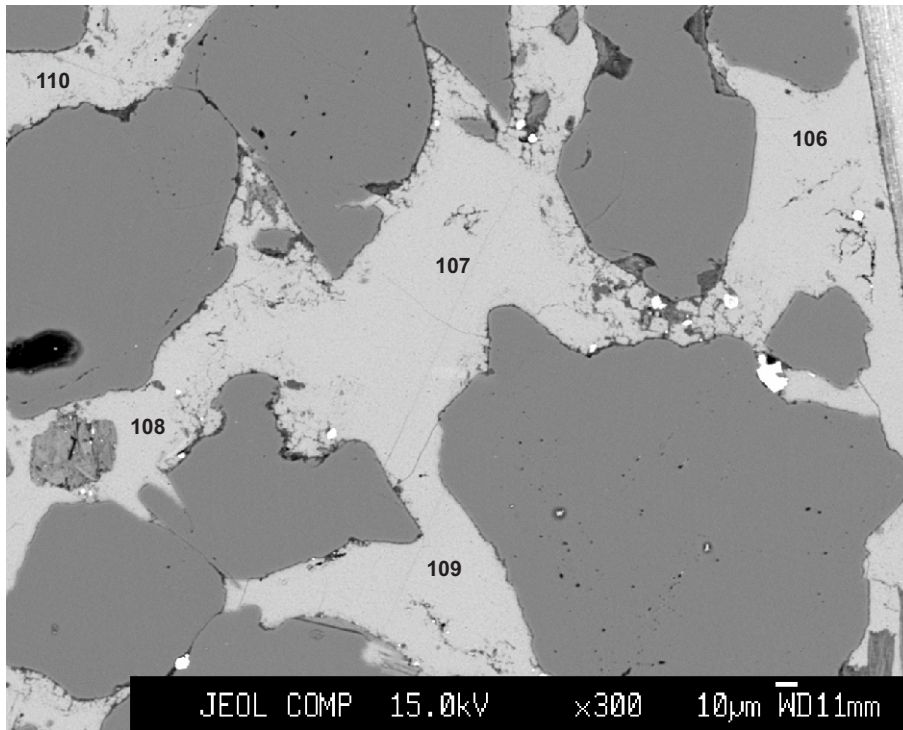
- 84: siderite
- 85: siderite
- 86: siderite
- 87: siderite
- 88: siderite
- 89: siderite
- 90: siderite
- 91: Fe-calcite
- 92: siderite
- 93: Fe-calcite

Figure 3: Cohasset A-52-2075.83



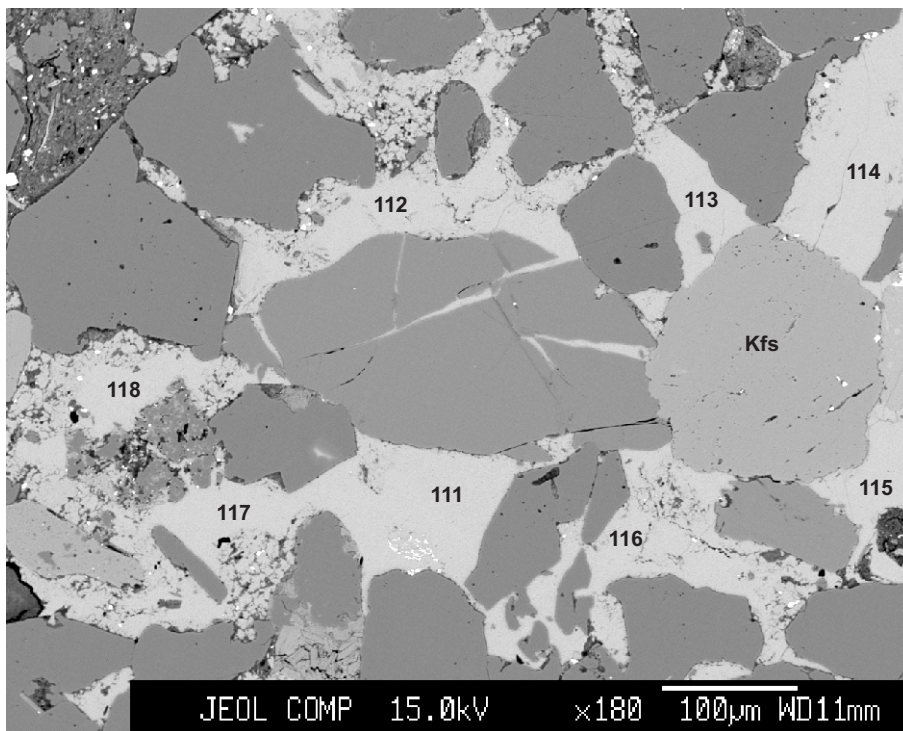
- 84: siderite
- 85: siderite
- 86: siderite
- 87: siderite
- 88: siderite
- 89: siderite
- 90: siderite
- 91: Fe-calcite
- 92: siderite
- 93: Fe-calcite
- 94: siderite
- 95: siderite
- 96: Fe-calcite
- 97: siderite
- 98: calcite (bioclast)
- 99: siderite
- 100: siderite
- 101: siderite
- 102: siderite
- 103: siderite
- 104: siderite
- 105: siderite

Figure 4: Cohasset A-52-2075.83



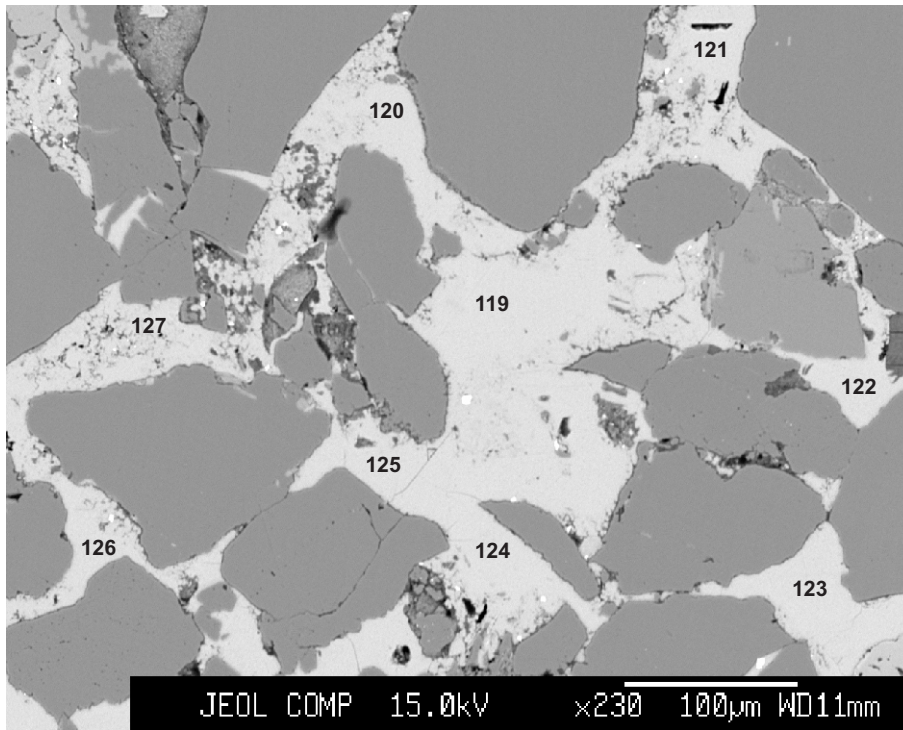
- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

Figure 5: Cohasset A-52-2126.14



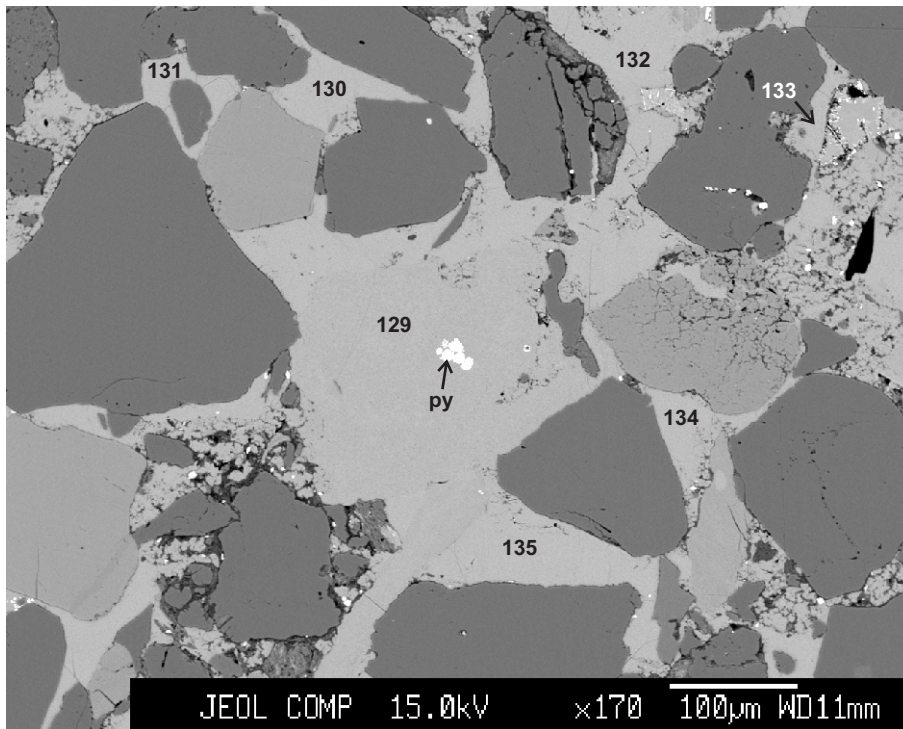
- 111: Fe-calcite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite
- 117: Fe-calcite
- 118: Fe-calcite

Figure 6: Cohasset A-52-2126.14



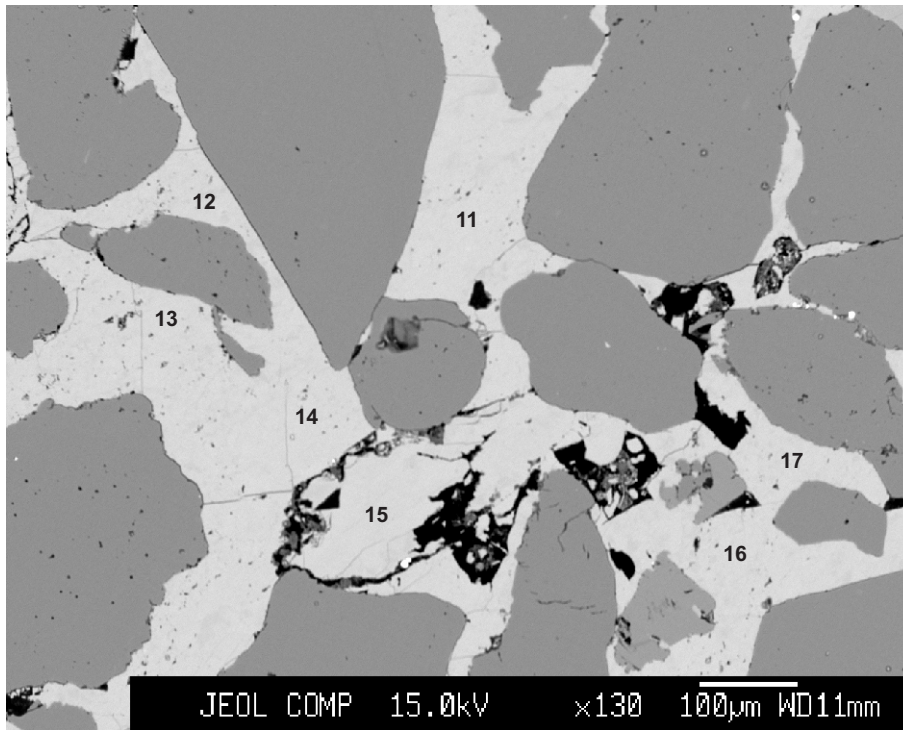
- 119: Fe-calcite
- 120: Fe-calcite
- 121: Fe-calcite
- 122: Fe-calcite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: Fe-calcite
- 127: Fe-calcite
- 128: Fe-calcite

Figure 7: Cohasset A-52-2126.14



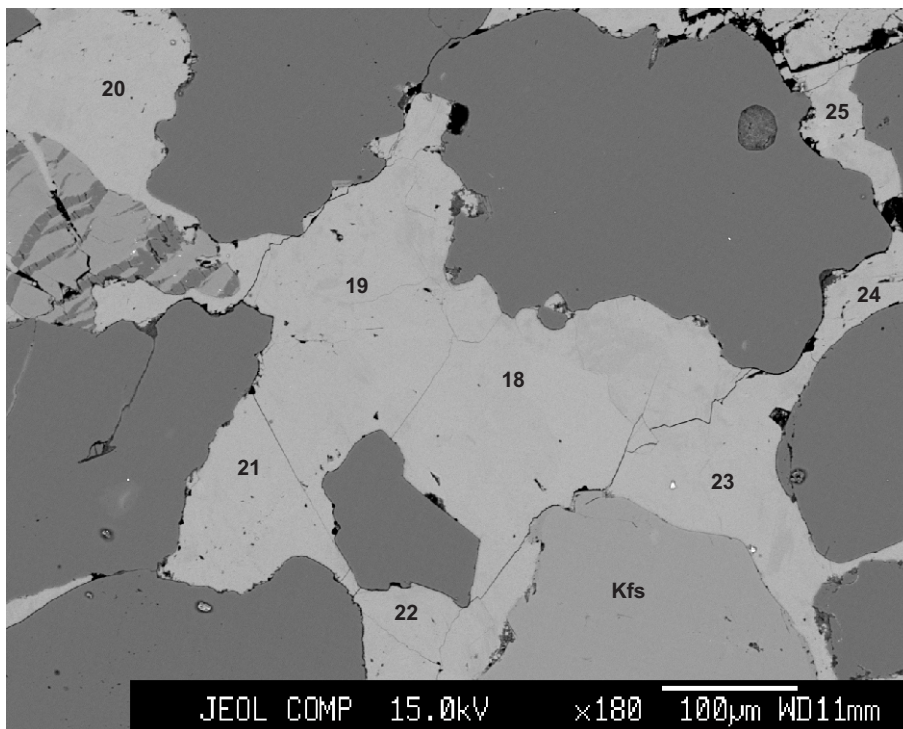
- 129: Fe-calcite
- 130: Fe-calcite
- 131: Fe-calcite
- 132: Fe-calcite
- 133: Fe-calcite
- 134: Fe-calcite
- 135: Fe-calcite

Figure 8: Cohasset A-52-2126.14



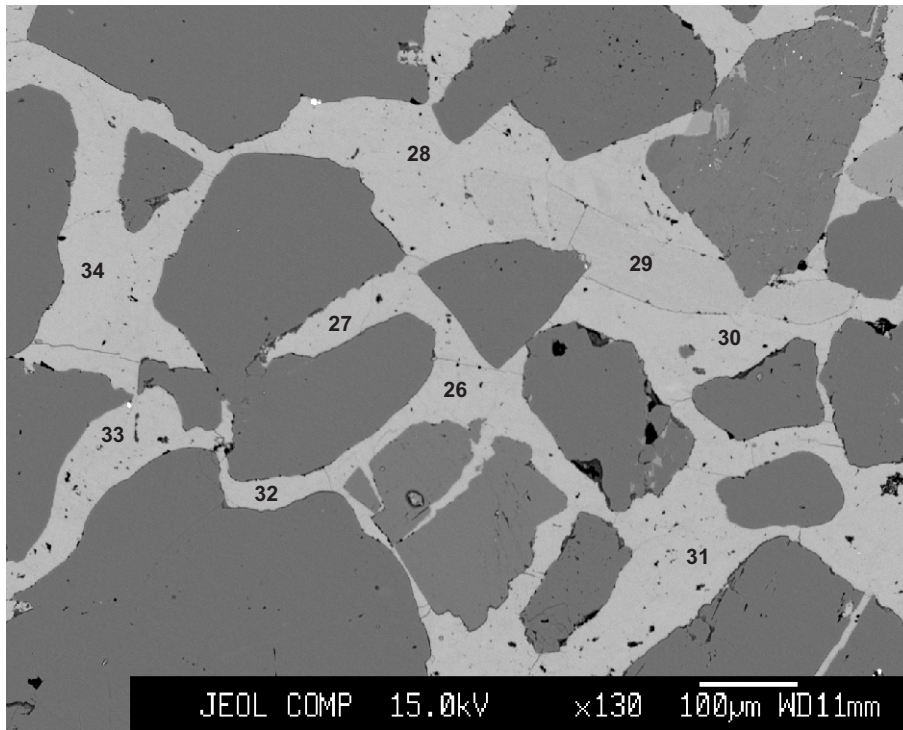
- 11: Fe-calcite
- 12: calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: calcite
- 16: Fe-calcite
- 17: Fe-calcite

Figure 9: Cohasset A-52-2130.04



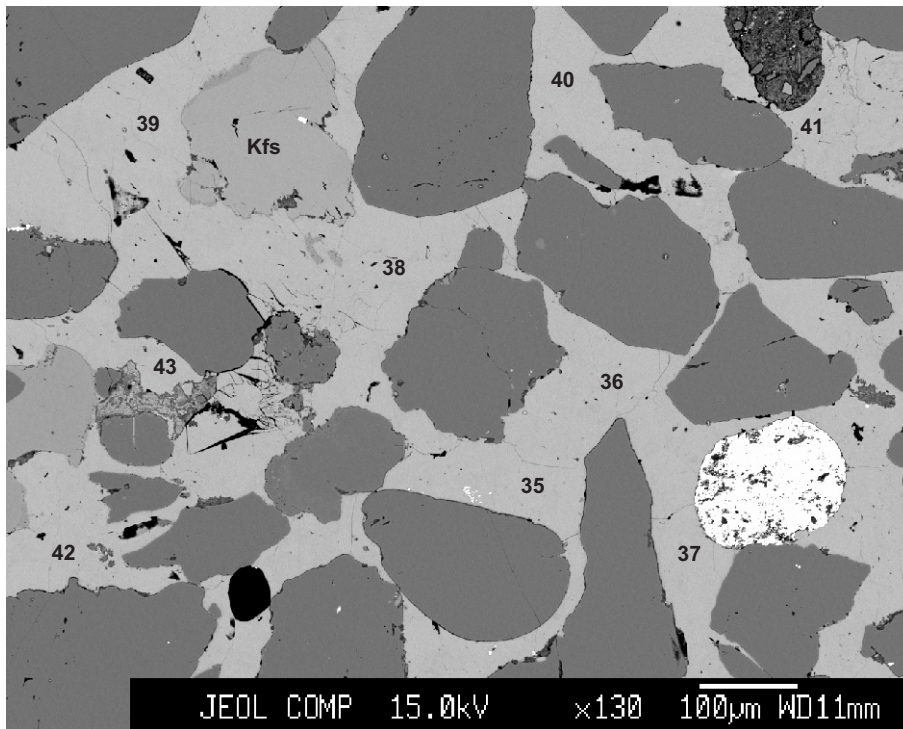
- 18: Fe-calcite
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: calcite
- 25: Fe-calcite

Figure 10: Cohasset A-52-2130.04



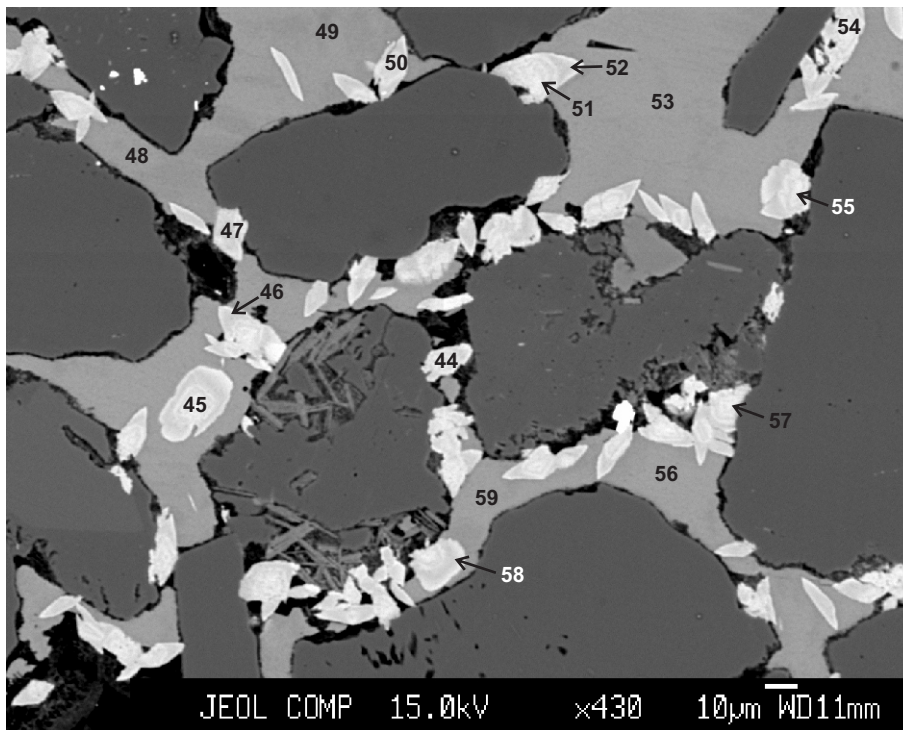
- 26: Fe-calcite
- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: Fe-calcite
- 33: Fe-calcite
- 34: Fe-Mg-calcite

Figure 11: Cohasset A-52-2130.04



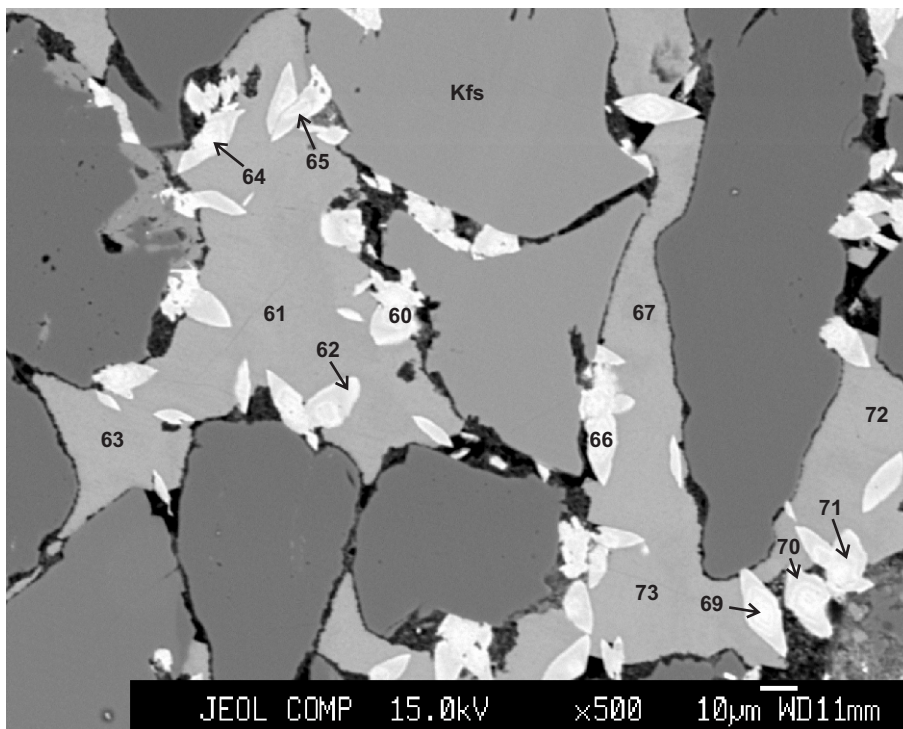
- 35: Fe-Mg-calcite
- 36: Fe-calcite
- 37: Fe-calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite

Figure 12: Cohasset A-52-2130.04



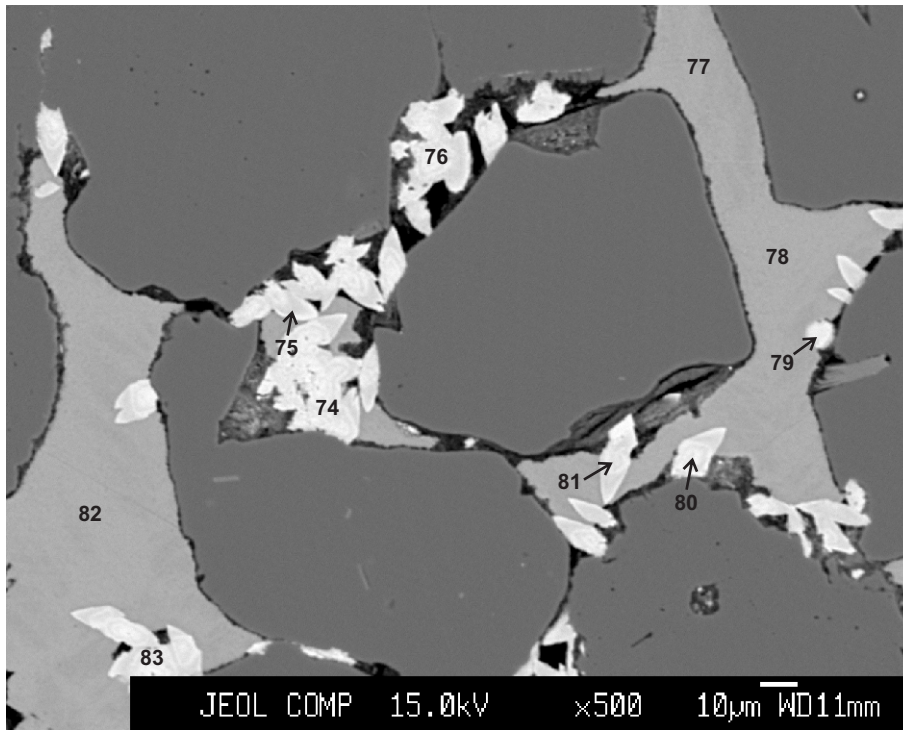
- 44: siderite
- 45: siderite
- 46: siderite
- 47: siderite
- 48: calcite
- 49: Fe-calcite
- 50: siderite
- 51: siderite
- 52: siderite
- 53: Fe-calcite
- 54: siderite
- 55: siderite
- 56: Fe-calcite
- 57: siderite
- 58: siderite
- 59: Fe-calcite

Figure 13: Cohasset A-52-2160.51



- 60: siderite
- 61: Fe-calcite
- 62: siderite
- 63: Fe-calcite
- 64: siderite
- 65: siderite
- 66: siderite
- 67: calcite
- 68: siderite
- 69: siderite
- 70: siderite
- 71: siderite
- 72: Fe-calcite
- 73: Fe-calcite

Figure 14: Cohasset A-52-2160.51



- 75: siderite
- 76: siderite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: siderite
- 80: siderite
- 81: siderite
- 82: Fe-calcite
- 83: siderite

Figure 15: Cohasset A-52-2160.51

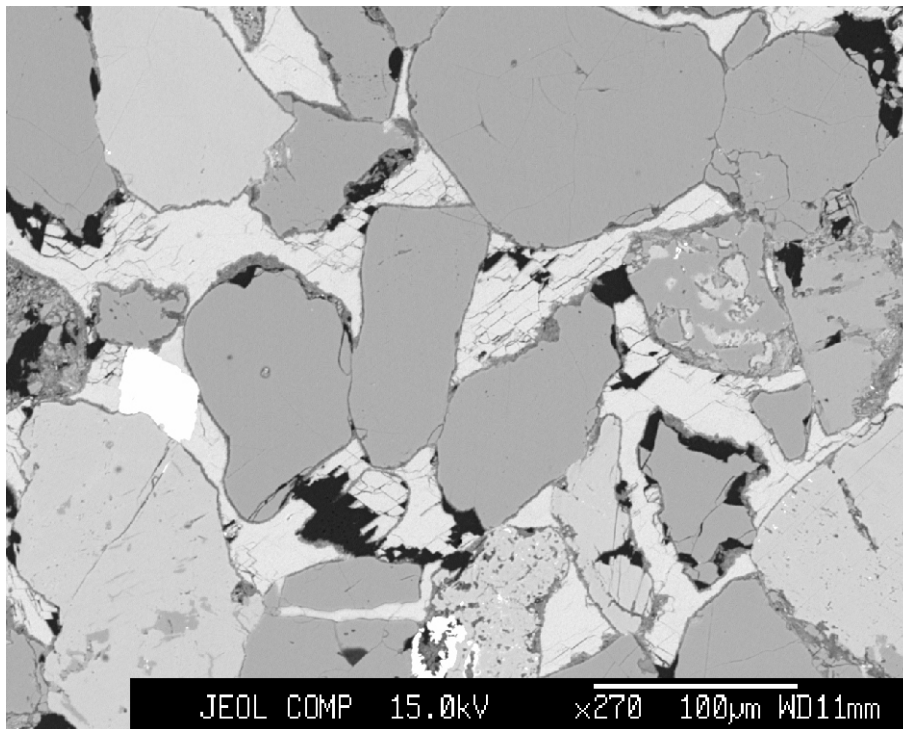
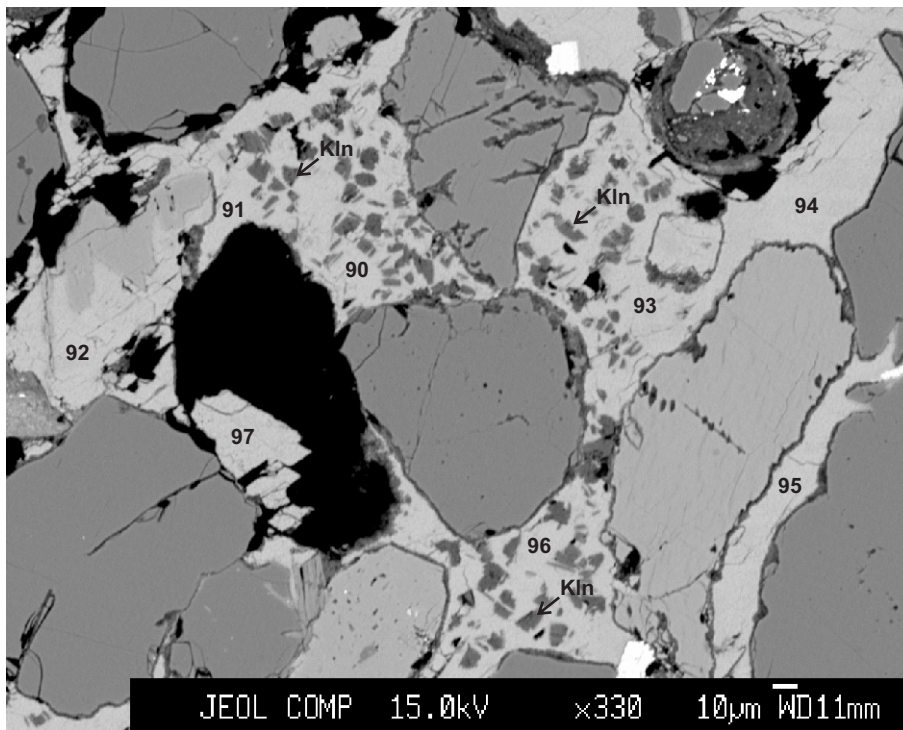


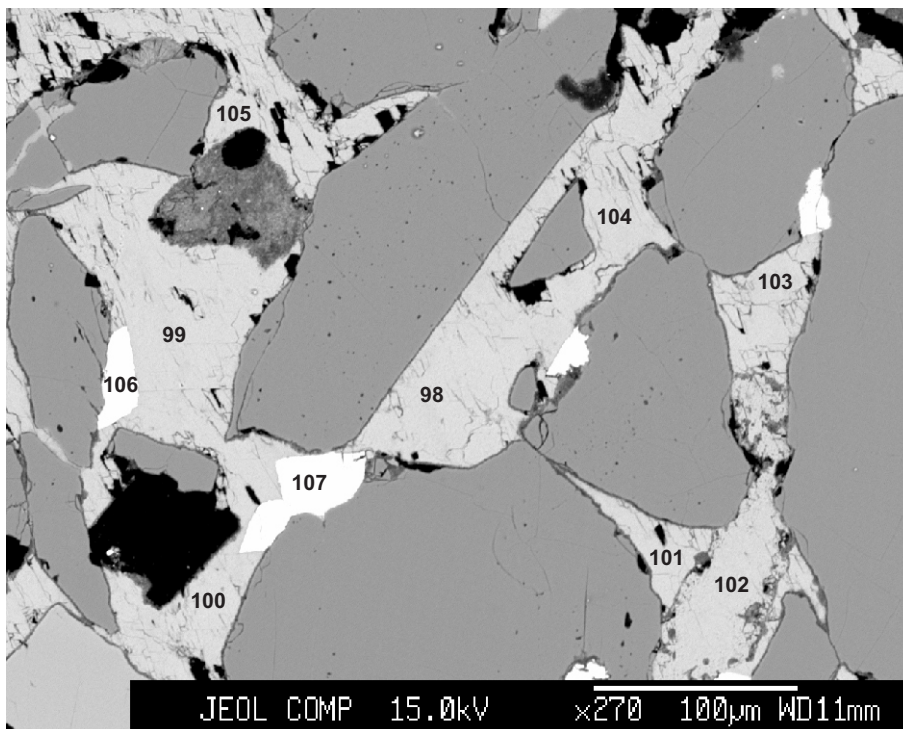
Figure 16: Cohasset A-52-2167.31





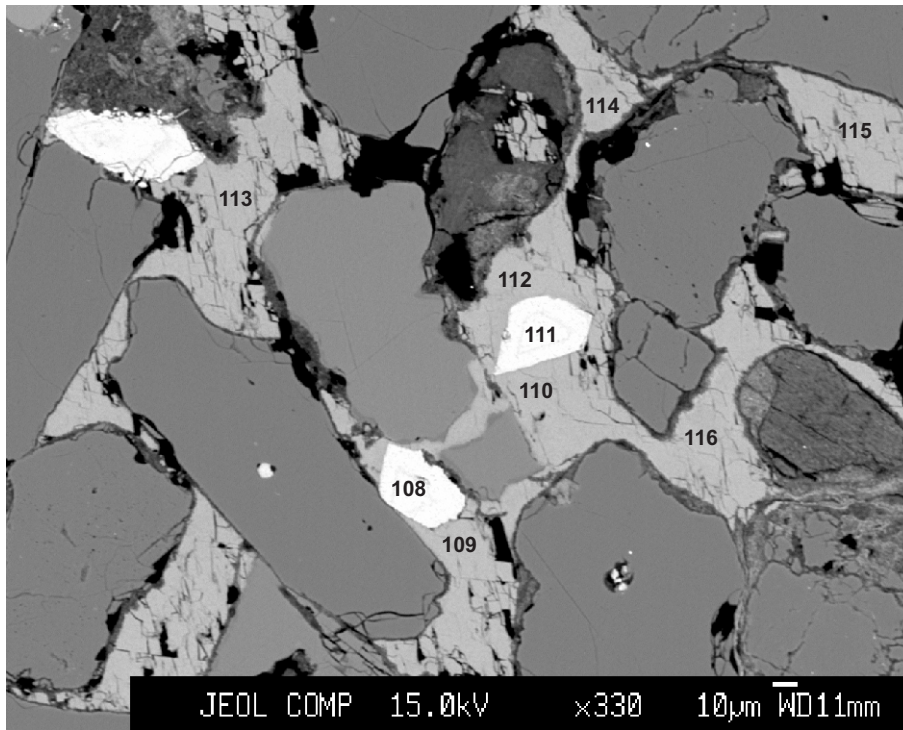
- 90: Fe-calcite
- 91: Fe-calcite
- 92: calcite
- 93: Fe-calcite
- 94: Fe-calcite
- 95: Fe-calcite
- 96: Fe-calcite
- 97: Fe-calcite

Figure 17: Cohasset A-52-2167.31



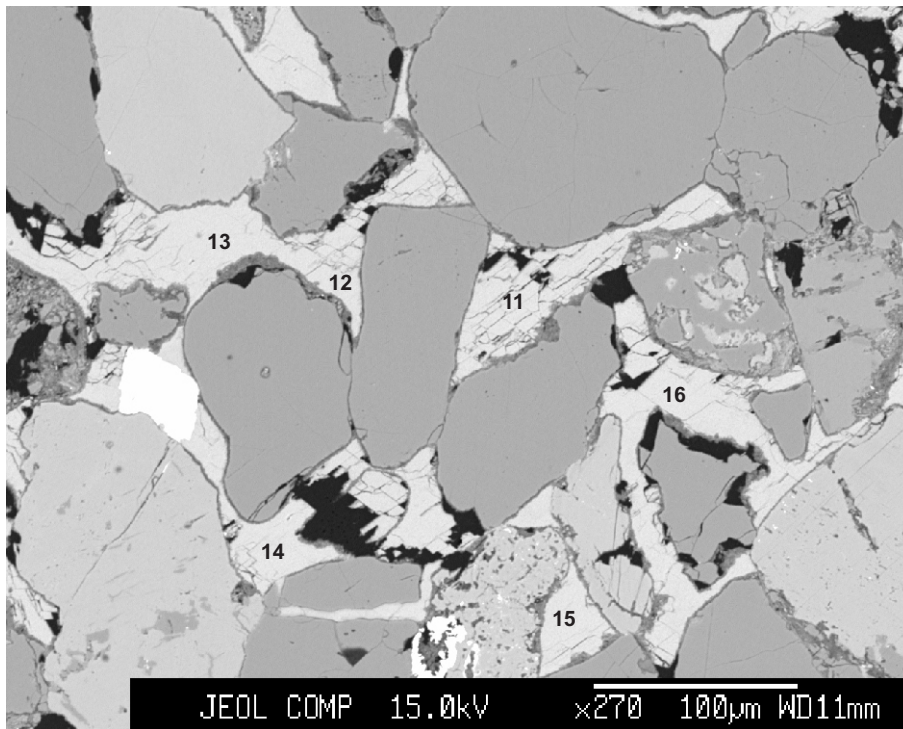
- 98: Fe-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: Fe-calcite
- 102: Fe-calcite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: Fe-calcite
- 106: siderite
- 107: siderite

Figure 18: Cohasset A-52-2167.31



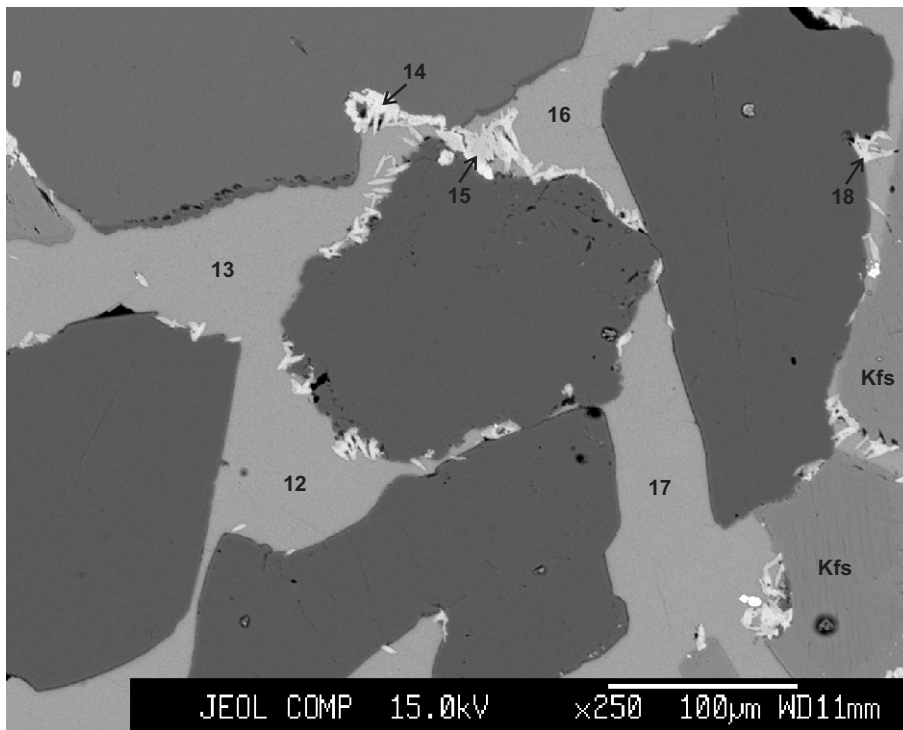
- 108: siderite
- 109: Fe-calcite
- 110: Fe-calcite
- 111: siderite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: Fe-calcite

Figure 19: Cohasset A-52-2167.31



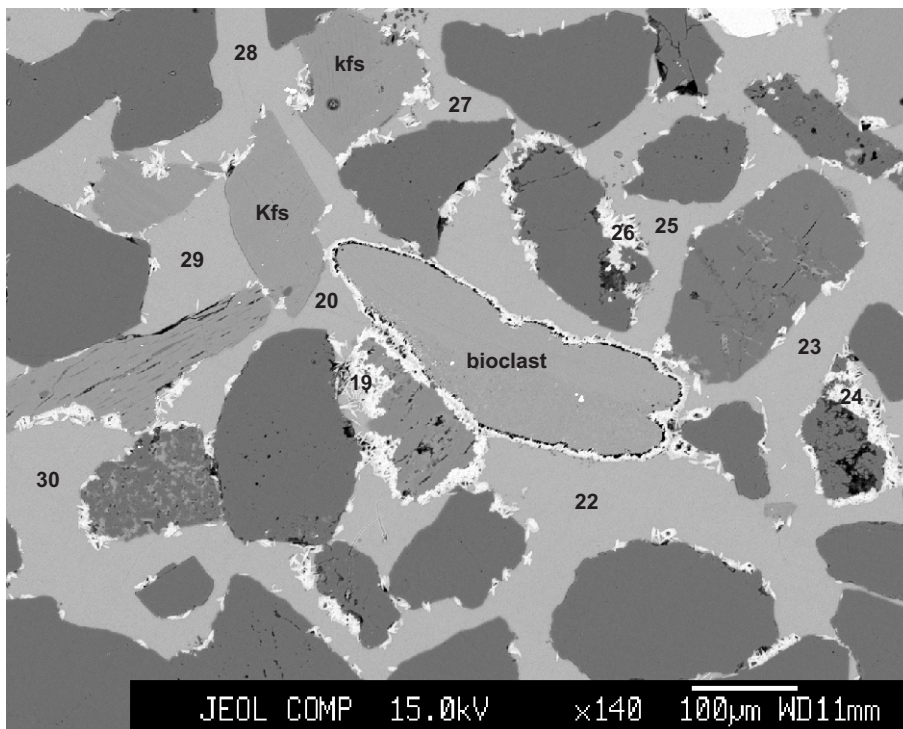
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite

Figure 20: Cohasset A-52-2167.31



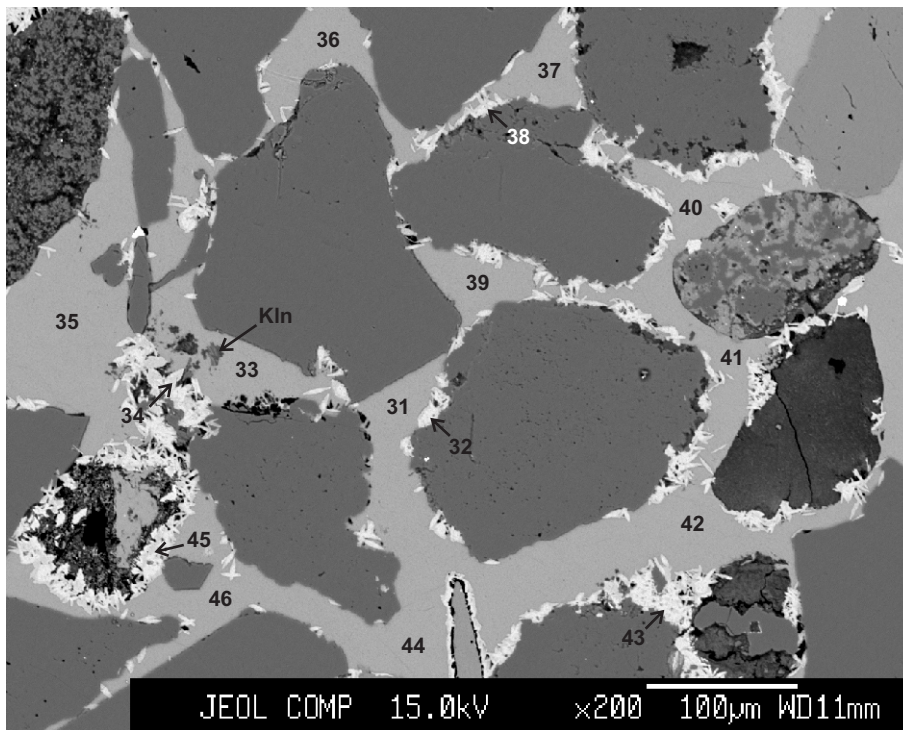
- 12: Fe-Mg-calcite
- 13: Fe-Mg-calcite
- 14: siderite
- 15: siderite
- 16: Fe-Mg-calcite
- 17: Fe-Mg-calcite
- 18: siderite

Figure 21: Cohasset A-52-2217.17



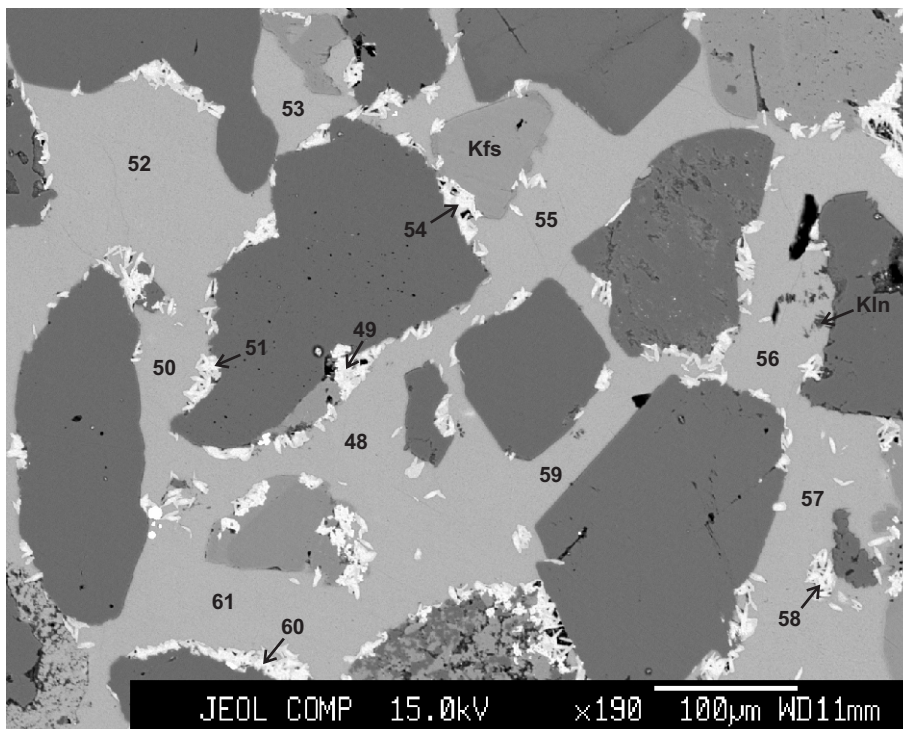
- 19: siderite
- 20: Fe-Mg-calcite
- 21: siderite
- 22: Fe-Mg-calcite
- 23: Fe-Mg-calcite
- 24: siderite
- 25: Fe-Mg-calcite
- 26: siderite
- 27: Fe-Mg-calcite
- 28: Fe-Mg-calcite
- 29: Fe-Mg-calcite
- 30: Fe-Mg-calcite

Figure 22: Cohasset A-52-2217.17



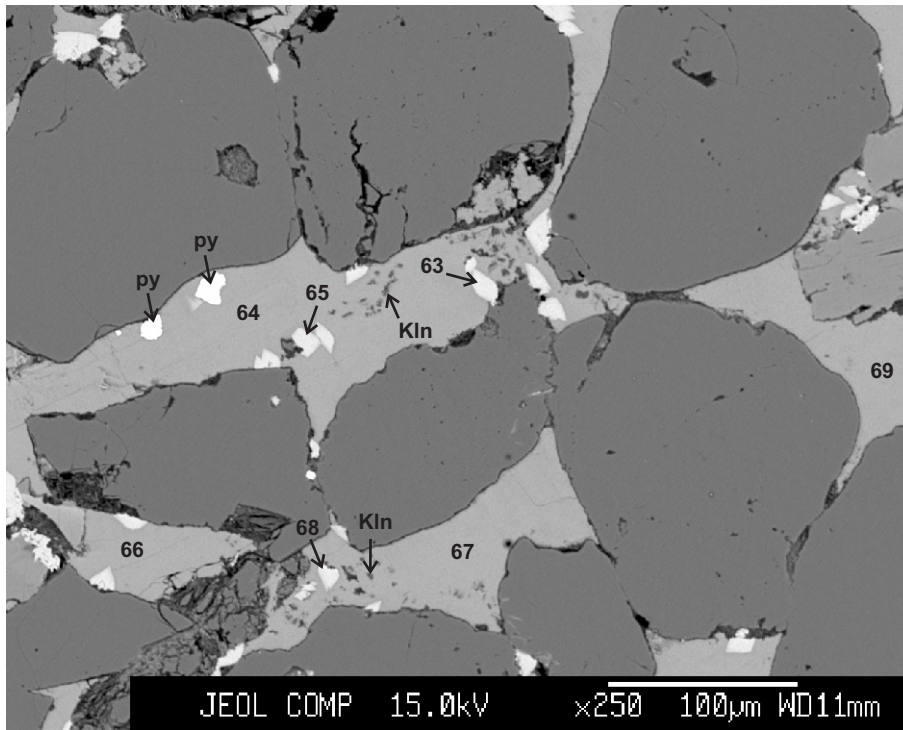
- 31: Fe-Mg-calcite
- 32: siderite
- 33: Fe-Mg-calcite
- 34: siderite
- 35: Fe-Mg-calcite
- 36: Fe-Mg-calcite
- 37: Fe-Mg-calcite
- 38: siderite
- 39: Fe-Mg-calcite
- 40: Fe-Mg-calcite
- 41: Fe-Mg-calcite
- 42: Fe-Mg-calcite
- 43: siderite
- 44: Fe-Mg-calcite
- 45: siderite
- 46: Fe-Mg-calcite

Figure 23: Cohasset A-52-2217.17



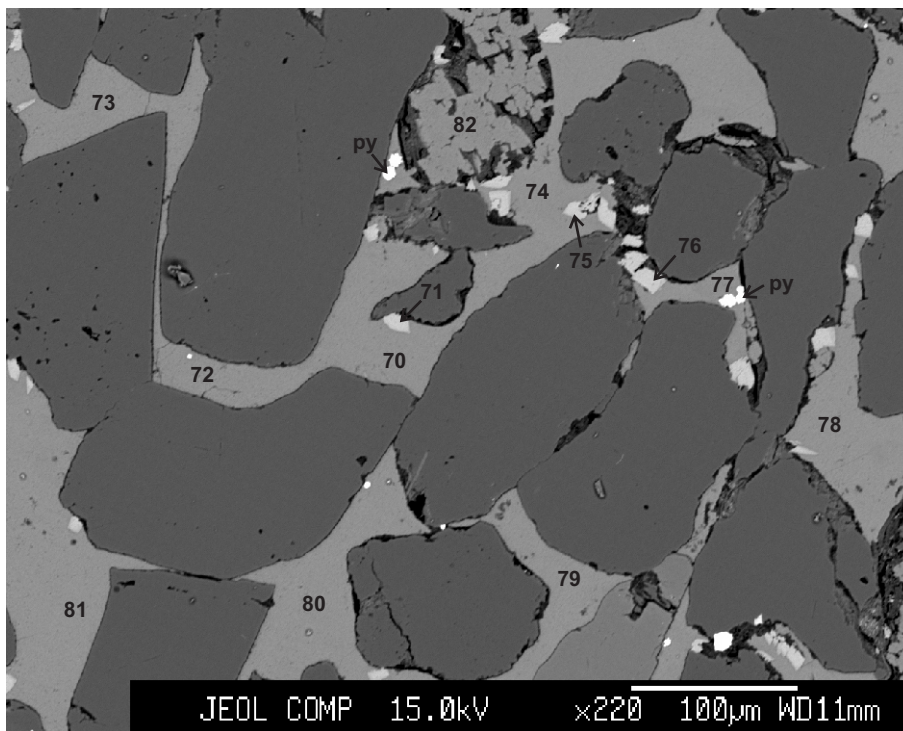
- 48: Fe-Mg-calcite
- 49: siderite
- 50: Fe-Mg-calcite
- 51: siderite
- 52: Fe-Mg-calcite
- 53: Fe-Mg-calcite
- 54: siderite
- 55: Fe-Mg-calcite
- 56: Fe-Mg-calcite
- 57: Fe-calcite
- 58: siderite
- 59: Fe-Mg-calcite
- 60: siderite
- 61: Fe-calcite

Figure 24: Cohasset A-52-2217.17



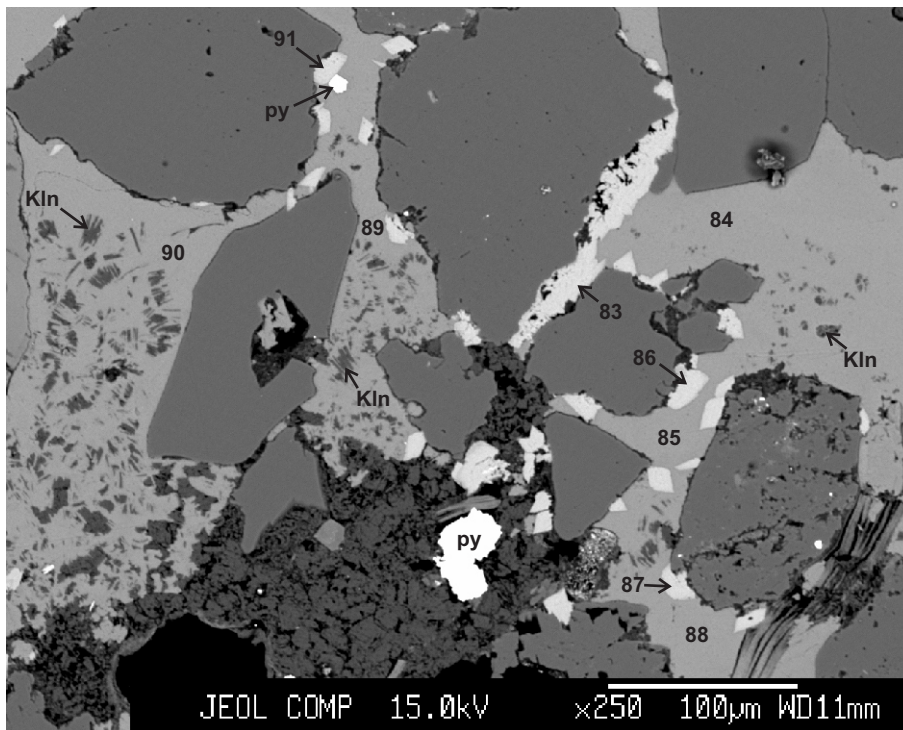
- 62: Fe-calcite
- 63: siderite
- 64: Fe-calcite
- 65: siderite
- 66: Fe-calcite
- 67: Fe-calcite
- 68: siderite
- 69: Fe-calcite

Figure 25: Cohasset A-52-2230.38



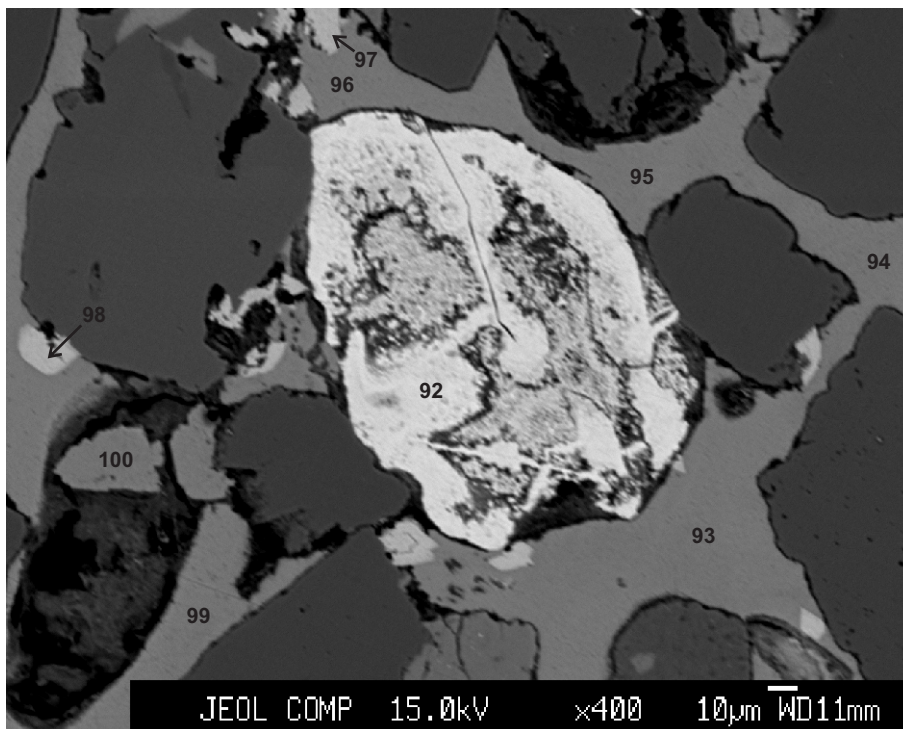
- 70: Fe-calcite
- 71: siderite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: siderite
- 76: siderite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite

Figure 26: Cohasset A-52-2230.38



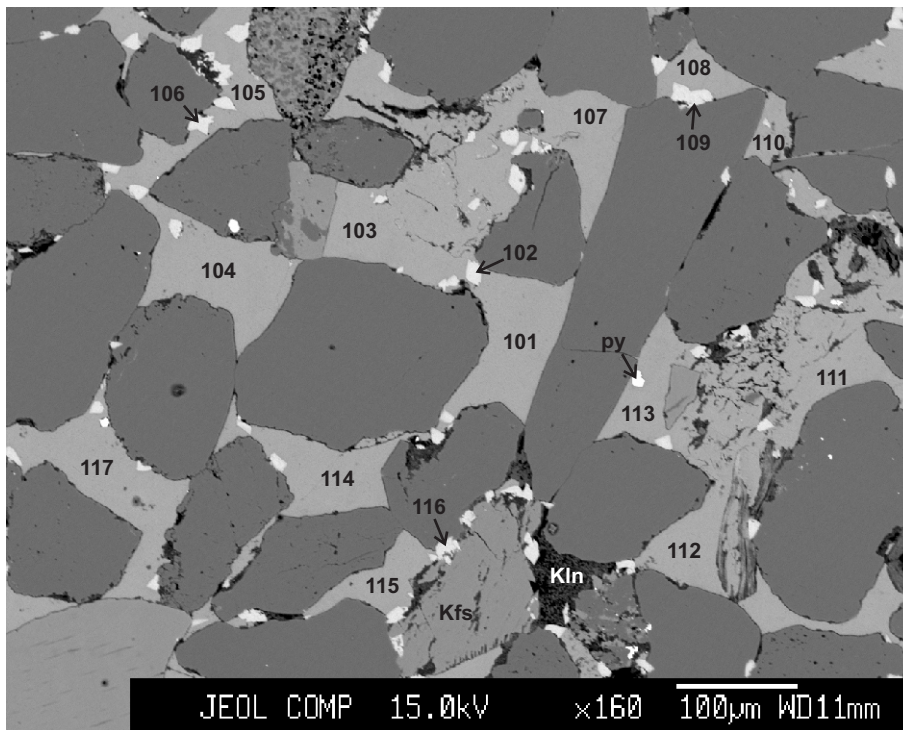
- 83: siderite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: siderite
- 87: siderite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: siderite

Figure 27: Cohasset A-52-2230.38



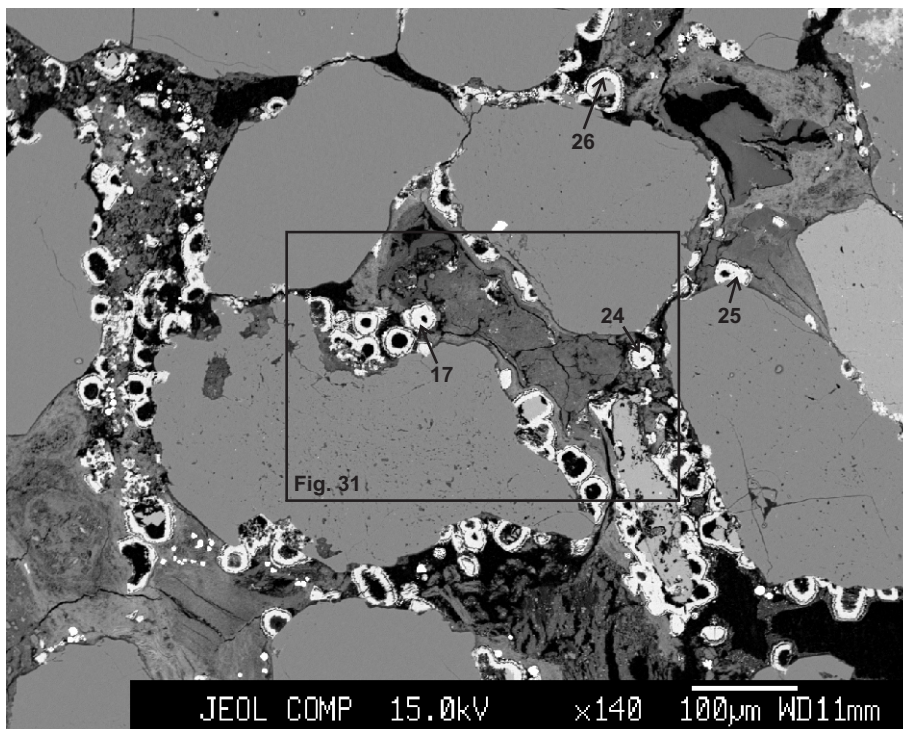
- 92: pseudorutile
- 93: Fe-calcite
- 94: Fe-calcite
- 95: Fe-calcite
- 96: Fe-calcite
- 97: siderite
- 98: siderite
- 99: Fe-calcite
- 100: Fe-calcite

Figure 28: Cohasset A-52-2230.38



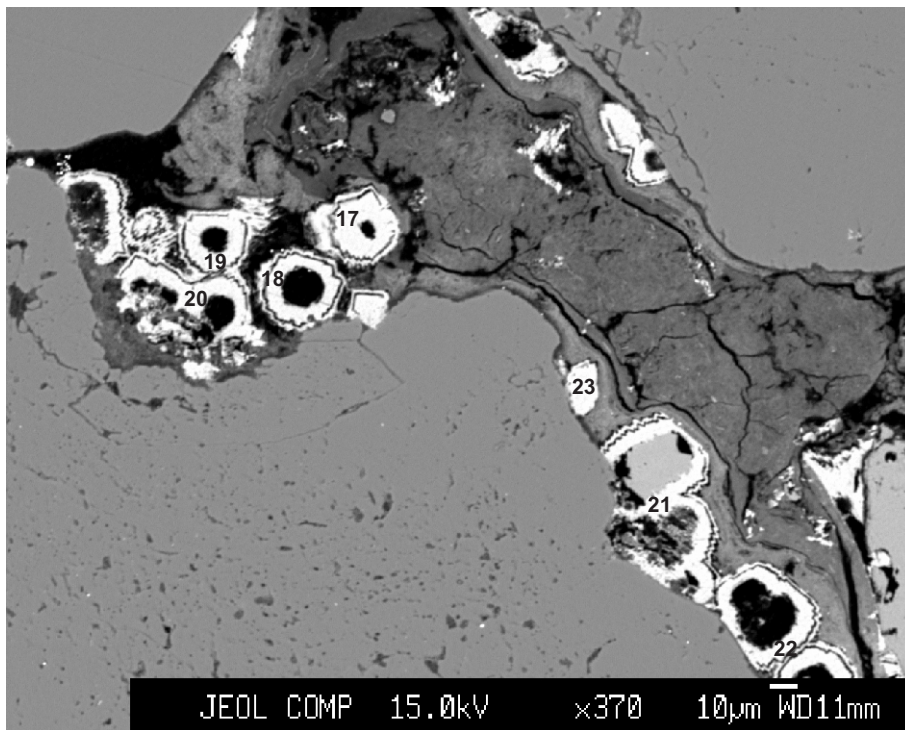
- 101: Fe-calcite
- 102: siderite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: Fe-calcite
- 106: siderite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: siderite
- 110: Fe-calcite
- 111: Fe-calcite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: Fe-calcite
- 116: siderite
- 117: Fe-calcite
- 118: Fe-calcite

Figure 29: Cohasset A-52-2230.38



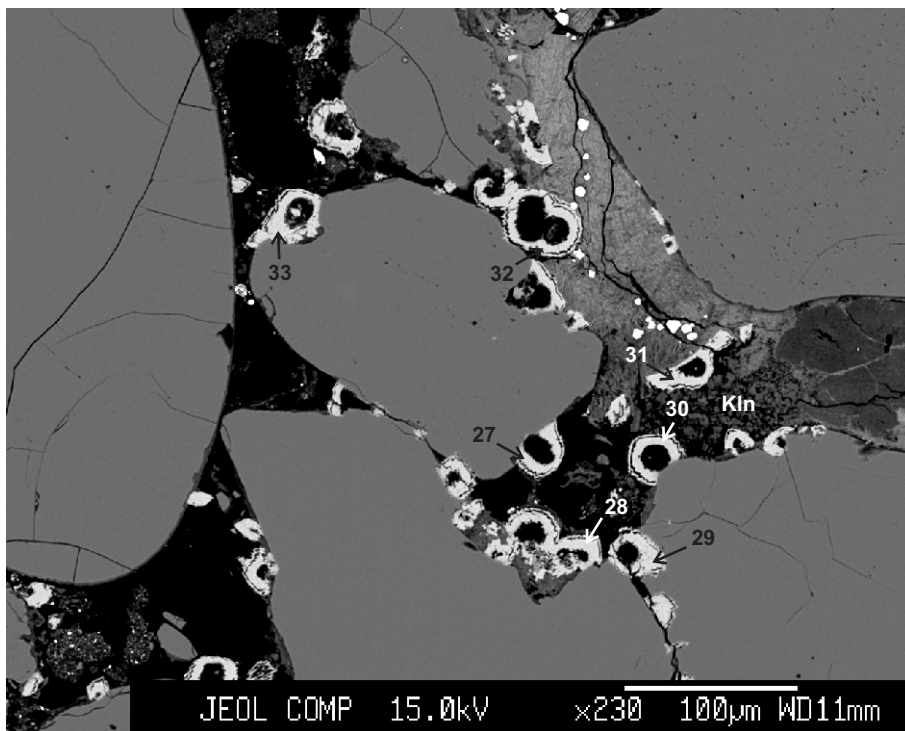
- 17: siderite
- 24: siderite
- 25: siderite
- 26: siderite

Figure 30: Cohasset A-52-2338.92



- 17: siderite
- 18: siderite
- 19: siderite
- 20: siderite
- 21: siderite
- 22: siderite
- 23: siderite

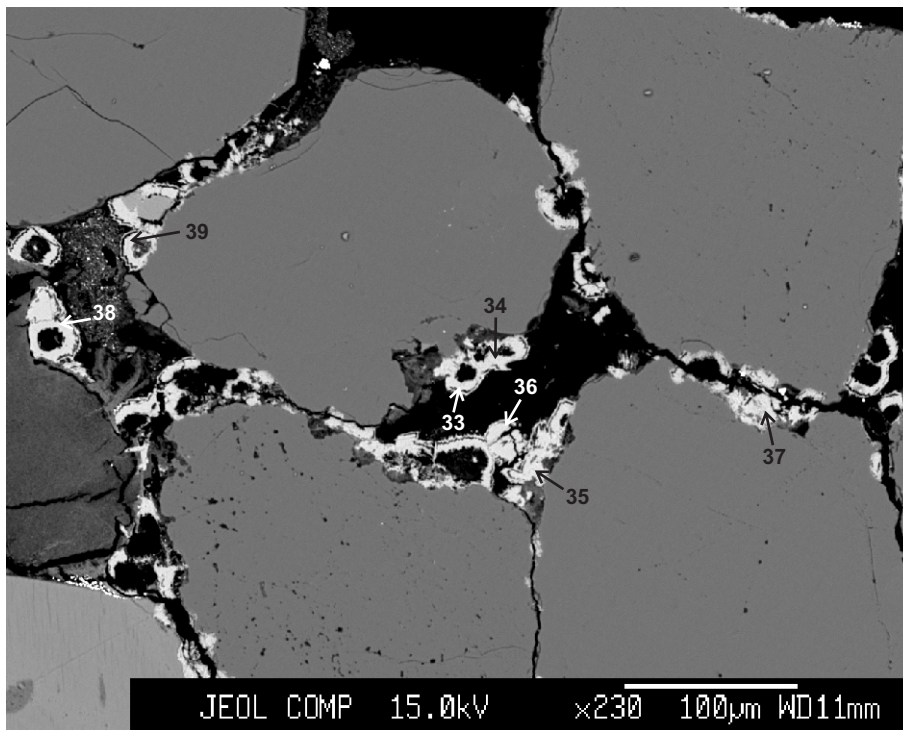
Figure 31: Cohasset A-52-2338.92



- 27: siderite
- 28: siderite
- 29: siderite
- 30: siderite
- 31: siderite
- 32: siderite
- 33: siderite

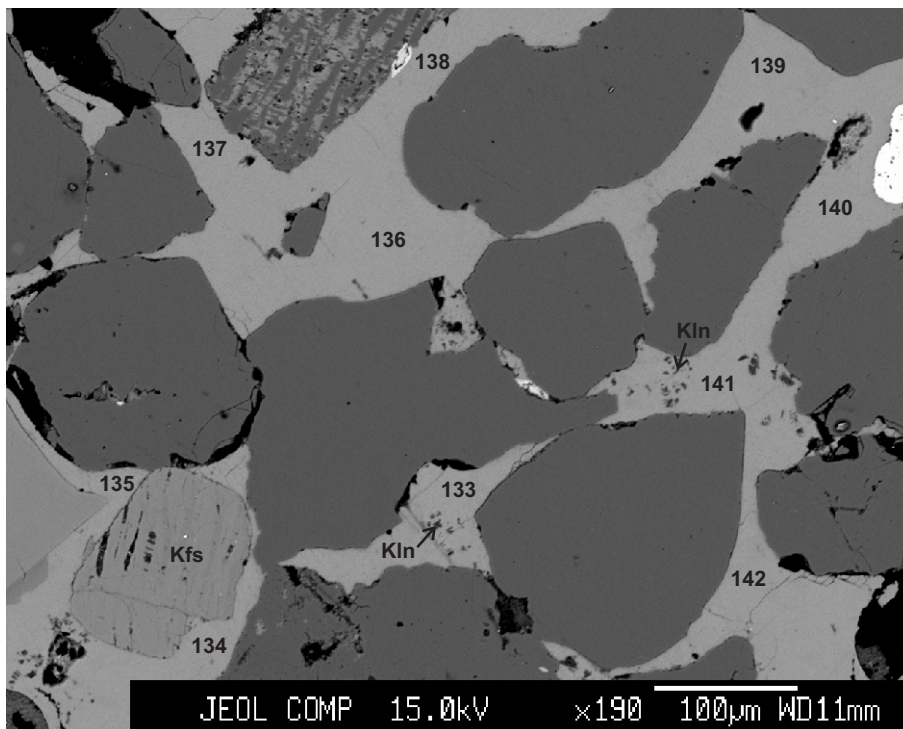
Figure 32: Cohasset A-52-2338.92





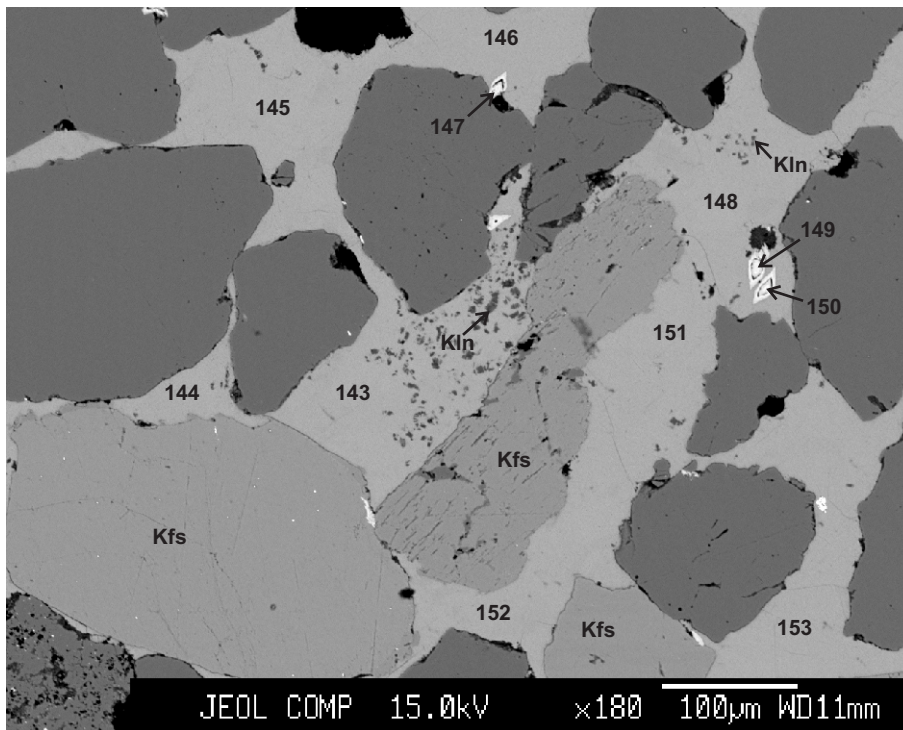
- 33: siderite
- 34: siderite
- 35: siderite
- 36: siderite
- 37: siderite
- 38: siderite
- 39: siderite

Figure 33: Cohasset A-52-2338.92



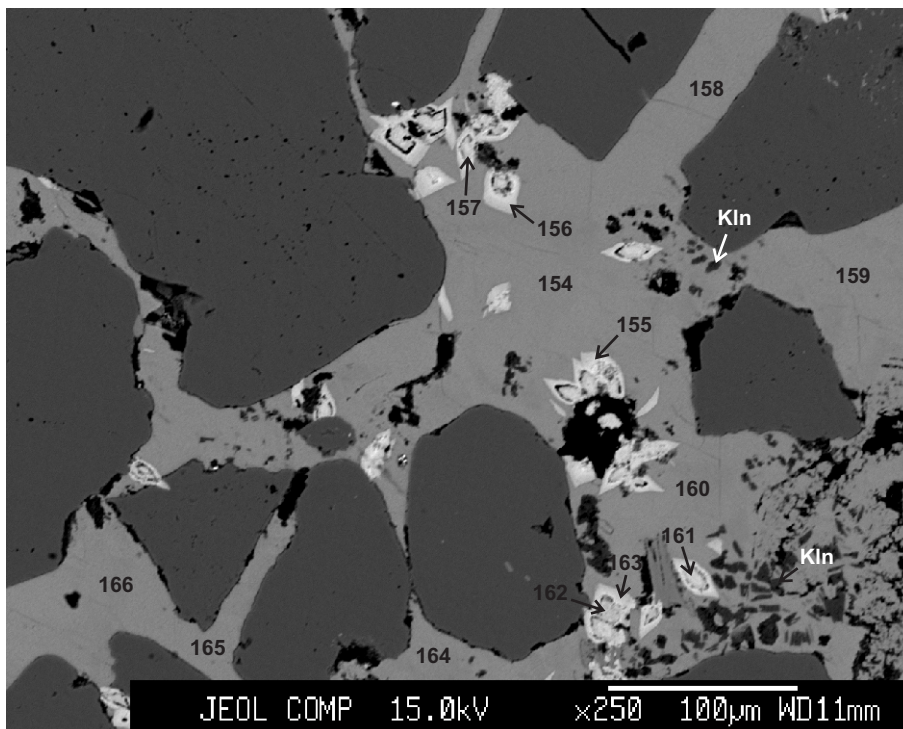
- 133: Fe-calcite
- 134: Fe-calcite
- 135: Fe-calcite
- 136: Fe-calcite
- 137: Fe-calcite
- 138: Fe-calcite
- 139: Fe-calcite
- 140: Fe-calcite
- 141: Fe-calcite
- 142: Fe-calcite

Figure 34: Cohasset A-52-2343.79



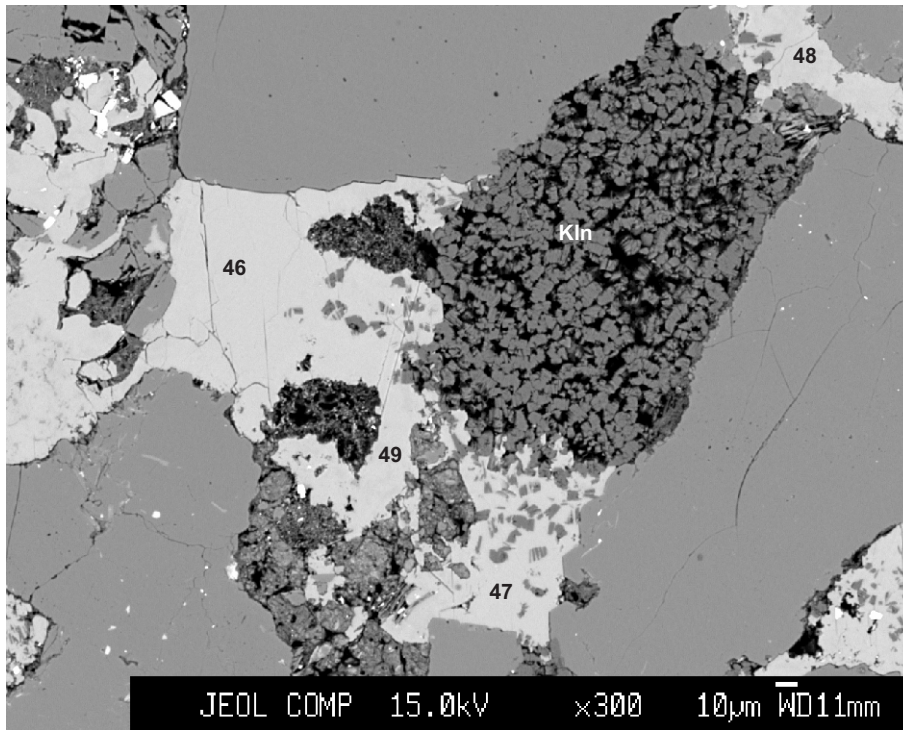
- 143: Fe-calcite
- 144: Fe-calcite
- 145: Fe-calcite
- 146: Fe-calcite
- 147: siderite
- 148: Fe-calcite
- 149: siderite
- 150: siderite
- 151: Fe-calcite
- 152: Fe-calcite
- 153: Fe-calcite

Figure 35: Cohasset A-52-2343.79



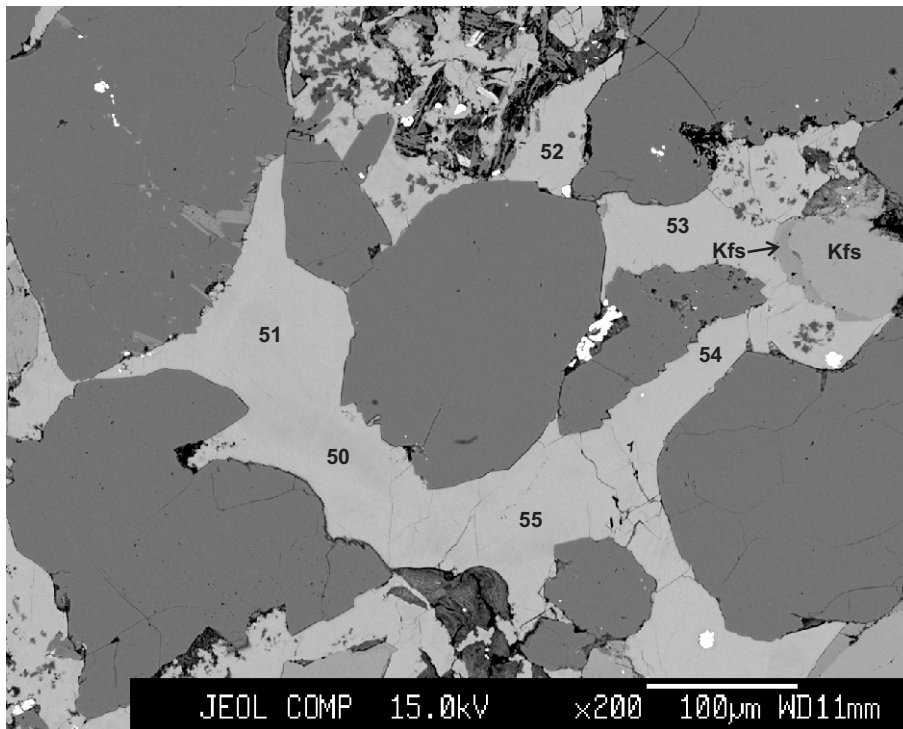
- 154: Fe-calcite
- 155: siderite
- 156: siderite
- 157: siderite
- 158: Fe-calcite
- 159: Fe-calcite
- 160: Fe-calcite
- 161: siderite
- 162: siderite
- 163: siderite
- 164: Fe-calcite
- 165: Fe-calcite
- 166: Fe-calcite

Figure 36: Cohasset A-52-2343.79



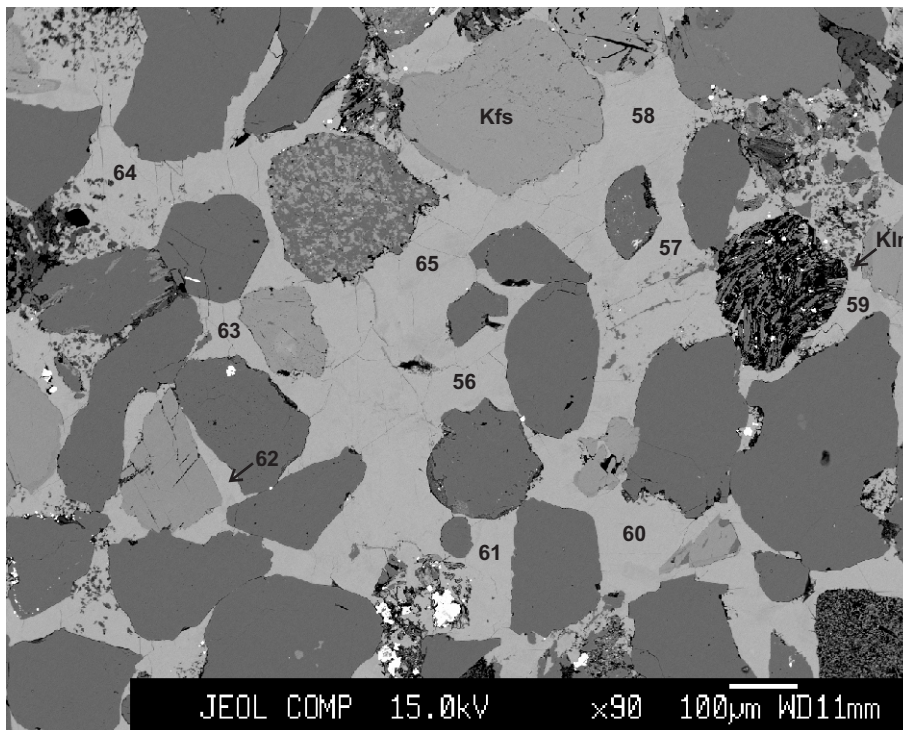
- 46: Fe-calcite
- 47: Fe-calcite
- 48: Fe-calcite
- 49: calcite

Figure 37: Cohasset A-52-2353.98



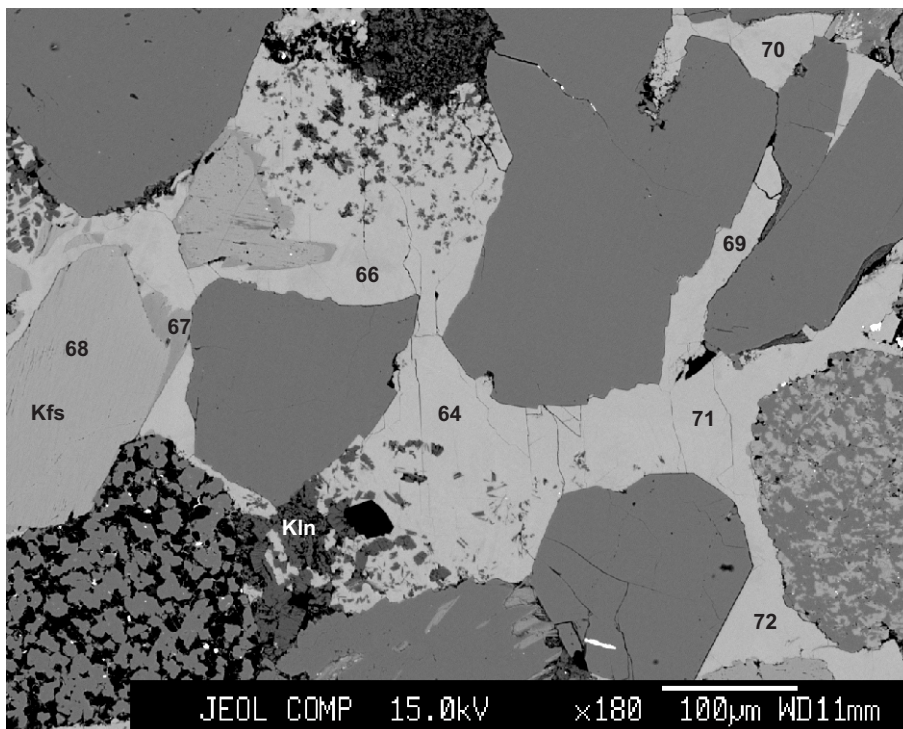
- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite

Figure 38: Cohasset A-52-2353.98



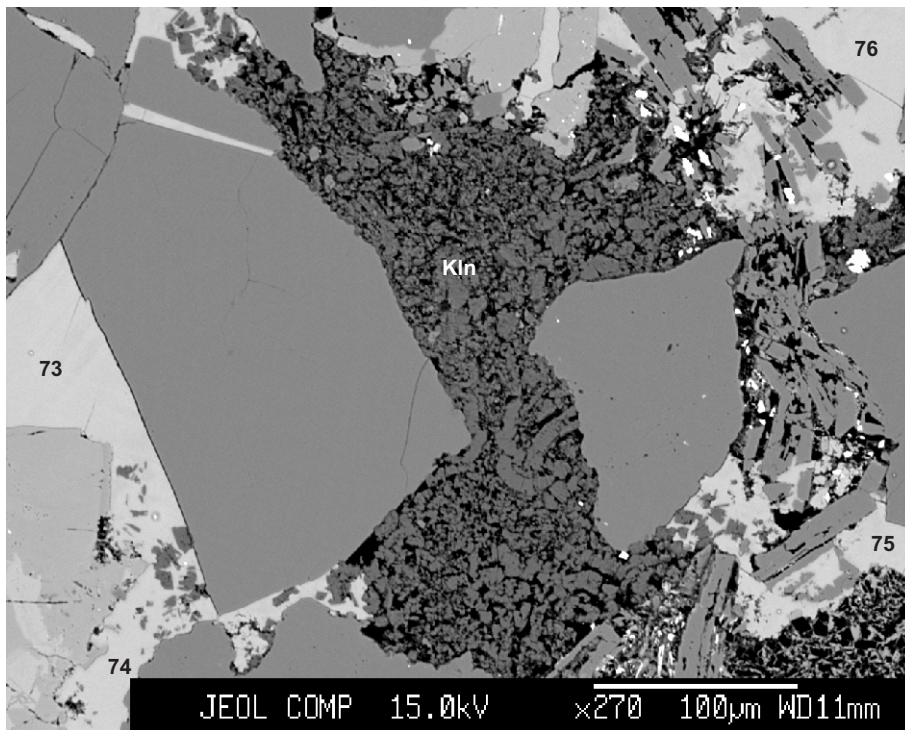
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite

Figure 39: Cohasset A-52-2353.98



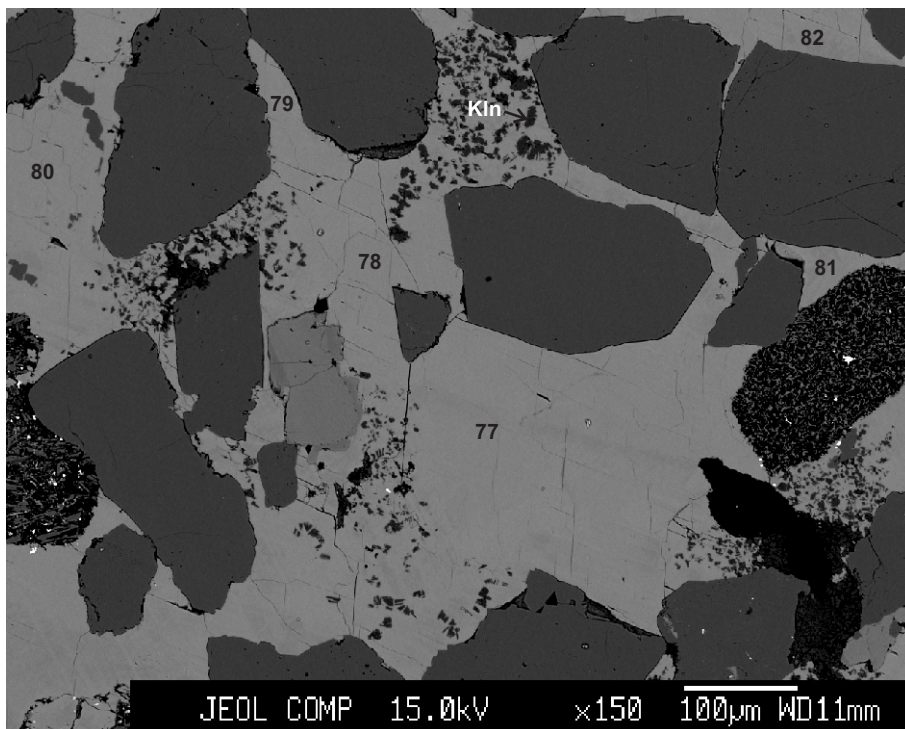
- 66: Fe-calcite
- 67: K-feldspar
- 68: K-feldspar
- 69: calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite

Figure 40: Cohasset A-52-2353.98



- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite
- 76: Fe-calcite

Figure 41: Cohasset A-52-2353.98



- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: calcite

Figure 42: Cohasset A-52-2353.98

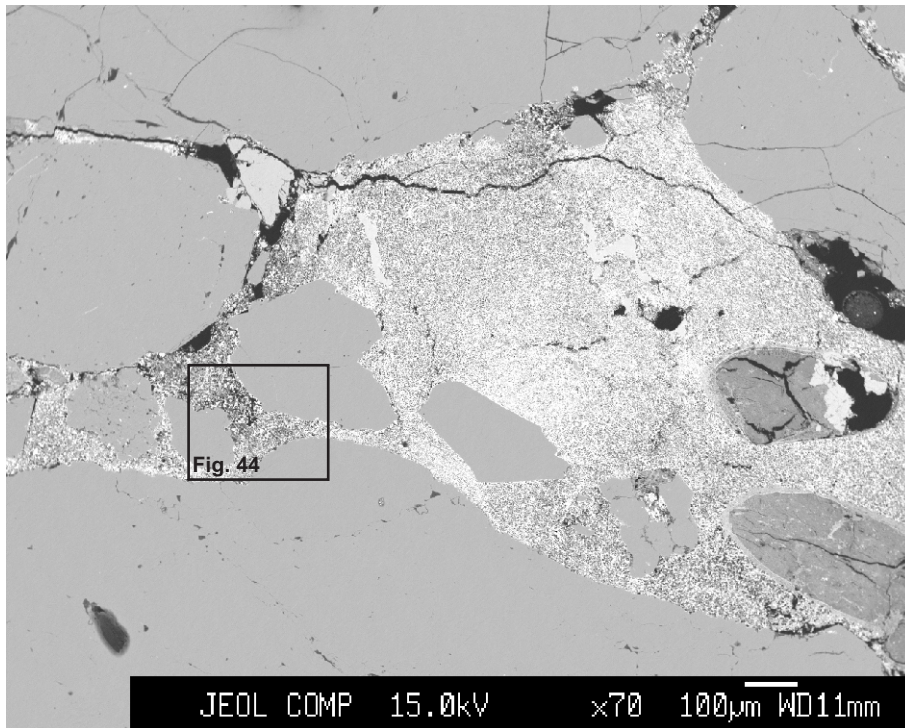
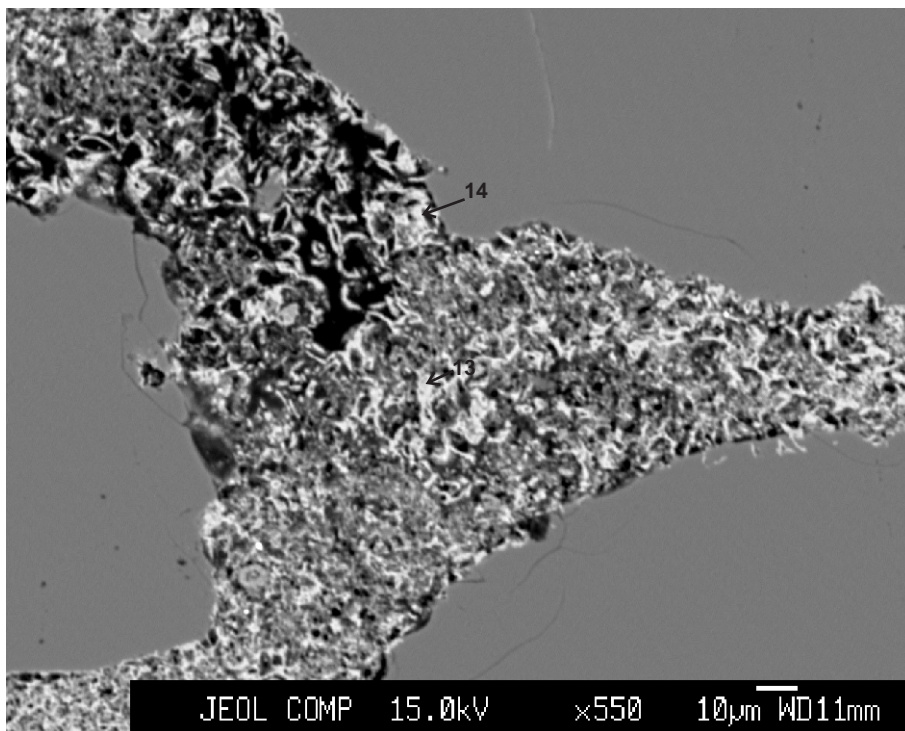
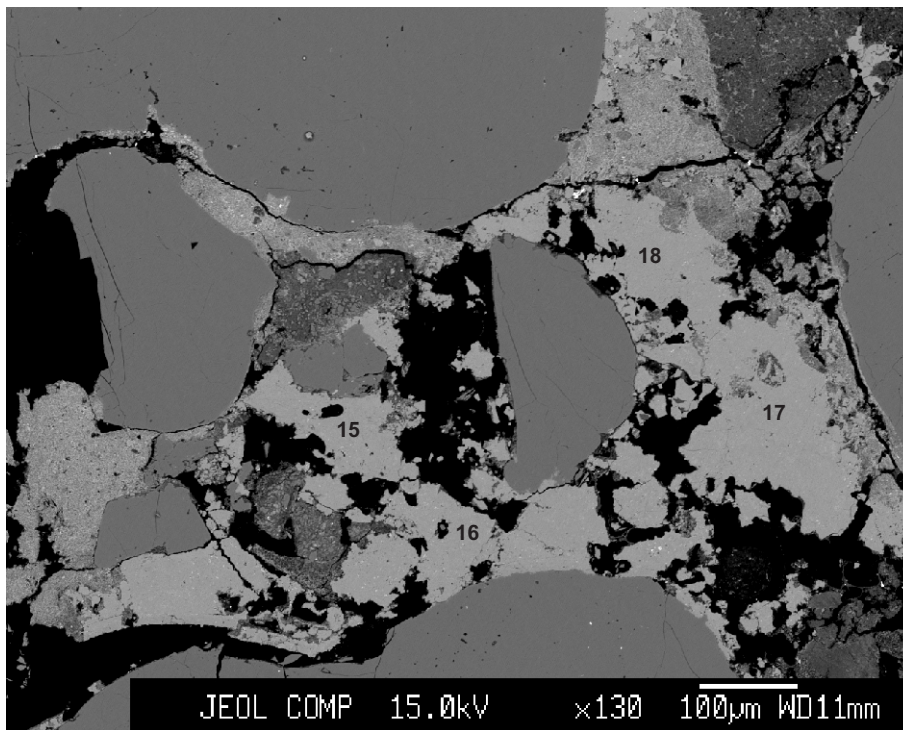


Figure 43: Cohasset A-52-2386.29



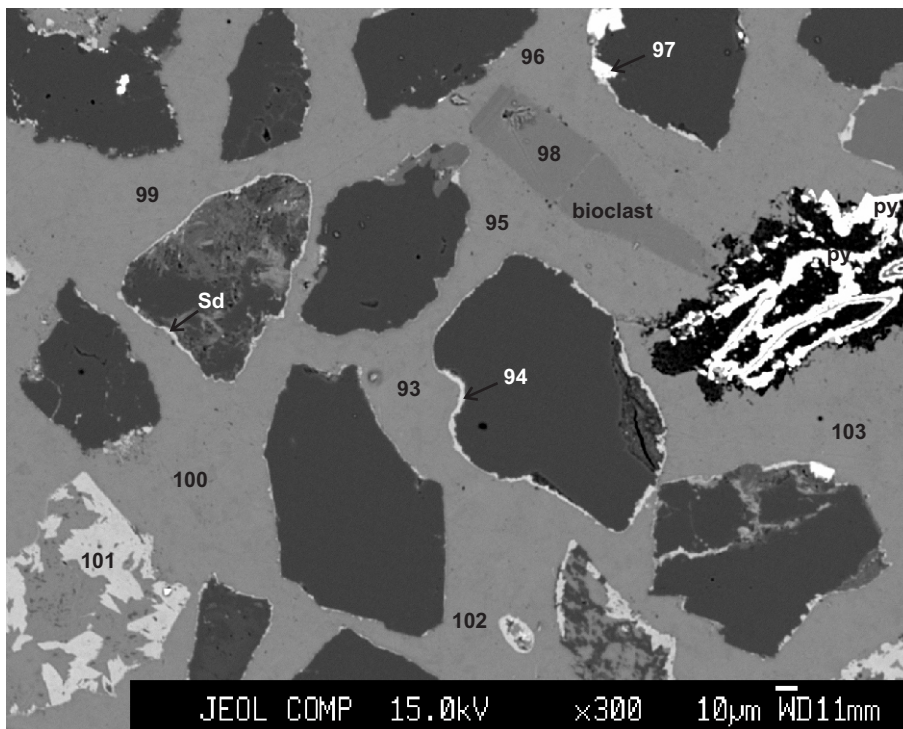
13: siderite  
14: siderite

Figure 44: Cohasset A-52-2386.29



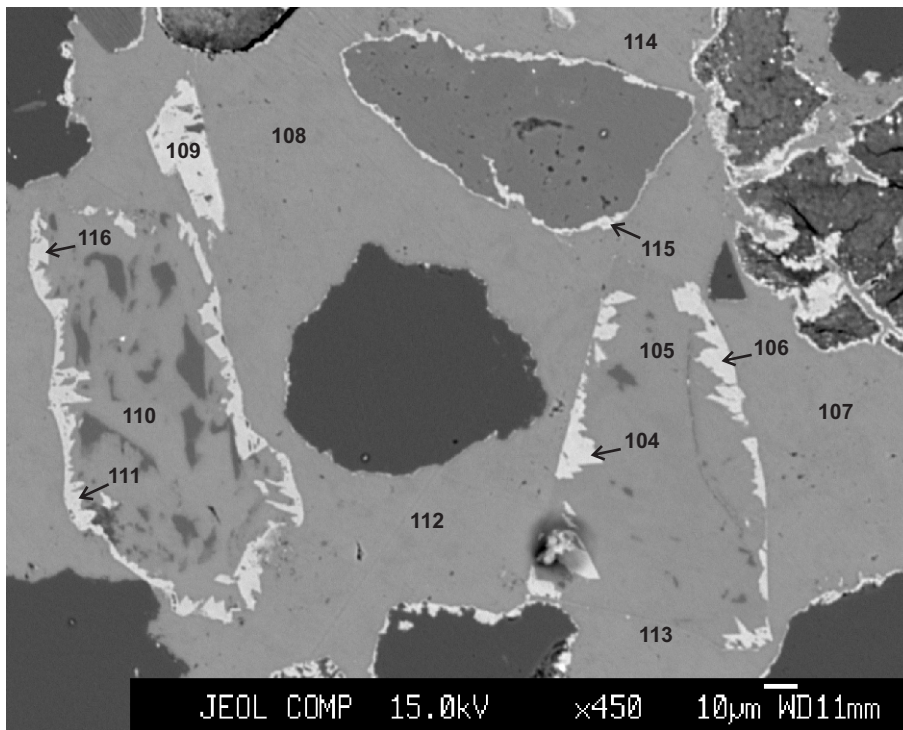
- 15: Fe-Mg-calcite
- 16: Fe-Mg-calcite
- 17: Fe-Mg-calcite
- 18: Fe-Mg-calcite

Figure 45: Cohasset A-52-2386.29



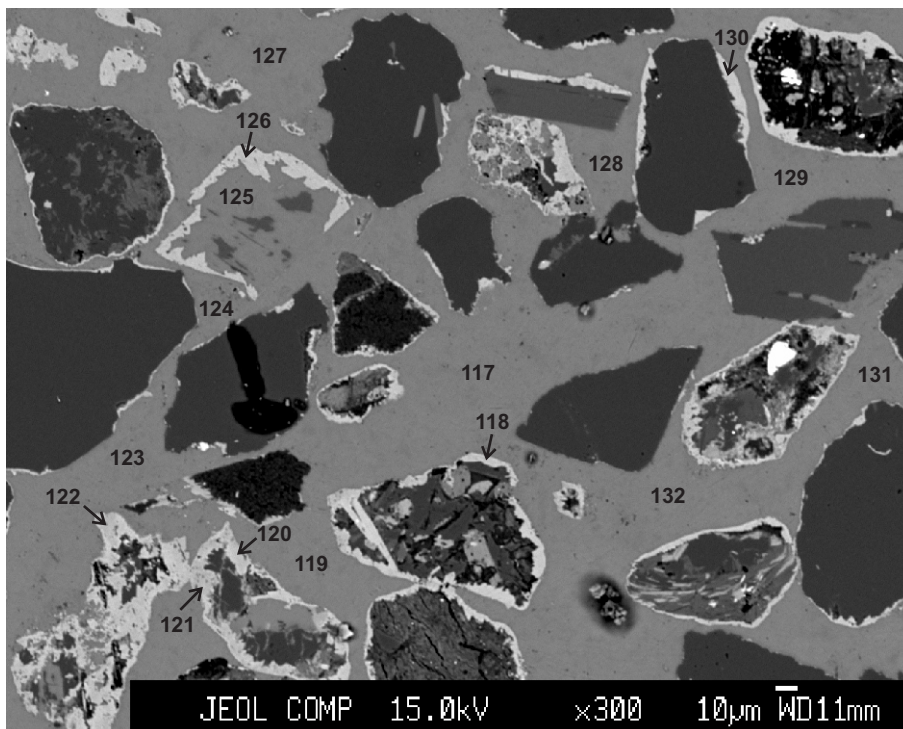
- 93: Fe-calcite
- 94: siderite + Qz
- 95: Fe-calcite
- 96: Fe-calcite
- 97: pseudorutile
- 98: Mg-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: siderite
- 102: Fe-calcite
- 103: Fe-calcite

Figure 46: Cohasset A-52-2421.04



- 104: siderite
- 105: Fe-calcite
- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: siderite
- 110: Fe-calcite
- 111: siderite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-calcite
- 115: siderite + Qz
- 116: siderite

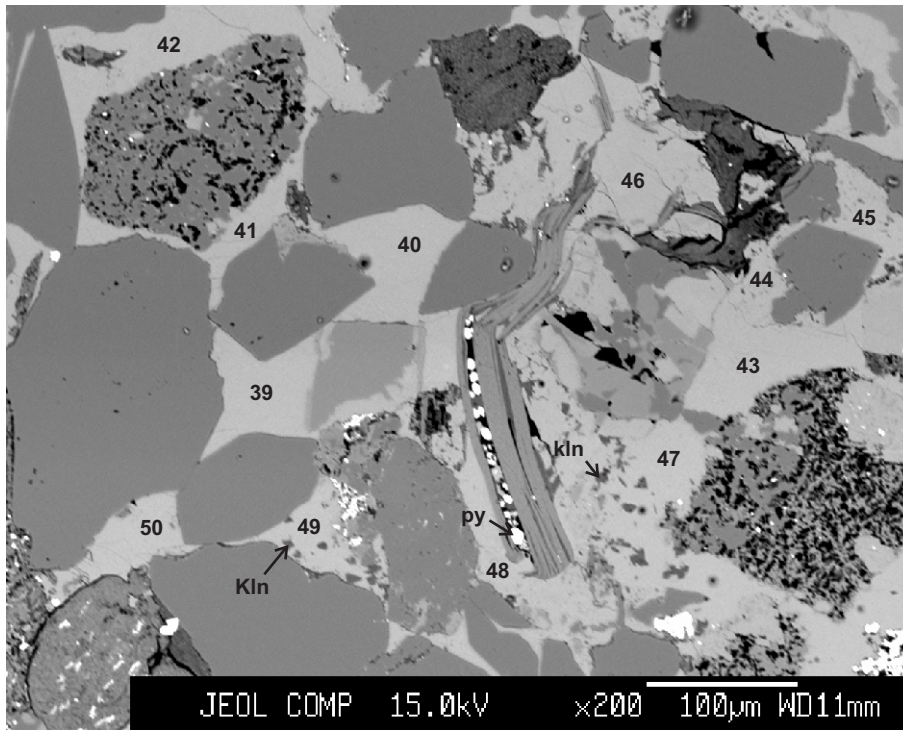
Figure 47: Cohasset A-52-2421.04



- 117: Fe-calcite
- 118: siderite
- 119: Fe-calcite
- 120: siderite
- 121: siderite
- 122: siderite
- 123: Fe-calcite
- 124: Fe-calcite
- 125: Fe-calcite
- 126: siderite
- 127: Fe-calcite
- 128: Fe-calcite
- 129: Fe-calcite
- 130: siderite
- 131: Fe-calcite
- 132: Fe-calcite

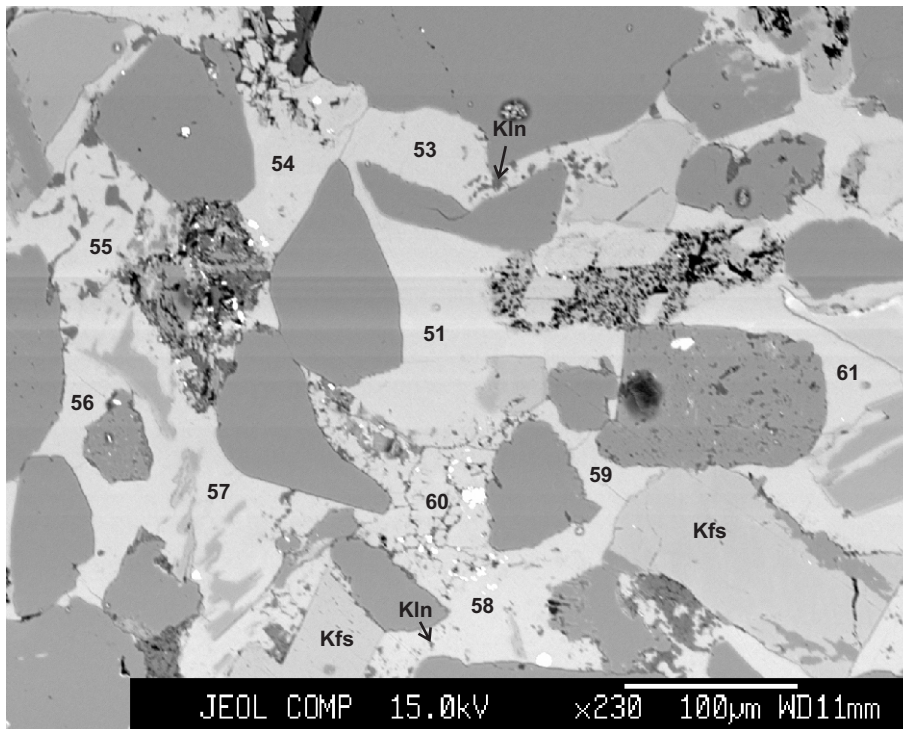
Figure 48: Cohasset A-52-2421.04





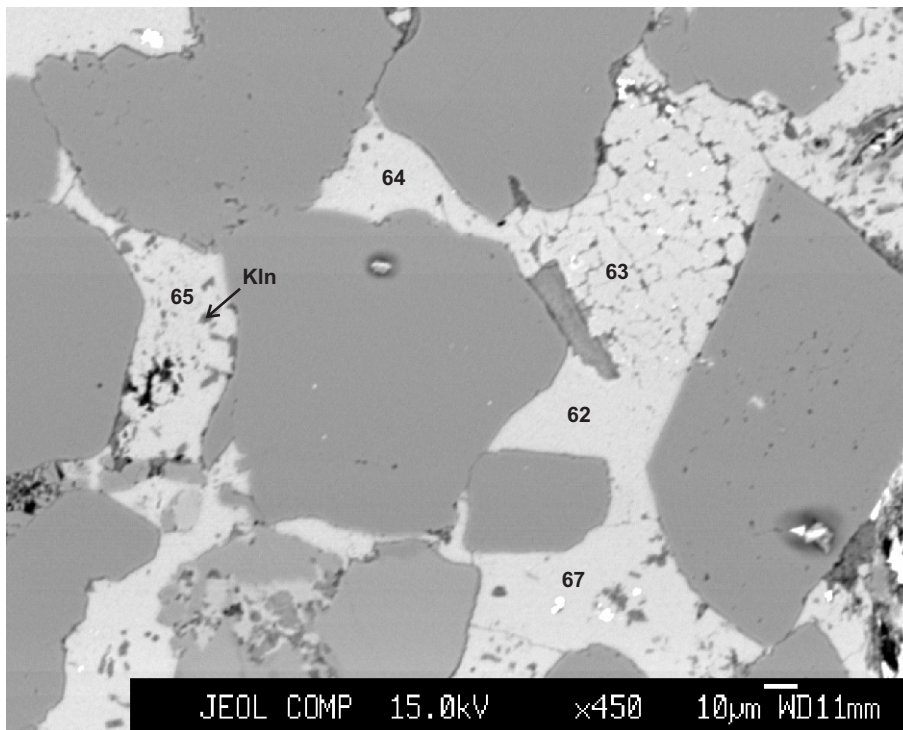
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite
- 44: Fe-calcite
- 45: Fe-calcite
- 46: Fe-calcite
- 47: Fe-calcite
- 48: Fe-calcite
- 49: Fe-calcite
- 50: Fe-calcite

Figure 49: Cohasset A-52-2440.04



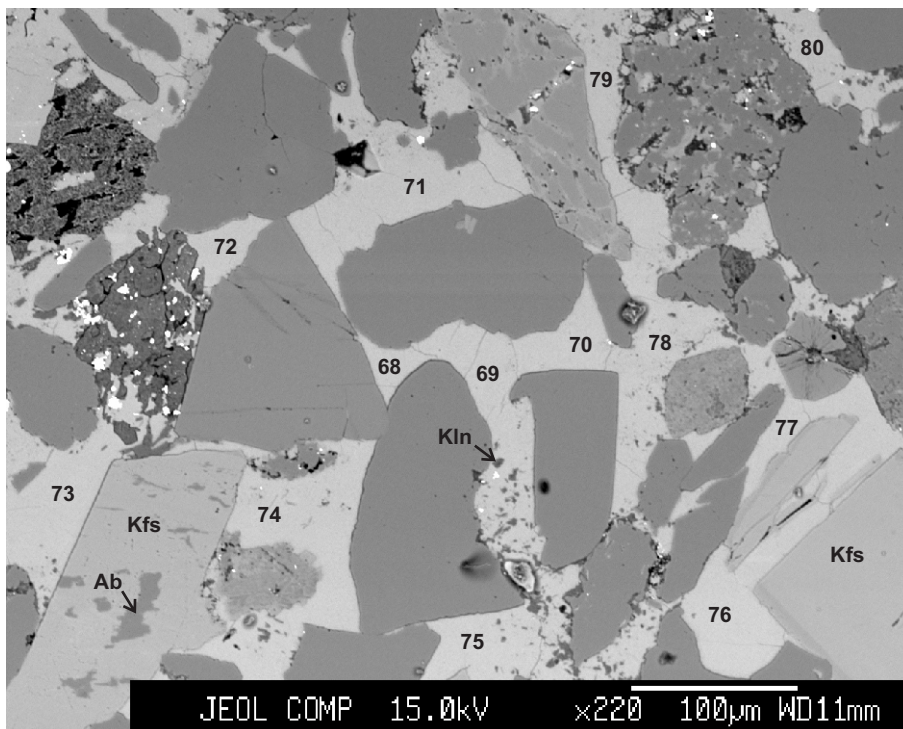
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite

Figure 50: Cohasset A-52-2440.04



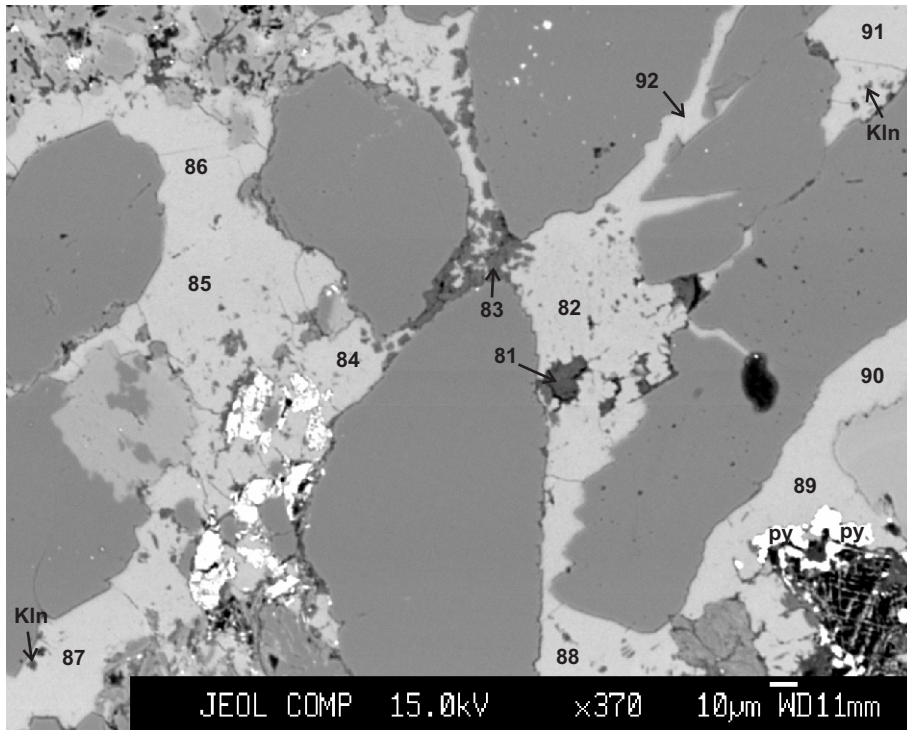
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: Fe-calcite

Figure 51: Cohasset A-52-2440.04



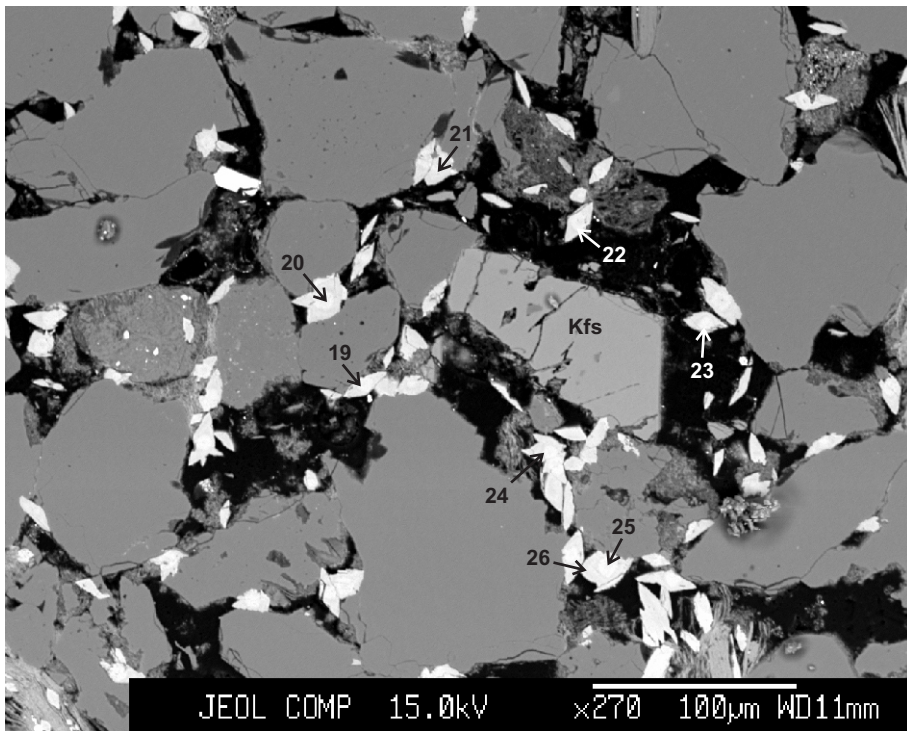
- 68: Fe-calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite

Figure 52: Cohasset A-52-2440.04



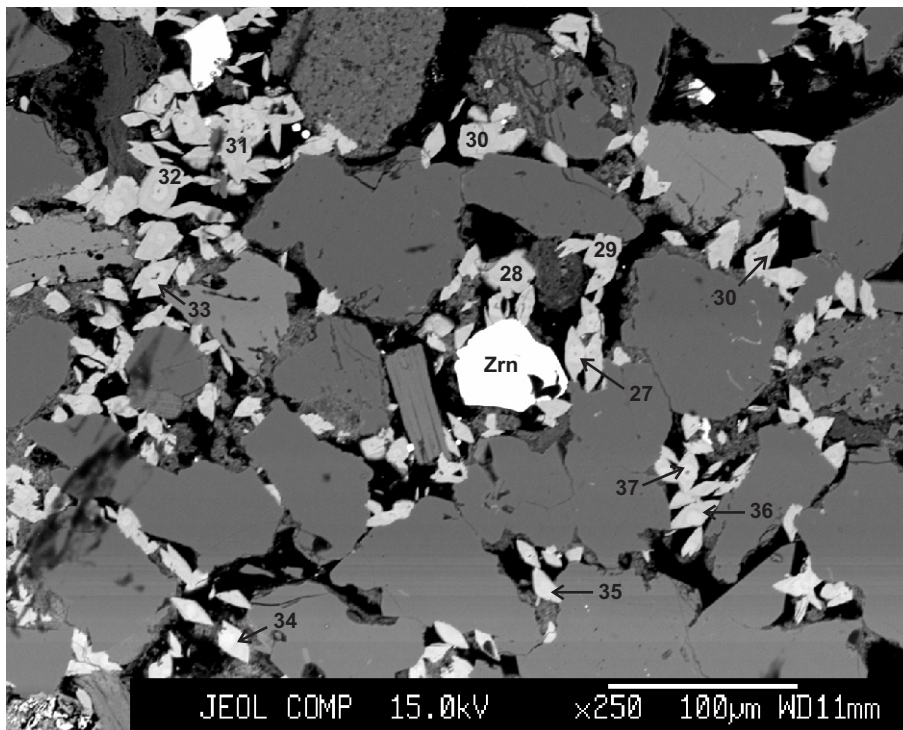
- 81: chlorite
- 82: Fe-calcite
- 83: kaolinite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite

Figure 53: Cohasset A-52-2440.04



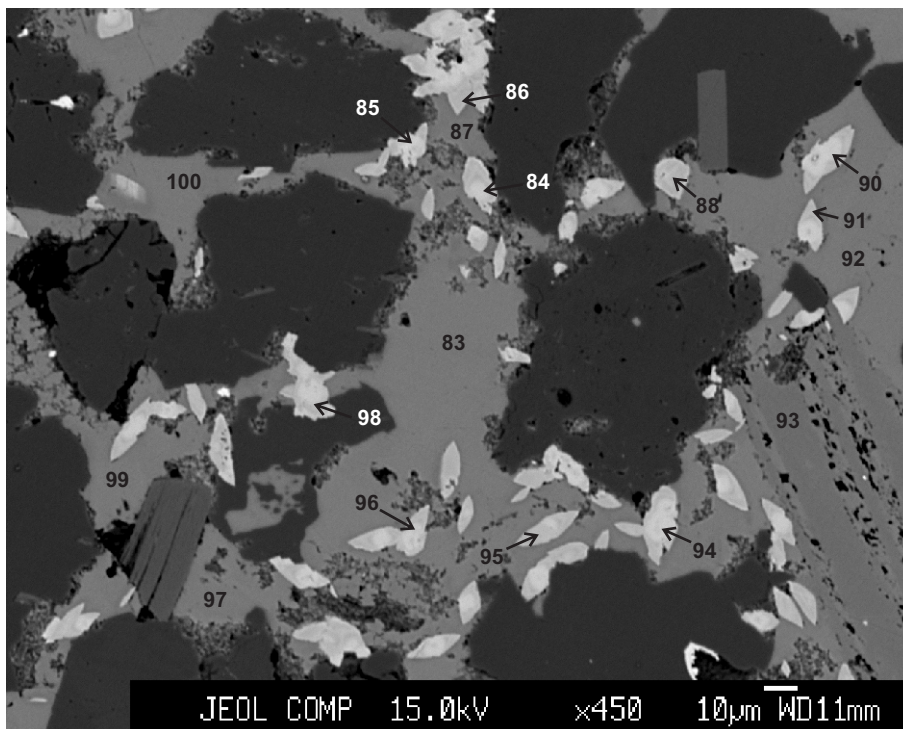
- 19: siderite
- 20: siderite
- 21: siderite
- 22: siderite
- 23: siderite
- 24: siderite
- 25: siderite
- 26: siderite

Figure 54: Cohasset A-52-2602.65



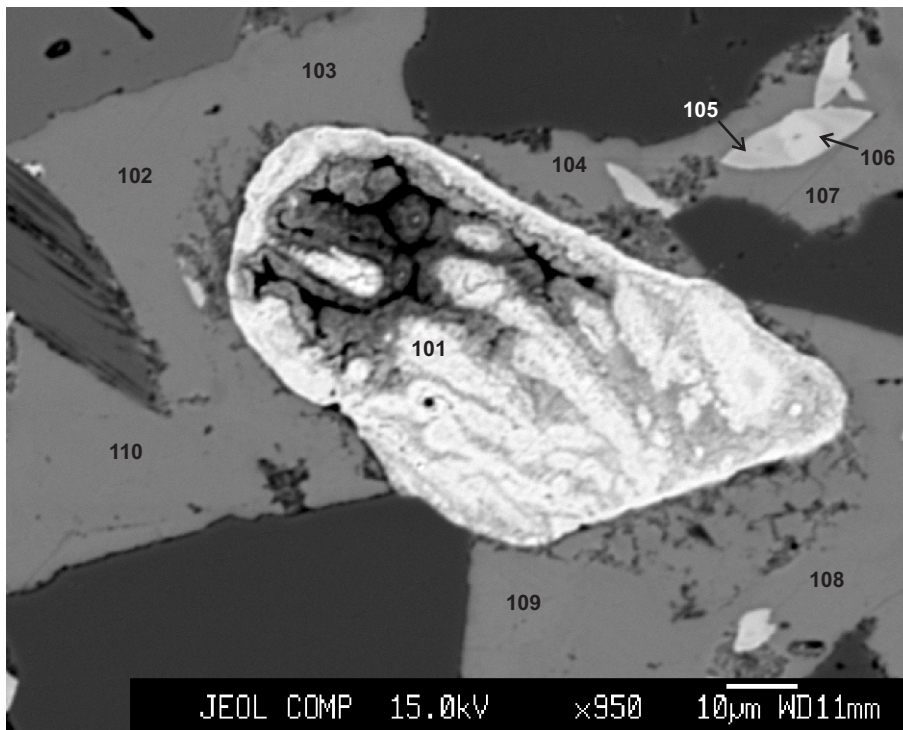
- 27: siderite
- 28: siderite
- 29: siderite
- 30: siderite
- 31: siderite
- 32: siderite
- 33: siderite
- 34: siderite
- 35: siderite
- 36: siderite
- 37: siderite
- 38: siderite

Figure 55: Cohasset A-52-2602.65



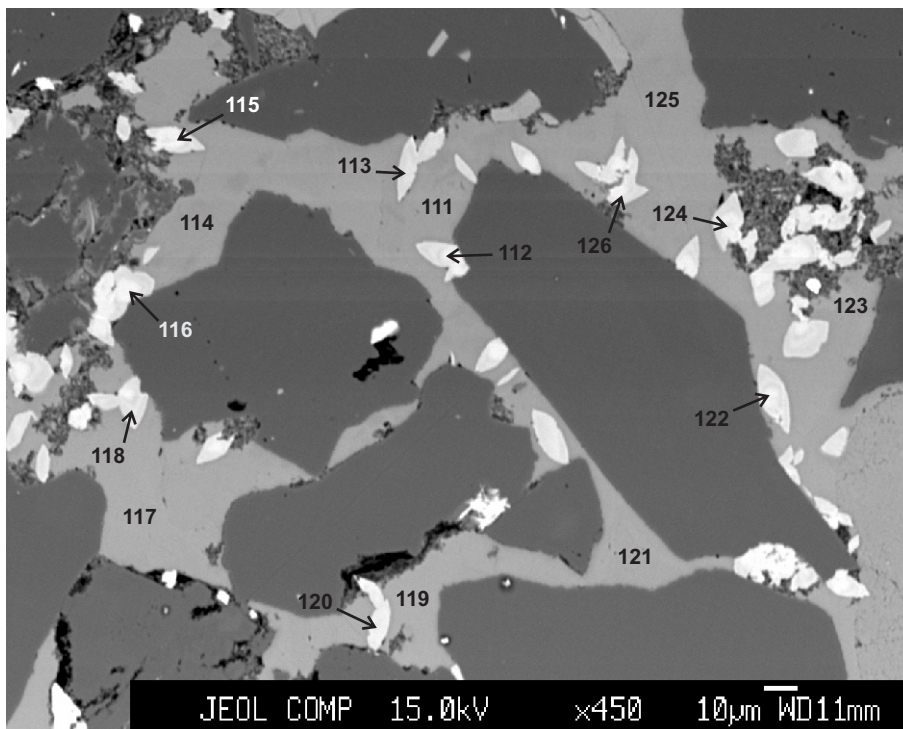
- 83: Fe-calcite
- 84: siderite
- 85: siderite
- 86: siderite
- 87: Fe-calcite
- 88: siderite
- 89: Fe-calcite
- 90: siderite
- 91: siderite
- 92: Fe-calcite
- 93: calcite
- 94: siderite
- 95: siderite
- 96: siderite
- 97: Fe-calcite
- 98: siderite
- 99: Fe-calcite
- 100: Fe-calcite

Figure 56: Cohasset A-52-2603.49



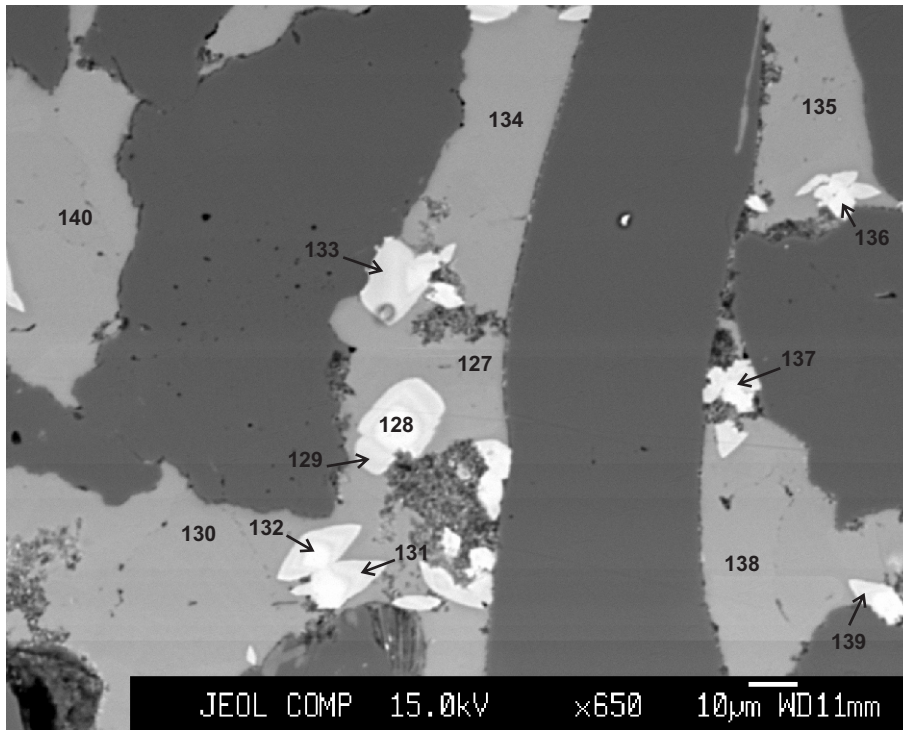
- 101: pseudorutile
- 102: Fe-calcite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: siderite
- 106: siderite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

Figure 57: Cohasset A-52-2603.49



- 111: Fe-calcite
- 112: siderite
- 113: siderite
- 114: Fe-calcite
- 115: siderite
- 116: siderite
- 117: Fe-calcite
- 118: siderite
- 119: Fe-calcite
- 120: siderite
- 121: Fe-calcite
- 122: siderite
- 123: Fe-calcite
- 124: siderite
- 125: Fe-calcite
- 126: siderite

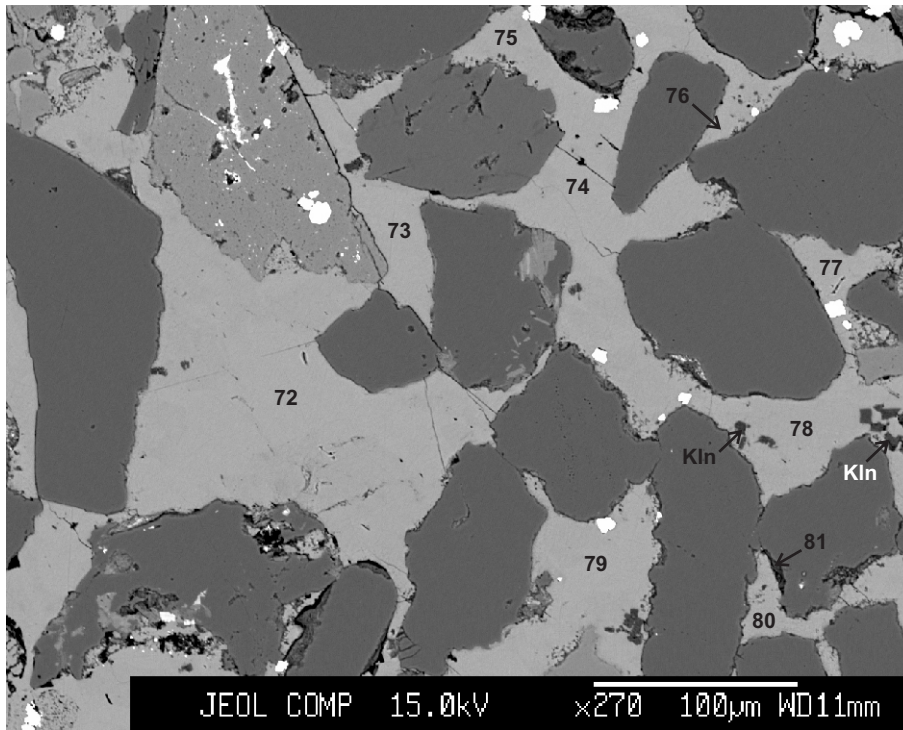
Figure 58: Cohasset A-52-2603.49



- 127: Fe-calcite
- 128: siderite
- 129: siderite
- 130: Fe-calcite
- 131: siderite
- 132: siderite
- 133: siderite
- 134: Fe-calcite
- 135: Fe-calcite
- 136: siderite
- 137: siderite
- 138: Fe-calcite
- 139: siderite
- 140: Fe-calcite

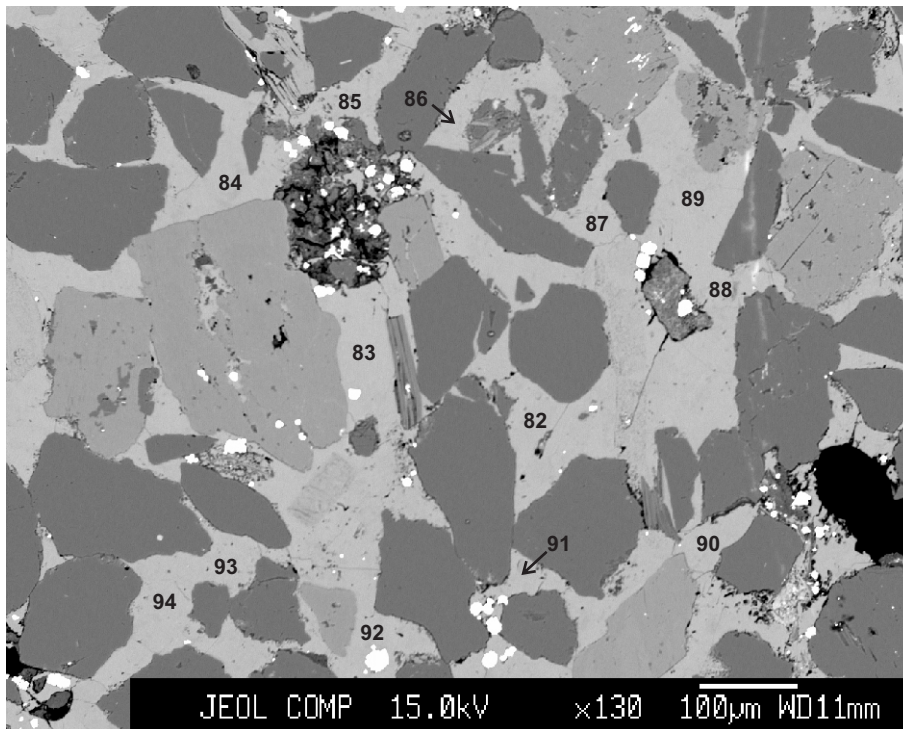
Figure 59: Cohasset A-52-2603.49

Appendix 2D : Back-scattered electron (BSE) images for the  
Balmoral M-32 sandstones studied by electron microprobe



- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: clay (illite + chlorite)

Figure 1: Balmoral M-32-1971.88



- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: calcite

Figure 2: Balmoral M-32-1971.88



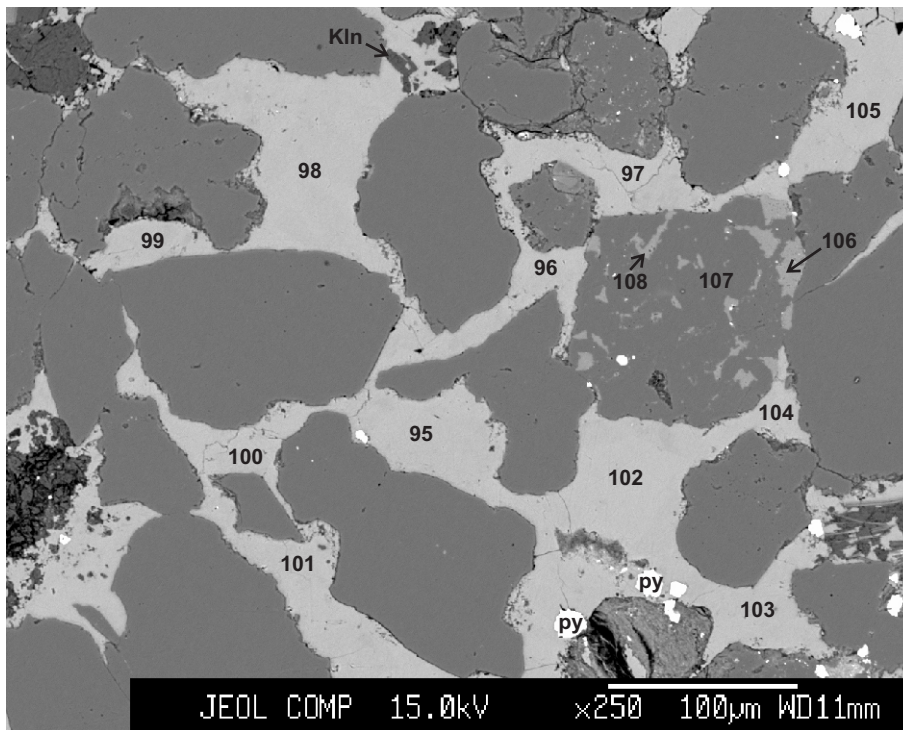
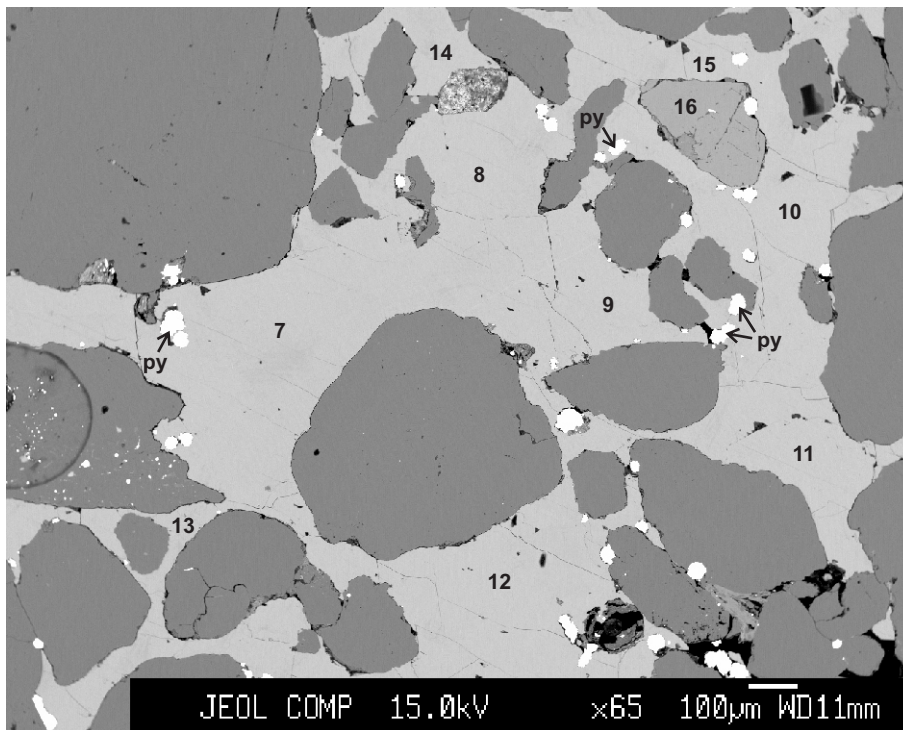


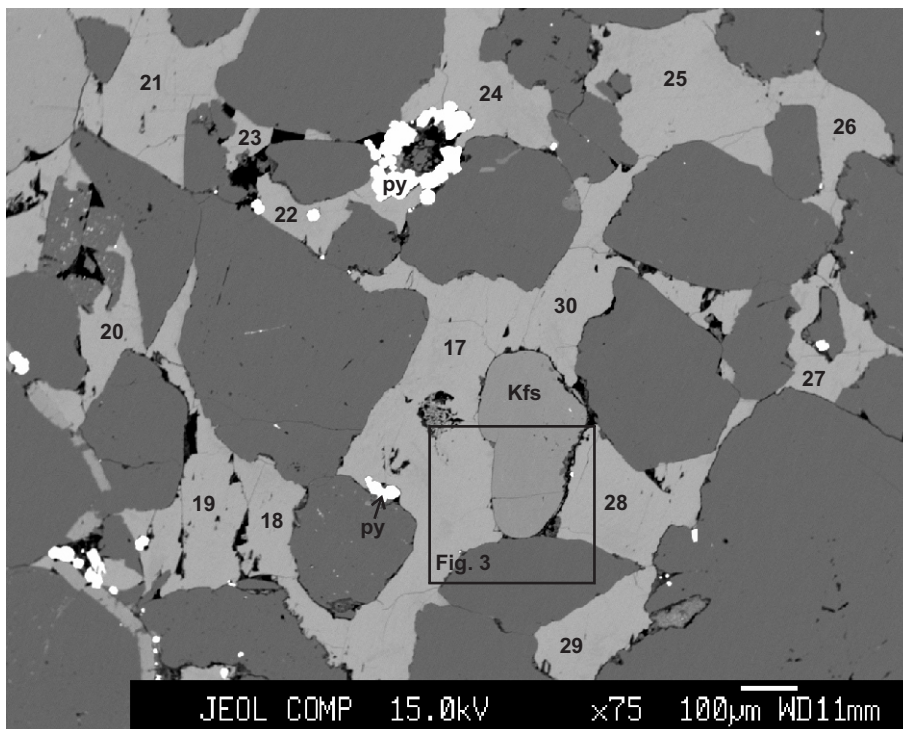
Figure 3: Balmoral M-32-1971.88

Appendix 2E : Back-scattered electron (BSE) images for the  
Lawrence D-14 sandstones studied by electron microprobe



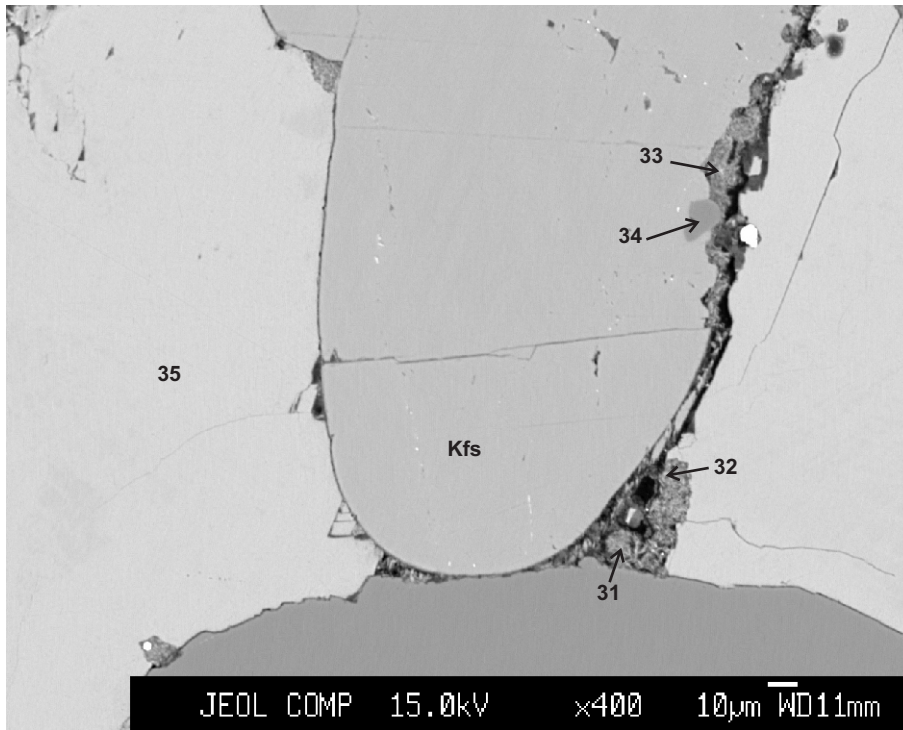
- 7: Fe-calcite
- 8: Fe-calcite
- 9: Fe-calcite
- 10: Fe-calcite
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: K-feldspar

Figure 1: Lawrence D-14-2256.59



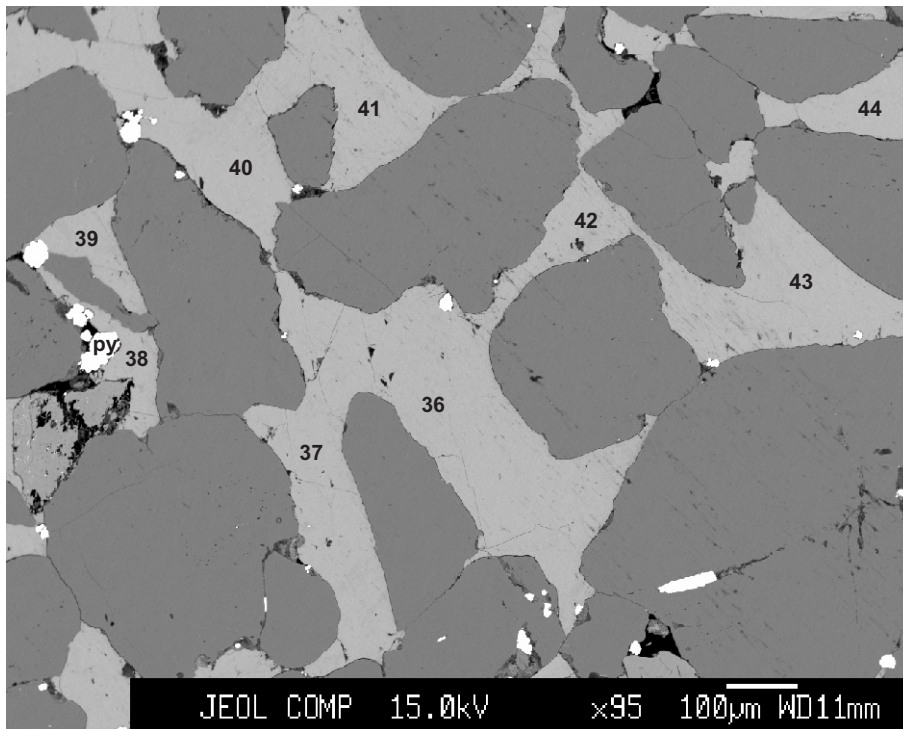
- 17: Fe-calcite
- 18: Fe-calcite
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: calcite
- 25: Fe-calcite
- 26: Fe-calcite
- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: Fe-calcite

Figure 2: Lawrence D-14-2256.59



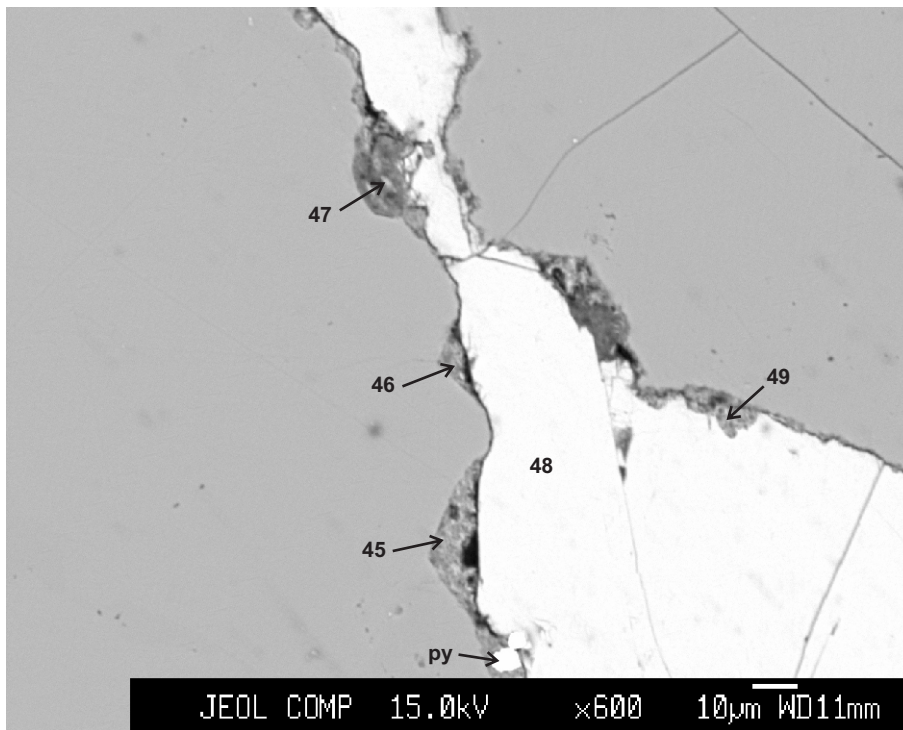
- 31: chlorite
- 32: chlorite
- 33: chlorite
- 34: quartz
- 35: Fe-calcite

Figure 3: Lawrence D-14-2256.59



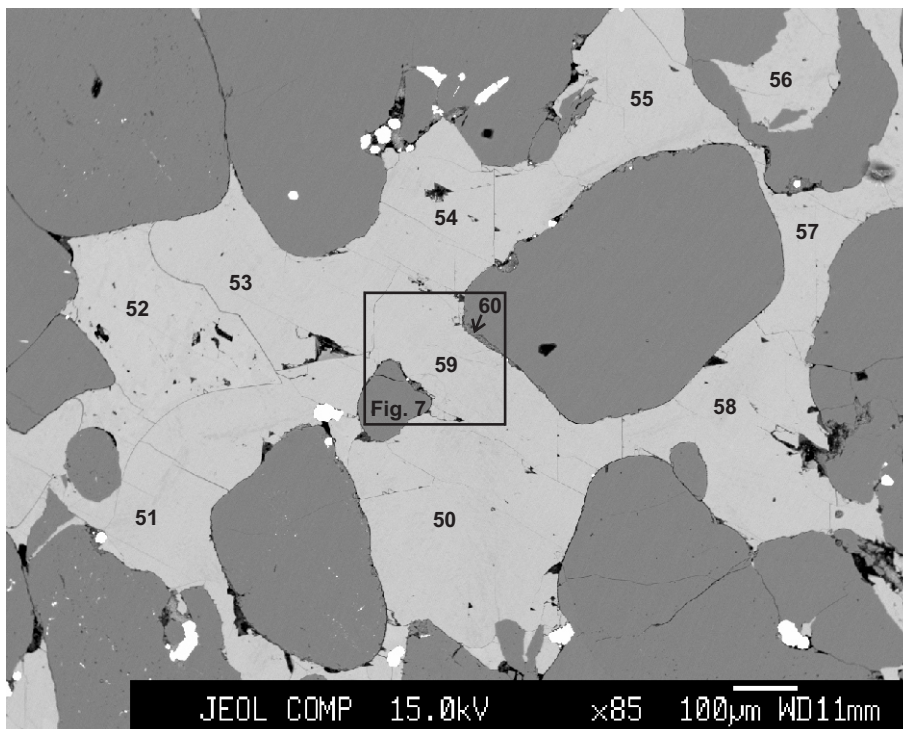
- 36: Fe-calcite
- 37: Fe-calcite
- 38: Fe-calcite
- 39: calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite
- 44: Fe-calcite

Figure 4: Lawrence D-14-2256.59



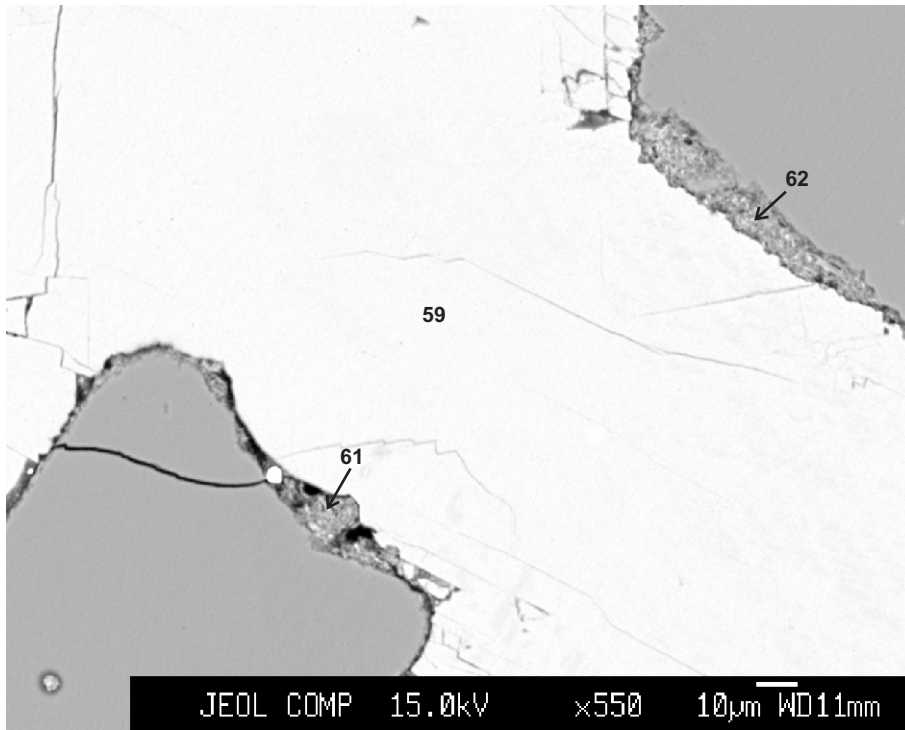
- 45: chlorite
- 46: quartz + clay
- 47: quartz + clay
- 48: Fe-calcite
- 49: clay + calcite

Figure 5: Lawrence D-14-2256.59



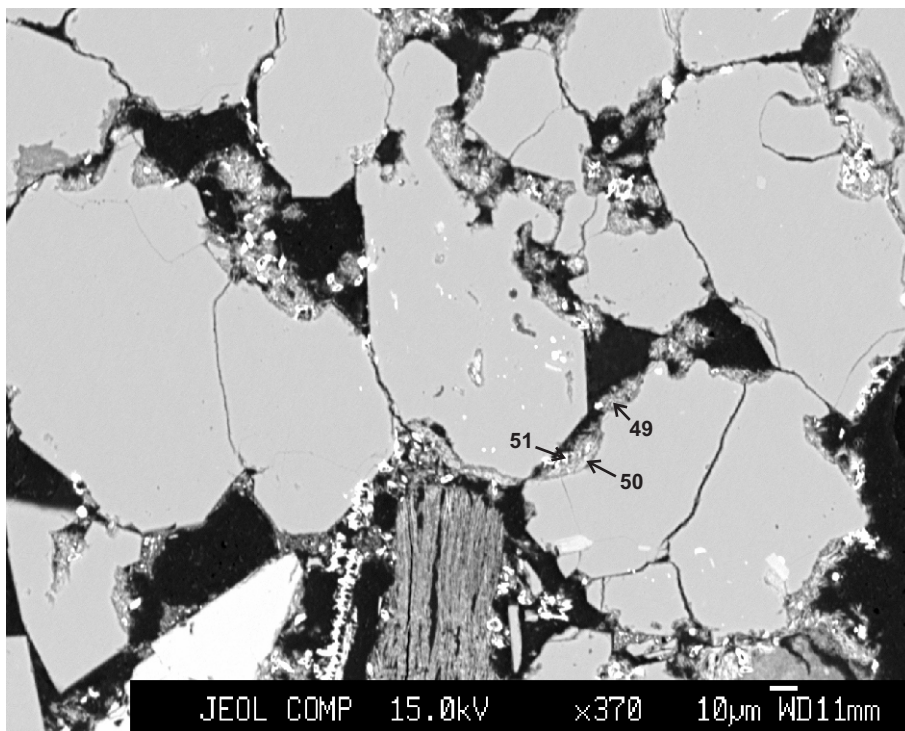
- 50: Fe-calcite
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite
- 56: calcite
- 57: Fe-calcite
- 58: calcite
- 59: Fe-calcite
- 60: clay

Figure 6: Lawrence D-14-2256.59



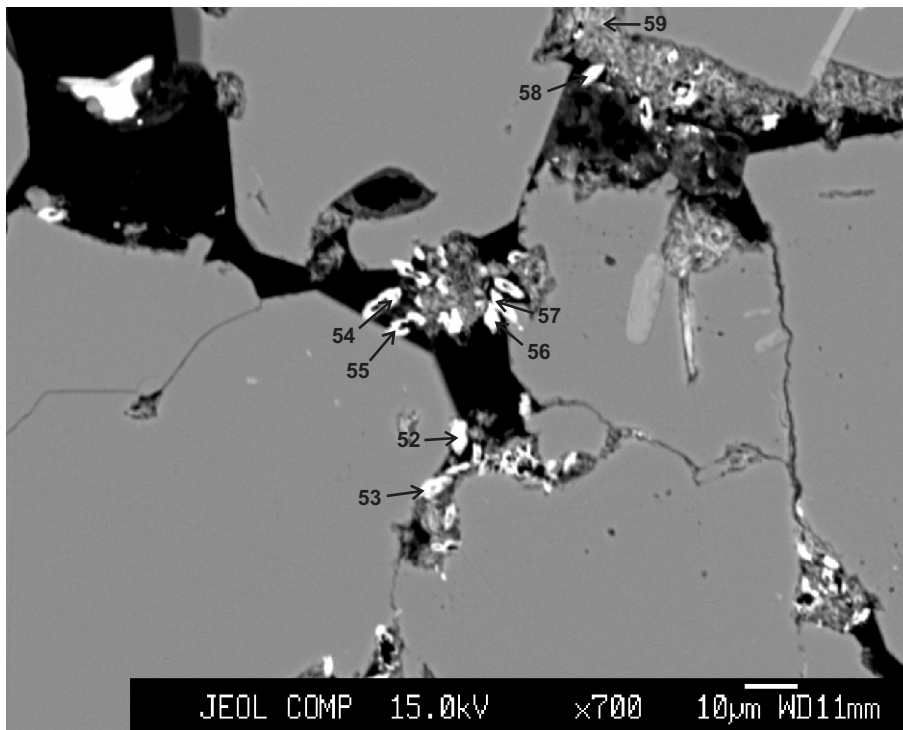
59: Fe-calcite  
 61: chlorite  
 62: chlorite

Figure 7: Lawrence D-14-2256.59



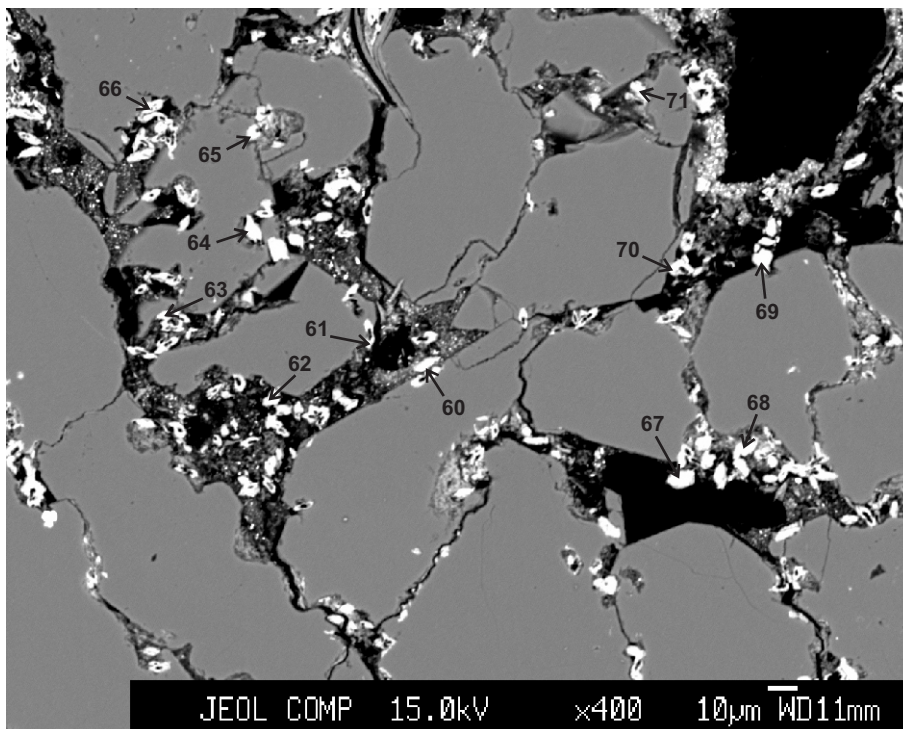
49: siderite + clay  
 50: siderite + clay  
 51: siderite + clay

Figure 8: Lawrence D-14-2271.65



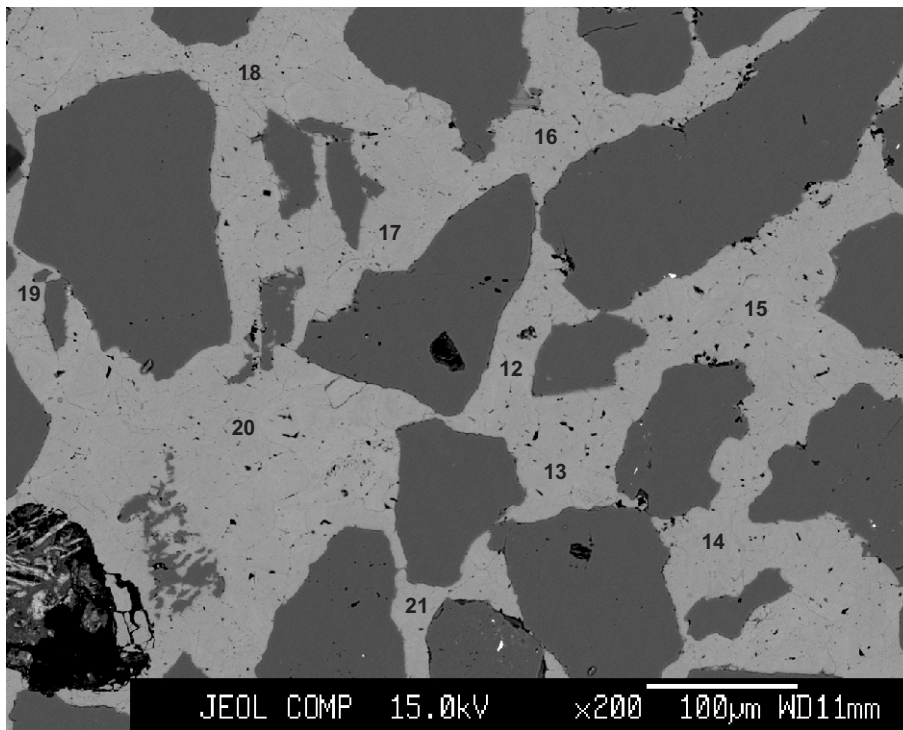
- 52: siderite + clay
- 53: siderite + clay
- 54: siderite + clay
- 55: siderite + clay
- 56: siderite + clay
- 57: siderite + clay
- 58: siderite + clay
- 59: clay

Figure 9: Lawrence D-14-2271.65



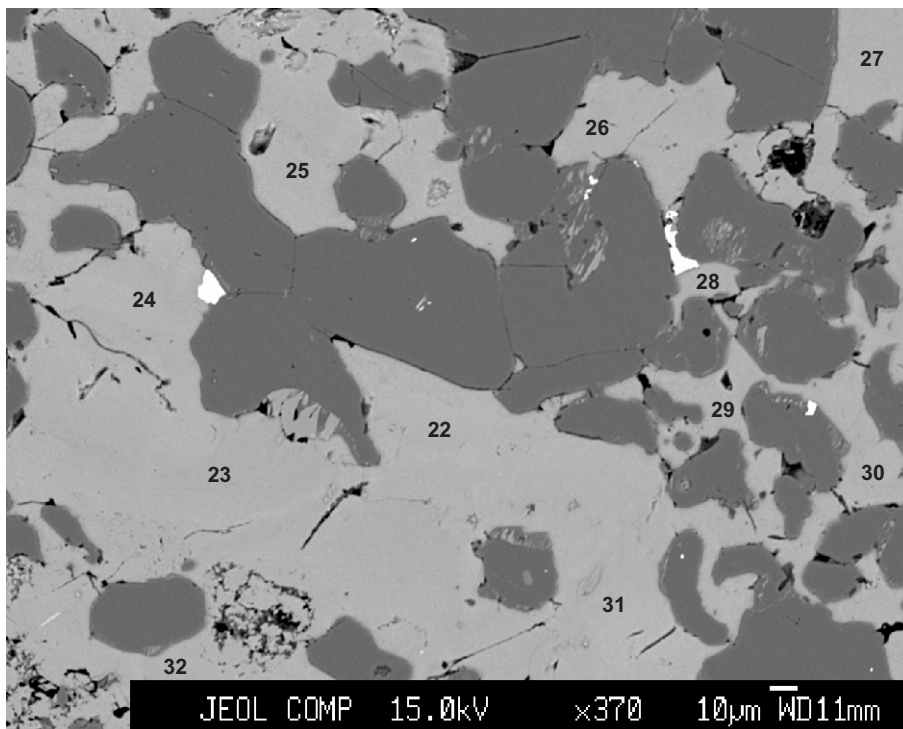
- 60: siderite + clay
- 61: siderite + Qz
- 62: siderite + Qz
- 63: siderite + Qz
- 64: siderite + Qz
- 65: siderite + Qz
- 66: siderite + Qz
- 67: siderite
- 68: siderite + Qz
- 69: siderite
- 70: siderite + Qz

Figure 10: Lawrence D-14-2271.65



- 12: Fe-calcite
- 13: Fe-calcite
- 14: calcite
- 15: calcite
- 16: calcite
- 17: calcite
- 18: Fe-calcite
- 19: calcite
- 20: calcite
- 21: calcite

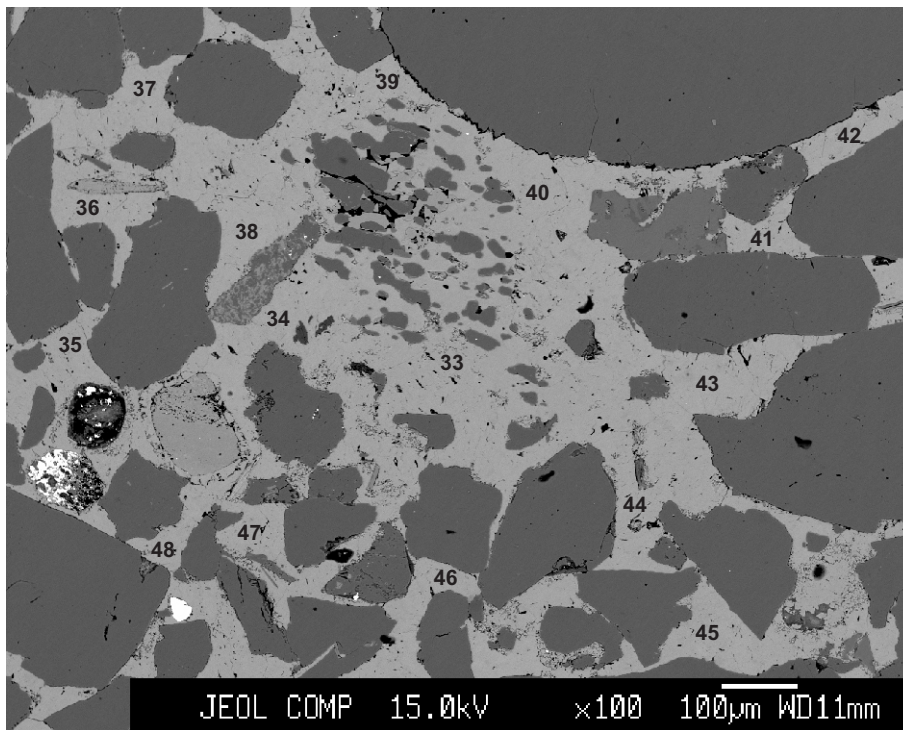
Figure 11: Lawrence D-14-2276.02



- 22: calcite
- 23: calcite
- 24: Fe-calcite
- 25: calcite
- 26: calcite
- 27: calcite
- 28: Fe-calcite
- 29: calcite
- 30: Fe-calcite
- 31: calcite
- 32: calcite

Figure 12: Lawrence D-14-2276.02





- 32: Fe-calcite
- 33: Fe-calcite
- 34: Fe-calcite
- 35: Fe-calcite
- 36: Fe-calcite
- 37: Fe-calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: calcite
- 43: Fe-calcite
- 44: Fe-calcite
- 45: Fe-calcite
- 46: Fe-calcite
- 47: Fe-calcite
- 48: Fe-calcite

Figure 13: Lawrence D-14-2276.02

Appendix 3: Electron microprobe analyses of different types of siderite from the studied wells.

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2075.83	72	siderite	0.24	0.01	0.14	0.00	39.23	0.92	4.94	9.60	0.10	0.04	0.19	0.00	0.00	0.03	55.42
Cohasset A-52	2075.83	73	siderite	0.04	0.01	0.02	0.01	41.53	0.77	5.18	7.40	0.07	0.03	0.36	0.01	0.00	0.00	55.40
Cohasset A-52	2075.83	75	siderite	0.68	0.02	0.52	0.01	41.55	0.89	5.06	6.94	0.08	0.08	0.32	0.00	0.00	0.02	56.18
Cohasset A-52	2075.83	76	siderite	0.79	0.05	0.51	0.00	42.15	0.98	4.90	6.60	0.12	0.09	0.36	0.00	0.00	0.01	56.56
Cohasset A-52	2075.83	78	siderite	0.55	0.06	0.38	0.03	40.74	0.71	5.05	7.54	0.08	0.06	0.31	0.03	0.00	0.04	55.59
Cohasset A-52	2075.83	79	siderite	0.36	0.01	0.23	0.01	42.15	0.92	5.08	6.48	0.10	0.03	0.36	0.00	0.02	0.05	55.79
Cohasset A-52	2075.83	80	siderite	0.05	0.00	0.03	0.03	41.97	0.75	5.39	6.53	0.08	0.02	0.41	0.01	0.00	0.01	55.27
Cohasset A-52	2075.83	81	siderite	0.05	0.00	0.03	0.00	42.40	0.83	4.96	7.70	0.09	0.02	0.34	0.00	0.00	0.01	56.44
Cohasset A-52	2075.83	82	siderite	0.46	0.01	0.28	0.02	42.36	0.93	5.04	6.51	0.08	0.06	0.43	0.00	0.00	0.00	56.17
Cohasset A-52	2075.83	83	siderite	0.06	0.01	0.04	0.00	42.85	0.79	4.91	6.43	0.06	0.04	0.41	0.00	0.00	0.00	55.60
Cohasset A-52	2075.83	84	siderite	0.39	0.00	0.25	0.01	43.48	1.08	4.94	5.76	0.17	0.07	0.41	0.01	0.00	0.00	56.56
Cohasset A-52	2075.83	85	siderite	0.89	0.00	0.63	0.00	41.58	0.91	5.11	6.60	0.11	0.07	0.35	0.01	0.00	0.00	56.25
Cohasset A-52	2075.83	86	siderite	0.27	0.00	0.17	0.00	43.00	0.90	5.13	6.07	0.12	0.04	0.39	0.00	0.00	0.00	56.09
Cohasset A-52	2075.83	87	siderite	1.20	0.00	0.74	0.04	43.53	1.25	4.94	5.11	0.12	0.12	0.38	0.01	0.00	0.00	57.45
Cohasset A-52	2075.83	88	siderite	0.21	0.00	0.10	0.01	42.67	0.82	4.98	6.14	0.12	0.05	0.40	0.01	0.00	0.03	55.53
Cohasset A-52	2075.83	89	siderite	0.45	0.00	0.29	0.00	41.83	0.81	5.11	6.39	0.10	0.09	0.43	0.00	0.00	0.00	55.50
Cohasset A-52	2075.83	90	siderite	0.51	0.00	0.25	0.00	42.67	1.01	5.03	6.34	0.21	0.07	0.35	0.01	0.00	0.00	56.47
Cohasset A-52	2075.83	92	siderite	0.04	0.00	0.01	0.00	42.40	0.75	4.99	6.27	0.09	0.03	0.47	0.01	0.00	0.00	55.07
Cohasset A-52	2075.83	94	siderite	0.53	0.00	0.38	0.00	41.34	0.81	5.02	6.97	0.12	0.07	0.37	0.02	0.00	0.00	55.63
Cohasset A-52	2075.83	95	siderite	1.76	0.00	1.04	0.00	41.55	1.27	5.00	5.23	0.14	0.11	0.65	0.01	0.00	0.00	56.75
Cohasset A-52	2075.83	97	siderite	1.41	0.00	0.91	0.01	43.08	1.42	5.00	5.15	0.21	0.14	0.32	0.02	0.00	0.00	57.68
Cohasset A-52	2075.83	99	siderite	0.53	0.00	0.36	0.00	41.76	0.84	4.81	7.49	0.13	0.09	0.27	0.01	0.00	0.00	56.30
Cohasset A-52	2075.83	100	siderite	0.88	0.00	0.63	0.00	42.34	0.97	4.87	6.33	0.18	0.12	0.41	0.04	0.02	0.02	56.80
Cohasset A-52	2075.83	101	siderite	0.05	0.00	0.00	0.00	42.68	0.75	5.02	6.19	0.07	0.02	0.48	0.02	0.00	0.00	55.30
Cohasset A-52	2075.83	102	siderite	0.10	0.00	0.05	0.01	41.47	1.01	5.25	6.89	0.13	0.03	0.38	0.00	0.00	0.00	55.32
Cohasset A-52	2075.83	103	siderite	0.13	0.00	0.04	0.00	41.48	0.98	5.17	6.90	0.07	0.02	0.42	0.00	0.00	0.00	55.21
Cohasset A-52	2075.83	104	siderite	0.44	0.02	0.24	0.00	42.33	1.08	5.11	6.23	0.18	0.06	0.29	0.00	0.00	0.02	55.99
Cohasset A-52	2075.83	105	siderite	1.46	0.08	0.98	0.01	42.33	1.21	5.06	5.15	0.17	0.14	0.31	0.00	0.00	0.01	56.91
Cohasset A-52	2160.51	44	siderite	0.20	0.00	0.02	0.00	40.60	1.18	5.70	6.34	0.13	0.04	0.55	0.00	0.00	0.00	54.76
Cohasset A-52	2160.51	45	siderite	0.16	0.00	0.00	0.00	40.96	0.91	6.05	6.41	0.10	0.03	0.51	0.00	0.00	0.00	55.14
Cohasset A-52	2160.51	46	siderite	0.23	0.00	0.05	0.01	40.60	0.70	6.90	6.05	0.09	0.03	0.41	0.00	0.00	0.00	55.05
Cohasset A-52	2160.51	47	siderite	0.22	0.00	0.02	0.00	37.87	0.34	10.61	5.63	0.17	0.04	0.11	0.00	0.00	0.00	55.02
Cohasset A-52	2160.51	50	siderite	0.13	0.00	0.00	0.00	39.63	0.62	7.83	6.12	0.14	0.04	0.37	0.01	0.00	0.00	54.90

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2160.51	51	siderite	0.22	0.01	0.01	0.00	41.10	1.79	3.68	7.44	0.12	0.04	0.18	0.00	0.00	0.00	54.59
Cohasset A-52	2160.51	52	siderite	0.11	0.00	0.01	0.00	38.16	0.47	9.76	6.74	0.06	0.02	0.04	0.00	0.00	0.00	55.36
Cohasset A-52	2160.51	54	siderite	0.21	0.00	0.02	0.01	40.61	1.77	3.83	7.87	0.12	0.03	0.23	0.00	0.00	0.00	54.70
Cohasset A-52	2160.51	55	siderite	0.09	0.00	0.00	0.01	37.19	0.40	10.80	6.34	0.05	0.02	0.08	0.00	0.00	0.00	54.98
Cohasset A-52	2160.51	57	siderite	0.18	0.00	0.03	0.00	40.81	0.85	6.47	6.02	0.10	0.03	0.46	0.00	0.00	0.00	54.96
Cohasset A-52	2160.51	58	siderite	0.09	0.00	0.00	0.00	36.99	0.37	10.95	6.42	0.05	0.02	0.07	0.00	0.00	0.00	54.98
Cohasset A-52	2160.51	60	siderite	0.29	0.00	0.13	0.00	41.07	1.12	5.73	6.66	0.10	0.07	0.49	0.00	0.00	0.00	55.66
Cohasset A-52	2160.51	62	siderite	0.05	0.00	0.00	0.00	37.36	0.47	9.70	8.32	0.04	0.01	0.05	0.00	0.00	0.00	56.00
Cohasset A-52	2160.51	64	siderite	0.51	0.00	0.22	0.00	40.51	1.12	5.89	6.54	0.15	0.02	0.52	0.00	0.00	0.00	55.48
Cohasset A-52	2160.51	65	siderite	0.15	0.00	0.04	0.00	40.12	0.33	10.78	3.71	0.03	0.09	0.08	0.00	0.00	0.00	55.33
Cohasset A-52	2160.51	66	siderite	0.14	0.00	0.04	0.00	41.31	1.59	4.06	6.98	0.09	0.04	0.31	0.00	0.00	0.00	54.57
Cohasset A-52	2160.51	67	calcite	0.16	0.00	0.02	0.00	0.41	0.07	0.07	54.87	0.01	0.09	0.04	0.00	0.26	0.00	55.99
Cohasset A-52	2160.51	68	siderite	0.11	0.00	0.05	0.00	40.26	1.57	4.67	7.27	0.10	0.05	0.39	0.01	0.00	0.00	54.48
Cohasset A-52	2160.51	69	siderite	0.07	0.00	0.03	0.00	41.44	1.50	4.28	7.10	0.09	0.04	0.38	0.00	0.00	0.00	54.93
Cohasset A-52	2160.51	70	siderite	0.07	0.00	0.04	0.00	38.23	0.34	10.18	5.45	0.04	0.04	0.15	0.00	0.00	0.00	54.54
Cohasset A-52	2160.51	71	siderite	0.11	0.00	0.03	0.00	40.34	0.44	7.92	5.91	0.07	0.03	0.37	0.00	0.00	0.00	55.23
Cohasset A-52	2160.51	74	siderite	0.08	0.00	0.03	0.00	40.60	0.39	7.51	5.92	0.11	0.03	0.41	0.00	0.00	0.00	55.08
Cohasset A-52	2160.51	75	siderite	0.09	0.00	0.03	0.00	38.10	0.39	10.72	5.58	0.10	0.02	0.16	0.00	0.00	0.00	55.19
Cohasset A-52	2160.51	76	siderite	0.37	0.00	0.15	0.03	41.35	1.21	5.10	6.02	0.17	0.03	0.45	0.01	0.00	0.00	54.88
Cohasset A-52	2160.51	79	siderite	0.15	0.00	0.01	0.00	42.17	0.42	7.97	4.97	0.06	0.03	0.00	0.00	0.00	0.00	55.78
Cohasset A-52	2160.51	80	siderite	0.14	0.00	0.03	0.00	41.28	1.05	5.64	6.31	0.11	0.03	0.56	0.00	0.00	0.00	55.16
Cohasset A-52	2160.51	81	siderite	0.05	0.00	0.01	0.00	40.38	0.38	8.60	5.20	0.13	0.03	0.35	0.00	0.00	0.00	55.14
Cohasset A-52	2160.51	83	siderite	0.19	0.00	0.04	0.00	41.54	1.58	4.15	6.68	0.15	0.05	0.28	0.00	0.00	0.00	54.65
Cohasset A-52	2167.31	106	siderite	0.17	0.05	0.02	0.06	40.97	0.97	4.85	7.02	0.07	0.03	0.19	0.06	0.00	0.08	54.54
Cohasset A-52	2167.31	107	siderite	0.16	0.05	0.03	0.07	42.28	0.94	4.91	6.20	0.11	0.03	0.33	0.05	0.00	0.06	55.21
Cohasset A-52	2167.31	108	siderite	0.20	0.00	0.03	0.06	41.33	0.96	4.59	6.68	0.09	0.04	0.24	0.05	0.00	0.07	54.33
Cohasset A-52	2167.31	111	siderite	0.12	0.03	0.00	0.09	40.92	0.89	4.70	7.01	0.07	0.02	0.28	0.04	0.00	0.03	54.21
Cohasset A-52	2217.17	14	siderite	0.49	0.04	0.12	0.05	43.82	1.53	7.88	2.21	0.06	0.01	0.06	0.00	0.00	0.06	56.33
Cohasset A-52	2217.17	15	siderite	0.13	0.01	0.02	0.02	34.60	0.48	11.26	7.64	0.08	0.03	0.11	0.00	0.00	0.01	54.39
Cohasset A-52	2217.17	18	siderite	0.26	0.04	0.08	0.03	37.84	0.37	5.19	9.55	0.19	0.04	0.45	0.00	0.00	0.06	54.09
Cohasset A-52	2217.17	19	siderite	0.12	0.03	0.03	0.05	38.07	0.39	8.34	7.16	0.11	0.03	0.35	0.00	0.00	0.07	54.74
Cohasset A-52	2217.17	21	siderite	0.19	0.02	0.06	0.06	39.20	0.45	7.45	6.94	0.18	0.03	0.42	0.00	0.00	0.03	55.03
Cohasset A-52	2217.17	24	siderite	0.57	0.05	0.17	0.04	40.00	0.44	4.73	8.34	0.13	0.03	0.52	0.00	0.01	0.02	55.05
Cohasset A-52	2217.17	26	siderite	0.56	0.03	0.29	0.05	39.62	0.50	4.87	8.72	0.13	0.05	0.43	0.00	0.00	0.02	55.28
Cohasset A-52	2217.17	32	siderite	0.53	0.00	0.19	0.00	39.47	0.45	4.96	8.84	0.13	0.03	0.44	0.02	0.00	0.03	55.09
Cohasset A-52	2217.17	34	siderite	0.49	0.00	0.26	0.01	41.36	0.45	9.87	3.61	0.10	0.08	0.05	0.02	0.00	0.00	56.29

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2217.17	38	siderite	0.45	0.00	0.08	0.02	37.92	0.39	7.13	7.67	0.18	0.04	0.38	0.02	0.00	0.00	54.27
Cohasset A-52	2217.17	43	siderite	0.35	0.00	0.12	0.01	40.03	0.36	5.39	7.70	0.19	0.03	0.52	0.00	0.00	0.00	54.69
Cohasset A-52	2217.17	45	siderite	0.47	0.11	0.23	0.01	36.46	0.57	10.10	6.79	0.09	0.08	0.20	0.00	0.00	0.08	55.19
Cohasset A-52	2217.17	49	siderite	0.41	0.03	0.26	0.04	39.23	0.47	10.13	4.96	0.07	0.03	0.13	0.00	0.00	0.06	55.83
Cohasset A-52	2217.17	51	siderite	0.28	0.05	0.10	0.04	39.74	0.41	6.97	6.55	0.18	0.02	0.63	0.00	0.00	0.09	55.06
Cohasset A-52	2217.17	54	siderite	0.72	0.04	0.41	0.02	35.31	0.78	4.18	11.97	0.13	0.17	0.27	0.00	0.00	0.11	54.12
Cohasset A-52	2217.17	58	siderite	0.21	0.02	0.07	0.03	37.16	0.43	6.15	9.10	0.13	0.02	0.42	0.01	0.00	0.07	53.83
Cohasset A-52	2217.17	60	siderite	0.22	0.06	0.17	0.05	39.38	0.38	4.73	8.74	0.16	0.04	0.54	0.02	0.01	0.12	54.61
Cohasset A-52	2230.38	63	siderite	0.05	0.09	0.01	0.03	41.95	0.53	5.06	6.20	0.06	0.03	0.51	0.00	0.00	0.05	54.57
Cohasset A-52	2230.38	65	siderite	0.05	0.03	0.03	0.02	41.90	0.39	5.23	5.85	0.11	0.03	0.55	0.00	0.00	0.03	54.22
Cohasset A-52	2230.38	68	siderite	0.03	0.06	0.03	0.04	41.87	0.38	5.12	5.84	0.05	0.01	0.54	0.00	0.00	0.08	54.03
Cohasset A-52	2230.38	71	siderite	0.18	0.07	0.00	0.02	41.06	0.81	5.02	7.19	0.08	0.03	0.13	0.01	0.00	0.03	54.64
Cohasset A-52	2230.38	75	siderite	0.08	0.06	0.01	0.03	42.48	0.40	5.00	5.72	0.09	0.03	0.62	0.00	0.00	0.05	54.55
Cohasset A-52	2230.38	76	siderite	0.08	0.04	0.03	0.02	41.99	0.58	5.15	5.94	0.08	0.02	0.44	0.00	0.00	0.04	54.42
Cohasset A-52	2230.38	83	siderite	0.12	0.05	0.03	0.03	42.19	0.67	5.37	6.01	0.08	0.03	0.25	0.00	0.00	0.07	54.90
Cohasset A-52	2230.38	86	siderite	0.06	0.04	0.01	0.04	41.80	0.55	5.03	6.52	0.09	0.02	0.45	0.01	0.00	0.06	54.68
Cohasset A-52	2230.38	87	siderite	0.17	0.05	0.06	0.05	41.41	0.63	5.39	6.13	0.08	0.05	0.37	0.00	0.00	0.07	54.45
Cohasset A-52	2230.38	91	siderite	0.42	0.07	0.13	0.05	39.29	0.92	5.01	7.52	0.09	0.04	0.08	0.00	0.00	0.08	53.69
Cohasset A-52	2230.38	97	siderite	0.42	0.09	0.06	0.06	45.02	0.57	4.58	5.46	0.19	0.10	0.58	0.04	0.00	0.09	57.25
Cohasset A-52	2230.38	98	siderite	0.12	0.06	0.03	0.06	42.73	0.50	4.58	5.54	0.10	0.03	0.64	0.01	0.00	0.06	54.46
Cohasset A-52	2230.38	102	siderite	0.05	0.07	0.00	0.06	41.77	0.55	5.13	6.04	0.08	0.02	0.48	0.00	0.00	0.07	54.34
Cohasset A-52	2230.38	106	siderite	0.14	0.05	0.00	0.05	41.28	0.75	5.16	6.60	0.06	0.03	0.08	0.00	0.00	0.06	54.28
Cohasset A-52	2230.38	109	siderite	0.13	0.01	0.01	0.06	42.05	0.65	5.34	6.20	0.09	0.03	0.27	0.00	0.00	0.10	54.94
Cohasset A-52	2230.38	116	siderite	0.23	0.07	0.03	0.05	42.30	0.42	5.01	5.47	0.11	0.06	0.62	0.00	0.00	0.07	54.44
Cohasset A-52	2230.38	118	siderite	0.12	0.05	0.02	0.04	41.44	0.59	5.14	6.18	0.06	0.03	0.37	0.00	0.00	0.09	54.12
Cohasset A-52	2338.92	17	siderite	0.23	0.03	0.02	0.05	38.59	0.36	6.20	8.08	0.11	0.05	0.12	0.00	0.00	0.04	53.88
Cohasset A-52	2338.92	18	siderite	0.30	0.02	0.04	0.05	39.11	0.34	6.22	7.61	0.08	0.04	0.13	0.01	0.00	0.03	53.97
Cohasset A-52	2338.92	19	siderite	0.35	0.06	0.02	0.06	38.63	0.35	6.28	7.72	0.15	0.02	0.15	0.00	0.00	0.05	53.85
Cohasset A-52	2338.92	20	siderite	0.29	0.03	0.04	0.08	39.09	0.36	6.36	7.50	0.16	0.05	0.12	0.00	0.00	0.05	54.14
Cohasset A-52	2338.92	21	siderite	0.21	0.05	0.05	0.05	38.79	0.33	5.99	7.91	0.18	0.03	0.11	0.00	0.00	0.05	53.75
Cohasset A-52	2338.92	22	siderite	0.28	0.03	0.04	0.05	38.86	0.34	6.19	7.53	0.10	0.03	0.12	0.00	0.00	0.05	53.63
Cohasset A-52	2338.92	23	siderite	0.48	0.00	0.04	0.04	38.21	0.36	5.89	8.16	0.15	0.04	0.10	0.00	0.00	0.02	53.49
Cohasset A-52	2338.92	24	siderite	0.36	0.03	0.01	0.02	37.97	0.35	5.82	7.98	0.14	0.07	0.10	0.00	0.00	0.00	52.85
Cohasset A-52	2338.92	25	siderite	0.17	0.03	0.03	0.05	38.84	0.34	6.55	7.44	0.08	0.05	0.09	0.00	0.00	0.00	53.66
Cohasset A-52	2338.92	26	siderite	0.17	0.05	0.04	0.04	38.88	0.31	6.49	7.52	0.12	0.03	0.11	0.00	0.00	0.07	53.83
Cohasset A-52	2338.92	27	siderite	0.25	0.01	0.04	0.01	38.28	0.33	5.92	7.77	0.15	0.06	0.07	0.00	0.00	0.00	52.88

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2338.92	28	siderite	0.17	0.00	0.03	0.02	39.21	0.30	6.24	8.03	0.13	0.02	0.08	0.02	0.00	0.01	54.26
Cohasset A-52	2338.92	29	siderite	0.25	0.00	0.03	0.02	39.69	0.32	6.64	6.67	0.12	0.04	0.10	0.00	0.00	0.01	53.88
Cohasset A-52	2338.92	30	siderite	0.19	0.00	0.05	0.00	38.10	0.28	6.08	7.72	0.12	0.03	0.05	0.00	0.00	0.00	52.61
Cohasset A-52	2338.92	31	siderite	0.18	0.00	0.03	0.02	39.00	0.33	6.13	7.85	0.14	0.09	0.09	0.00	0.00	0.00	53.87
Cohasset A-52	2338.92	32	siderite	0.38	0.00	0.07	0.00	37.59	0.32	6.09	7.58	0.16	0.05	0.07	0.00	0.04	0.00	52.35
Cohasset A-52	2338.92	33	siderite	0.20	0.03	0.07	0.00	39.29	0.31	6.52	7.22	0.10	0.01	0.10	0.00	0.00	0.02	53.88
Cohasset A-52	2338.92	34	siderite	0.17	0.01	0.05	0.02	38.93	0.30	6.36	7.44	0.10	0.02	0.06	0.00	0.00	0.03	53.48
Cohasset A-52	2338.92	35	siderite	0.28	0.00	0.15	0.02	41.00	0.37	5.37	6.87	0.26	0.06	0.22	0.01	0.01	0.00	54.62
Cohasset A-52	2338.92	36	siderite	0.10	0.00	0.06	0.01	39.04	0.31	6.36	7.56	0.10	0.02	0.06	0.00	0.00	0.00	53.63
Cohasset A-52	2338.92	37	siderite	0.20	0.00	0.04	0.02	38.69	0.31	6.06	8.16	0.10	0.03	0.06	0.01	0.00	0.03	53.73
Cohasset A-52	2338.92	38	siderite	0.14	0.00	0.04	0.01	38.96	0.30	6.24	7.66	0.10	0.05	0.07	0.00	0.00	0.00	53.56
Cohasset A-52	2338.92	39	siderite	0.24	0.00	0.04	0.01	39.39	0.31	6.42	7.47	0.10	0.03	0.10	0.00	0.00	0.00	54.11
Cohasset A-52	2343.79	147	siderite	1.10	0.00	0.41	0.05	41.21	0.55	6.69	6.21	0.09	0.05	0.05	0.02	0.00	0.09	56.53
Cohasset A-52	2343.79	149	siderite	0.18	0.02	0.01	0.05	41.53	0.59	6.13	6.97	0.09	0.03	0.03	0.04	0.00	0.04	55.71
Cohasset A-52	2343.79	150	siderite	0.30	0.01	0.03	0.04	40.22	0.47	6.84	7.05	0.09	0.04	0.04	0.01	0.00	0.07	55.21
Cohasset A-52	2343.79	155	siderite	1.75	0.09	0.63	0.06	47.57	0.65	4.56	5.46	0.21	0.06	0.19	0.04	0.00	0.12	61.39
Cohasset A-52	2343.79	156	siderite	0.07	0.03	0.01	0.05	39.50	0.25	6.12	9.18	0.10	0.00	0.26	0.00	0.00	0.07	55.64
Cohasset A-52	2343.79	157	siderite	0.53	0.02	0.27	0.03	41.45	0.41	7.56	6.14	0.07	0.04	0.05	0.00	0.00	0.01	56.57
Cohasset A-52	2343.79	161	siderite	0.71	0.01	0.26	0.05	41.52	0.94	5.53	6.80	0.10	0.15	0.05	0.01	0.00	0.08	56.24
Cohasset A-52	2343.79	162	siderite	1.13	0.02	0.59	0.02	42.12	0.52	7.19	5.67	0.14	0.10	0.09	0.00	0.00	0.00	57.59
Cohasset A-52	2343.79	163	siderite	0.15	0.00	0.05	0.02	39.82	0.27	6.14	8.01	0.15	0.10	0.29	0.00	0.00	0.00	54.99
Cohasset A-52	2386.29	13	siderite	1.88	0.03	1.46	0.00	39.28	0.31	4.94	6.19	0.37	0.13	0.25	0.00	0.00	0.01	54.83
Cohasset A-52	2386.29	14	siderite	1.27	0.00	0.72	0.00	34.77	0.22	4.15	6.75	0.36	0.15	0.19	0.00	0.00	0.00	48.58
Cohasset A-52	2421.04	94	siderite + Qtz	35.07	2.52	2.51	0.07	30.74	0.30	4.13	1.62	0.05	0.69	0.01	0.00	0.10	0.06	77.85
Cohasset A-52	2421.04	101	siderite	0.03	0.03	0.00	0.05	42.76	1.75	9.48	3.55	0.01	0.04	0.04	0.00	0.00	0.07	57.82
Cohasset A-52	2421.04	104	siderite	0.03	0.07	0.01	0.08	43.04	2.62	9.46	2.94	0.00	0.02	0.00	0.04	0.00	0.09	58.41
Cohasset A-52	2421.04	106	siderite	0.03	0.08	0.00	0.06	43.28	1.92	9.39	3.45	0.00	0.04	0.00	0.01	0.00	0.06	58.31
Cohasset A-52	2421.04	109	siderite	1.53	0.08	0.38	0.06	43.06	1.38	9.07	3.39	0.08	0.17	0.03	0.01	0.00	0.09	59.33
Cohasset A-52	2421.04	111	siderite	1.97	0.23	0.50	0.05	40.97	0.46	9.04	5.48	0.29	0.17	0.09	0.00	0.00	0.10	59.35
Cohasset A-52	2421.04	115	siderite + Qtz	10.97	0.05	3.10	0.06	35.22	0.92	5.28	6.05	0.03	2.86	0.05	0.01	0.00	0.07	64.68
Cohasset A-52	2421.04	116	siderite	0.01	0.08	0.01	0.08	41.18	0.46	10.18	5.26	0.01	0.03	0.01	0.03	0.00	0.08	57.42
Cohasset A-52	2421.04	118	siderite	2.30	0.07	0.93	0.07	44.59	1.67	8.10	2.45	0.40	0.06	0.02	0.04	0.00	0.06	60.75
Cohasset A-52	2421.04	120	siderite	3.39	0.10	1.24	0.06	44.35	1.56	8.10	2.00	1.15	0.02	0.00	0.03	0.00	0.09	62.09
Cohasset A-52	2421.04	121	siderite	6.91	0.08	2.35	0.05	39.27	0.45	8.43	4.00	0.97	0.39	0.00	0.02	0.00	0.06	62.98
Cohasset A-52	2421.04	122	siderite	1.87	0.13	1.27	0.00	42.22	0.78	9.17	4.15	0.10	0.12	0.03	0.00	0.00	0.00	59.86
Cohasset A-52	2421.04	126	siderite	0.12	0.02	0.01	0.00	44.64	1.43	9.12	2.61	0.03	0.04	0.03	0.00	0.00	0.00	58.05

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2421.04	130	siderite	1.02	0.11	0.54	0.00	41.24	1.45	6.76	7.01	0.08	0.10	0.06	0.01	0.00	0.03	58.39
Cohasset A-52	2602.65	19	siderite	0.14	0.00	0.03	0.03	45.48	0.78	4.62	4.50	0.07	0.03	0.37	0.02	0.00	0.03	56.11
Cohasset A-52	2602.65	20	siderite	0.16	0.08	0.04	0.03	45.87	0.76	4.72	4.37	0.07	0.04	0.50	0.00	0.00	0.01	56.65
Cohasset A-52	2602.65	21	siderite	1.02	0.01	0.52	0.03	45.81	0.85	4.46	4.05	0.07	0.11	0.41	0.00	0.00	0.02	57.37
Cohasset A-52	2602.65	22	siderite	0.06	0.00	0.05	0.03	45.99	0.76	4.21	4.21	0.11	0.07	0.54	0.00	0.00	0.02	56.04
Cohasset A-52	2602.65	23	siderite	0.04	0.01	0.03	0.02	45.67	0.54	5.11	3.52	0.09	0.09	0.43	0.00	0.00	0.02	55.56
Cohasset A-52	2602.65	24	siderite	0.12	0.16	0.06	0.02	43.97	0.46	6.95	4.05	0.09	0.05	0.31	0.00	0.00	0.00	56.26
Cohasset A-52	2602.65	25	siderite	0.09	0.00	0.03	0.00	45.71	0.90	4.05	4.78	0.10	0.04	0.50	0.00	0.00	0.03	56.23
Cohasset A-52	2602.65	26	siderite	0.08	0.00	0.03	0.01	43.09	0.61	8.18	3.93	0.04	0.03	0.09	0.00	0.00	0.00	56.07
Cohasset A-52	2602.65	27	siderite	0.08	0.00	0.03	0.00	45.80	0.87	4.04	4.43	0.12	0.03	0.53	0.00	0.00	0.01	55.94
Cohasset A-52	2602.65	28	siderite	0.29	0.00	0.21	0.03	43.16	0.56	8.14	4.08	0.06	0.05	0.11	0.00	0.00	0.00	56.69
Cohasset A-52	2602.65	29	siderite	0.06	0.00	0.01	0.00	41.04	0.67	9.21	4.69	0.02	0.04	0.02	0.00	0.00	0.00	55.77
Cohasset A-52	2602.65	30	siderite	0.05	0.01	0.03	0.02	42.99	0.65	8.14	4.02	0.05	0.04	0.07	0.00	0.00	0.00	56.07
Cohasset A-52	2602.65	31	siderite	0.05	0.00	0.02	0.06	41.77	0.51	9.40	4.51	0.11	0.02	0.13	0.01	0.00	0.00	56.59
Cohasset A-52	2602.65	32	siderite	0.00	0.00	0.03	0.07	44.18	0.58	7.89	3.95	0.04	0.03	0.10	0.00	0.00	0.00	56.89
Cohasset A-52	2602.65	33	siderite	0.05	0.01	0.01	0.00	45.91	0.89	4.01	4.64	0.10	0.07	0.55	0.00	0.00	0.00	56.24
Cohasset A-52	2602.65	34	siderite	0.07	0.06	0.02	0.00	46.36	0.78	4.26	4.26	0.06	0.03	0.44	0.01	0.00	0.00	56.35
Cohasset A-52	2602.65	35	siderite	0.14	0.00	0.01	0.00	43.35	0.55	8.48	3.80	0.04	0.01	0.12	0.00	0.00	0.00	56.49
Cohasset A-52	2602.65	36	siderite	0.10	0.04	0.01	0.00	43.60	0.34	7.46	4.01	0.07	0.03	0.34	0.00	0.00	0.00	56.01
Cohasset A-52	2602.65	37	siderite	0.12	0.11	0.02	0.00	46.51	0.85	3.73	4.30	0.13	0.02	0.61	0.00	0.00	0.00	56.39
Cohasset A-52	2602.65	38	siderite	0.05	0.02	0.02	0.00	42.64	0.67	8.49	4.36	0.04	0.10	0.06	0.00	0.00	0.00	56.46
Cohasset A-52	2603.49	84	siderite	0.09	0.05	0.00	0.06	44.53	0.57	4.03	4.44	0.07	0.02	0.65	0.02	0.00	0.06	54.59
Cohasset A-52	2603.49	85	siderite	0.32	0.09	0.05	0.06	45.56	0.91	3.97	5.01	0.14	0.06	0.52	0.02	0.00	0.08	56.78
Cohasset A-52	2603.49	86	siderite	0.11	0.00	0.03	0.00	39.08	0.78	9.04	5.51	0.05	0.03	0.06	0.01	0.00	0.00	54.69
Cohasset A-52	2603.49	88	siderite	0.22	0.03	0.09	0.02	41.45	0.59	7.93	4.41	0.04	0.02	0.09	0.00	0.01	0.00	54.89
Cohasset A-52	2603.49	90	siderite	0.04	0.00	0.01	0.00	43.93	0.52	4.95	4.78	0.07	0.03	0.55	0.00	0.01	0.00	54.89
Cohasset A-52	2603.49	91	siderite	0.03	0.00	0.01	0.00	40.72	0.45	8.28	5.14	0.05	0.02	0.18	0.00	0.00	0.00	54.89
Cohasset A-52	2603.49	94	siderite	0.06	0.03	0.02	0.03	42.80	0.58	4.83	5.83	0.06	0.03	0.34	0.00	0.01	0.00	54.62
Cohasset A-52	2603.49	95	siderite	0.12	0.01	0.08	0.01	41.69	0.59	7.79	4.51	0.06	0.04	0.17	0.00	0.01	0.00	55.08
Cohasset A-52	2603.49	96	siderite	0.16	0.00	0.09	0.00	43.72	0.69	4.86	5.30	0.05	0.02	0.41	0.01	0.01	0.00	55.32
Cohasset A-52	2603.49	98	siderite	0.15	0.03	0.04	0.01	44.36	0.54	4.06	4.67	0.10	0.03	0.62	0.00	0.06	0.00	54.68
Cohasset A-52	2603.49	105	siderite	0.17	0.16	0.06	0.00	39.35	0.62	8.29	6.25	0.05	0.02	0.13	0.00	0.00	0.00	55.10
Cohasset A-52	2603.49	106	siderite	0.12	0.13	0.00	0.00	40.42	0.65	4.17	8.78	0.08	0.03	0.36	0.00	0.00	0.00	54.76
Cohasset A-52	2603.49	112	siderite	0.10	0.01	0.04	0.01	42.84	0.48	6.76	4.33	0.08	0.01	0.44	0.00	0.00	0.02	55.12
Cohasset A-52	2603.49	113	siderite	0.02	0.00	0.00	0.00	39.50	0.60	8.89	5.73	0.02	0.00	0.09	0.00	0.00	0.01	54.86
Cohasset A-52	2603.49	115	siderite	0.13	0.01	0.05	0.00	44.02	0.59	4.84	5.16	0.10	0.02	0.48	0.02	0.00	0.05	55.46

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Cohasset A-52	2603.49	116	siderite	0.36	0.04	0.11	0.00	43.76	0.66	4.81	4.83	0.06	0.04	0.63	0.01	0.00	0.01	55.33
Cohasset A-52	2603.49	118	siderite	0.02	0.01	0.00	0.00	40.39	0.62	8.62	4.99	0.04	0.01	0.13	0.03	0.00	0.00	54.87
Cohasset A-52	2603.49	120	siderite	0.05	0.00	0.00	0.00	40.99	0.47	8.59	4.92	0.06	0.01	0.10	0.01	0.00	0.00	55.20
Cohasset A-52	2603.49	122	siderite	0.48	0.03	0.24	0.00	43.30	0.51	6.00	4.23	0.09	0.03	0.30	0.00	0.00	0.00	55.22
Cohasset A-52	2603.49	124	siderite	0.28	0.00	0.17	0.00	42.62	0.61	4.80	5.52	0.09	0.03	0.38	0.00	0.00	0.00	54.50
Cohasset A-52	2603.49	126	siderite	0.28	0.00	0.18	0.00	41.58	0.55	6.62	4.95	0.07	0.04	0.35	0.00	0.00	0.00	54.63
Cohasset A-52	2603.49	128	siderite	0.05	0.00	0.00	0.00	43.71	0.58	3.99	5.33	0.07	0.03	0.59	0.00	0.00	0.00	54.35
Cohasset A-52	2603.49	129	siderite	0.04	0.00	0.01	0.00	40.49	0.58	8.19	5.01	0.04	0.02	0.10	0.01	0.00	0.00	54.49
Cohasset A-52	2603.49	131	siderite	0.07	0.00	0.04	0.00	40.27	0.61	9.10	5.14	0.06	0.03	0.08	0.00	0.00	0.00	55.38
Cohasset A-52	2603.49	132	siderite	0.21	0.01	0.11	0.00	44.20	0.59	4.00	5.15	0.09	0.04	0.88	0.00	0.00	0.00	55.26
Cohasset A-52	2603.49	133	siderite	0.11	0.00	0.01	0.00	40.08	0.58	9.01	5.09	0.04	0.02	0.05	0.00	0.00	0.00	55.00
Cohasset A-52	2603.49	136	siderite	0.25	0.05	0.05	0.00	44.44	0.55	4.05	4.92	0.11	0.03	0.61	0.00	0.00	0.00	55.07
Cohasset A-52	2603.49	137	siderite	0.35	0.01	0.15	0.00	43.69	0.59	5.02	4.30	0.12	0.04	0.59	0.00	0.00	0.00	54.85
Cohasset A-52	2603.49	139	siderite	3.96	0.01	0.04	0.00	40.19	0.54	7.78	4.58	0.07	0.02	0.20	0.00	0.00	0.00	57.40
Lawrence D-14	2271.65	49	siderite + clay	17.62	0.06	13.84	0.02	20.29	0.03	3.97	0.17	0.70	0.33	0.00	0.00	0.09	0.00	57.13
Lawrence D-14	2271.65	50	siderite + clay	28.02	0.13	19.73	0.03	18.21	0.07	3.53	0.24	0.86	1.91	0.00	0.02	0.07	0.03	72.83
Lawrence D-14	2271.65	51	siderite + clay	2.98	0.07	2.14	0.08	36.25	0.76	7.05	3.41	0.55	0.09	0.14	0.06	0.07	0.05	53.69
Lawrence D-14	2271.65	52	siderite + clay	10.41	0.06	2.23	0.09	37.60	0.61	6.31	3.27	0.09	0.06	0.11	0.03	0.14	0.06	61.08
Lawrence D-14	2271.65	53	siderite + clay	33.77	0.06	0.20	0.06	31.34	0.50	4.10	2.90	0.07	0.04	0.11	0.06	0.25	0.07	73.52
Lawrence D-14	2271.65	54	siderite + clay	2.12	0.06	0.86	0.07	37.72	0.65	6.89	3.44	0.18	0.08	0.18	0.07	0.11	0.04	52.46
Lawrence D-14	2271.65	55	siderite + clay	16.32	0.06	0.27	0.05	35.65	0.73	6.01	3.18	0.18	0.05	0.16	0.06	0.21	0.04	62.95
Lawrence D-14	2271.65	56	siderite + clay	2.55	0.04	1.82	0.07	35.49	0.65	6.67	4.25	0.14	0.08	0.23	0.04	0.05	0.06	52.13
Lawrence D-14	2271.65	57	siderite + clay	2.77	0.07	1.37	0.05	35.30	0.70	6.38	3.07	0.21	0.10	0.19	0.05	0.06	0.04	50.37
Lawrence D-14	2271.65	58	siderite + clay	2.52	0.07	1.40	0.09	37.30	0.68	7.26	4.36	0.20	0.07	0.23	0.06	0.04	0.05	54.32
Lawrence D-14	2271.65	60	siderite + clay	7.12	0.10	0.99	0.01	36.13	0.51	7.21	3.22	1.09	0.21	0.23	0.00	0.00	0.03	56.85
Lawrence D-14	2271.65	61	siderite + Qtz	4.66	0.00	0.53	0.00	36.67	0.64	6.01	3.07	0.77	0.10	0.17	0.03	0.00	0.00	52.65
Lawrence D-14	2271.65	62	siderite + Qtz	1.71	0.00	0.53	0.00	37.49	0.50	7.17	3.66	0.48	0.07	0.21	0.01	0.00	0.04	51.88
Lawrence D-14	2271.65	63	siderite + Qtz	39.95	0.00	0.40	0.00	25.17	0.43	3.50	2.30	0.14	0.05	0.10	0.00	0.17	0.01	72.22
Lawrence D-14	2271.65	64	siderite + Qtz	1.52	0.06	0.11	0.03	44.63	0.56	7.04	3.12	0.15	0.05	0.40	0.03	0.00	0.13	57.83
Lawrence D-14	2271.65	65	siderite + Qtz	24.36	0.01	0.20	0.00	36.44	0.53	5.59	3.14	0.13	0.04	0.23	0.03	0.11	0.00	70.80
Lawrence D-14	2271.65	66	siderite + Qtz	17.41	0.62	0.47	0.03	38.72	0.70	5.72	3.09	0.14	0.09	0.30	0.05	0.09	0.03	67.46
Lawrence D-14	2271.65	67	siderite	0.66	0.03	0.42	0.03	41.25	0.85	7.43	5.16	0.22	0.05	0.23	0.03	0.00	0.01	56.37
Lawrence D-14	2271.65	68	siderite + Qtz	1.11	0.03	0.85	0.04	43.81	0.65	8.36	3.59	0.30	0.04	0.23	0.06	0.00	0.12	59.20
Lawrence D-14	2271.65	69	siderite	0.47	0.02	0.07	0.01	41.78	0.76	7.34	5.04	0.22	0.04	0.26	0.06	0.00	0.10	56.17
Lawrence D-14	2271.65	70	siderite + Qtz	4.07	0.00	0.84	0.00	37.38	0.56	5.68	3.27	0.25	0.06	0.20	0.00	0.00	0.00	52.34
Lawrence D-14	2271.65	71	siderite + Qtz	8.00	0.04	4.41	0.01	38.43	0.62	5.95	3.09	0.36	0.28	0.32	0.00	0.00	0.04	61.53

Well	Sample	No.*	Mineral	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	FeO <sub>t</sub>	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	NiO	SrO	BaO	Total
Panuke B-90	2069.01	34	siderite	0.05	0.07	0.00	0.14	44.67	0.91	1.90	6.60	0.10	0.06	0.59	0.10	0.00	0.09	55.27
Panuke B-90	2217.93	133	siderite	0.63	0.08	0.37	0.06	36.85	1.30	4.75	9.32	0.13	0.07	0.60	0.05	0.00	0.10	54.32
Panuke B-90	2217.93	134	siderite	3.25	0.17	2.16	0.05	34.04	0.93	4.02	10.95	0.23	0.18	1.72	0.04	0.00	0.07	57.83
Panuke B-90	2223.78	135	siderite	0.38	0.08	0.17	0.08	43.21	1.03	7.29	2.57	0.01	0.19	0.08	0.09	0.00	0.10	55.27
Panuke B-90	2223.78	136	siderite	0.52	0.09	0.26	0.07	39.42	0.52	6.06	7.20	0.10	0.19	0.37	0.08	0.00	0.14	55.02
Panuke B-90	2223.78	137	siderite	1.90	0.09	0.44	0.06	39.13	0.66	6.08	6.51	0.08	0.25	0.29	0.06	0.00	0.07	55.60
Panuke B-90	2223.78	138	siderite	0.57	0.06	0.23	0.05	36.77	0.42	5.29	9.44	0.06	0.06	0.38	0.04	0.00	0.13	53.49
Panuke B-90	2223.78	139	siderite	0.12	0.06	0.05	0.04	37.31	0.34	5.83	8.66	0.06	0.05	0.34	0.04	0.00	0.05	52.94
Panuke B-90	2223.78	140	siderite	0.29	0.06	0.12	0.05	38.31	0.43	6.72	6.57	0.10	0.04	0.37	0.04	0.00	0.19	53.28
Panuke B-90	2223.78	141	siderite	0.87	0.06	0.66	0.06	36.57	0.36	5.26	9.16	0.06	0.07	0.36	0.08	0.00	0.12	53.68
Panuke B-90	2223.78	142	siderite	0.74	0.06	0.23	0.07	37.96	0.41	6.98	6.89	0.16	0.04	0.36	0.05	0.00	0.11	54.05
Panuke B-90	2223.78	143	siderite	0.33	0.02	0.26	0.00	39.53	0.43	7.32	6.24	0.15	0.05	0.37	0.00	0.00	0.01	54.71
Panuke B-90	2223.78	144	siderite	1.38	0.03	0.49	0.00	39.65	0.64	5.29	6.89	0.12	0.09	0.32	0.00	0.00	0.00	54.90
Panuke B-90	2223.78	145	siderite	0.55	0.01	0.31	0.02	40.21	0.63	6.70	5.69	0.13	0.06	0.33	0.02	0.00	0.00	54.67
Panuke B-90	2223.78	146	siderite	2.09	0.06	0.36	0.00	42.72	0.83	5.13	5.95	0.07	0.08	0.30	0.00	0.00	0.01	57.61
Panuke B-90	2223.78	147	siderite	0.90	0.04	0.54	0.02	38.82	0.37	5.88	6.84	0.06	0.09	0.39	0.00	0.00	0.00	53.94
Panuke B-90	2223.78	149	siderite	0.67	0.06	0.43	0.02	39.36	0.49	6.00	7.03	0.09	0.07	0.29	0.00	0.00	0.00	54.52
Panuke B-90	2242.47	63	siderite	3.16	0.03	0.88	0.00	41.66	0.70	5.33	4.76	0.14	0.15	1.15	0.03	0.00	0.00	58.00
Panuke B-90	2242.47	64	siderite	1.70	0.01	0.92	0.00	41.66	0.76	4.58	6.81	0.19	0.19	1.52	0.03	0.00	0.00	58.37
Panuke B-90	2242.47	65	siderite	2.18	0.05	1.29	0.01	39.87	0.64	4.46	7.25	0.26	0.23	2.94	0.03	0.00	0.00	59.21
Panuke B-90	2242.47	66	siderite	2.34	0.00	1.51	0.01	42.21	0.61	4.88	4.71	0.17	0.31	1.01	0.05	0.00	0.00	57.80
Panuke B-90	2242.47	67	siderite	1.78	0.10	1.04	0.03	41.55	0.62	4.98	5.52	0.24	0.19	1.81	0.00	0.00	0.00	57.86

No.\* : number of analysis on the back-scattered electron images (Appendix 2).



Appendix 4 : Summary of sediment facies description and interpretation from Gould et al. (2010b).

Lithofacies	Subfacies	Lithology and texture	Primary sedimentary structures	Biogenic structures	General interpretation	Related lithofacies	Notes on diagnostic criteria	Type example	Comparison with others
0	0g	sandstone, generally fine, rarely reach coarse	medium bedded; laminated or cross laminated, common erosional base; possible wave and current ripples	absent to sparse biot	River mouth to shoreface; prodeltaic turbidites	commonly overlies 1 and 2; may interbed with 9	lacks interbedded mudstone	2395	Gould (S4); Cummings and Arnott (6)
	0b	fine sandstone, siltstone, mudstone (sandstone > mudstone)	sharp, erosive based beds (<25 cm thick) with siltst laminae, interbedded with mst with siltst laminae; some lenticular bedding; parallel and cross laminae; variable bed structures as in Lamb et al, 2008; possible wave and current ripples	sparse to uncommon biot			sandstone:mudstone ratio	1150	Gould (S2b); Cummings and Arnott (3) and (5); Karim, 2008 (0t), (0s) and (0l)
	0m	mudstone, siltstone, very fine sandstone (mudstone >> sandstone)	some siltst or very fine sst laminae; parallel lam, x-lam, lenticular bedding; possible wave and current ripples	uncommon biot			sandstone:mudstone ratio; from 1 by sst; from 1 and 2b by lack of biot	2616	Gould (M1); Cummings et al. (4); Cummings and Arnott (4)
	0a	fine and coarse sandstone, mudstone (sandstone ><mudstone)	alternation of coarse and fine sst beds with interbedded mst; parallel lam, x-lam, lenticular bedding; possible wave and current ripples	absent to sparse biot			mudstone with coarse and fine grained sst	1146	
1		mudstone, <5% fine sandstone or siltstone	thin beds and laminae of parallel fine sst or siltst laminae	abundant to complete biot ( <i>Chondrites</i> ichnofacies); uncommon thin shelled fossils - echinoderms, ammonites	Shelf	commonly overlies 3 and underlies 2 or 0	from 0 by biot; from 2b by sst; presence of marine shells	4246	
2	2b	mudstone, fine sandstone (10-60%)	destroyed by biot, possible remnants of storm beds with parallel lamination, wave ripples and wave dominated structures	generally moderate to common biot; possible shells, <i>Cruziana</i> ichnofacies; may have reworked shell frags at base of preserved beds	Shoreface	interbeds with 0; possibly grades into 3	from 0 by biot; from 1 by higher % of sand; less sst than 2c; diverse trace fossil assemblage; sst beds with possible shell hash at base, interbedded with biot sandy mst	1576	Gould (S4)
	2c	fine sandstone (60-95%), mudstone	destroyed by biot, possible remnants of storm beds with parallel lamination, wave ripples and wave dominated structures	common to complete biot, multiple species; possible shells; <i>Cruziana</i> ichnofacies; may have reworked shell frags at base of preserved beds			from 0s by biot; from 2b by sst; diverse trace fossil assemblage; primary structures rarely preserved; reworked shells, preserved structures are wave not current dominated	1383	Cummings and Arnott (14)
	2o	fine sandstone	generally thin to thick massive beds	sparse to moderate biot, horizontal <i>Ophiomorpha</i> burrows			like 4o but mud drapes absent	4338	
	2x	fine-rare medium sandstone	cross-bedding (mostly low angle), thin bed sets; rare mud drapes	sparse biot			from 4x because of biot, no mud drapes absent. Coal absent. Biot not <i>Skolithos</i> ichnofacies	4130	

Lithofacies	Subfacies	Lithology and texture	Primary sedimentary structures	Biogenic structures	General interpretation	Related lithofacies	Notes on diagnostic criteria	Type example	Comparison with others
3	3x	sandy mudstone (10-50% sand); granules; poorly sorted; common brown staining due to early siderite	may have intraclasts	moderate to complete biot; thick shells	Condensed unit on shell, commonly transgressive	commonly overlies 3y	mudstone	4262	Gould (C1)
	3y	muddy sandstone (50-90% sand), granules; poorly sorted; common brown staining due to early siderite	may have intraclasts	moderate to complete biot; thick shells		commonly overlies 3l or an erosion surface	sandstone	4356	Gould (M2); Cummings and Arnott (13)
	3i	intraclast conglomerate; common brown staining due to early siderite	may have intraclasts	may include shells			intraclast cgl	1547	
	3c	lithic conglomerate; common brown staining due to early siderite	may have intraclasts	may include shells			lithic cgl; generally rare	4326	
	3f	firm ground	evidence of induration.; commonly associated intraclasts; erosion or incision of underlying sediment	some burrow penetrating firm ground, <i>Glossifungites</i>			evidence of firm ground; generally rare	1716	
	3l	bioclastic limestone	parallel lam	abundant shell fragments, possibly in place			bioclastic limestone	3956	Gould (L1); Cummings et al. (7)
	3o	oolitic limestone and sandstone	parallel lam	possible biot			oolitic limestone and sandstone	2572	
4	4o	principally fine sandstone	thin to medium bedded, may be cross-bedded; thin mud drapes	sparse to common biot, <i>Ophiomorpha</i> , <i>Skolithos</i> ichnofacies	Tidal estuary to fluvial	passes up into 5 or 2	from 5-4 by <i>Ophiomorpha</i> burrows; common mud drapes;	4297	Karim, 2008 (4o); Karim, 2008 (4u)
	4a	medium to coarse sandstone (>50%); mudstone	thin sharp-based sst beds (can be >30 cm thick, ave 5-10 cm), interbedded with thin to thick mst drapes. Mst drapes have m-cg lam (similar to 6) may have current ripples	biot absent; coal lam, intraclasts		may be interbedded with 4, 5, 6	from 4g by thick mud drapes with facies 6 character; from 6 by alternating cg sst beds and thick mst drapes	4913	
	4g	medium to coarse sandstone; may have coarse grained lag at base of unit; <5% mst	typically thin-bedded, parallel to low angle; mud drapes	absent to sparse biot			from 4x by presence of mud drapes and possible sparse biot	1098	Gould (S1); Cummings et al. (2); Cummings and Arnott (10, 12)
	4x	medium to coarse sandstone; mudstone intraclasts; may have coarse grained lag at base of unit	thin to thick cross-beds, med to high angle	biot absent; coal intraclasts			from 4g by coarser grainsize, high-angle cross-bedding, lack of mud drapes	2297	Cummings et al. (1)
	4n	mudstone, siltstone, very fine sandstone (sandstone>mudstone )	"tidal bundles" of poorly sorted sand and silt; or well-sorted fine sand, rarely with ripples; mud partings 1-2 mm	biot absent or sparse			more silt and sand than 0m; differs from 0a in lack of coarse sst beds	2622	Cummings and Arnott (2); Karim, 2008 (0n)
5	5m	>75% sandstone, predominantly fine may have medium or coarse grained beds, mudstone	thin bedded; variable mud drapes; mud, silt, and vf sst parallel & x-lam; mud on ripples	variable biot - sparse to moderate, or common to abundant, <i>Skolithos</i> ichnofacies; ?plant frags	Mixed flat - intertidal		from 6s by sandstone dominance; from 2 by less biot and dominant subvertical burrows, preservation of primary structures diagnostic of tidal environ.	Panuke B-90 core 8, box 24	Gould (S3); Cummings et al. (5); Cummings and Arnott (7)
	5s	>95% sandstone, generally fine may be medium or coarse grained, minor mudstone	possible thin to med bedded; some x-bedding	sparse to mod biot; shells	Sand flat - intertidal to subtidal	may pass up into 4o	mud drapes and <i>Ophiomorpha</i> rare compared to 4o; cross-bedding diagnostic; from 2 by less biot, subvertical burrows dominant, preservation of primary structures diagnostic of tidal environ.	4323	Karim, 2008 (4s)

Appendix 4 : Summary of sediment facies description and interpretation from Gould et al. (2010b).

Lithofacies	Subfacies	Lithology and texture	Primary sedimentary structures	Biogenic structures	General interpretation	Related lithofacies	Notes on diagnostic criteria	Type example	Comparison with others
5	5b	20-75% sandstone, predominantly fine may have medium or coarse grained beds	destroyed	abundant to complete biot - common large and long subvertical burrows; may have shells	Mixed flat - intertidal	transitional to 2	large subvertical burrows; from 2 by less biot, subvertical burrows dominant, preservation of primary structures some diagenetic of tidal environ.	4334	
	5c	medium sandstone	sharp based, thin beds	absent	Tidal channel - subtidal	within 5/6	thin beds within 5/6	4185	
6	6s	subequal fine sandstone, mudstone; or 60-75% mudstone, fine sandstone; may have minor medium-coarse sandstone, e.g. in burrows	mud dominant sections with wavy or current ripples and mud on ripple lam, interbedded with prominent parallel lam sst and mst (pinstripe-shaped)	small <i>Skolithos</i> ichnofacies burrows absent to common; possible plant frags	Mixed flat- intertidal	commonly interbedded with 4, 5, 7, 8	like 0 but with <i>Skolithos</i> burrows, current ripples	4299	Cummings et al. (3); Cummings and Arnott (11); Cummings (P4)
	6b	>80% mudstone, minor very fine to fine sandstone may have minor medium-coarse sandstone, e.g. in burrows	destroyed; rare preserved parallel lam, current ripples	common to complete biot; may have whole or fragments of oyster shells	Mudflat- intertidal		from 5b by mud dominance; oyster shells	4169	
	6m	>95% mudstone, may have minor medium-coarse sandstone	rare discontinuous lam, broken by subvertical to vertical burrowing	biot absent to common, may have burrows (horizontal and subvertical) filled with m-c sst; ?oyster shells	Mudflat- intertidal		from other 5/6 by mudstone dominance	Panuke B-90 core 8 box 28	Cummings (P4)
7		lignite or carbon-rich mud		rootlets beneath	Tidal marsh	may overlie 6	lignite or carbon-rich mud	4188	
8		mudstone, rare siltstone	planar parallel to low angle cross siltstone lam	biot generally absent to sparse, with locally intense biot	Lagoon	interbeds with 5 & 6	1 has fossils and overlies 3, is more biot; 8 interbeds with 5 and 6	4053	Cummings (P3)
9	9g	very coarse to fine sandstone, some graded beds	sharp-based beds, some with erosive structures (sole marks); predominantly massive beds, generally >25cm thick, with minor parallel or cross laminae at top of some beds; possible mud intraclasts	absent to moderate biot at top of beds; plant detritus; possible reworked coastal deposits (shells, sid nodules)	River mouth to prodelta turbidite	commonly interbedded with 0, overlain by 4o	from facies 0 by bed thickness; from 9s by lack of interbedded mudstone	1688	Gould (S2c); Cummings and Arnott (8); Karim, 2008 (4b)
	9s	fine sandstone, minor mudstone, minor interbedded facies 0	sharp-based beds, some with erosive structures (sole marks); generally >25 thick, parallel lamination at base and cross lamination at top; some beds have mud intraclasts near base	moderate biot at top of beds; plant detritus; possible reworked coastal deposits (shells, sid nodules)			from facies 0 by bed thickness	4535	Gould (S2a), Karim 2008 (9m)
10	10f	mudstone to muddy sandstone	destroyed by deformation; secondary structures - massive texture, horizontal foliation	-	Deformed facies	commonly interbedded with 0		Alma K-85 core 3	
	10g	sandstone	destroyed by deformation; secondary structures - liquified beds	-				Alma K-85	
	10s	sandstone, siltstone, mudstone,	mostly destroyed by deformation; secondary structures - sheared and folded beds	variable biot				1466	