



**GEOLOGICAL SURVEY OF CANADA
OPEN FILE 6557**

**Thermal history and the relationship between
diagenesis and the reservoir connectivity: Venture
field, offshore Nova Scotia, eastern Canada**

A. Karim, G. Pe-Piper, D. J.W. Piper, J. J. Hanley

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Preface:

This report summarizes a study of lithofacies, diagenetic minerals and fluid inclusions from conventional core in the Venture field, offshore Nova Scotia. It is a contribution to understanding reservoir quality and hydrocarbon charge history in the Scotian Basin. The work was a collaboration between Saint Mary's University and the Geological Survey of Canada.

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Authors' addresses:

Atika Karim, Georgia Pe-Piper and Jacob J. Hanley
Department of Geology, Saint Mary's University, Halifax, Nova Scotia, B3H 3C3,
Canada

akarim@smu.ca; gpiper@smu.ca; jhanley@smu.ca

David J.W. Piper
Geological Survey of Canada (Atlantic), Bedford Institute of Oceanography, P.O. Box
1006, Dartmouth, Nova Scotia, B2Y 4A2, Canada

dpiper@nrcan.gc.ca

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A: Venture B-52

B: Venture B-13

C: Venture H-22

Abstract

Upper Jurassic and Lower Cretaceous sandstones of the Scotian Basin, offshore eastern Canada, are important gas reservoirs. A study of fluid inclusions related to diagenetic cements provides constraints on the fluid flow history through the rocks. Conventional cores were logged from the Venture B-52, Venture B-13 and Venture H-22 wells. Lithofacies were described and interpreted. Diagenetic minerals including late carbonate cements were analysed from different stratigraphic levels and related to the known reservoir connectivity sequence. A total of 122 primary and secondary fluid inclusions have been analysed from five samples from the Venture B-52, Venture 1, and Venture 4 wells.

Homogenisation temperature values in the primary aqueous inclusions hosted in late carbonate cements range from 109 to 135 °C. The values in the earlier quartz overgrowths are slightly lower, ranging from 92 to 121 °C. The ice-melting temperatures from primary inclusions in both quartz overgrowths and late carbonate cements indicate high fluid salinities, between 17 and 20 wt.% NaCl equivalent and 24 to 30 wt.% CaCl equivalent, respectively. Some secondary, predominantly aqueous, inclusions were observed that contain liquid hydrocarbons. They are hosted in detrital quartz, or cross-cut detrital quartz, quartz overgrowths, and late carbonate cements or they occur in microfractures. All have similar homogenization temperatures to primary inclusions, ranging from 82 to 132 °C. However, the melting temperatures range from -20.2 to 0.8 °C, indicating very dilute fluids with low salinities that range from 4 to 14 wt.% NaCl equivalent. Secondary CO₂ inclusions, postdating quartz overgrowths, were

found with CO₂ melting temperatures indicating the presence of hydrocarbons (avg. -58 °C) and homogenization temperatures (avg. -10 °C) indicating a relatively high density (i.e., deep trapping depth) carbonic phase.

Late carbonate cements are different in the same Industry Sandstone from different wells, indicating that the late carbonate cementation may be at least partly controlled by the reservoir fill and spill sequence, as connected reservoirs show similar late carbonate assemblages. The hydrocarbon migration postdates the late carbonate cementation and the gas reservoir has been charged by aqueous fluids with different salinities during its history. The temperatures determined from Venture samples are higher than present temperatures, implying a thermal maximum at an unknown time in the past. There is no seismic evidence for significant basin inversion in these wells, suggesting the involvement of hot fluids and a higher geothermal gradient than the present ~30 °C/ km.

Introduction

A record of migration of fluids, including hydrocarbons, through a basin is preserved as fluid inclusions during cement precipitation and microfracture annealing. These can be examined using microthermometry, ultraviolet microscopy, geochemistry and other techniques, enabling us to reconstruct the temperatures, salinities and compositions of fluids at the time of migration (Parnell et al., 2001). Fluid inclusions can provide valuable information on the pressure and temperature of mineral growth as well as on the composition of the fluids involved in diagenesis. In particular, hydrocarbons entrapped within inclusions provide conclusive evidence that hydrocarbons have at one time migrated through the rock (Baron et al., 2008). By placing the occurrence of hydrocarbon fluid inclusions in a paragenetic sequence, it allows the relative dating of hydrocarbon migration in relation to reservoir diagenesis and tectonic events (Jenssens and Burruss, 1990). Fractured reservoirs are of increasing interest as potential reservoirs of hydrocarbons. Studies of hydrocarbon and aqueous inclusions from fractured reservoirs enable the determination of the fluid flow history through the rock and allow individual fluid flow events to be distinguished (Kelly et al., 2000).

The Scotian Basin, offshore eastern Canada, is an important petroleum province. Principal reservoir rocks are the Jurassic Abenaki platform-margin carbonates and Upper Jurassic–Lower Cretaceous deltaic sandstones (Fig. 1A). Fluid migration in the basin is poorly constrained. In the Abenaki carbonates at the Deep Panuke reservoir, fluid inclusions in carbonate cements show high homogenization temperatures,

interpreted as emplaced by hydrothermal fluids (Weirzbicki et al., 2006). Both saline and nonsaline fluids were associated with calcite precipitation, whereas only saline fluids were involved in precipitating saddle and other dolomite cements (Weirzbicki et al., 2006). Studies of fission tracks in detrital apatites in Lower Cretaceous sandstones overlying the Abenaki platform margin indicate a heat pulse of up to 55 °C some time between 100 and 40 Ma (Li et al., 1995). These authors postulated that the thermal pulse was caused by an escape of hot fluids from an overpressured regime deeper in the basin. Farther east in the basin, Grist et al. (1992) recognized an apparently correlative thermal event in the Mic Mac J-77 and Erie D-26 wells, for which they estimated an age between 100 ± 7 and 86 ± 7 Ma. They suggested that this thermal event might be related to mid-Cretaceous volcanism or to hot fluids originating in the basin.

In this study, we have established the paragenetic sequence of diagenetic minerals in Upper Jurassic sandstones from Venture field in the western Scotian basin. Our objectives were (1) to determine if there is any relationship between diagenetic minerals, especially late carbonate cements, and the reservoir connectivity sequence proposed by Richards et al. (2008). (2) To identify and characterise primary and secondary fluid inclusions in quartz and late carbonate cements and in microfractures in the Venture field and to track the thermal history of the basin using the temperatures measured from these inclusions.

1. Geological setting

The Venture field is located in a deep rollover anticline developed on normal listric growth faults that terminate in Lower Cretaceous strata (Drummond, 1992) (Fig. 1B). The principal gas reservoirs are between 4406 and 5101 m sub-sea true vertical depth in the Lower Member of the Missisauga Formation and the deeper reservoirs are overpressured. A detailed lithofacies description and depositional model was proposed by Cummings and Arnott (2005; their table 1 and figs. 5, 7; Fig. 1C). Essentially two main units were defined: channel-form units and upward-coarsening units. The channel-form units consist of strongly tide-influenced estuarine fill of incised valleys (lithofacies 8 to 11) and the upward-coarsening units consist of what they interpreted as storm-dominated delta front sandstone (lithofacies 5 and 6), prodeltaic mudstone (lithofacies 2) and shelf carbonate (lithofacies 1). Gould et al. (2010) questioned the interpretation of storm-dominated sandstone and showed that most occurrences of lithofacies 5 and 6 of Cummings and Arnott (2005) were of delta-front turbidite origin, as demonstrated farther west at the Glenelg and Thebaud fields by Karim et al. (2008, 2010).

To understand the reservoir “plumbing system” better, Reservoir Connectivity Analysis (RCA) was used by Richards et al. (2008) to understand fluids, pressures and field/pool size distribution in the clastic reservoirs of the Sable Subbasin. The sands in the Venture field (C, 3, 4, 5, 6, 7, 8, 11, 13) used in this approach were sampled in this study for systematic diagenetic analysis including type and abundance of different cements (Tables 1, 2, 3).

2. Methods

Diagenetic minerals were studied from samples from conventional cores stored at the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB) Geoscience Research Centre. Cores were logged and sampled from the Venture B-13, B-52, and H-22 wells, with emphasis on sedimentary lithofacies and macroscopic diagenetic features.

Seventy two samples were selected from Venture H-22, twenty seven from Venture B-52 and twenty two samples from Venture B-13. These samples were selected to represent the various lithofacies (fluvial, transgressive, prodeltaic, and marine) and representative stratigraphic surfaces (Sequence Boundary, Transgressive Systems Tract) from the interpretation of Cummings and Arnott (2005) (Tables 1, 2, 3). Samples were also selected from the sandstones in the Richards et al. (2008) reservoir connectivity diagram. Thin-sections from ExxonMobil and the polished thin sections sampled for this study were studied by petrographic microscope using transmitted and reflected light to identify the textures and composition of diagenetic minerals and to define the textural relationships between different cements. Quantitative mineral analyses were made using a JEOL-8200 electron microprobe with five wavelength spectrometers and a Noran 133 eV energy dispersion detector. The beam was operated at 15 kV and 20 nA, using a beam diameter between 10 to 5 μm for the carbonates and 5 to 1 μm for small fibrous silicate cements. The time of acquisition per element was two seconds. The energy dispersive spectrometer (EDS) was used for quick identification of minerals. Backscattered electron (BSE) images were used to define the

textural relationships between diagenetic phases. All these electron microprobe data are presented in Appendices 1 and 2.

The structural formulae of the carbonate minerals are calculated on the basis of 6 oxygen atoms. For calcite, all analyses that have more than 1 wt. % of FeO and more than 1 wt. % of MgO are termed ferroan calcite (Fe-calcite) and magnesian calcite (Mg-calcite), respectively. Nomenclature fields for the other carbonates are based on analyses by Chang et al. (1996) plotted on an $\text{FeCO}_3 - \text{CaCO}_3 - \text{MgCO}_3$ ternary diagram.

Nine samples were selected from Venture 1, 4, and B-52 for fluid inclusion study. These samples are from the Lower Member of the Missisauga Formation sandstones of which the diagenesis is well known. For Venture 1 and 4 wells the diagenesis was studied by Gould (2007) and for Venture B-52 is part of this study. Thin sections, 100 to 200 μm thick, were double-polished and examined using a MDS600 heating-freezing stage attached to an Olympus BX51 petrographic microscope. Areas with fluid inclusions were cut into small chips, placed in acetone for 24 hours to dissolve the mounting epoxy, and then detached to form a thin slice of rock. Both primary and secondary fluid inclusions were selected for temperature of ice melting (T_m) and temperature homogenization (T_h) measurements. Inclusions that showed stretching were excluded from the study. Final ice melting temperature (T_m) measurements, which are dependent on the quantity of salt present in solution, were determined using a heating rate of 1 to 2 $^\circ\text{C} / \text{min}$. Salinities were estimated using the method of Bodnar and Vityk (1994). Homogenization temperatures were measured at a

final heating rate of 2 °C / min. Those temperatures are minimum, a pressure correction need to be done using FLINCOR Program. Eutectic temperatures were measured from the largest inclusions using a final heating rate of 5 °C / min. Fluorescence under ultraviolet light was determined with an Olympus microscope with a UV-2A filter block.

3. Lithofacies

3.1. Introduction

In this study we use the lithofacies classification of Karim et al. (2008, 2010) (Table 4). Fluvial to tidal estuary (lithofacies 4), river mouth to prodelta tubidite (lithofacies 9), prodeltaic seaward of river mouth (lithofacies 0), transgressive marine sediment (lithofacies 3) and deeper water shoreface and open shelf (lithofacies 2) are the most common facies in the studied wells.

In the Venture B-52 well, cores 1 to 5 are from the Lower member of the Missisauga Formation, whereas cores 6 to 8 are from the MicMac Formation. Only cores 1 to 5 were logged and sampled in this study. These cores sample the Industry Sands 3, 4, 5, 6, 7 and 8. In Venture B13, four cores were drilled from the Lower member of the Missisauga Formation. These cores sampled as the Industry Sands 3 and 6. As in Venture B-13, all cores (1 to 7) drilled in the Venture H-22 well are located in the Lower member of the Missisauga Formation and sampled as Industry Sands 3, 4, 5, 6, 7 and 8 (Fig. 1D).

3.2. Venture B-52

In Venture B-52, core 1, from Sand 3, is mainly lithofacies 2 with bioturbated fine sandstones and mudstones. Only a thin (15 cm) transgressive interval of lithofacies 3 is present at about 4710.45 m depth (Fig. 2A). Core 2, from Sands 4 and 5, is composed of upward-coarsening units. They consist of thick fine sandstone beds interbedded with thin mud beds (lithofacies 0 and 9) and medium sandstone with cross-bedding and some local bioturbation (lithofacies 4) (Fig. 2B). Core 3, from the lower part of Sand 5, is coarse sandstone at the base (lithofacies 4) grading up to medium and fine sandstones with abundant mudstones towards the top of the core, principally of facies 2. Some of the fine sandstone beds contain wood fragments and they are bioturbated (Fig. 2C). Core 4, from Sand 6, is largely bioturbated fine sandstone with less than 40 % mudstone (lithofacies 2). Coarse sandstones with cross-bedding and vertical burrows are present at the top (lithofacies 4) (Fig. 2D). Core 5, from Sand 7, consists of limestones about 3 m thick at the base, passing up to an alternation of fine sandstone and mudstone beds and an upward-fining unit of coarse sandstone beds grading up progressively to medium, fine sandstones and then mudstones at the top, mostly of facies 9 and 0 (Fig. 2E).

3.3. Venture B-13

Cores 1 and 2 in the Venture B-13 well, from sand 2, are composed mainly of oolitic limestones rich in bioclasts, oolitic fine sandstones (lithofacies 3), bioturbated fine sandstone with *Ophiomorpha* (lithofacies 4o) and rare mudstones (Fig. 3A, B).

Core 3, also from Sand 3, consists of an alternation of fine sandstone and mudstone beds (lithofacies 0) overlain by upward-coarsening units of fine, medium and coarse sandstones (lithofacies 9 and 4) (Fig. 3C). Like core 3, core 4, from Sand 6, consists of fine sandstone interbedded with mudstone beds (lithofacies 0) overlain by upward-coarsening units of fine, medium and coarse sandstone towards the top (lithofacies 4 and 9) (Fig. 3D).

3.4. Venture H-22

Core 1 of the Venture H-22 well is from sand 3 and consists, from base to top, of mudstone with thin limestone beds (lithofacies 1) overlain by an alternation of fine sandstone and mudstone beds (lithofacies 0), massive fine sandstone (lithofacies 9) and oolitic limestones (lithofacies 3) (Fig. 4A). Core 2, from Sands 4 and 5, is largely mudstone with thin sand beds (lithofacies 0 and 1) (Fig. 4B). Cores 3, 4, 5, 6 and 7 sampled Sands 6, 7 and 8. Core 3 is massive fine sandstone with rare thin mudstone beds (lithofacies 9 and 4) (Fig. 4C). Core 4 is an alternation of mudstone and fine sandstone beds (lithofacies 0) overlain by thin limestone and massive bioturbated fine sandstones with *Ophiomorpha* at the top (lithofacies 4 and 9) (Fig. 4D). Core 5 consists of massive coarse sandstones (lithofacies 4) at the base grading into fine sandstones interbedded with mud beds (lithofacies 0) and abundant bioturbated mudstones at the top (lithofacies 2) (Fig. 4E). Core 6 is an alternation of fine sandstone and mudstone beds at the base (lithofacies 0) and of mainly massive fine sandstones with *Ophiomorpha* (lithofacies 4o) at the top (Fig. 4F). Core 7 is largely fine sandstones,

some interbedded with thin mud beds (lithofacies 0 and 9) and containing *Ophiomorpha* at the top (lithofacies 4o). An unusual lithofacies (4u) is present at about 5050.5 m depth; it is coarse sandstone with common bioturbation, mudstone drapes and calcite cementation (Fig. 4G).

4. Petrography and paragenetic sequence

4.1. Venture B-52

Sandstones sampled from Venture B-52 are mainly fine to medium sandstones, with good, medium and poor sorting and sub-rounded to sub-angular grains. The detrital minerals in these sandstones are quartz, K-feldspars, tourmaline, chromite, zircon, altered biotite, garnet, rutile together with mylonite lithic clasts. In some samples the quartz grains are very fractured.

In these sandstones, the major cementing minerals are early calcite, quartz overgrowths, chlorite rims, and late carbonate cements, including Fe-calcite, and ankerite, and rare illite. Kaolinite (~1%) was found in only one sample (Table 1, Fig. 5).

4.2. Venture B-13

Sandstones sampled from Venture B-13 are fine and medium sandstones, with good, medium and poor sorting and sub-rounded to sub-angular grains. The framework minerals in these sandstones are quartz, K-feldspar, ooids, bioclasts, tourmaline, pseudorutile, apatite, zircon and garnet. The diagenetic minerals are quartz overgrowths,

chlorite rims, pyrite, carbonate cements and rare barite. The carbonate analyses were plotted in the classification diagram (Fig. 6) as calcite, Fe-calcite and ankerite (Table 2).

4.3. Venture H-22

Sandstones sampled from Venture H-22 are mainly of fine and medium sandstones with very poor, poor and good sorting. Limestones are also present. The framework grains are sub-angular and sub-rounded. They are quartz, K-feldspars, zircon, apatite, rutile, tourmaline, garnet, chromite, wood fragments, and ooids. The diagenetic minerals in these sandstones are quartz overgrowths, chlorite rims, pyrite, and carbonate cements that include calcite, Fe-calcite and ankerite (Fig. 7).

5. Fluid inclusions

5.1. Fluid inclusion petrography and microthermometry

Aqueous inclusions with low relief and two phases (liquid and vapor filled, with 5 to 8% vapor) are the most common inclusions in the majority of the studied samples. Only a few hydrocarbon fluid inclusions, fluorescing yellow, were found, forming trails that cross-cut detrital quartz grains. CO₂ inclusions, in quartz overgrowths and cross-cutting detrital quartz grains, are present only in one sample. Primary inclusions, ranging in size from 2 to 5 μm, occur isolated in the quartz and late carbonate cements (Figs. 8A, B, C). They also occur at the contact between detrital quartz grains and overgrowths (Fig. 8B), suggesting that they are primary in origin and trapped at the time of quartz cementation. The homogenization temperatures measured from the primary

inclusions hosted in quartz cement range from 92.2 to 120.9 °C and in late carbonate cement are between 108.6 and 134.8 °C (Table 5). Secondary inclusions, ranging in size from 2 to 5 µm, occur in both detrital and diagenetic quartz, forming trails (Figs. 8D, E). The homogenization temperatures measured from these inclusions are very variable: many of them range from 82.4 to 138.9 °C. The five measurements that are higher than 170 °C are all from secondary inclusions in detrital quartz that may have been inherited from the source of the quartz (identified as uncertain as to whether in situ in Table 5). Only a few secondary inclusions show a yellow fluorescence under UV light. CO₂ inclusions, with high relief and a black, thick film at the edges, range in size from 5 to 10 µm. They occur isolated in quartz overgrowths and in microfractures in detrital quartz grains, but have not been seen in carbonate cements. The homogenization temperature of these inclusions varies between -10.2 to -8.1 °C.

5.2. Fluid inclusion salinity

The ice melting temperature measured from the primary inclusions hosted in quartz overgrowths and in silica cements ranges from -17.6 to -13.2 °C, indicating a salinity between 17.1 to 20.4 wt. % NaCl eq. Table 5. In contrast, in the late carbonate cement, the ice melting temperatures are much lower and range between -26.6 to -21.4 °C, indicating a much higher salinities (24.3 to 29.6 wt.% CaCl eq.). In the secondary inclusions, the ice melting temperatures are variable. They range from -2.2 to 0.8 °C suggesting a different salinity (3.7 to 14 wt. % NaCl eq.). The CO₂ melting temperature

is at about -56.5 °C, indicating the presence of hydrocarbons (Shepherd et al., 1985; Diamond, 2003).

6. Discussion

6.1. Distribution of late carbonate cements

The paragenetic sequence of the studied wells is summarized in Figure 9. A comparison of carbonate cements in the same Industry Sand in different wells shows that sandstone 3 in the Venture B-52 and B-13 wells has a similar assemblage of carbonate cements including calcite, Fe-calcite and ankerite (Table 6, Figs 10, 11, 12). However, in the same Industry Sand in the Venture H-22 well, ankerite cement is absent. In Sands 4/5 in Venture B-52, only ankerite cement was found, whereas in the same sands in Venture H-22 calcite, Fe-calcite and Mg-calcite are present. Sands 6/7/8 in Venture B-52 and H-22 have a similar assemblage (calcite, Mg-calcite, Fe-calcite and ankerite) and only Mg-calcite is absent in Venture B-13 well (Table 6, Figs 10, 11, 12).

6.2. Relationship between late carbonate cement and the reservoir connectivity sequence

The reservoir connectivity sequence in Venture field has been established by Richards et al. (2008) (Fig. 13). These authors subdivided Venture field into six main compartments. These are a. the West B-52, b. Venture B-52, c. Venture B-43 South, d. the West compartment including the Venture 5 well, e. the East compartment including the Venture D-23, Venture 1 and Venture 3 wells and f. the SE compartment including

the Venture H-22 and B-13 wells. At different Sand levels, Richards et al. (2008) traced the fluid pathways at different stratigraphic levels (Sands 3a, 4/5, 6/7/8 and C) (Fig. 13). We have examined whether differences in late carbonate cements might be related to these fluid pathways, with the hypothesis that the same late diagenetic minerals should form all along the same pathway. The similarity of late carbonate cements in Sands 4/5 in Venture H-22 and Venture 1 and in Sand 3 in Venture B-52 and Venture 3 is consistent with the fluid connectivity, such that at the Sand 4/5 level, Venture H-22 spills to Venture 1, Venture 3 and West B-52. At Sand 3 level, West B-52 spills to Venture B-52, B-43 South and the West compartment; the East compartment also spills to the West compartment (Fig. 13). All these connected compartments have similar late carbonate cements. The presence of only ankerite in Sand 4/5 in Venture B-52 may be related to its source from Sands 6/7/8 from West B-52, which is different from the other compartments, that have their sources from Sands 6/7/8 in Venture B-52. However, ankerite is absent in Venture H-22, which is in the same compartment as Venture B-13, where the ankerite is present. This difference suggests a disconnection between the two wells for this Sand. The late carbonate cementation may be at least partly controlled by the reservoir fill and spill sequence.

6.3. Hydrocarbon charge history

The aqueous primary inclusions hosted in quartz and late carbonate cements with different salinities indicate that the gas reservoir has been charged by fluids with different compositions: dilute fluids during the quartz cementation and saline fluids

during the late carbonate cementation. The absence of hydrocarbons in these primary fluid inclusions indicates that hydrocarbon charging postdates late carbonate cementation. However, the presence of hydrocarbons in secondary inclusions and secondary CO₂ inclusions cutting quartz overgrowths suggest that the basin was charged by hydrocarbons during its filling history after cementation.

6.4. Thermal history

Rigorous assessment of thermal history requires knowledge of heat flow and rock conductivity, which is particularly high in salt. However, a first-order assessment can be made using geothermal gradient, as measured in wells today and used as a proxy for heat flow in the past. At the present geothermal gradient of ~30°/km and assuming that quartz overgrowths form between 70°–100°C (Worden and Morad, 2000; Schmid et al., 2004), then the late carbonates would have precipitated at burial depths > 3 km. If geothermal gradient were simply the consequence of lithospheric cooling since rifting, then at the time of deposition of the top Missisauga Formation, a geothermal gradient of ~45°/km would have been expected (Keen and Beaumont, 1990). Sea-floor temperatures in the Early Cretaceous were at least 25° and temperatures of 35° have been estimated from the central North Atlantic Ocean (Littler et al., 2009). This compares with mean seafloor temperatures of 4° today and near zero during Pleistocene glaciation.

Several lines of evidence indicate that there was an elevated geothermal gradient at some time in the Cretaceous. Interpretation of apatite fission track data in the eastern

Scotian basin suggested a thermal event at 100–87 Ma (Grist et al., 1992); in the western part of the basin it is less well constrained to 100–40 Ma (Li et al., 1995). In the Jurassic carbonate bank, Weirzbicki et al. (2006) correlated high-temperature fluid inclusions with hydrothermal flow during active faulting. Elsewhere in Nova Scotia active faulting in the later Mesozoic is restricted to the Early Cretaceous (Pe-Piper and Piper, 2004).. Primary and secondary inclusions in quartz and late carbonate cements were studied in the Lower Cretaceous sandstones in Glenelg, Thebaud and Chebucto fields (Karim et al., 2009). The Upper Missisauga sandstones at Glenelg and the Middle Missisauga at Thebaud, with measured temperatures in secondary inclusions of 130°C, would not have reached a burial depth of 2 km before the base of the Tertiary, requiring a geothermal gradient of at least 53°/km at that time. This is substantially higher than the expected Early Cretaceous geothermal gradient of ~45°/km resulting from lithospheric cooling. The temperatures measured in primary inclusions from the Lower Missisauga Formation at Thebaud are a little lower than in comparable inclusions in the Upper Missisauga Formation at Glenelg.

In the Venture field, similar high temperatures as in Glenelg, Thebaud and Chebucto were measured in the primary inclusions in quartz overgrowths and in late carbonate cements, but the salinities in the inclusions are different. Salinities in primary inclusions in quartz overgrowths are higher in the Venture field than in Glenelg, Thebaud and Chebucto. However, in primary inclusions in late carbonate cements, salinities are lower in the Venture field.

From carbon and oxygen stable isotope analyses of whole-rock samples of Glenelg, Thebaud and Chebucto sandstones, the evidence for the timing of any thermal event is from the very negative $\delta^{13}\text{C}$ at the time that Chebucto and deeper Glenelg sandstones were acquiring their late carbonate cement (Karim et al., in preparation). Estimating the time when this took place is dependant on assumptions about the heat flow.

With the available data, a unique solution for the age and thus geothermal gradient at which the primary inclusions formed is not possible. The most reasonable scenario is that there was a thermal event at ~ 105 Ma, corresponding to deposition of the middle to top part of the Cree Member. It is unknown whether this thermal event was related to release of hot fluids from the deep basin or to the volcanism during the lower Cree Member in Orpheus graben. At a very high geothermal gradient of ~ 110 $^{\circ}\text{C}/\text{km}$, the deeper sandstones at Glenelg and those at Chebucto and the Middle Missisauga at Thebaud would reach the 100 $^{\circ}\text{C}$ isotherm at this time. The base of the Cree Member at Venture is 2 km above the fluid inclusion samples, so that they would have reached the 100 $^{\circ}\text{C}$ isotherm before Cree Member deposition provided that the geothermal gradient was > 35 $^{\circ}\text{C}/\text{km}$. Active faulting on the inner Scotian Shelf is known from Orpheus graben at the top-Cree unconformity, consistent with the age assignment of the hydrothermal fluids related to active faulting at Deep Panuke (Weirzbicki et al., 2006).

7. Conclusions

Paragenetic sequence has been established in the Venture field. Common diagenetic minerals are early carbonates, chlorite rims, quartz overgrowths, fibrous chlorite + illite, and late carbonates. The late carbonate cementation may be at least partly controlled by the reservoir fill and spill sequence, as connected reservoirs show similar late carbonate assemblages.

Hydrocarbon migration postdates late carbonate cementation. The gas reservoir has been charged by fluids with different compositions (saline and dilute) during its gas filling history.

The relatively low homogenization temperatures in Lower Missisauga fluid inclusions in quartz overgrowths, compared with the Upper Missisauga of the Glenelg field, is consistent with the hypothesis from the western part of the Sable sub-basin of a late thermal event, resulting in a geothermal gradient of ~ 80 °C/km in the Mid Cretaceous.

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Table 1: Location information and petrology of the samples from the Venture B-52 well.

Well	Unit	Core	Depth (m)	Facies	Ind. Sand.	mean GZ	Seq. Inter.*	Fluid inc.	Probe TS	% of total rock					
										early cal	siderite	Qtz overg.	chlorite	Fe-cal	Ank
Venture B-52	LMMF	1	4708.62	2c	3	60			yes			1		14	
Venture B-52	LMMF	1	4711.15	2c	3	150			yes	7					
Venture B-52	LMMF	1	4713.05	2c	3	140/60			yes						
Venture B-52	LMMF	1	4715	2c	3	200			yes	5		1			5
Venture B-52	LMMF	2	4940.55	4	4	300	tidal-estuarine					3	4		
Venture B-52	LMMF	2	4954.36	9	5	300	SB-tidal-estuarine	yes				10	3		5
Venture B-52	LMMF	3	5020.1	9	6	100	SDDF-PDM	yes				5		5	15
Venture B-52	LMMF	3	5020.59	9	6	100	SDDF-PDM	yes					10	1	5
Venture B-52	LMMF	3	5022.74	3?	6	500	SDDF-PDM	yes	2	5	1			5	15
Venture B-52	LMMF	4	5038.62	0	6	200	tidal-estuarine					20	5		
Venture B-52	LMMF	4	5045.32	0	6	300	tidal-estuarine	yes	10		1			30	1
Venture B-52	LMMF	4	5047.51	0	6	300	tidal-estuarine	yes				5			10
Venture B-52	LMMF	5	5113.77	0	7	600	tidal-estuarine	yes	yes			10	2	2	15
Venture B-52	LMMF	5	5119.97	4	7	200	tidal-estuarine					5	10	(5)	(5)
Venture B-52	LMMF	5	5123.2	4	7	300	tidal-estuarine					10	2	(2)	(2)
Venture B-52	LMMF	5	5128.42	3l	7		tidal-estuarine								
Venture B-52	MMF	6	5169.43	2						20		2			
Venture B-52	MMF	6	5174.02	2											
Venture B-52	MMF	7	5266.73	0											
Venture B-52	MMF	7	5269.08	0											
Venture B-52	MMF	7	5270.8	0											
Venture B-52	MMF	7	5273.48	0											
Venture B-52	MMF	7	5275.98	9											
Venture B-52	MMF	7	5278.82	0											
Venture B-52	MMF	7	5279.22	0											
Venture B-52	MMF	8	5538.6	0											
Venture B-52	MMF	8	5545.02	0											

* sequence stratigraphy interpretation from Cummings and Arnott (2005)

our interpretation

LMMF: Lower Member of Missisauga Formation

MMF: MicMac Formation

SDDF : storm-dominated delta front sandstone

PDM : prodelta mudstone

SB : sequence boundary

() indicates that ankerite was not distinguished from Fe-calcite

Table 2: Location information and petrology of the samples from the Venture B-13 well.

Well	Unit	Core	Depth (m)	Facies	Ind. Sand.	mean GZ	Seq. Inter.*	Fluid inc.	Probe TS	% of total rock					
										early cal	siderite	Qtz overg.	chlorite	late cal	Fe-cal
Venture B-13	LMMF	1	4695.05	3o	3	120					1			(5)	(5)
Venture B-13	LMMF	1	4699.64	3o	3	110								(30)	(30)
Venture B-13	LMMF	1	4701.2	3o	3	200			yes	10				40	
Venture B-13	LMMF	1	4703.53	4o	3	120								(30)	(30)
Venture B-13	LMMF	1	4708.57	4o	3	100			yes	2		5	2	15	15
Venture B-13	LMMF	2	4711.09	4o/3l	3	310			yes	5				50	
Venture B-13	LMMF	2	4712.6	4o	3	160			yes					20	
Venture B-13	LMMF	2	4716.07	4o	3	100						20		(1)	(1)
Venture B-13	LMMF	3	4716.9	4	3	100						10		(5)	(5)
Venture B-13	LMMF	3	4720.44	4	3	200			yes			20	10		15
Venture B-13	LMMF	3	4723.9	4	3	160					<1	20		(5)	(5)
Venture B-13	LMMF	3	4727.71	9	3	80			yes	2		10	2	3	
Venture B-13	LMMF	3	4727.87	9	3	100				(3)		20		(3)	
Venture B-13	LMMF	3	4730.61	0	3	80			yes	(10)			30	1	
Venture B-13	LMMF	3	4733.33	0	3	100			yes	5		2		5	
Venture B-13	LMMF	4	4949.37	9	6	300	SDDF-PDM				1	20		(1)	(1)
Venture B-13	LMMF	4	4953.03	4/9	6	200	SDDF-PDM		yes		1	20	3	3	
Venture B-13	LMMF	4	4955.68	9	6	300	SDDF-PDM				1	20		(1)	(1)
Venture B-13	LMMF	4	4956.56a	4o	6	200	SDDF-PDM		yes		2	20			20
Venture B-13	LMMF	4	4956.56b	4o	6	200	SDDF-PDM		yes		5	10		2	2
Venture B-13	LMMF	4	4959.54	9	6	120	SDDF-PDM		yes		2	3		2	
Venture B-13	LMMF	4	4964.3	9	6	80	SDDF-PDM				2	5		(3)	(3)
Venture B-13	LMMF	4	4965.29	9	6	80	SDDF-PDM		yes		1	10		3	5

* sequence stratigraphy interpretation from Cummings and Arnott (2005)

LMMF: Lower Member of Missisauga Formation

SDDF : storm-dominated delta front sandstone

PDM : prodelta mudstone

SB : sequence boundary

() indicates that ankerite was not distinguished from Fe-calcite

Table 3: Location information and petrology of the samples from the Venture H-22 well.

Well	Unit	Core	Depth (m)	Facies	Ind. Sand.	mean GZ	Seq. Inter.*	Fluid inc.	Probe TS	% of total rock					
										early cal	siderite	Qtz overg.	chlorite	Fe-cal	Ank
Venture H-22	LMMF	1	4710.03	3	3	160			yes	10		1		30	
Venture H-22	LMMF	1	4711.25	3o	3	420				(30)		<1		(30)	
Venture H-22	LMMF	1	4711.94	3o	3					(40)				(40)	
Venture H-22	LMMF	1	4713.57	4o	3	60				(15)		1		(15)	
Venture H-22	LMMF	1	4715.4	9	3	100			yes	10		2		10	
Venture H-22	LMMF	1	4715.9	0	3	120								3	
Venture H-22	LMMF	1	4720.41	9	3	200							20	(2)	
Venture H-22	LMMF	1	4724.94	9	3	260			yes	15		5	5	1	
Venture H-22	LMMF	1	4727.85	0	3	200			yes	30		3		1	
Venture H-22	LMMF	2	4895.77	3	4	400	tidal-estuarine		yes			3		15	1
Venture H-22	LMMF	2	4898.03	0	4	400	tidal-estuarine	yes				10		(20)	(20)
Venture H-22	LMMF	2	4899.72	2c	4	120	tidal-estuarine					1		(1)	(1)
Venture H-22	LMMF	2	4909.12	3?	4	300	tidal-estuarine		yes			10		1	20
Venture H-22	LMMF	2	4912.3	0t	5	100/600	tidal-estuarine		yes			5	5	15	
Venture H-22	LMMF	2	4913.96	0t	5	460	tidal-estuarine					5		(5)	(5)
Venture H-22	LMMF	2	4914.38	3	5	420	tidal-estuarine					5		(5)	(5)
Venture H-22	LMMF	2	4914.42	3	5	660	tidal-estuarine		yes			5		10	
Venture H-22	LMMF	3	4957.21	9	6	120	SDDF-PDM		yes			1	7		10
Venture H-22	LMMF	3	4959.31	4x	6	100	SDDF-PDM				(15)	1	10	(15)	(15)
Venture H-22	LMMF	3	4960.22	4x	6	220	SDDF-PDM				(10)	1	10	(5)	(5)
Venture H-22	LMMF	3	4960.74	4o	6	240/120	SB		yes			2	7	5	5
Venture H-22	LMMF	3	4963.38	4o	6	100	SDDF-PDM					2	5		
Venture H-22	LMMF	3	4964.49	9	6	100	SDDF-PDM					2	10	(1)	(1)
Venture H-22	LMMF	3	4966.21	9	6	120	SDDF-PDM		yes	1		2	2	15	
Venture H-22	LMMF	3	4968.05	4o	6	100	SDDF-PDM					5	2	(2)	(2)
Venture H-22	LMMF	3	4970.39	9	6	120	SDDF-PDM					0.5	20		
Venture H-22	LMMF	3	4972.18	9	6	160	SDDF-PDM		yes			2	7		15
Venture H-22	LMMF	3	4974.78	9	6	120	SDDF-PDM					2	15		
Venture H-22	LMMF	3	4976.26	9	6	100	SDDF-PDM		yes			2	5		20
Venture H-22	LMMF	4	4974.92	0	6	100	SDDF-PDM				(15)	5	2	(10)	(10)
Venture H-22	LMMF	4	4975.89	9	6	100	SDDF-PDM					1	10		
Venture H-22	LMMF	4	4977.12	4b	6	140	SDDF-PDM					1	10	(3)	(3)
Venture H-22	LMMF	4	4978.8	4o	6	100	SDDF-PDM					1	15	(3)	(3)
Venture H-22	LMMF	4	4980.52	4o	6	80	SDDF-PDM					3	5		
Venture H-22	LMMF	4	4982.4	0	6	80	SDDF-PDM				10	1			
Venture H-22	LMMF	4	4985.48	3l	6	80	SDDF-PDM				50				
Venture H-22	LMMF	4	4985.73	3o	6	160	Trans. Interval		yes					1	40
Venture H-22	LMMF	4	4988.16	0	6	100	SDDF-PDM					3			
Venture H-22	LMMF	4	4992.82	0	6	80	SDDF-PDM				5	3		(5)	(5)
Venture H-22	LMMF	4	4993.24	0	6	90	SDDF-PDM					1		(1)	(1)
Venture H-22	LMMF	5	4993.03	2b	6	80	SDDF-PDM				3	1		(1)	(1)
Venture H-22	LMMF	5	4995.86	2b	6	50	SDDF-PDM				7	1			
Venture H-22	LMMF	5	5002.74	2b	6	50	SDDF-PDM				20				
Venture H-22	LMMF	5	5004.09	0	6	60	SDDF-PDM				5	1		(5)	(5)
Venture H-22	LMMF	5	5007.85	0	6	50	SDDF-PDM				10	2		(10)	(10)
Venture H-22	LMMF	5	5009.26	0	6	80	SDDF-PDM					7	5	(10)	(10)

Well	Unit	Core	Depth (m)	Facies	Ind. Sand.	mean GZ	Seq. Inter.*	Fluid inc.	Probe TS	% of total rock					
										early cal	siderite	Qtz overg.	chlorite	Fe-cal	Ank
Venture H-22	LMMF	5	5012.19	0	7	90	SDDF-PDM		yes	1		7	7	10	
Venture H-22	LMMF	5	5017.87	3	7	160	possib. TST			3					
Venture H-22	LMMF	5	5018.98	3/4?	7	180	SDDF-PDM		yes			2	5		10
Venture H-22	LMMF	5	5021.58	4	7	240	possib. SB	yes	yes	5		10		5	1
Venture H-22	LMMF	6	5021.42	4	7	180	SDDF-PDM					3	5	(15)	(15)
Venture H-22	LMMF	6	5023.2	4o	7	160	SDDF-PDM					7	5	(3)	(3)
Venture H-22	LMMF	6	5026.54	4o	7	100	SDDF-PDM					2	10	(5)	(5)
Venture H-22	LMMF	6	5028.32	4o	7	100	SDDF-PDM		yes						40
Venture H-22	LMMF	6	5032.42	4o	7	100	SDDF-PDM						3		
Venture H-22	LMMF	6	5034.78	9	7	100	SDDF-PDM					1	10	(3)	(3)
Venture H-22	LMMF	6	5037.36	9	7	80	SDDF-PDM								
Venture H-22	LMMF	6	5037.65	0	7	100	SDDF-PDM			10		3		(3)	(3)
Venture H-22	LMMF	6	5041.36	0	7	80	SDDF-PDM						5	(1)	(1)
Venture H-22	LMMF	6	5046.64	0	7	80	SDDF-PDM			10		2	5	(10)	(10)
Venture H-22	LMMF	6	5049.68	0	7	80	SDDF-PDM					2	5	(3)	(3)
Venture H-22	LMMF	7	5048.49	0	7	100	SDDF-PDM			20		1		(3)	(3)
Venture H-22	LMMF	7	5049.98	9	7	260	SDDF-PDM					1	5	(5)	(5)
Venture H-22	LMMF	7	5050.55	4u	7	200	SB		yes			1		40	
Venture H-22	LMMF	7	5051.12	4o	7	100	SDDF-PDM			(10)		1	5	(10)	(10)
Venture H-22	LMMF	7	5056.96	9/0	8	80	SDDF-PDM						10	<1	<1
Venture H-22	LMMF	7	5059	9/0	8	60	SDDF-PDM						10	(1)	(1)
Venture H-22	LMMF	7	5061.47	0	8	120	SDDF-PDM					5	1	(3)	(3)
Venture H-22	LMMF	7	5065.94	9	8	80	SDDF-PDM								
Venture H-22	LMMF	7	5068.51	0	8	120	SDDF-PDM			15			5	(3)	(3)
Venture H-22	LMMF	7	5073.84	0	8	70	SDDF-PDM			5		2		(1)	(1)
Venture H-22	LMMF	7	5077.05	0	8		SDDF-PDM			15		1			

* sequence stratigraphy interpretation from Cummings and Arnott (2005)

our interpretation

LMMF: Lower Member of Missisauga Formation

SDDF : storm-dominated delta front sandstone

PDM : prodelta mudstone

SB : sequence boundary

() indicates that ankerite was not distinguished from Fe-calcite

Table 4: Lithofacies description, interpretation, and their comparison with Gould et al. (2010) and Cummings et al. (2006) and Cummings and Arnott (2005) (from Karim et al., 2008).

Facies	Lithology	Characteristics	Thebaud photos	Glenelg and Chebucto Photos	Comparison with others	General interpretation
0	mudstone with sandstone and siltstone beds (< 25 cm) and laminae, absent to moderate bioturbation	0g: common medium bedded graded sandstone beds lacking interbedded mudstone			Gould (S4); Cummings and Arnott (6)	River mouth to shoreface
		0t: graded sandstone beds, generally laminated to cross laminated with lesser interbedded mudstone with abundant silt laminae and some lenticular, sparse bioturbation, erosional base	1143/1149/1150	1388/1401/1426	Gould (S2b); Cummings and Arnott (3)	
		0a: alternation of coarse and fine sandstone beds with interbedded mudstone, bioturbation absent	1133/1146/1118/1120/			
		0s: sandstone beds (< 25 cm) with parallel and cross lamination and interbedded mudstone with fewer silt laminae than 0t , uncommon bioturbation, sharp base	1075	1421/1480/1483/1485		
		0l: sandstone beds with parallel lamination at top and cross laminations at base	1148	1568/1570	Cummings and Arnott (5)	
		0m: predominant mudstone, uncommon bioturbation, some silt or very fine sandstone laminae			Gould (M1); Cummings et al. (4); Cummings and Arnott (4)	
		0n: distinctive graded silt to mud laminae interbedded with well sorted very fine sandstone laminae and lenticular beds, bioturbation absent		1497/1508	Cummings and Arnott (2)	
1	bioturbated mudstone	may have uncommon thin-shelled fossils				Shelf

2	fine sandstone, mudstone	2b: interbedded with moderate to common bioturbation, sharp base	1113	1576	Gould (S4)	Shoreface
		2c: common to completely bioturbated sandstone and mudstone with sandstone predominant (60 - 90 %)		1431/1524/1383	Cummings and Arnott (14)	
3	conglomerate formed with bioturbated shelly sandy mudstone to muddy sandstone generally with some coarse sand or granule sized intraclasts and/or lithic clasts. Commonly sideritic diagenesis. In other wells, bioclastic and oolitic limestones	3a: sandstone matrix and mud laminae, bioturbation absent to uncommon		1478/1380	Gould (C1)	Transgressive surface
		3m: mud matrix predominant, moderate to common bioturbation	1137/1138	1410	Gould (M2); Cummings and Arnott (13)	
		3s: medium sandstone matrix, bioturbation absent, sharp base	1052/1059/1110	1370/1371		
		3b: sandstone matrix, bioturbation absent, erosional base		1547		
		3l: bioclastic limestones			Gould (L1); Cummings et al. (7)	
		3o: oolitic limestones and sandstones				
4	fine to coarse sandstone, interbedded mudstone with siltstone laminae	4s: sandstone and siltstone commonly lenticular, mudstone drapes	1061/1122	1550		Tidal estuary
		4g: medium to coarse sandstone, minor mud drapes, bioturbation absent, base of sandstone may be erosional	1094/1095/1096/1097/1098	1537/1579	Gould (S1); Cummings et al. (2); Cummings and Arnott (10, 12)	
		4u: Facies 4 unusual, coarse sandstone with bioturbation, mudstone drapes, calcite cementation	Venture H22-core 7			
		4o: Fine sandstone (< 25 cm), mudstone drapes, ophiomorpha, cross-bedding				
		4b: Fine sandstone with coarse bioclasts and ooids and/or coated grains				

		4x: thick beds medium to coarse sandstone, not "graded", some cross-bedding		chebucto	Cummings et al. (1)	
5	bioturbated fine sandstone	with uncommon to moderate bioturbation, muddy linings to burrows		1559	Gould (S3); Cummings et al. (5); Cummings and Arnott (7)	Sandy tidal flat
6	laminated mudstone and siltstone	with root traces, tidal flat structures			Cummings et al. (3); Cummings and Arnott (11)	Muddy tidal flat
7	coal					Tidal marsh
8	grey-green sandy highly bioturbated mudstone					Lagoon
9	thick (> 25 cm) bedded sandstones in "graded" beds, moderate bioturbation at top, plant debris, minor interbedded facies 0	9g: graded sandstone beds lacking interbedded mudstone			Gould (S2c); Cummings and Arnott (8)	River mouth to turbidite
		9m: mud laminae, and intraclasts		1418/1419/ 1420/1573/ 1446/1449		
		9s: sharp base, parallel lamination at base and cross lamination at top. Some beds have abundant mud intraclasts generally near base	1057	1396/1399/ 1486	Gould (S2a)	
10	deformed sediments in which original facies cannot be recognized with confidence	10f: dark foliated mudstone to muddy sandstone, massive texture, dark color, horizontal foliation		1427/1425		Deformed facies
		10g: liquefied sandstone beds		1468/1460		
		10s: sheared and folded sandstone, siltstone and mudstone, making original structures difficult to recognize		1466/1474/ 1475		

Table 5: Fluid inclusion data from Venture field.

Well	Sample	Inclusion#	Fluid inclusion	Type	Host mineral	In situ	Melting Temp °C	Homogenization Temp °C	Salinity*	Eutectic T _e	Fluorescence
Venture B52	5113.77A	4a	1	CO ₂ secondary	qtz overgrowths	D	-56.5	-9.4	0.98		n
		4b	2	CO ₂ secondary	qtz overgrowths	D	-56.6	-8.9	0.98		n
		4c	3	CO ₂ secondary	qtz overgrowths	D	-56.5	-10.2	0.99		n
		4d	4	CO ₂ secondary	qtz overgrowths	D	-56.5	-8.1	0.97		n
		4e	5	CO ₂ secondary	qtz overgrowths	D	hard to see	-9.9			n
		4f	6	primary?	qtz overgrowths	P	-13.6	106.3	17.43		n
		4g	7	secondary	Detrital Qtz	P		115.1			
		4h	8	secondary	Detrital Qtz	P		109.1			
		4i	9	CO ₂ secondary	Detrital Qtz	D	-56.5	-9.7	0.98		n
		4j	10	CO ₂ secondary	Detrital Qtz	D	-56.6	-9.8	0.98		n
		4k	11	CO ₂ secondary	Detrital Qtz	D	-56.7	-8.3	0.97		n
		4l	12	secondary	Detrital Qtz	U	-17.8	210.5	20.82		n
		4m	13	secondary	Detrital Qtz	U		135.1			n
		1a	14	primary	qtz overgrowths	D	-14.2		18.0		n
		1b	15	primary	qtz overgrowths	D	-14.0	92.2	17.8		n
		1c	16	primary	qtz overgrowths	D		103.3			n
		1d	17	? Primary	qtz overgrowths	D	-14.1	117.3	17.9		n
		1e	18	secondary	Detrital Qtz	P	101.8 min couldn't see the bubble				n
		1f	19	primary	qtz overgrowths	D	-13.5	119.5	13.2		n
		1g	20	secondary	Detrital Qtz	D	-2.0	114.8	3.4		n
		1h	21	secondary	Detrital Qtz	D	-2.2	114.9	3.7		n
		1i	22	secondary	Detrital Qtz	D	-0.3	132.9	0.5		n
		1j	23	secondary	Detrital Qtz	U	6.3	138.9	6.9		n
		1k	24	secondary	Detrital Qtz	P	2.6	150.7	12.4		n
		1l	25	secondary	Detrital Qtz	U	-0.7	136	1.2		n
		1m	26	secondary	Detrital Qtz	D	-1.9	115.3	3.2		n
		1n	27	secondary	Detrital Qtz	D	-1.8	115.3	3.1		n
		1o	28	secondary	Detrital Qtz	D	-1.8	115.7	3.1		n
		2P	29	secondary	qtz overgrowths	U	2.9	140.5			n
		2Q	30	primary	qtz overgrowths	D	-13.2	111.1	17.1		n
		2R	31	primary	qtz overgrowths	D	-13.9	112.4	17.7		n
		1S	32	primary	qtz overgrowths	D		111.1			n
		1T	33	primary	qtz overgrowths	D	-14.0	117.9	17.8		n
		1U	34	primary	qtz overgrowths	D	-14.1	114.5	17.9		n
		1V	35	primary	qtz overgrowths	D	-13.2	min 111.6	17.1		n
		1W	36	primary	cc cement	D	-22.7	min 101.1	25.6		n
		1X	37	primary	cc cement	D	-21.4	134.8	24.3		n
		1Y	38	primary	cc cement	D	-23.3	108.6	26.2		n
		1 a'	39	primary	qtz overgrowths	D	-7.7	111.3	11.3		n
		1b'	40	secondary	Detrital Qtz	P	3.2	120.5	11.6		n
		1c'	41	secondary	Detrital Qtz	P	3.9	127.7	10.6		n
		1d'	42	secondary	Detrital Qtz	P	3.2	min 114.1	11.6		n
		1e'	43	secondary	Detrital Qtz	P	1.5	127.8	13.8		n
		1f'	44	secondary	Detrital Qtz	P	2.8	128.2	12.1		n
		2g'	45	secondary	Detrital Qtz	D	-1.9	130.9	3.2		n
		2h'	46	secondary	Detrital Qtz	D	0.1	125.2	15.5		y
		1i'	47	secondary	Detrital Qtz	P	0.1	119	15.5		n
		1j'	48	secondary	Detrital Qtz	P	0.2	116.8	15.4		n
		1k'	49	secondary	Detrital Qtz	U	-0.4	121.4	0.7		n

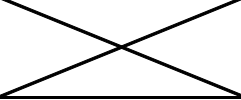
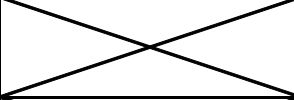
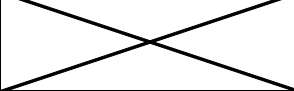
Well	Sample	Inclusion#	Fluid inclusion	Type	Host mineral	In situ	Melting Temp °C	Homogenization Temp °C	Salinity*	Eutectic T	Fluorescence
		1l'	50	secondary	Detrital Qtz	U		couldn't see the bubble			n
		1m'	51	secondary	Detrital Qtz	U	-2.0	123	3.4		n
		1n'	52	secondary	Detrital Qtz	U	4.3	123	10.0		n
		2b	45	secondary	qtz overgrowths	P	-0.2	min 115.5*	0.4		n
		2c	46	secondary	Detrital Qtz	P	-0.6	130.5	1.1		n
		2d	47	secondary	Detrital Qtz	P		117.5			n
		5a	48	primary	qtz overgrowths	D	-15.4	120.9	19.0	min -47	n
		5b	49	primary	qtz overgrowths	D	-14.5	116.9	18.2	-47	n
		5c	50	primary	qtz overgrowths	D	-14.1	min 111.6*	17.9		n
Venture B52	4954.36A	1a	63	primary	ankerite	D	-26.6	130.8	29.6		n
		1b	64	primary	ankerite	D	-21.6	131.9	24.5		n
		1c	65	?secondary	?Detrital Qtz	U	-12.5	couldn't see the bubble	16.4		n
		1d	66	?secondary	?Detrital Qtz	U	-13.7	122.4	17.5		n
		2a	67	primary	silica cement	D		?103.6			n
		2b	68	secondary	Detrital Qtz	P	-3.2	103.4	5.3		n
		2c	69	secondary	Detrital Qtz	P	3.9	123.1	10.6		? y
		2d	70	secondary	Detrital Qtz	P	3.9	177.5	10.6		? y
		5a	71	primary	silica cement	D	-17.2	104.4	20.4		n
		5b	72	primary	silica cement	D	-16.6	105.3	19.9		n
		5c	73	primary	silica cement	D		min 97.6*			n
		5d	74	primary	silica cement	D		104.4			n
		5e	75	secondary	Detrital Qtz	U	-17.0	123.2	20.2		n
		6a	76	?secondary	qtz overgrowths	P	3.5	?107.4	11.2		n
		6b	77	?secondary	qtz overgrowths	P	0.8	min 110.8	14.7		n
		6c	78	secondary	Detrital Qtz	U	-10.4	117.2	14.4		n
		6d	79	secondary	Detrital Qtz	U	-9.4	117.1	13.3		y
		3a	80	secondary	Detrital Qtz	P	-13.2	83.3	17.1		n
		3b	81	secondary	Detrital Qtz	P	-13.5	82.4	17.3		n
		3c	82	secondary	Detrital Qtz	P	-13.0	95.8	16.9		n
		3d	83	secondary	Detrital Qtz	P		96.6			n
		3e	84	secondary	Detrital Qtz	P	-1.5	131.8	2.6		y
		3f	85	secondary	Detrital Qtz	P	-1.5	124.4	2.6		y
Venture B-52	5047.51A	2a	108	primary	silica cement	D	-15.0	114.2	18.6		n
		2b	109	primary	silica cement	D	-10.5	118.9	14.5		n
		2c	110	primary	silica cement	D		min 105.5			n
		2d	111	secondary	Detrital Qtz	D	0.0	132.3	0.0		n
		2e	112	primary	limit DQ/Qoverg	D	-14.1	112.1	17.9		n
		2f	113	primary	limit DQ/Qoverg	D	-12.0	min 108.5	16.0		n
		2g	114	primary	limit DQ/Qoverg	D	-11.2	min 108.5	15.2		n
		2h	115	secondary	Detrital Qtz	P	-0.5	119.1	0.9		n
		2j	116	secondary	Detrital Qtz	U	5.2	134.1	8.6		n
		2k	117	secondary	Detrital Qtz	P		couldn't see the bubble			n
		2l	118	secondary	Detrital Qtz	D		couldn't see the bubble			n
		2m	119	secondary	Detrital Qtz	D	-0.2	126.5	0.4		n
		2n	120	secondary	Detrital Qtz	D	-0.2	127.9	0.4		n
		2o	121	secondary	Detrital Qtz	D		couldn't see the bubble			n
		2p	122	secondary	Detrital Qtz	D	0.4	126.1	15.2		n

Well	Sample	Inclusion#	Fluid inclusion	Type	Host mineral	In situ	Melting Temp °C	Homogenization Temp °C	Salinity*	Eutectic T	Fluorescence
Venture 1	SP35 (4600.87- 4601.23)	1a	86	? secondary	Detrital Qtz	U	?1.9	144.3	13.3		n
		1b	87	secondary	Detrital Qtz	P	-0.3	105.1	0.5		n
		1c	88	secondary	Detrital Qtz	P	-0.1		0.2		n
		1d	89	? secondary	Detrital Qtz	U	2.7	125.1	12.3		n
		1e	90	? secondary	Detrital Qtz	U	4.6	125.5	9.6		n
		2a	91	primary	qtz overgrowths	U	4.8	111.9	9.3		n
		2b	92	primary	qtz overgrowths	U	5.3	120.9	8.5		n
		2c	93	primary	limit DQ/QO	U	2.2	min 109.6	12.9		n
		2d	94	primary	silica cement	U	-2.4	182.4	4.0		n
		5a	95	secondary	silica cement	D	0.4		15.2		n
		5b	96	secondary	silica cement	D	0.4		15.2		n
		5c	97	secondary	silica cement	U	4.0	125.1	10.5		n
		5d	98	secondary	silica cement	D	0.8	130.1	14.7		n
		7a	99	secondary	Detrital Qtz	P	0.7	129.5	14.8		n
		7b	100	secondary	Detrital Qtz	U	0.6	123.8	14.9		n
		7c	101	secondary	Detrital Qtz	P	0.6	124.9	14.9		n
		7d	102	secondary	Detrital Qtz	U	0.7	131.8	14.8		n
		7e	103	secondary	Detrital Qtz	U	-0.3	156.4	0.5		n
		7f	104	secondary	Detrital Qtz	U	-0.4	169.4	0.7		n
7g	105	secondary	Detrital Qtz	U	5.6	178.2	8.0		n		
7h	106	secondary	Detrital Qtz	U	6.1	> 200	7.2		n		
7i	107	secondary	Detrital Qtz	U	6.1	min 115.2	7.2		n		
		7		primary	cc cement	D	no vapor bubble				
Venture 4	SP56 (5383.28- 5383.56)	4a	51	secondary	Detrital Qtz	D	-4.0		6.5		n
		4b	52	secondary	Detrital Qtz	D	-0.7	119.2	1.2		n
		3a	53	secondary	Detrital Qtz	D	-2.3	108.7	3.9		n
		3b	54	secondary	Detrital Qtz	D	-3.4	98.9	5.6		n
		2a	55	secondary	Detrital Qtz	U	4.1	140.6			n
		2b	56	secondary	Detrital Qtz	U	-1.4	195.5	2.4		n
		8a	57	secondary	qtz overgrowths	D	-1.2	118.1	2.1		n
		8b	58	secondary	qtz overgrowths	D	0.2	120.1			n
		8c	59	secondary	qtz overgrowths	D	-0.9	min 89.9*	1.6		n
		8d	60	secondary	Detrital Qtz	U	2.5	112.8	12.5		n
		8e	61	secondary	Detrital Qtz	U	2.5	112.3	12.5		n
		8f	62	secondary	Detrital Qtz	U	3.6	112.8	11.0		n

* (after Bodnar and Vityk, 1994)

Notes: 2 to 5 µm size of the primary inclusions, 5 to 8 % vapor
For the final heating for the melting temperature we used 1-2 °C/min at the point of phase change
For the final heating for the homogenization temperature we used 2 °C/min at the point of phase change
No hydrocarbons in the primary inclusions; inconsistent hydrocarbons in secondary inclusions
There are hydrocarbons in the secondary inclusions in the fractures
Melting Temp °C = temperature of last ice melting
Eutectic Temp °C = temperature of the first lequid formation, we used 5 °C/min
Homogenization Temp °C = temperature when the bubble disappear
D: definite; P: probable; U: uncertain
Tm > 0 : are Clathrate (NaCl-H₂O), salinity from Darling, (1991) and Diamond, (1992)

Table 6: Comparison of carbonate cements present in similar Industry Sandstone from the Venture B-25, B-13, and H-22 wells.

	Venture B-52	Venture H-22	Venture B-13	Venture 3
Sand 3	calcite, Fe-calcite, ankerite, Mg-calcite	calcite, Mg-calcite, Fe-calcite (no ankerite)	calcite, Mg-calcite, Fe-calcite, ankerite	calcite, Fe-calcite, ankerite
Sand 4/5	only ankerite	calcite, Mg-calcite, Fe-calcite, ankerite		
Sand 6/7/8	calcite, Mg-calcite, Fe-calcite, ankerite	calcite, Mg-calcite, Fe-calcite, ankerite	calcite, Fe-calcite, ankerite	

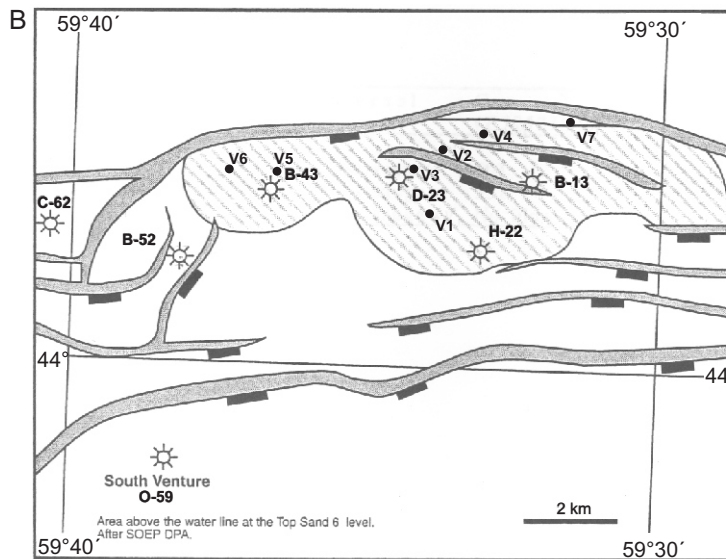
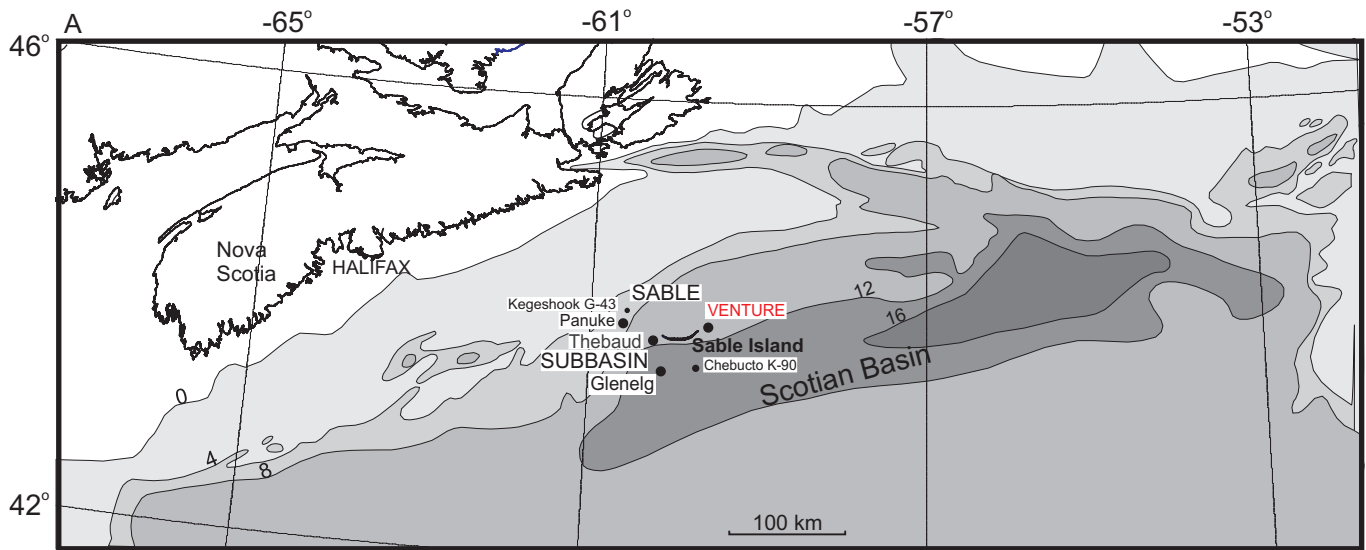


Figure 1: (A) Map showing location of studied wells within the Sable Subbasin. (B) Map of Venture field shows location of individual wells in relation to faults and the inferred gas-water contacts (hatching)(modified from Canada-Nova Scotia Offshore Petroleum Board, 2000).

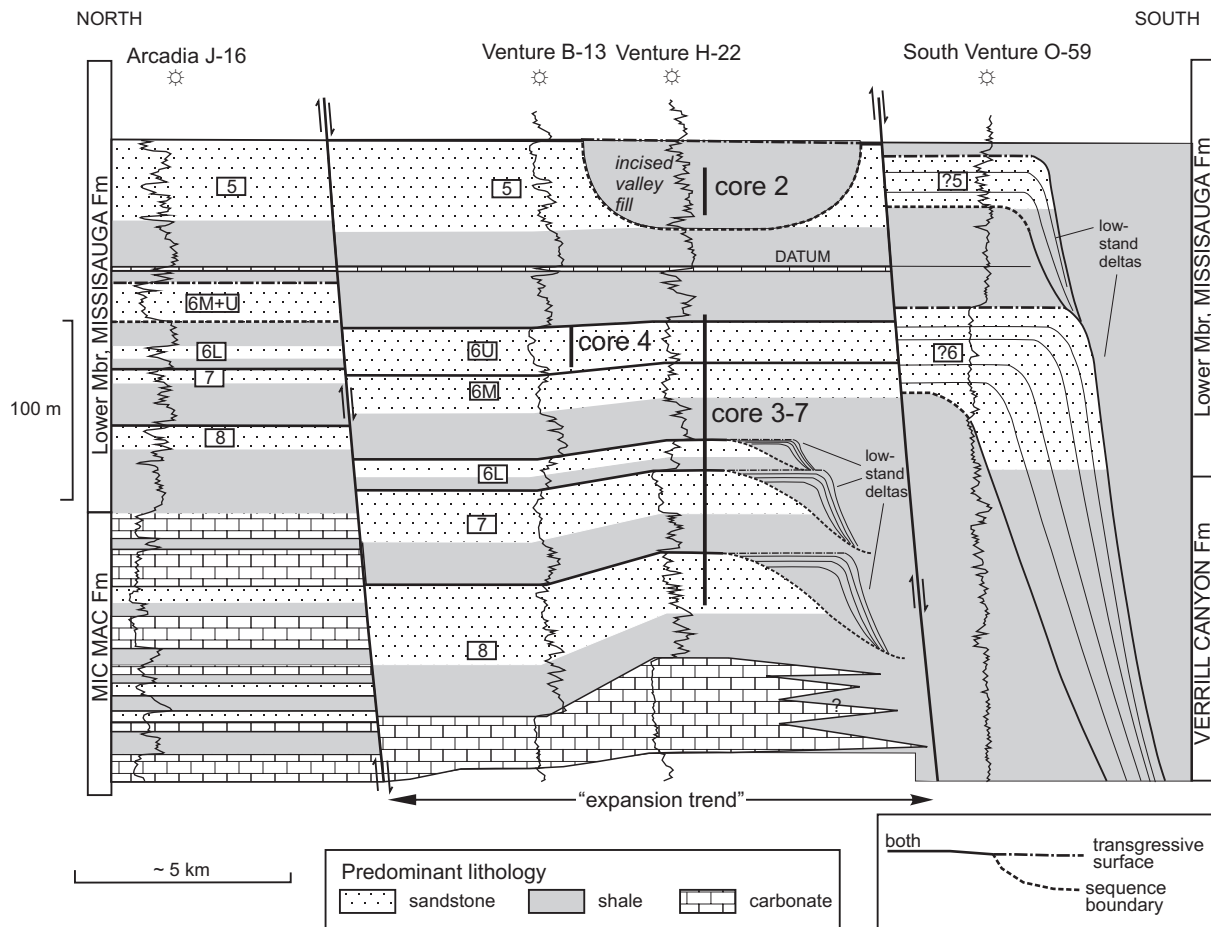


Figure 1C: Interpreted dip cross-sections, Venture sandstones 8 to 5, Lower Member of the Missisauga Formation, Venture/West, Venture/South and Venture fields (From Cummings and Arnott, 2005).

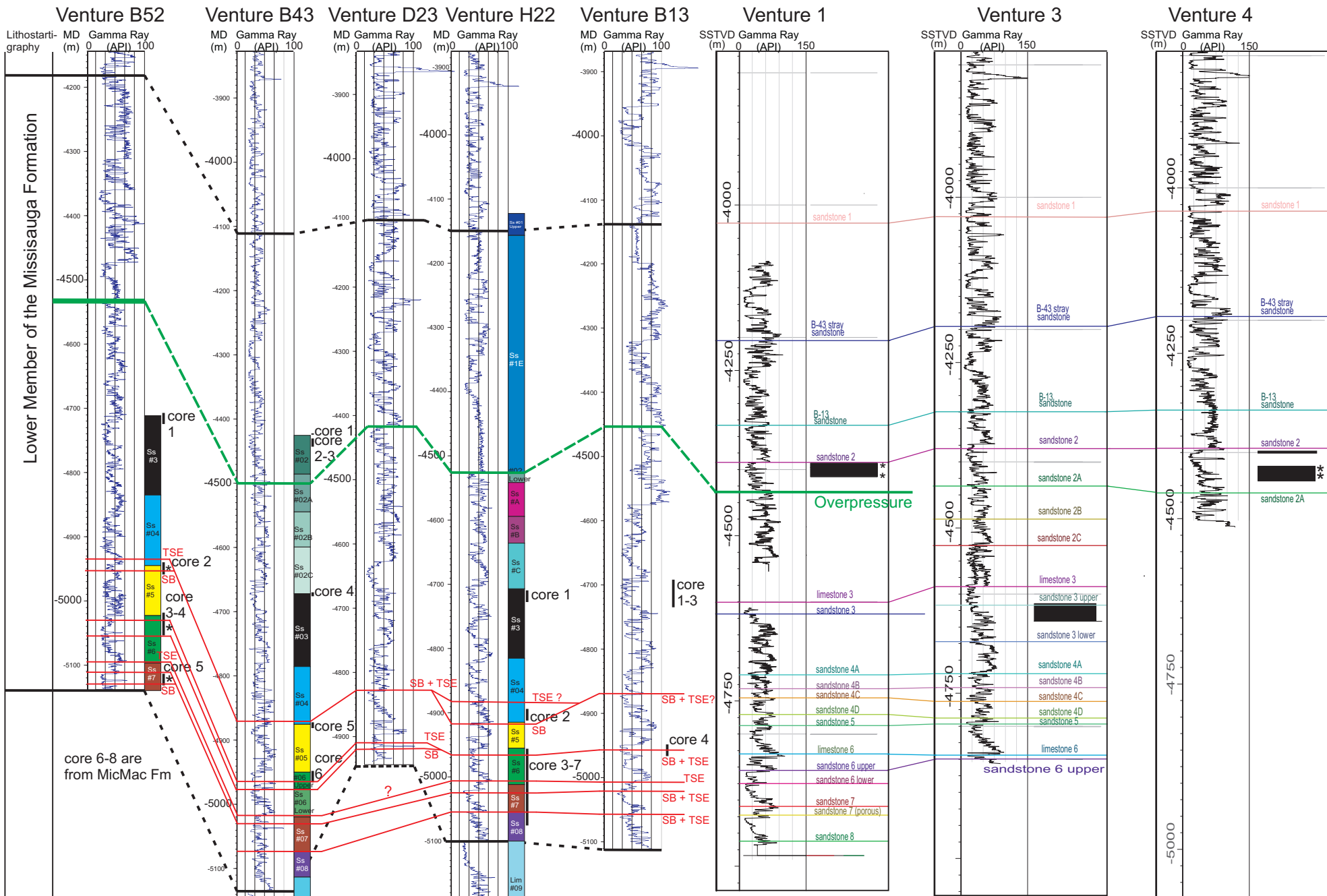


Figure 1D: Detailed correlation of the Venture wells, showing industry sandstone nomenclature, sequence boundary and transgressive surface from Cummings and Arnott (2005) and some important stratigraphic markers (e.g. O-Marker, overpressure...). * = samples used for fluid inclusion study. MD = measured depth; SSRVD = subsea true vertical depth.

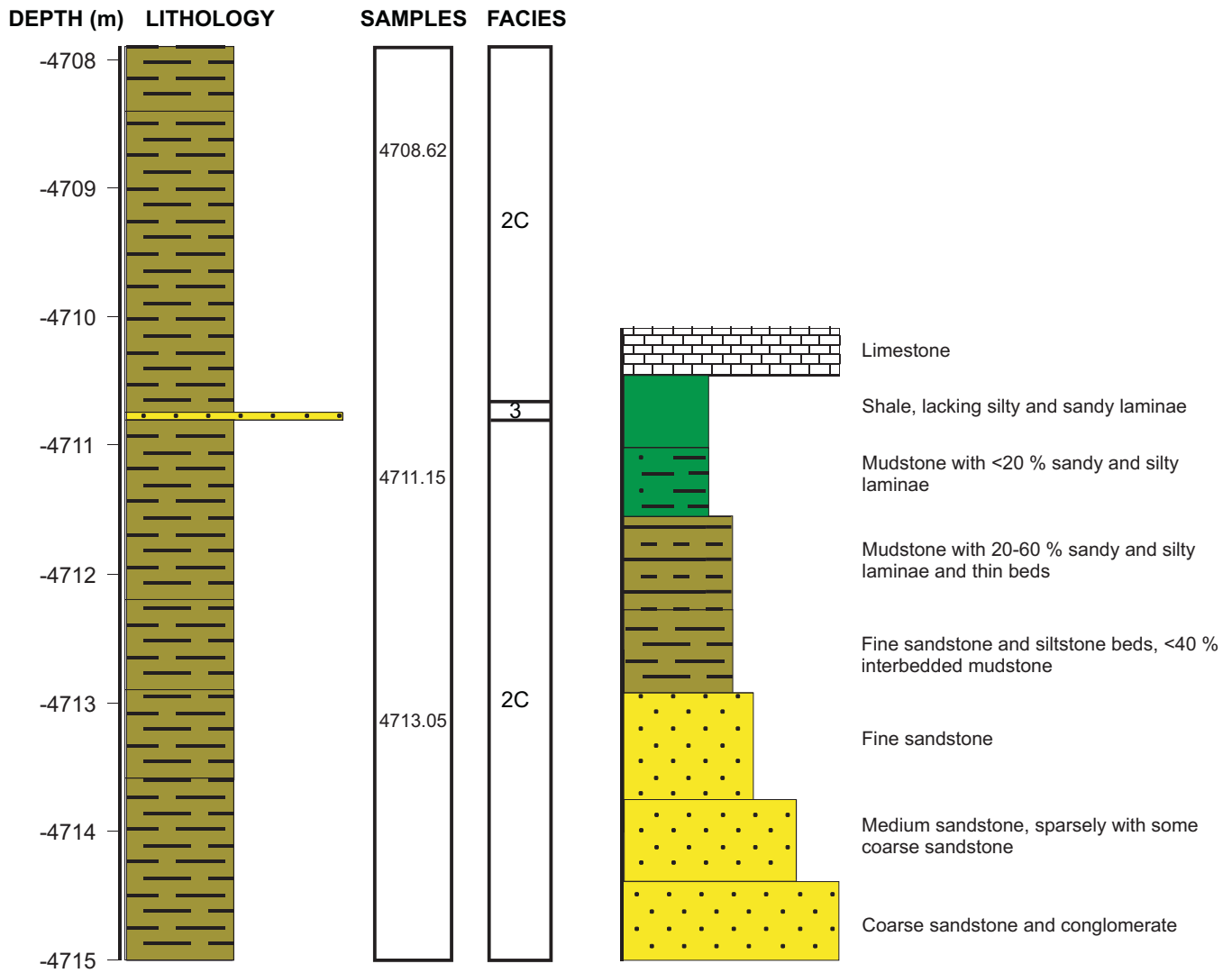


Figure 2A: Lithology of conventional core 1 from the Venture B-52 well. Same legend for the figures 3 and 4.

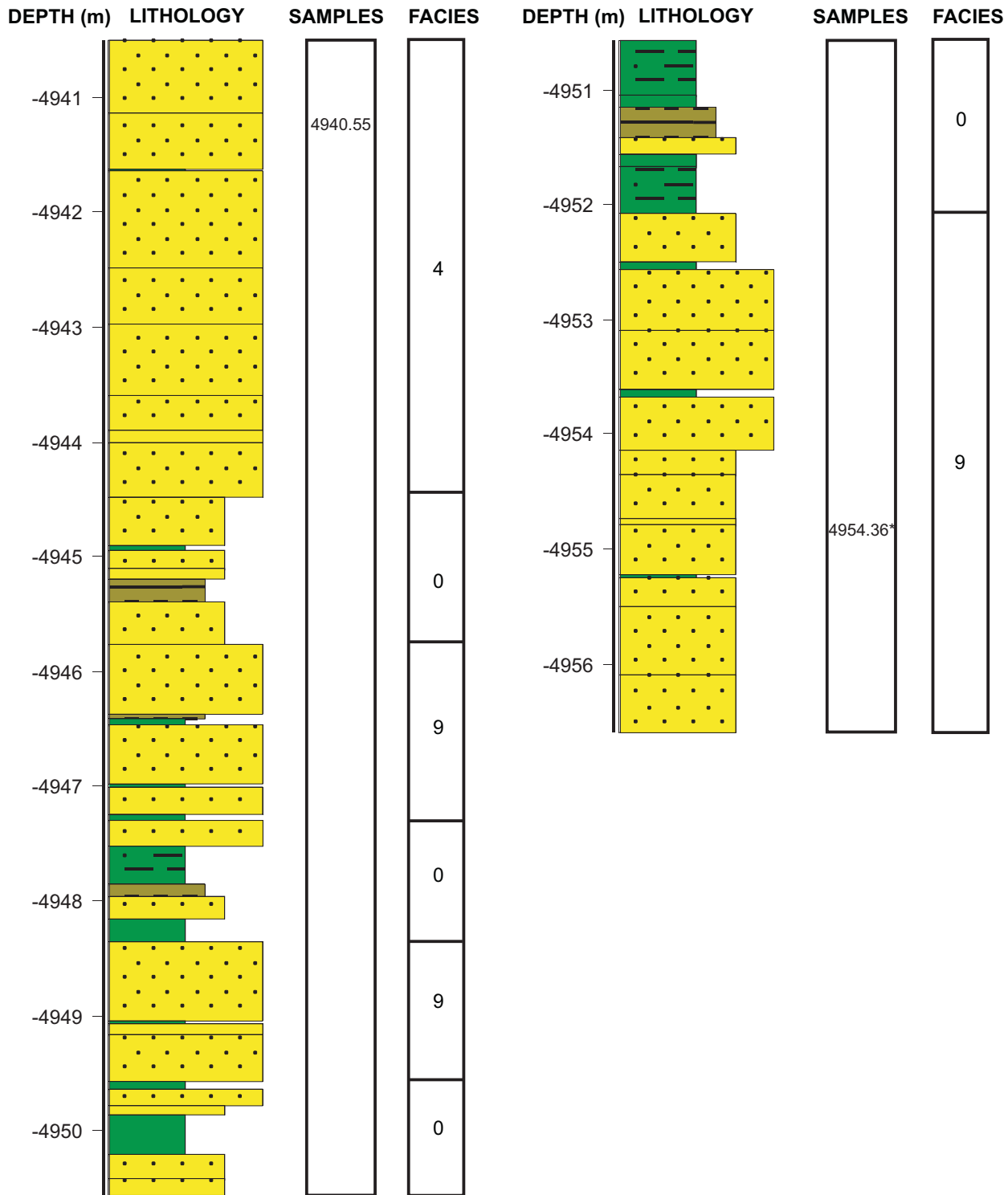


Figure 2B: Lithology of conventional core 2 from the Venture B-52 well.
 * : sample used for fluid inclusion study.

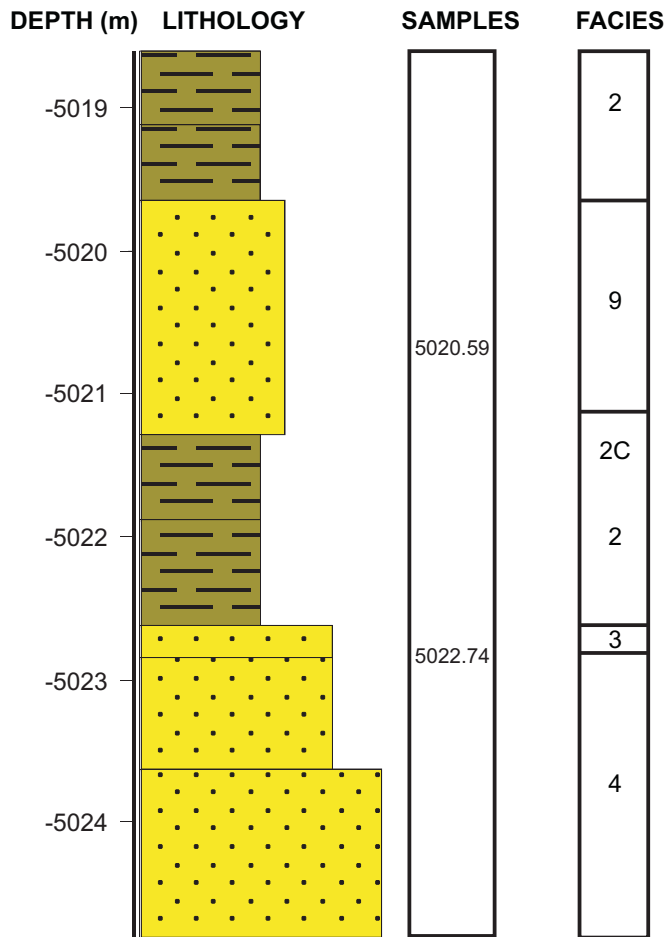


Figure 2C: Lithology of conventional core 3 from the Venture B-52 well.

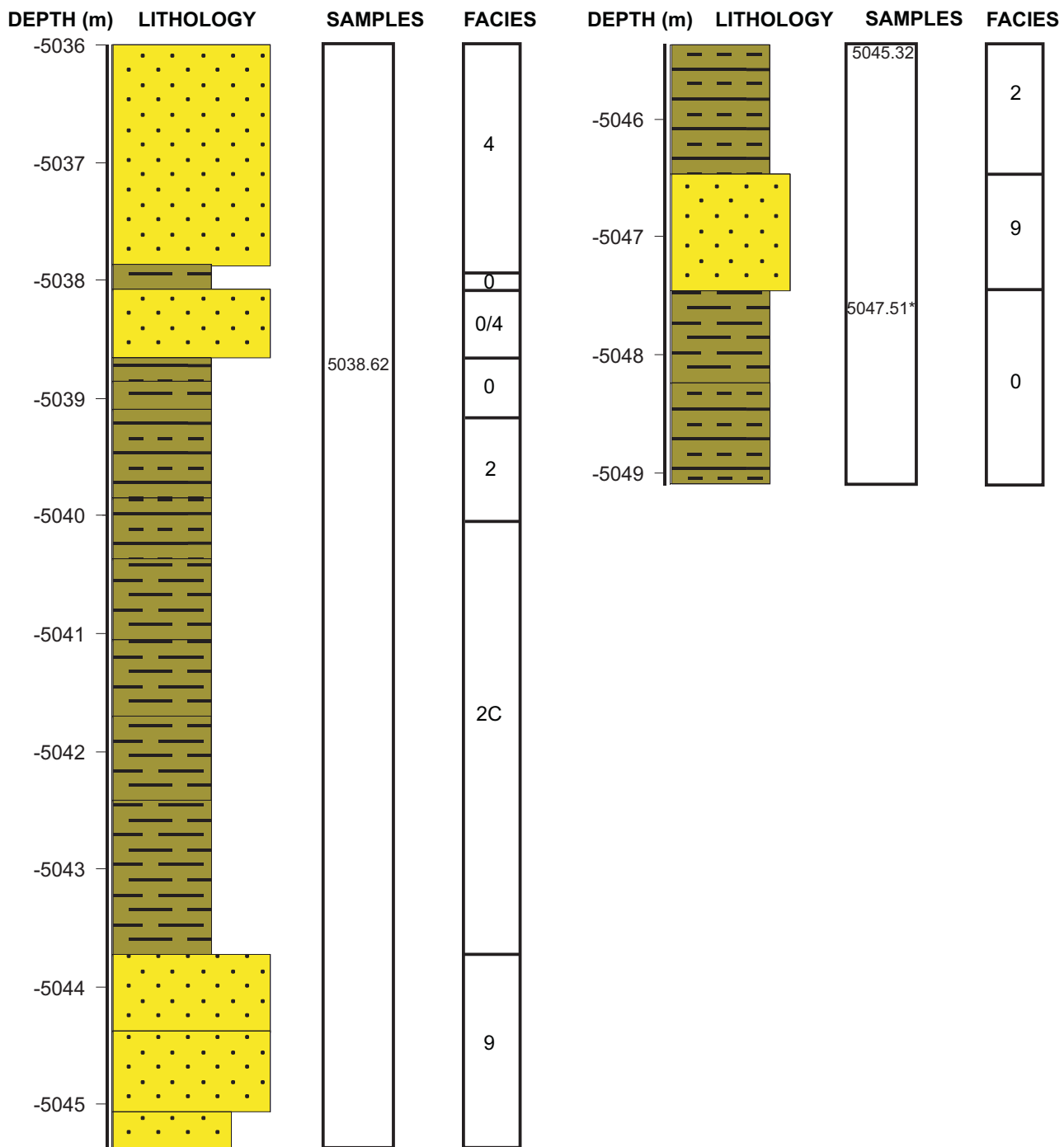


Figure 2D: Lithology of conventional core 4 from the Venture B-52 well.
 * : sample used for fluid inclusion study.

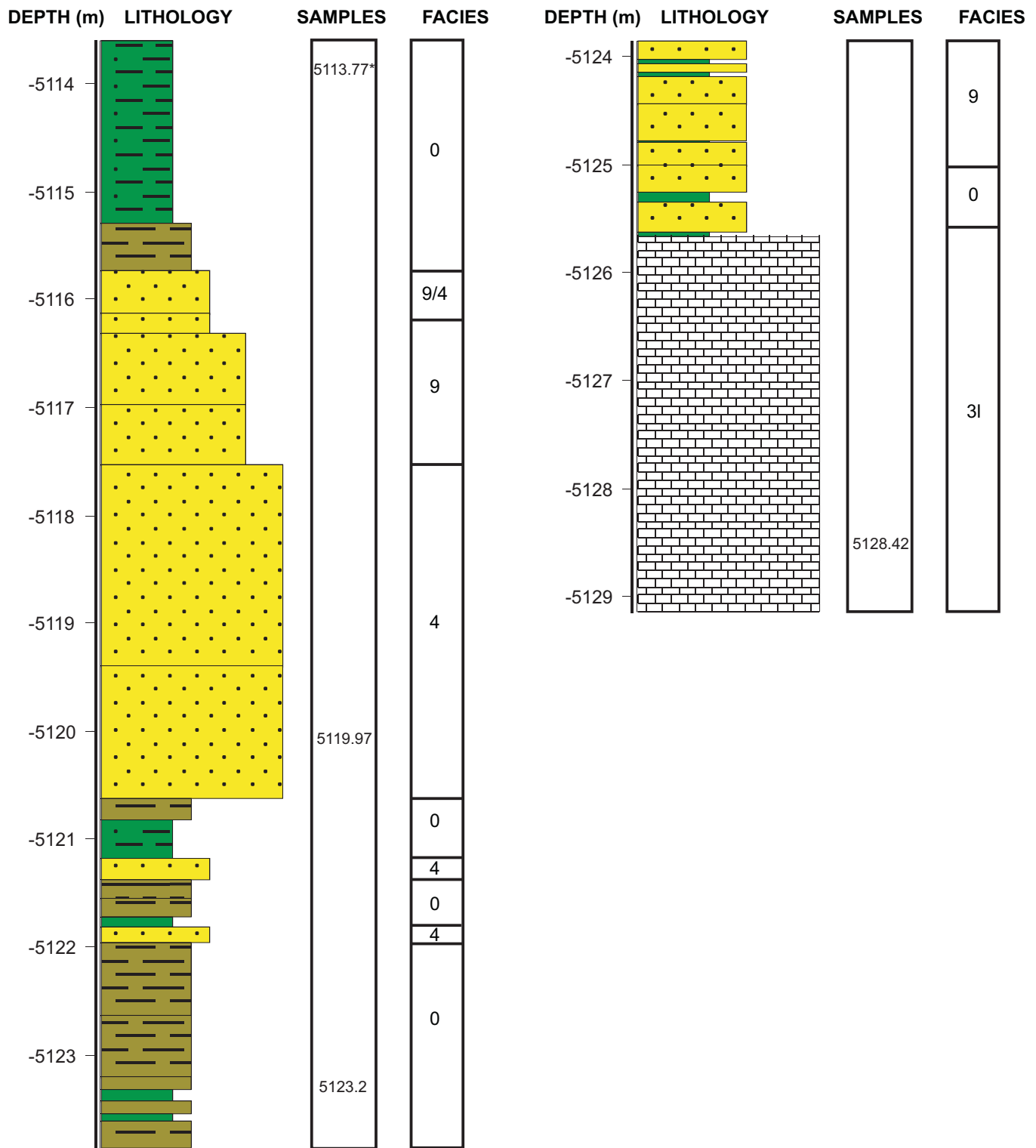


Figure 2E: Lithology of conventional core 5 from the Venture B-52 well.
 * : sample used for fluid inclusion study.

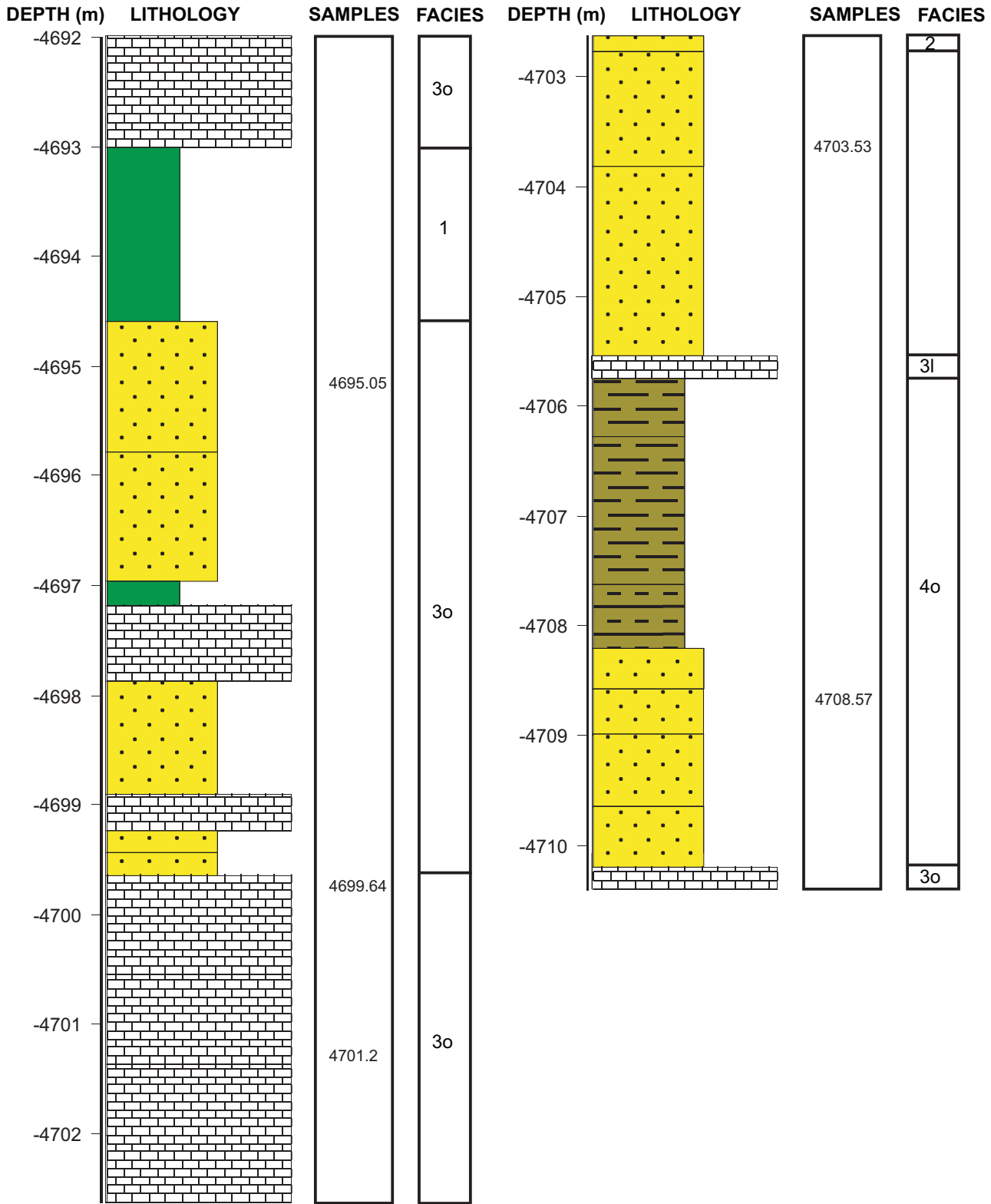


Figure 3A: Lithology of conventional core 1 from the Venture B-13 well.

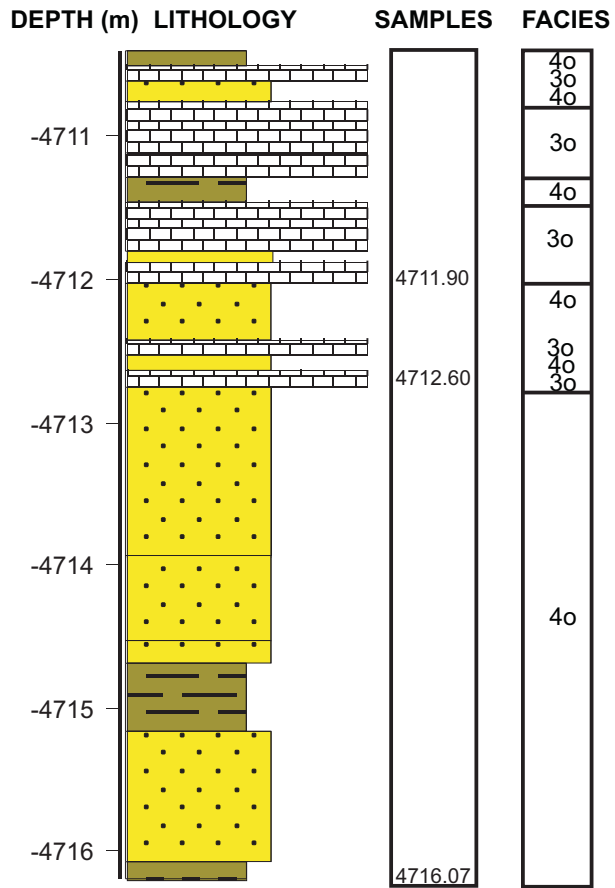


Figure 3B: Lithology of conventional core 2 from the Venture B-13 well.

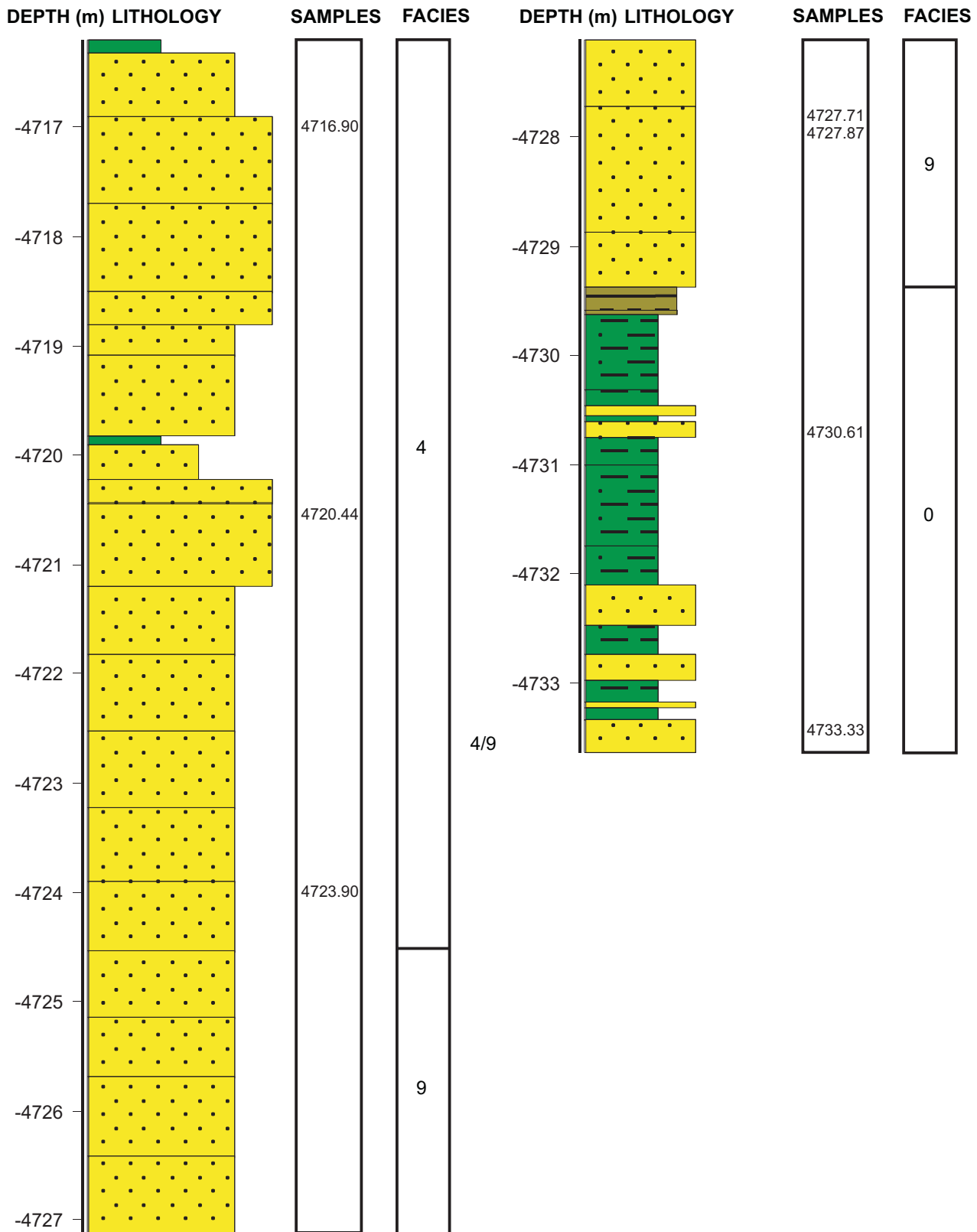


Figure 3C: Lithology of conventional core 3 from the Venture B-13 well.

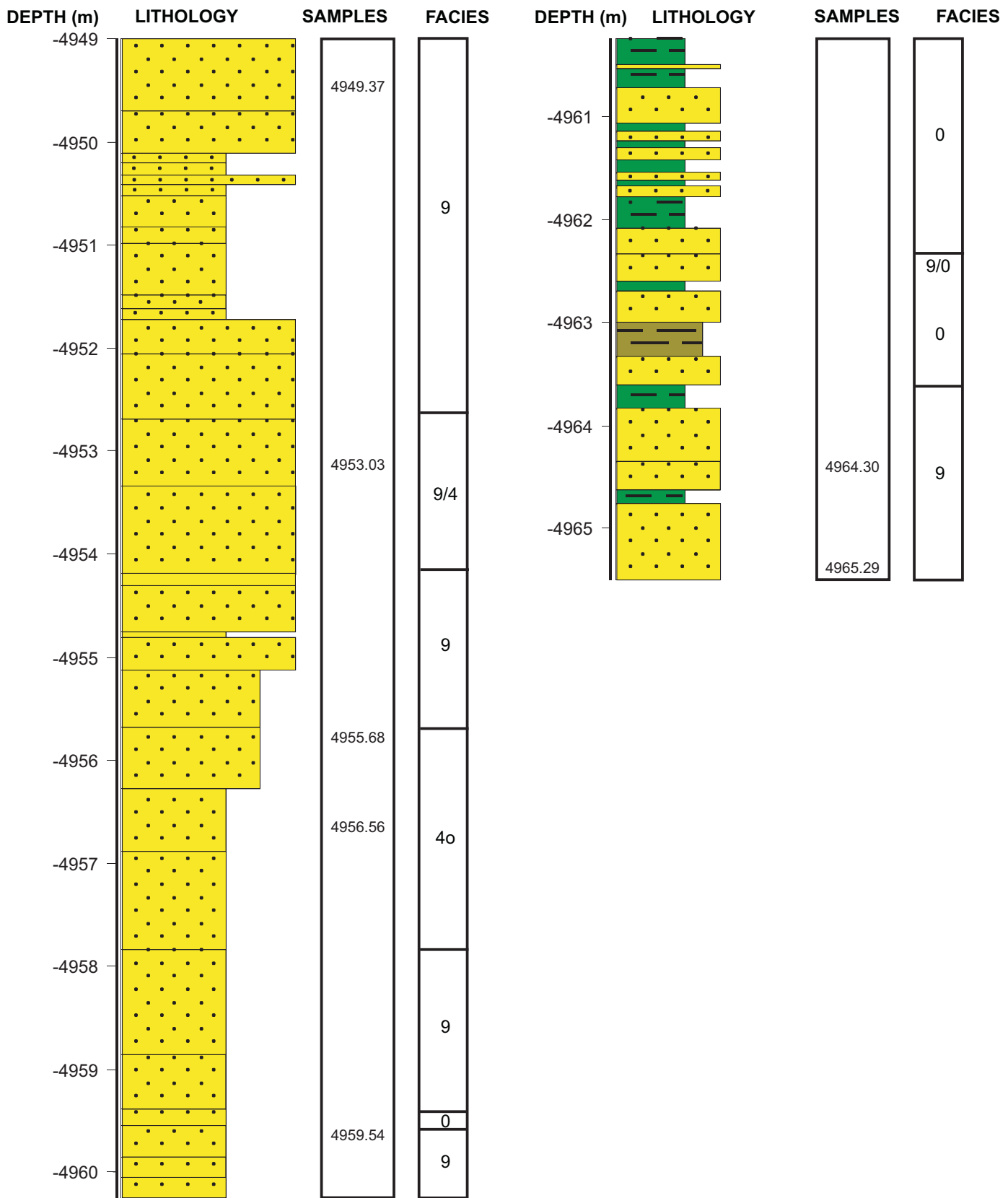


Figure 3D: Lithology of conventional core 4 from the Venture B-13 well.

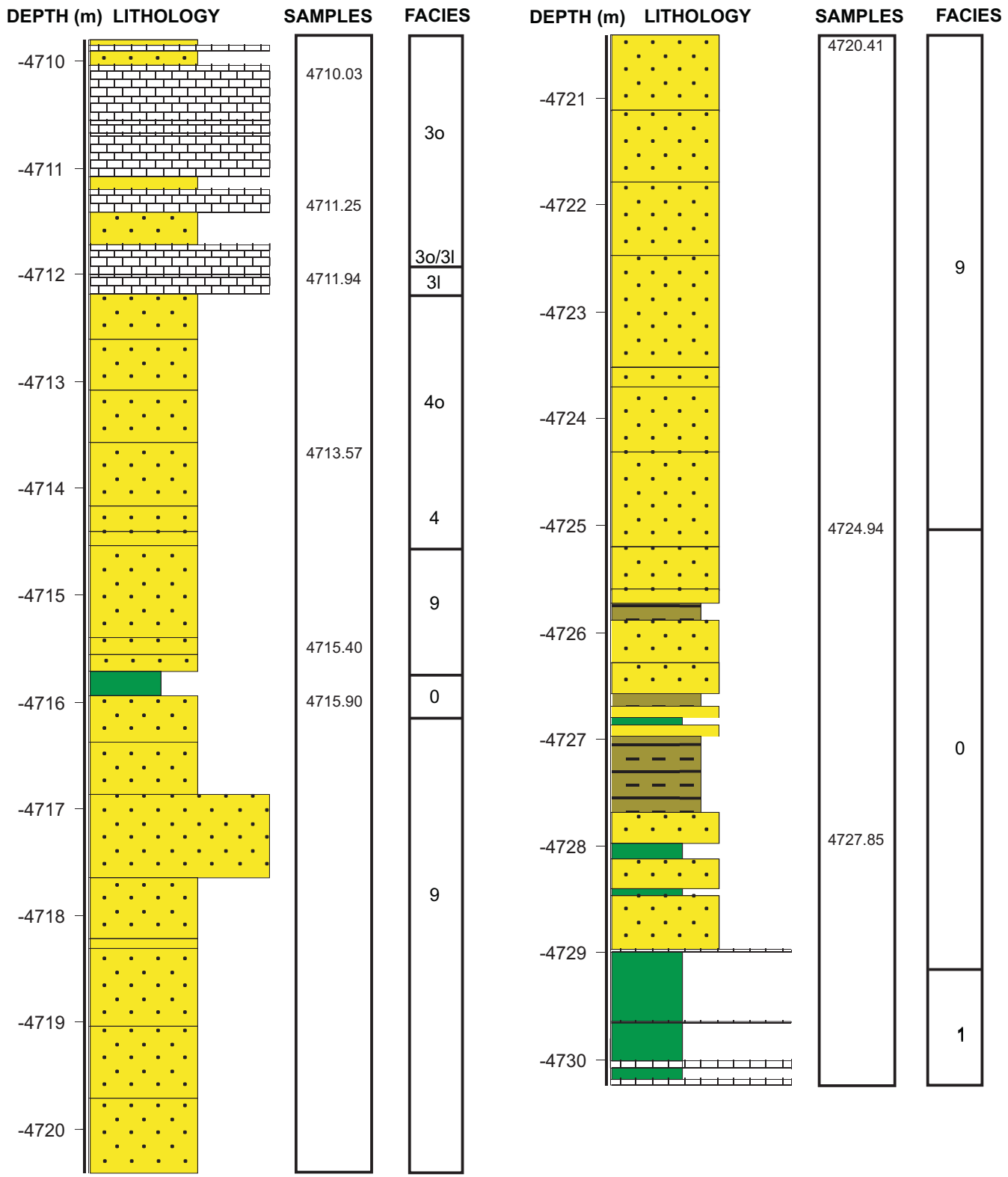


Figure 4A: Lithology of conventional core 1 from the Venture H-22 well.

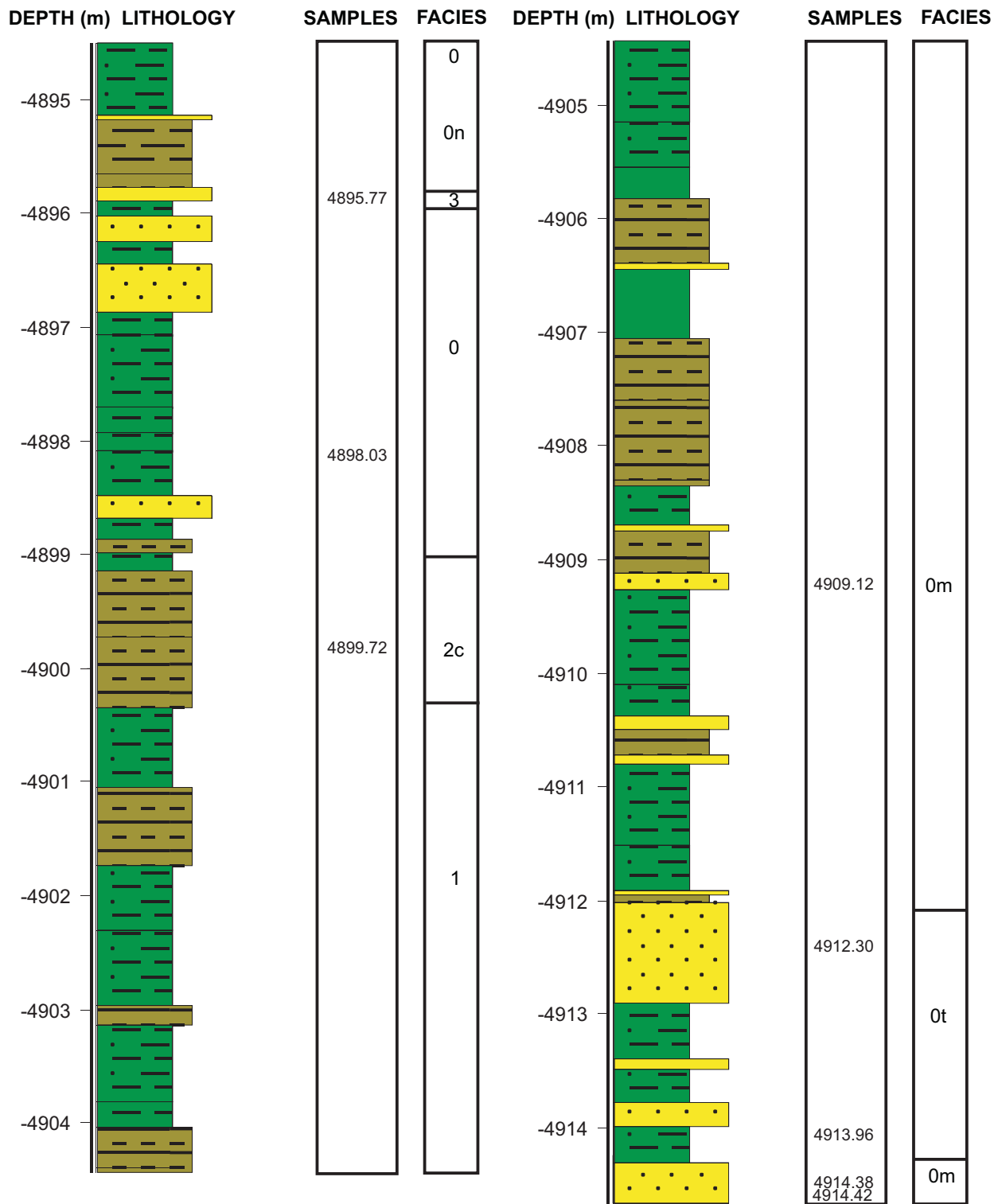


Figure 4B: Lithology of conventional core 2 from the Venture H-22 well.

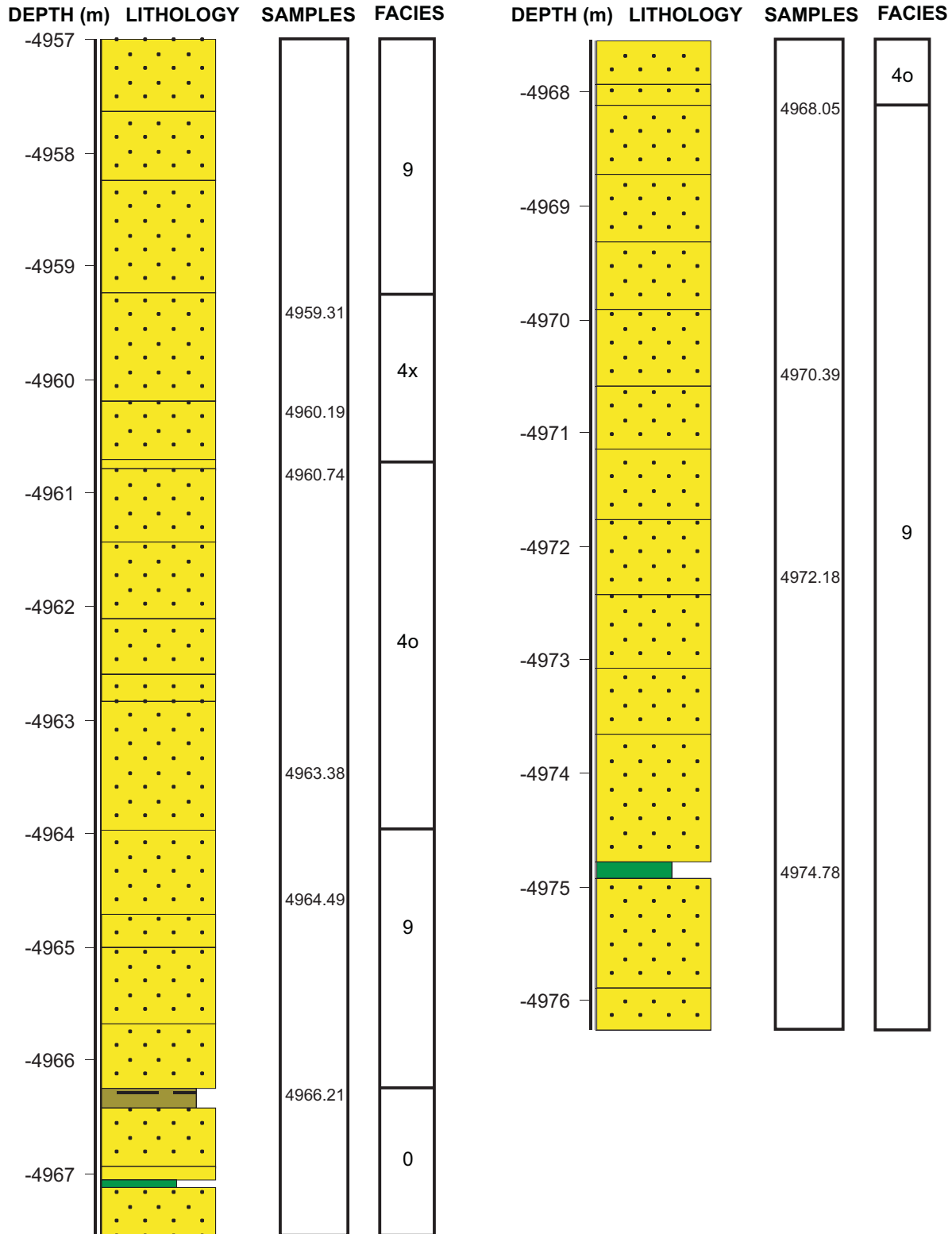


Figure 4C: Lithology of conventional core 3 from the Venture H-22 well.

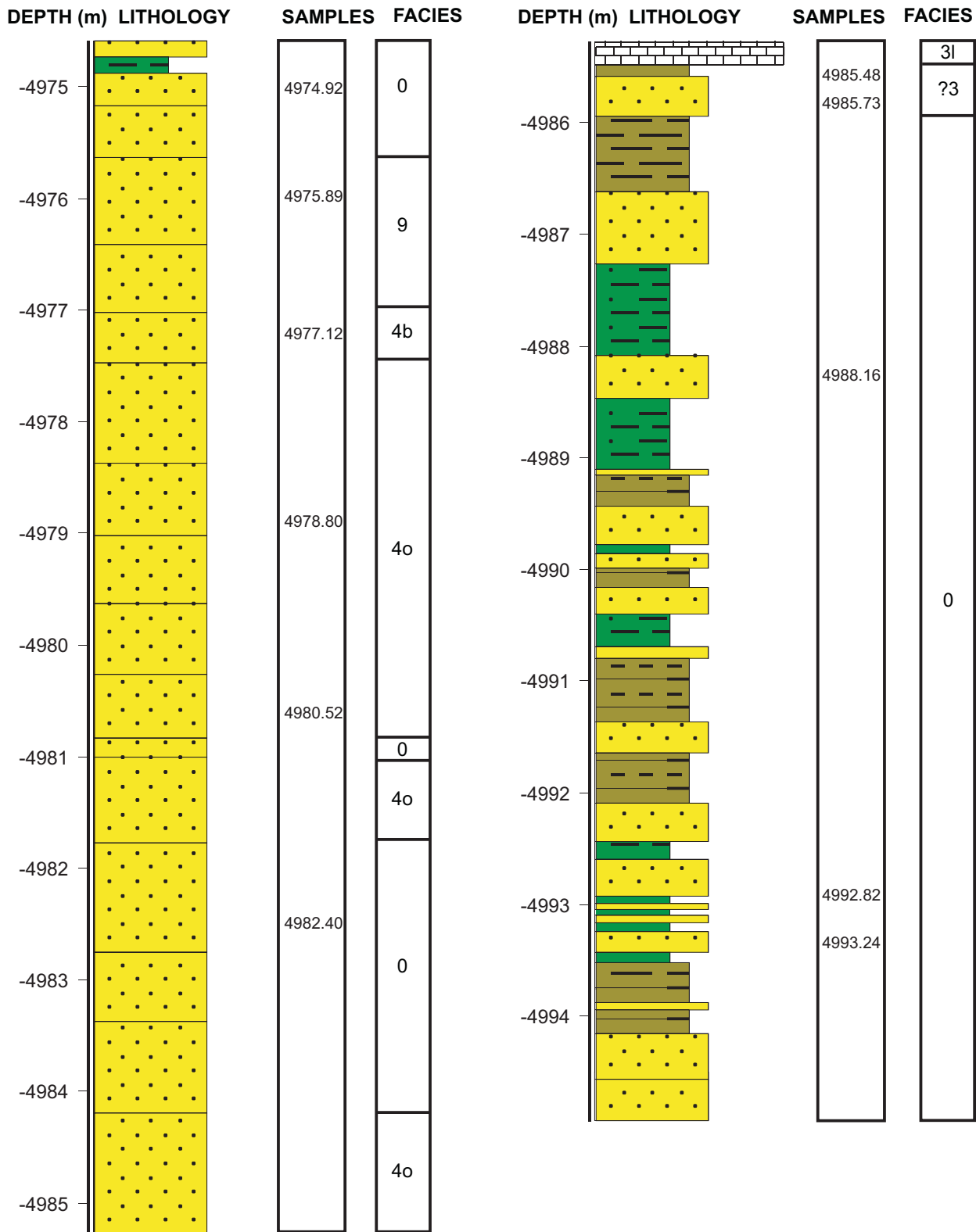


Figure 4D: Lithology of conventional core 4 from the Venture H-22 well.

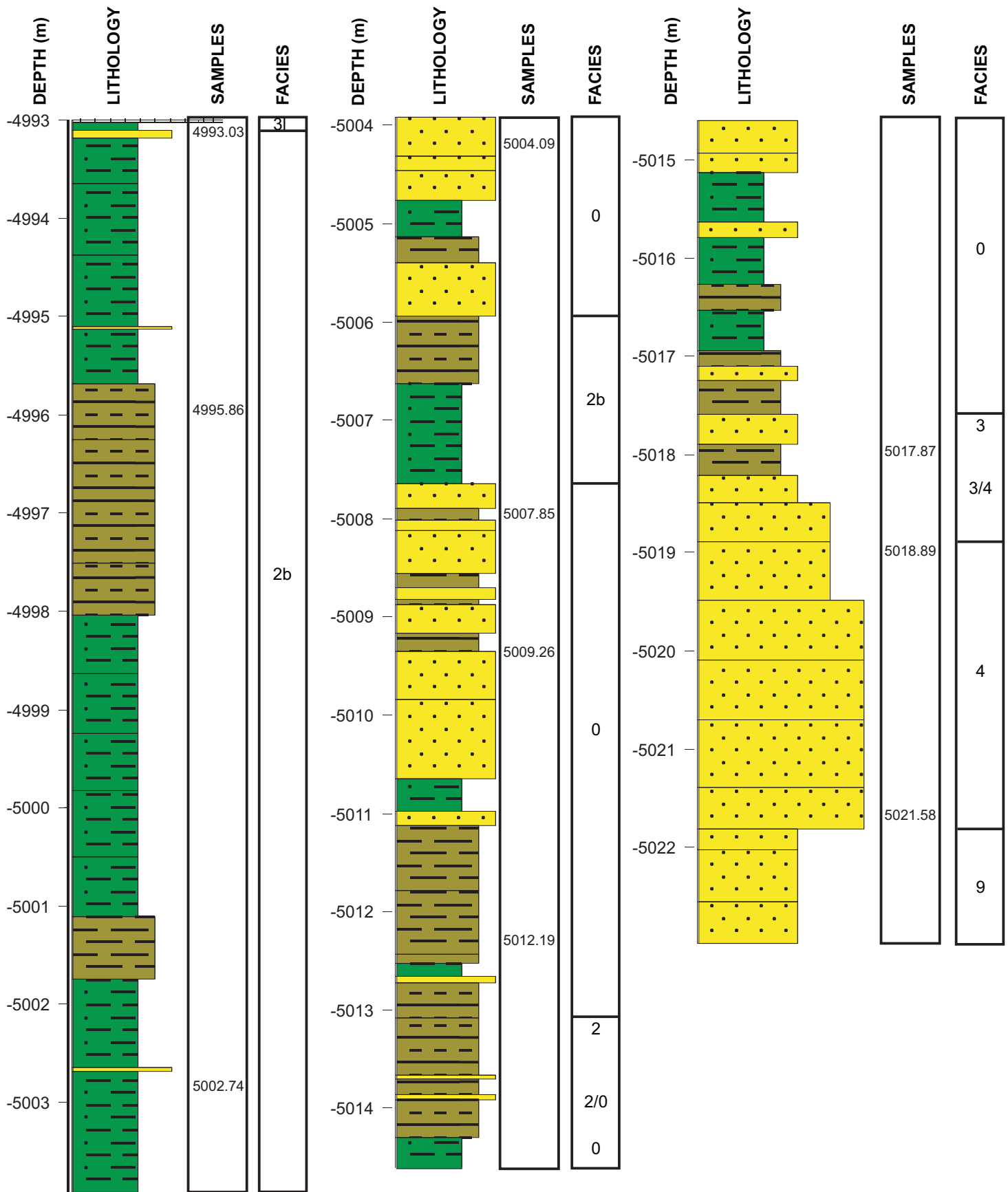


Figure 4E: Lithology of conventional core 5 from the Venture H-22 well.

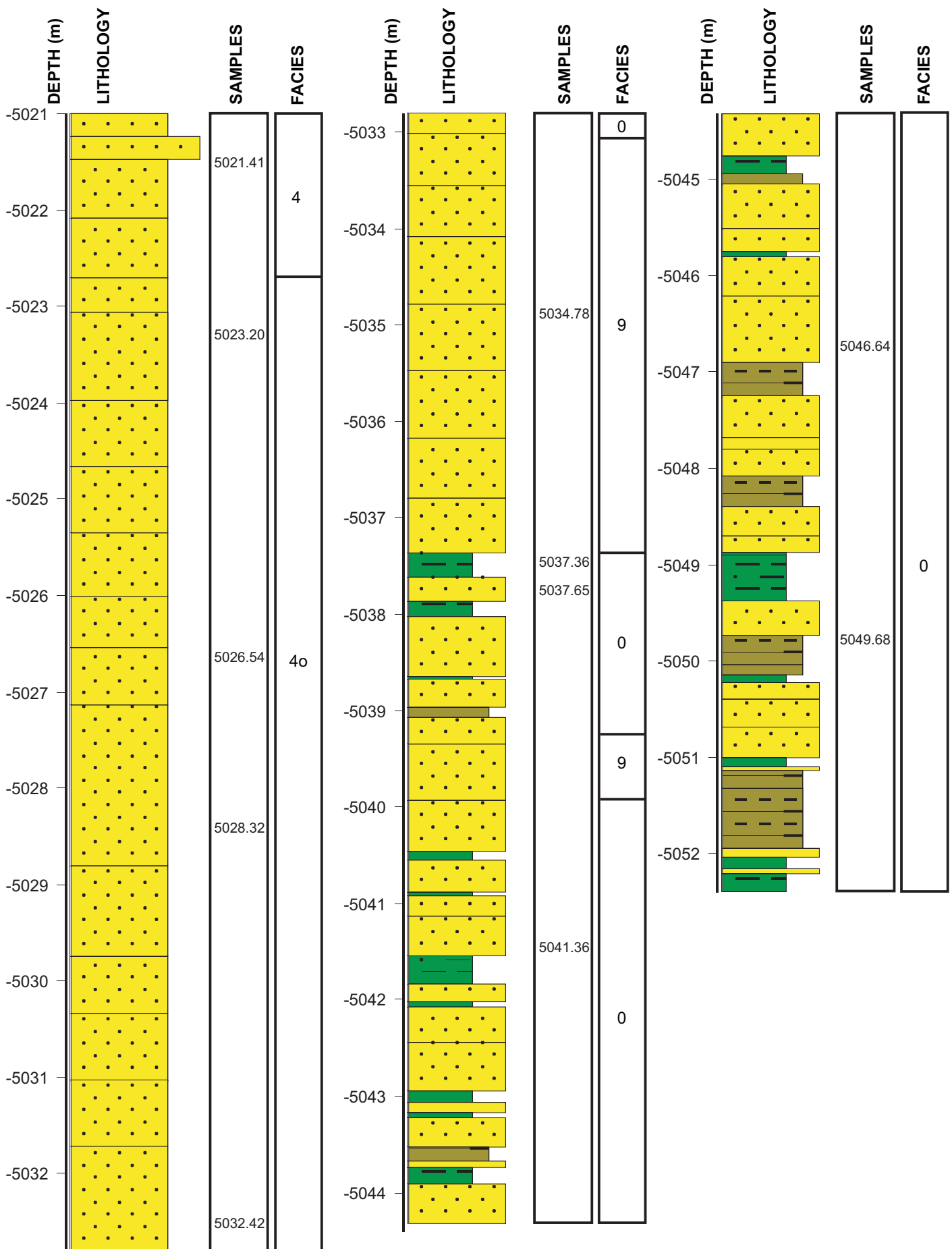


Figure 4F: Lithology of conventional core 6 from the Venture H-22 well.

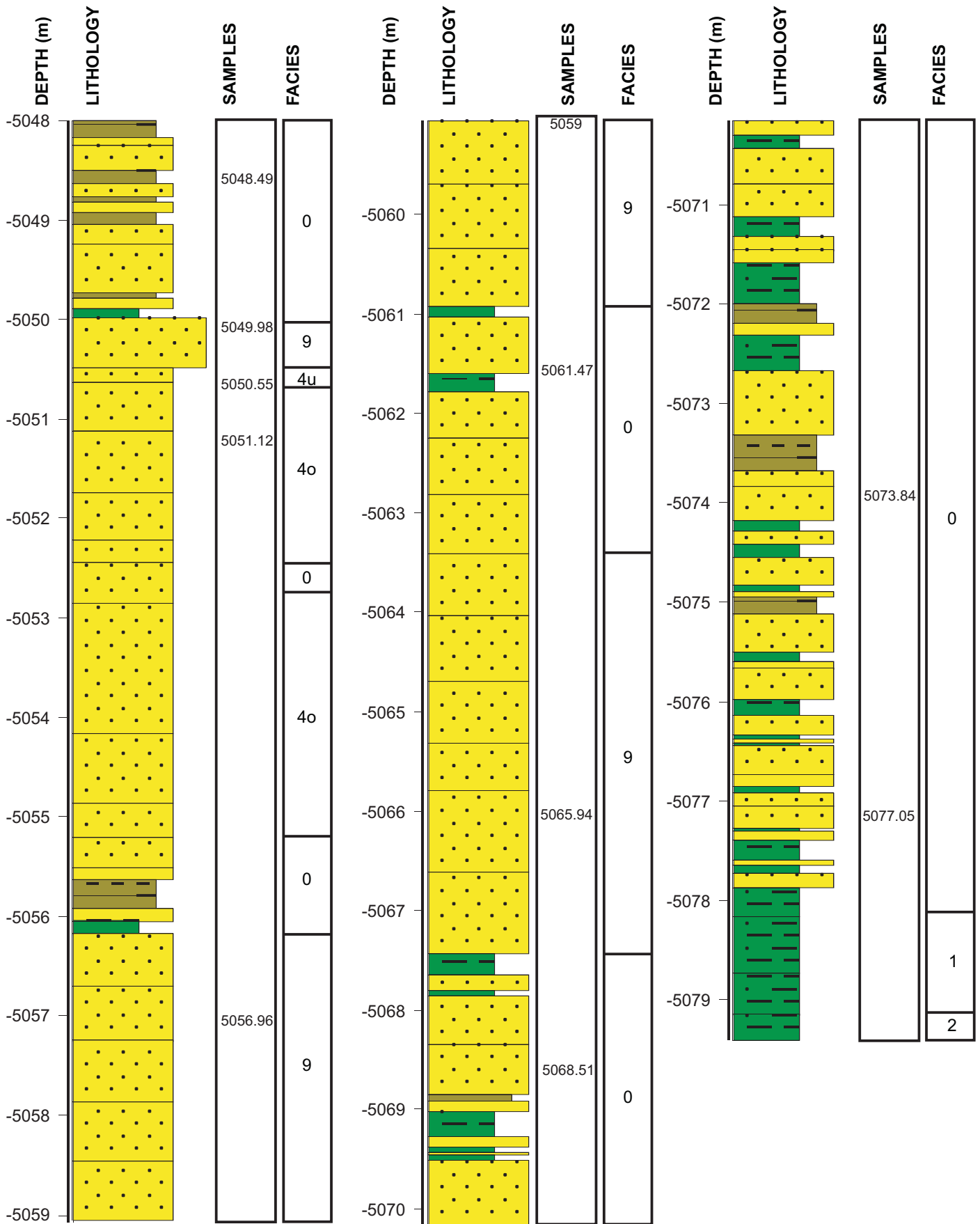


Figure 4G: Lithology of conventional core 7 from the Venture H-22 well.

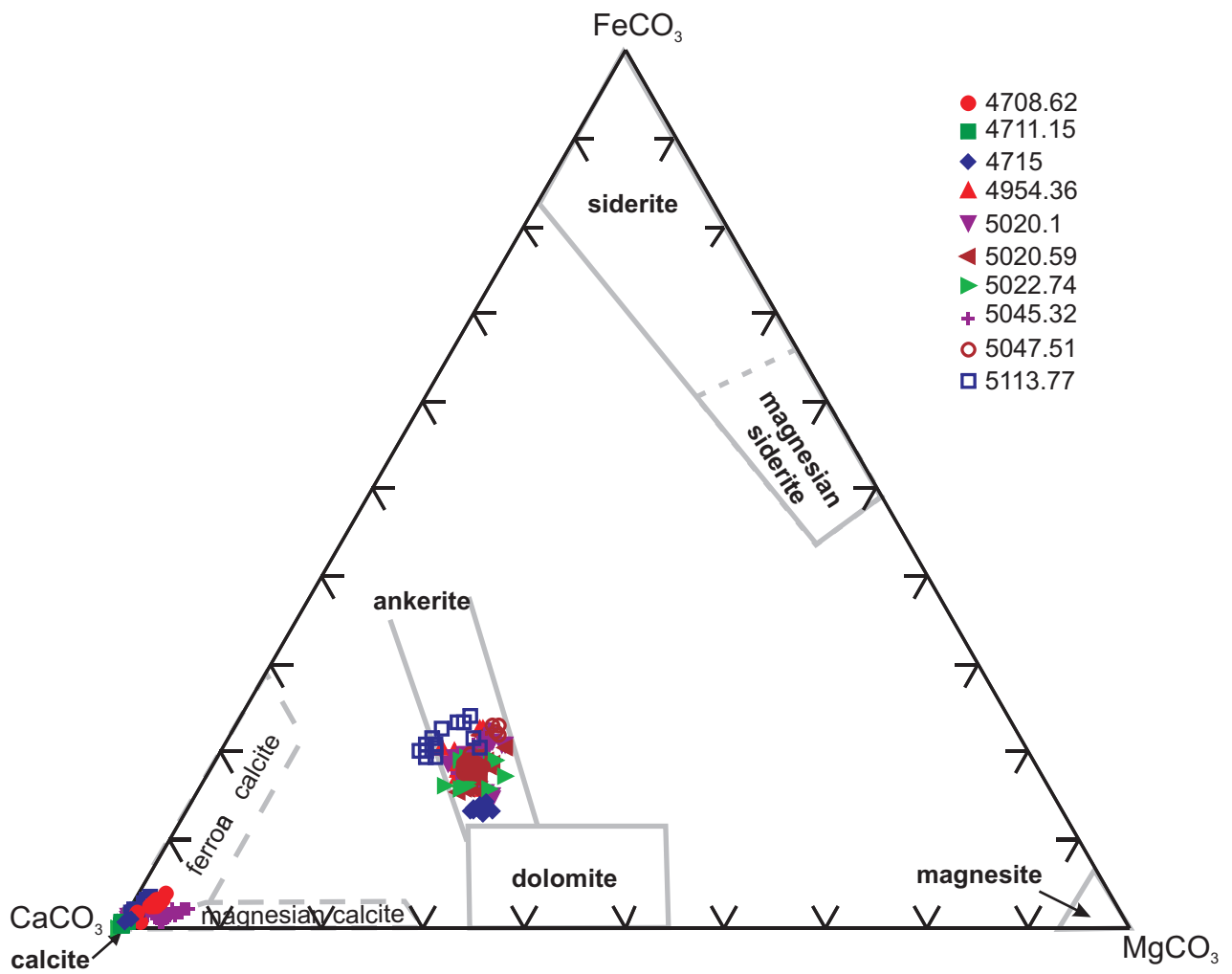


Figure 5: Diagram of classification of carbonate analyses from Venture B-52. Fields are based on analyses from Chang et al. (1996).

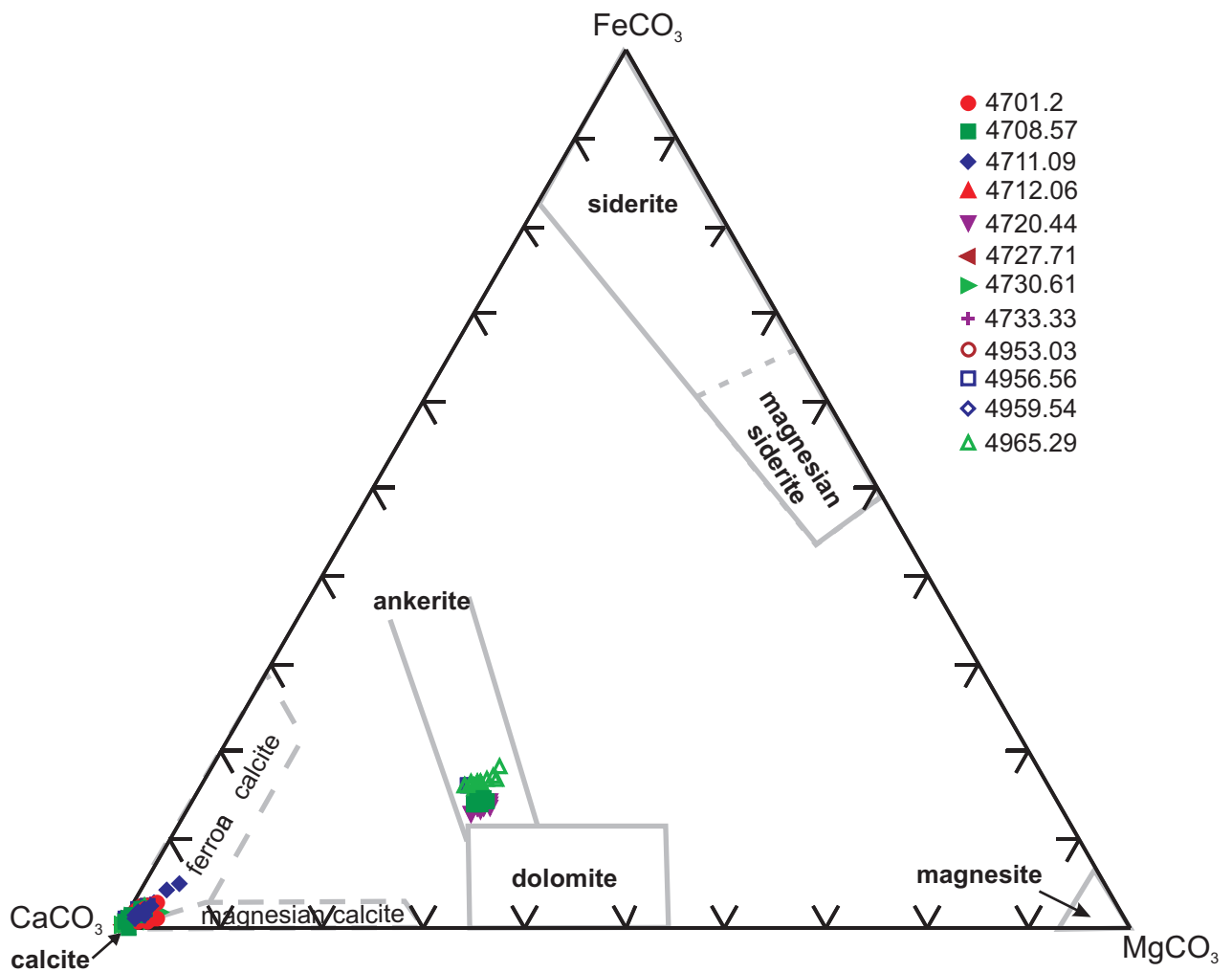


Figure 6: Diagram of classification of carbonate analyses from Venture B-13. Fields are based on analyses from Chang et al. (1996).

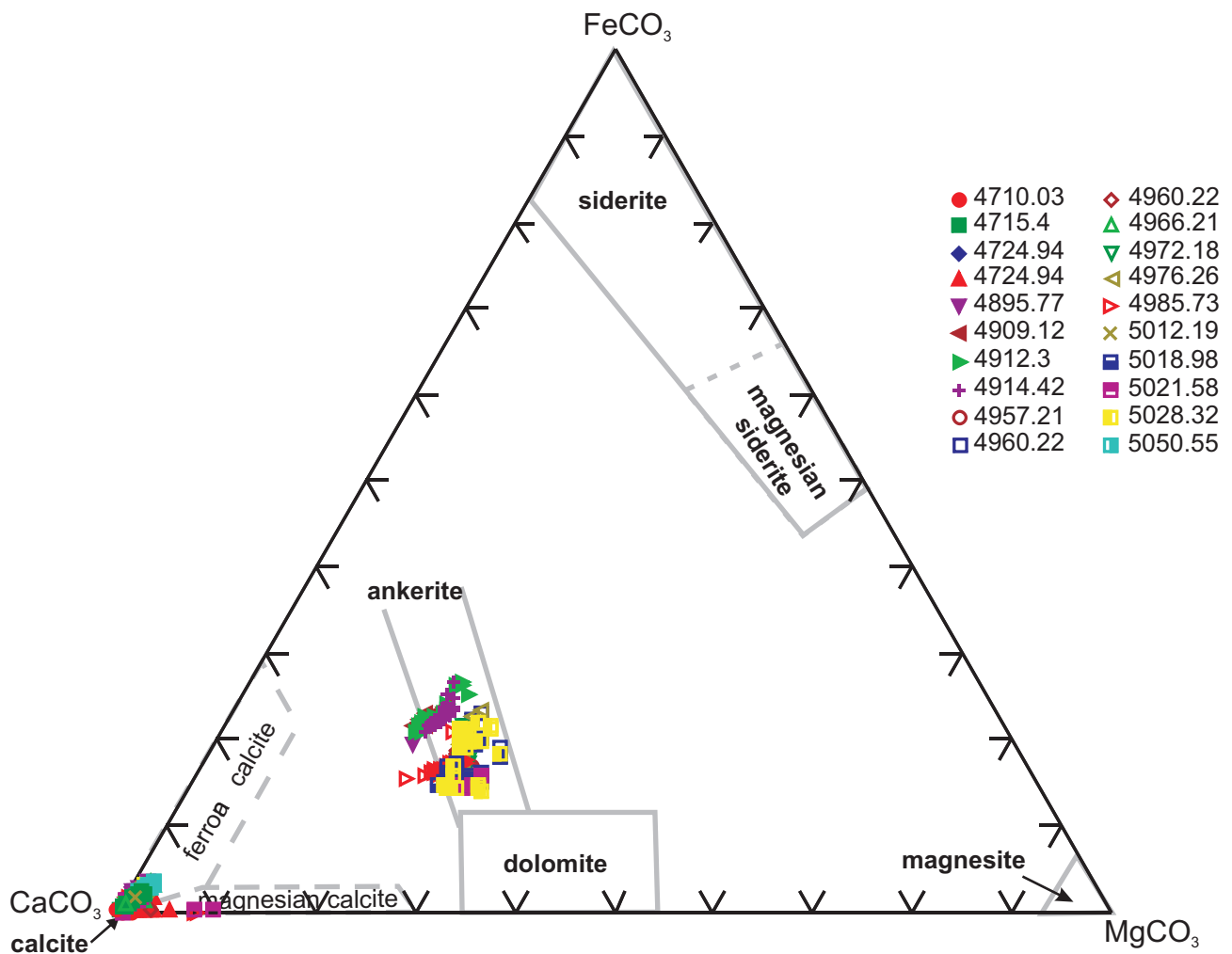
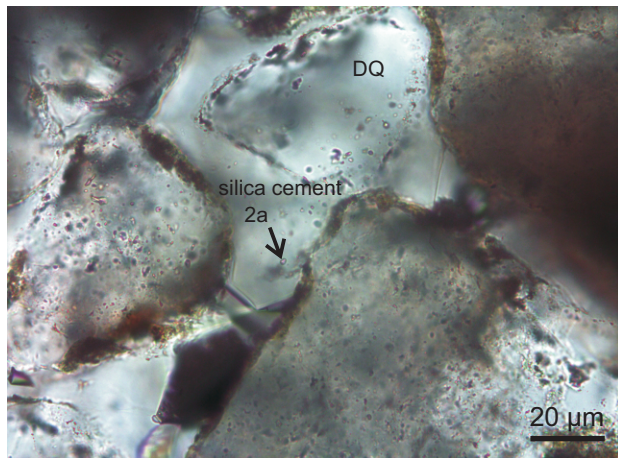
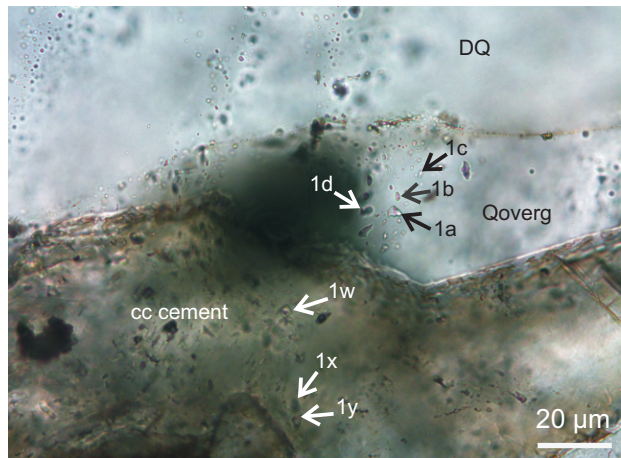


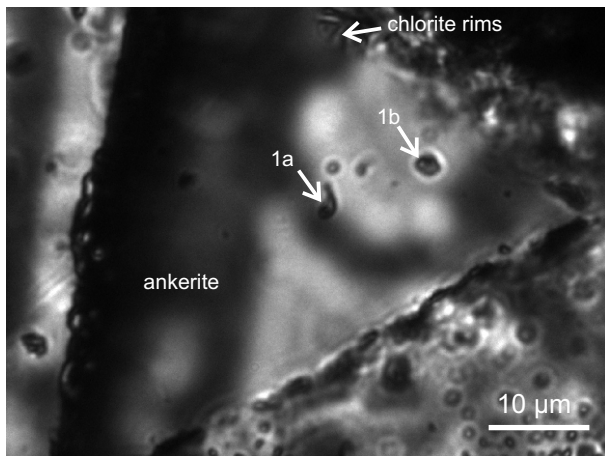
Figure 7: Diagram of classification of carbonate analyses from Venture H-22. Fields are based on analyses from Chang et al. (1996).



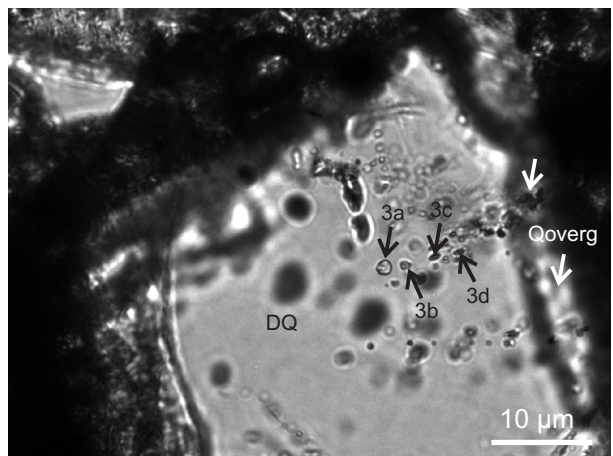
A: V1-SP35-primary inclusions in silica cement
DQ = detrital quartz



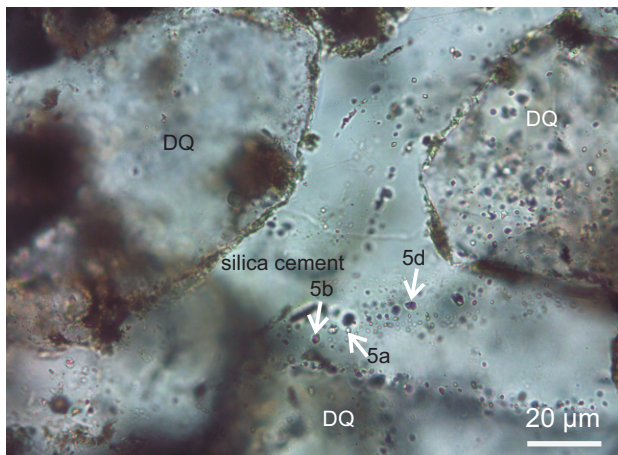
B: Venture B-52-5113.77A-primary inclusions in quartz overgrowths (Qoverg) and late carbonate (cc) cement



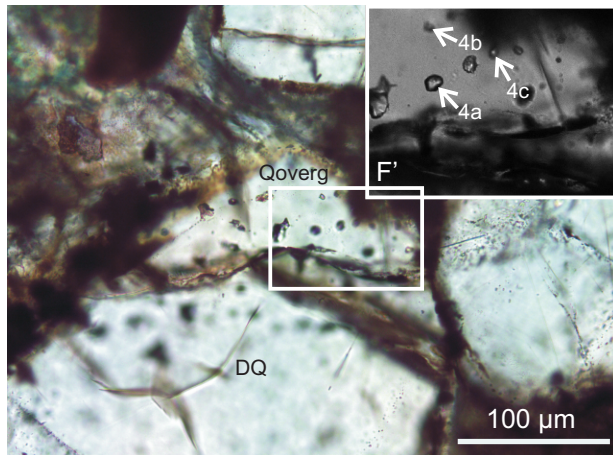
C: Venture B-52-4954.36A-primary inclusions in late carbonate cement (ankerite)



D: Venture B-52-4954.36A-secondary inclusions cross-cut detrital quartz (DQ) and quartz overgrowths (Qoverg)



E: V1-SP35-secondary inclusions in silica cement



F: Venture B-52-5113.77A-CO₂ inclusions in quartz overgrowths (Qoverg); F': zoom of F.

Figure 8: Different types of fluid inclusions in sandstones from the Venture field.
Numbers refer to Table 5

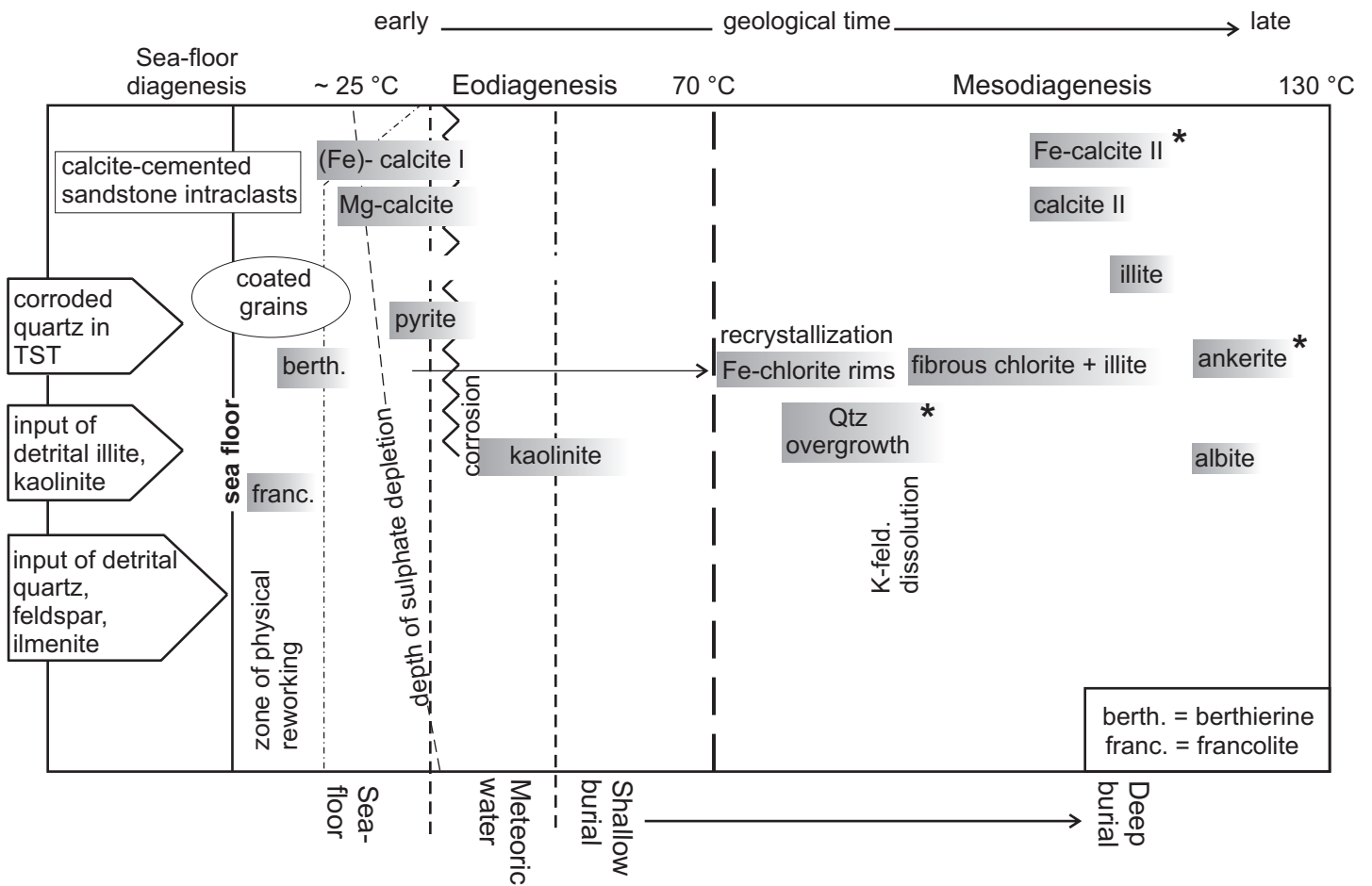


Figure 9: Paragenetic sequence deduced from mutual textural relationships in diagenetic minerals in sandstones from all studied wells. * = primary and secondary fluid inclusions that were studied.

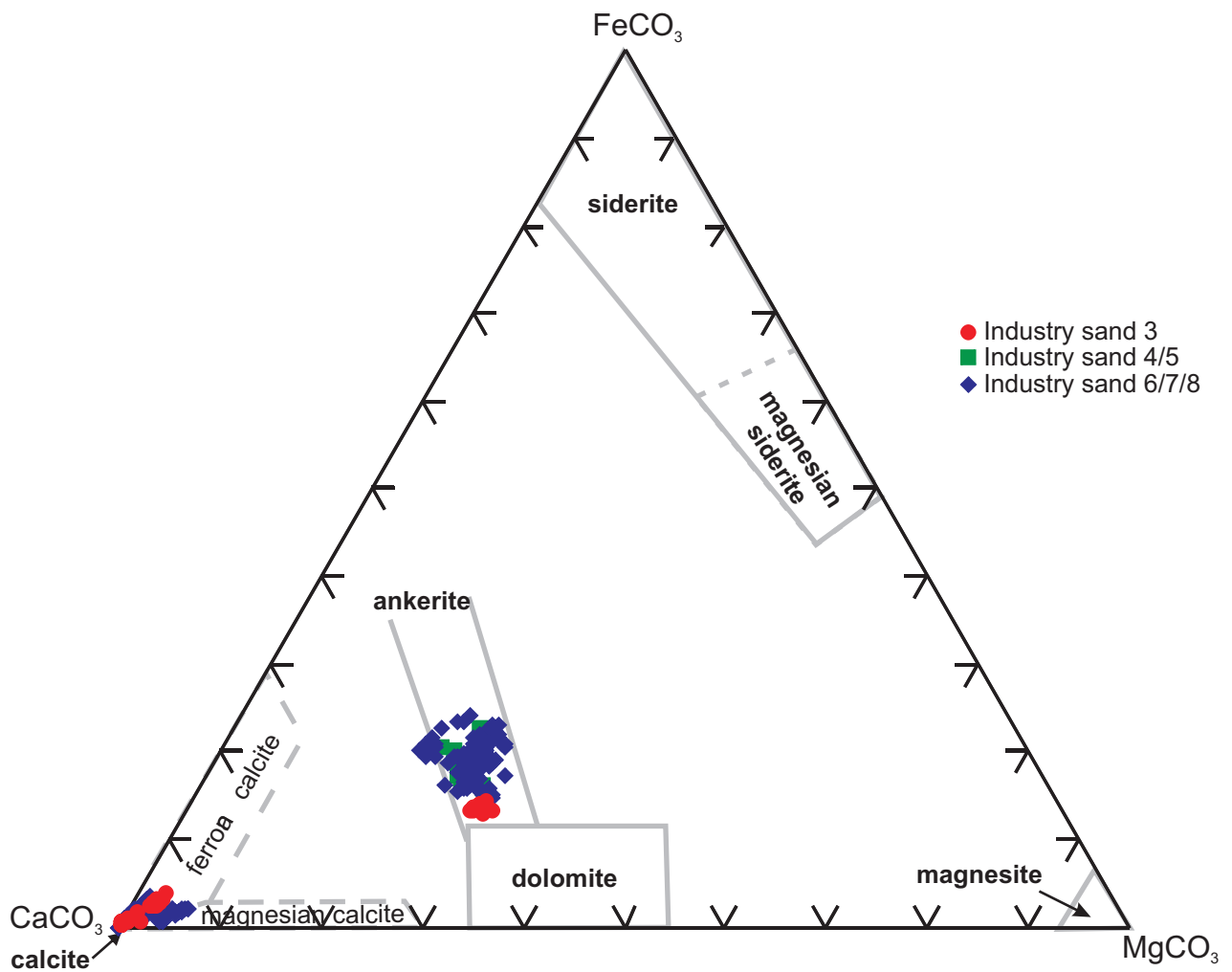


Figure 10: Carbonate cements in Industry Sandstones from Venture B-52. Fields are based on analyses from Chang et al. (1996).

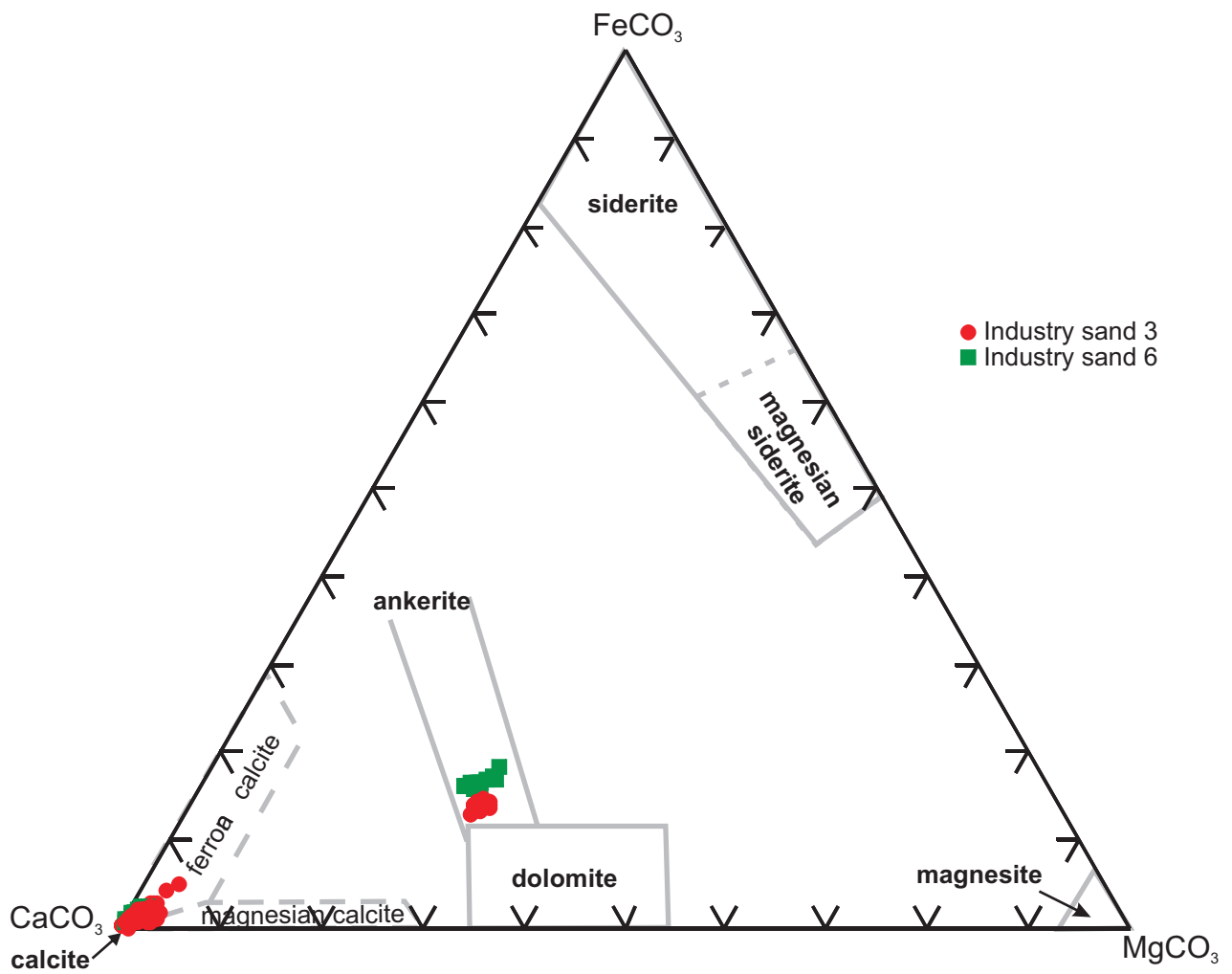


Figure 11: Carbonate cements in Industry Sandstones from Venture B-13. Fields are based on analyses from Chang et al. (1996).

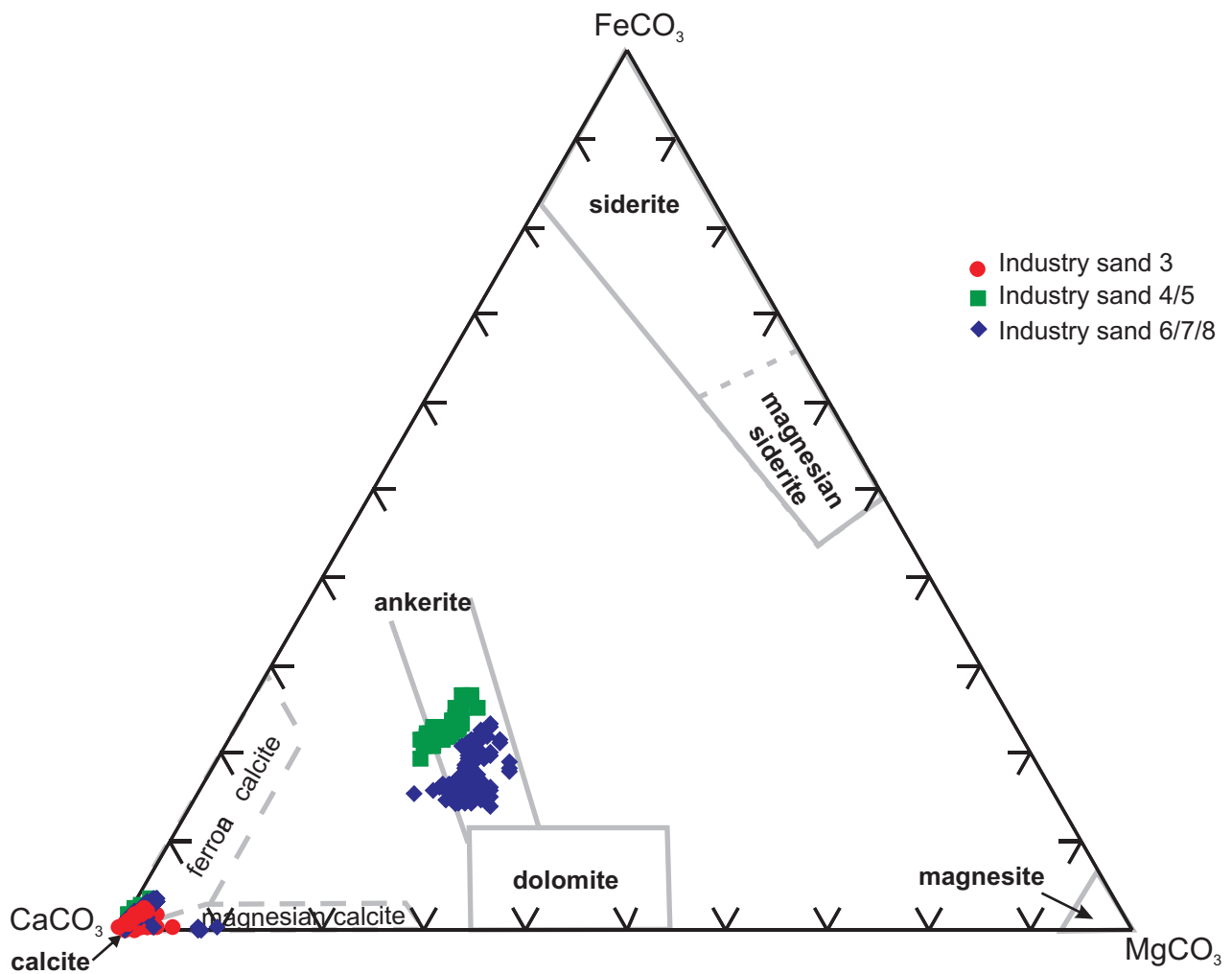


Figure 12: Carbonate cements in Industry Sandstones from Venture H-22. Fields are based on analyses from Chang et al. (1996).

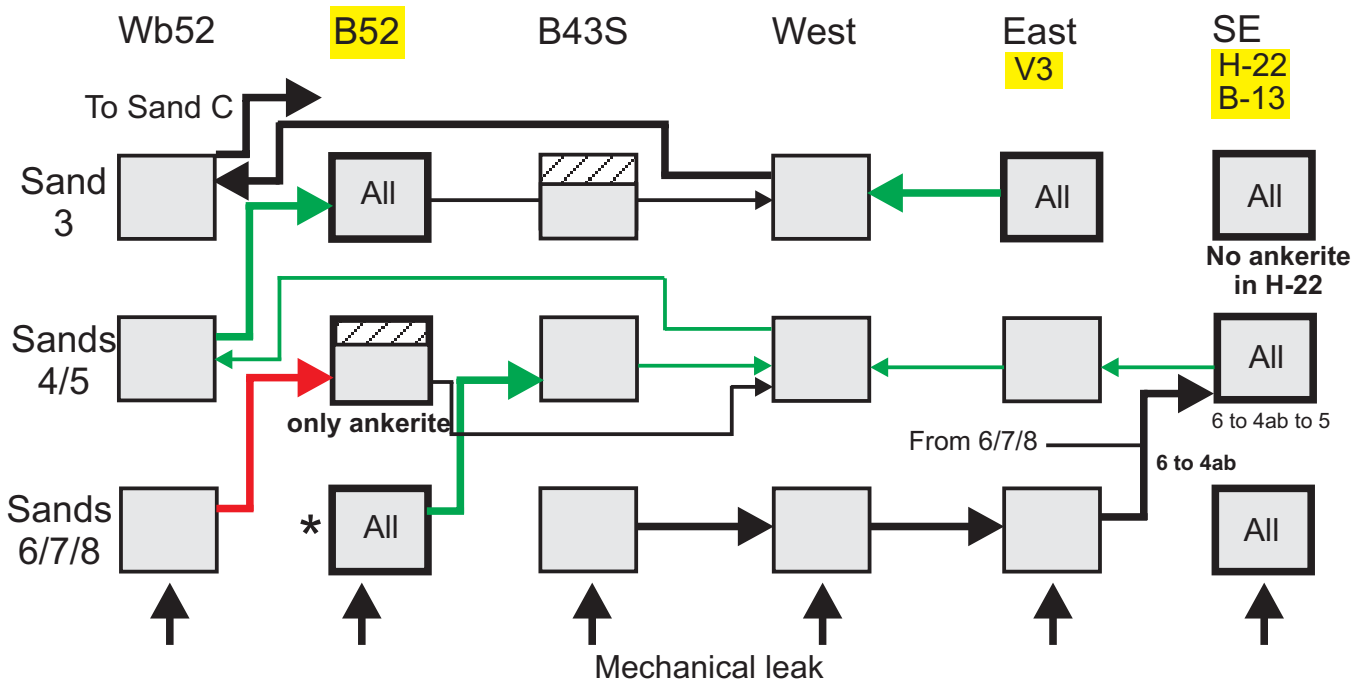
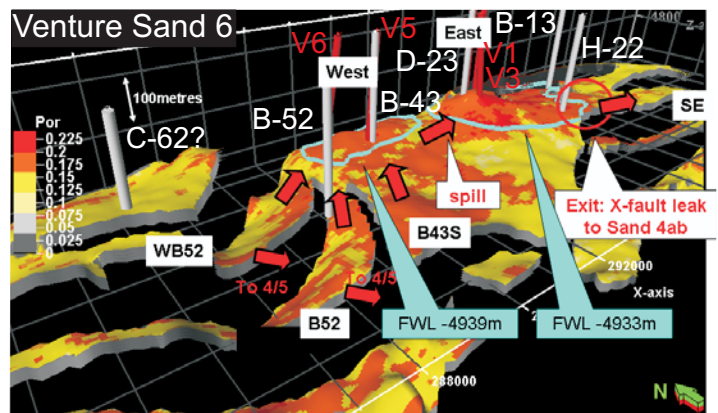
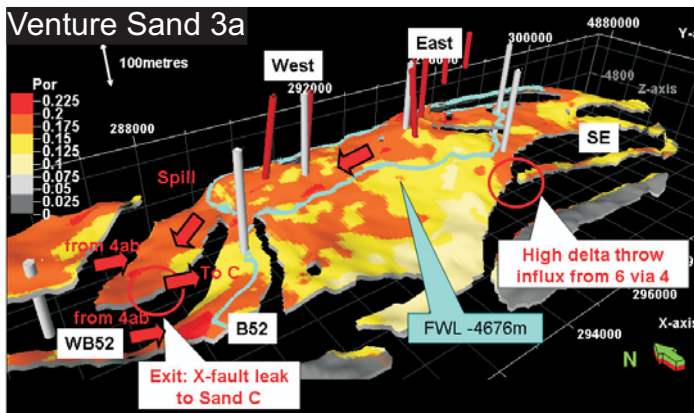


Figure 13: 3D perspective view of Venture sands 3 and 6 and simplified connectivity diagram of Venture sands 3, 4/5 and 6/7/8 (modified from Richards et al., 2008).

* = primary and secondary fluid inclusions that have been studied. Wells with data on diagenetic carbonates are highlighted in yellow. FWL = Free water level.

Appendix 1: Electron microprobe analyses of different cements from the studied wells.

A: Venture B-52

B: Venture B-13

C: Venture H-22

Abbreviations:

QD: quality of data.

ht: high total.

gt: good total.

lt: low total

N°: number of analyses, refers to appendix 2.

Depth: measured depth.

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	4708.62	43	Fe-calcite	ht	0.29	0.01	0.21	0.00	2.12	1.29	0.99	57.58	0.02	0.02	0.04	0.00	0.07	0.00	62.64
Venture B52	4708.62	44	Fe-calcite	ht	1.56	1.12	1.01	0.00	2.32	1.07	0.89	51.38	0.00	0.12	0.04	0.00	0.07	0.04	59.63
Venture B52	4708.62	45	calcite	ht	0.04	0.00	0.01	0.00	0.58	0.45	0.76	60.28	0.05	0.01	0.06	0.00	0.07	0.00	62.30
Venture B52	4708.62	46	Fe-calcite	ht	0.09	0.01	0.01	0.00	1.96	1.35	0.86	60.26	0.01	0.00	0.07	0.00	0.06	0.04	64.73
Venture B52	4708.62	47	Fe-calcite + clay		13.16	7.46	9.80	0.02	14.98	0.19	4.16	22.85	0.03	0.16	0.08	0.00	0.09	0.14	73.11
Venture B52	4708.62	48	Fe-calcite	ht	0.35	0.42	0.20	0.00	2.11	1.21	0.96	56.84	0.02	0.01	0.04	0.00	0.06	0.06	62.27
Venture B52	4708.62	49	Fe-Mg-calcite	ht	0.09	0.01	0.00	0.00	2.35	1.35	1.19	58.22	0.00	0.01	0.06	0.00	0.12	0.00	63.40
Venture B52	4708.62	50	Fe-calcite	ht	0.37	0.05	0.21	0.00	2.30	1.26	0.96	56.11	0.01	0.02	0.06	0.00	0.06	0.00	61.43
Venture B52	4708.62	51	Fe-Mg-calcite	ht	0.08	0.00	0.01	0.00	2.04	1.28	1.04	58.31	0.02	0.00	0.05	0.00	0.10	0.03	62.96
Venture B52	4708.62	52	Fe-Mg-calcite	gt	2.33	1.72	1.68	0.00	2.65	0.97	1.04	47.77	0.02	0.16	0.03	0.00	0.03	0.04	58.44
Venture B52	4708.62	53	Fe-calcite	ht	0.49	0.00	0.21	0.00	1.92	1.08	0.76	54.81	0.02	0.05	0.01	0.00	0.06	0.00	59.42
Venture B52	4708.62	54	Fe-calcite	ht	0.75	0.13	0.33	0.00	2.04	1.19	0.84	54.04	0.00	0.07	0.04	0.00	0.05	0.00	59.50
Venture B52	4708.62	55	calcite	ht	0.41	0.00	0.09	0.00	0.50	0.59	0.18	57.52	0.00	0.11	0.01	0.00	0.05	0.00	59.46
Venture B52	4708.62	56	calcite	ht	0.45	0.03	0.20	0.00	2.09	1.17	0.93	54.73	0.00	0.05	0.08	0.00	0.05	0.02	59.81
Venture B52	4708.62	57	zircon ?		31.96	0.30	0.14	0.36	0.69	0.19	0.09	0.21	0.08	0.07	0.23	0.30	1.11	0.43	36.16
Venture B52	4708.62	58	zircon ?		30.44	0.34	0.76	0.37	0.51	0.23	0.11	0.46	0.18	0.05	1.15	0.31	1.08	0.45	36.44
Venture B52	4708.62	59	Fe-calcite	ht	0.44	0.05	0.21	0.00	2.30	1.30	0.99	56.15	0.01	0.05	0.04	0.00	0.04	0.01	61.60
Venture B52	4708.62	60	Fe-calcite	ht	0.57	0.05	0.26	0.00	2.25	1.24	0.97	56.45	0.01	0.06	0.03	0.00	0.06	0.00	61.95
Venture B52	4708.62	61	Fe-calcite	ht	0.49	0.33	0.24	0.00	2.06	1.20	0.92	54.56	0.03	0.06	0.06	0.00	0.03	0.00	59.98
Venture B52	4708.62	62	calcite	ht	0.16	0.00	0.02	0.00	0.82	0.46	0.20	58.31	0.00	0.06	0.08	0.02	0.00	0.00	60.13
Venture B52	4708.62	63	TiO ₂ + clay		16.02	41.25	10.85	0.10	12.35	0.08	3.64	0.61	0.12	0.85	0.06	0.05	0.02	0.47	86.47
Venture B52	4708.62	64	calcite + clay		3.15	0.88	2.14	0.00	3.62	1.03	1.18	47.49	0.04	0.16	0.04	0.00	0.00	0.00	59.75
Venture B52	4708.62	65	pyrite	ht	0.46	0.23	0.32	0.20	55.91	0.11	0.15	0.18	0.09	0.08	0.07	0.22	0.15	0.23	58.39
Venture B52	4708.62	66	TiO ₂		6.70	71.41	5.00	0.08	7.62	0.10	1.95	0.61	0.09	0.07	0.08	0.10	0.02	0.87	94.70
Venture B52	4708.62	67	apatite	lt	0.45	0.03	0.05	0.03	0.07	0.06	0.00	55.56	0.07	0.03	39.15	0.04	0.75	0.00	96.29
Venture B52	4708.62	68	zircon ?		33.11	0.30	0.35	0.35	0.73	0.19	0.11	1.48	0.25	0.09	1.29	0.32	1.17	0.28	40.02
Venture B52	4708.62	69	Fe-calcite	gt	0.94	0.02	0.52	0.00	2.24	1.14	0.90	52.69	0.02	0.07	0.06	0.00	0.02	0.00	58.63
Venture B52	4708.62	70	Fe-calcite	ht	0.56	0.05	0.29	0.00	2.04	1.21	0.88	55.26	0.02	0.06	0.08	0.00	0.04	0.00	60.48
Venture B52	4708.62	71	Fe-Mg-calcite	ht	0.18	0.06	0.09	0.00	2.24	1.22	1.14	56.10	0.02	0.02	0.03	0.02	0.04	0.00	61.16
Venture B52	4708.62	72	Fe-calcite	gt	0.62	0.01	0.36	0.00	1.69	0.89	0.79	53.76	0.02	0.09	0.03	0.00	0.03	0.00	58.30
Venture B52	4708.62	73	Fe-calcite	ht	0.69	0.00	0.36	0.00	1.94	1.08	0.96	56.34	0.03	0.10	0.03	0.01	0.06	0.00	61.60
Venture B52	4708.62	74	clay ? illite?	lt	27.75	12.16	18.93	0.07	21.41	0.06	6.67	0.36	0.15	1.26	0.08	0.08	0.10	0.16	89.25
Venture B52	4708.62	75	clay ?	lt	27.50	1.50	17.76	0.09	27.13	0.20	12.50	0.25	0.12	0.23	0.00	0.04	0.10	0.04	87.46
Venture B52	4708.62	76	clay ?	lt	27.75	4.30	19.19	0.06	26.72	0.09	9.73	0.18	0.11	0.66	0.01	0.02	0.11	0.02	88.94
Venture B52	4708.62	77	clay ?	lt	27.93	0.79	20.13	0.07	28.40	0.08	8.55	0.22	0.12	0.46	0.08	0.02	0.08	0.00	86.94
Venture B52	4708.62	78	clay ?	lt	34.07	3.83	21.92	0.02	20.17	0.07	6.06	0.26	0.35	1.91	0.09	0.02	0.11	0.04	88.91

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	4708.62	79	clay ?	lt	27.58	1.22	16.90	0.04	26.85	0.07	14.16	0.22	0.13	0.15	0.02	0.00	0.12	0.00	87.47
Venture B52	4708.62	80	Fe-calcite	ht	0.25	0.01	0.08	0.00	1.64	0.98	0.62	57.94	0.00	0.03	0.03	0.00	0.04	0.00	61.61
Venture B52	4708.62	81	pyrite	ht	0.23	0.18	0.11	0.25	51.66	0.12	0.75	4.60	0.08	0.07	0.08	0.24	0.11	0.18	58.66
Venture B52	4708.62	82	pyrite	ht	0.23	0.21	0.16	0.22	57.43	0.12	0.08	0.18	0.12	0.07	0.07	0.27	0.18	0.26	59.62
Venture B52	4708.62	83	clay ?	lt	27.48	0.16	20.05	0.07	30.26	0.07	9.40	0.22	0.04	0.18	0.00	0.02	0.08	0.00	88.04
Venture B52	4708.62	84	clay ?	lt	26.98	0.30	20.70	0.09	28.72	0.08	8.58	0.70	0.08	0.44	0.03	0.02	0.13	0.00	86.84
Venture B52	4708.62	85	calcite	ht	0.68	0.00	0.01	0.00	0.78	0.45	0.27	57.63	0.01	0.02	0.01	0.01	0.03	0.00	59.89
Venture B52	4708.62	86	clay? Illite	lt	31.82	6.43	21.10	0.03	18.09	0.05	5.72	0.21	0.13	2.68	0.08	0.01	0.01	0.08	86.43
Venture B52	4708.62	87	Fe-calcite + clay		4.15	0.22	2.49	0.00	3.92	0.98	1.33	46.40	0.04	0.19	0.04	0.01	0.00	0.00	59.77
Venture B52	4708.62	88	Fe-Mg-calcite	ht	0.04	0.00	0.01	0.00	2.06	1.26	1.00	57.02	0.02	0.02	0.05	0.00	0.05	0.00	61.53
Venture B52	4708.62	89	Fe-Mg-calcite	ht	0.09	0.00	0.00	0.00	2.07	1.26	1.05	56.90	0.01	0.01	0.03	0.00	0.01	0.00	61.43
Venture B52	4708.62	90	Fe-Mg-calcite	ht	0.23	0.05	0.12	0.00	2.13	1.25	1.00	57.53	0.01	0.03	0.06	0.00	0.07	0.00	62.49
Venture B52	4708.62	91	Fe-Mg-calcite	ht	0.17	0.42	0.09	0.00	2.01	1.22	1.00	54.49	0.02	0.04	0.05	0.00	0.01	0.00	59.51
Venture B52	4708.62	92	Fe-Mg-calcite	ht	0.07	0.00	0.01	0.00	2.14	1.32	1.07	57.58	0.04	0.04	0.03	0.00	0.02	0.00	62.32
Venture B52	4708.62	93	clay ?	lt	27.11	0.46	15.72	0.03	27.08	0.24	12.14	2.58	0.11	0.06	0.03	0.02	0.12	0.00	85.69
Venture B52	4708.62	94	Fe-Mg-calcite	ht	0.61	0.35	0.31	0.00	2.34	1.17	1.07	54.10	0.04	0.04	0.04	0.00	0.04	0.00	60.11
Venture B52	4708.62	95	Fe-calcite	ht	0.06	0.00	0.01	0.00	1.88	1.29	0.96	59.05	0.03	0.01	0.05	0.03	0.04	0.00	63.42
Venture B52	4708.62	96	calcite	gt	0.10	0.00	0.02	0.00	0.46	0.54	0.20	57.27	0.00	0.03	0.03	0.00	0.00	0.00	58.64
Venture B52	4708.62	97	Fe-Mg-calcite	ht	0.09	0.03	0.03	0.00	2.12	1.26	1.03	57.81	0.02	0.03	0.06	0.00	0.04	0.00	62.52
Venture B52	4708.62	98	Fe-Mg-calcite	ht	0.14	0.01	0.00	0.00	2.04	1.30	1.00	57.70	0.01	0.01	0.04	0.02	0.06	0.00	62.33
Venture B52	4708.62	99	Fe-Mg-calcite	ht	0.09	0.00	0.03	0.00	2.31	1.29	1.03	58.04	0.02	0.02	0.07	0.02	0.04	0.00	62.97
Venture B52	4708.62	100	Fe-Mg-calcite	ht	0.03	0.00	0.00	0.00	2.44	1.29	1.32	57.68	0.01	0.03	0.09	0.01	0.07	0.00	62.98
Venture B52	4708.62	101	Fe-Mg-calcite + cl	ht	4.26	0.01	2.94	0.00	5.76	1.03	2.66	45.22	0.03	0.03	0.05	0.00	0.06	0.00	62.03
Venture B52	4708.62	102	calcite	gt	0.01	0.00	0.01	0.00	0.52	0.65	0.23	56.73	0.02	0.01	0.02	0.00	0.00	0.00	58.21
Venture B52	4708.62	103	TiO ₂		7.15	70.79	4.23	0.06	6.99	0.07	1.77	0.48	0.17	0.16	0.08	0.10	0.10	0.93	93.07
Venture B52	4708.62	104	TiO ₂		2.19	90.76	0.94	0.09	1.50	0.04	0.26	0.40	0.34	0.07	0.04	0.11	0.04	0.95	97.73
Venture B52	4708.62	105	TiO ₂		1.79	90.84	0.59	0.06	1.11	0.07	0.15	0.47	0.43	0.08	0.07	0.07	0.04	1.12	96.89
Venture B52	4708.62	106	TiO ₂		2.16	91.44	0.64	0.09	1.18	0.10	0.19	0.89	0.36	0.13	0.07	0.11	0.07	1.06	98.49
Venture B52	4708.62	107	TiO ₂		7.48	79.57	3.29	0.19	2.58	0.11	0.46	0.80	0.20	0.79	0.00	0.06	0.21	1.00	96.73
Venture B52	4708.62	108	TiO ₂		2.04	92.64	0.60	0.07	0.93	0.12	0.12	1.04	0.33	0.13	0.02	0.09	0.05	1.03	99.19
Venture B52	4708.62	109	TiO ₂		2.25	89.56	1.02	0.05	1.79	0.04	0.39	0.68	0.35	0.05	0.05	0.12	0.05	0.96	97.37
Venture B52	4708.62	110	Fe-Mg-calcite	ht	1.22	0.44	0.70	0.00	2.15	1.18	1.06	53.46	0.00	0.10	0.00	0.00	0.08	0.00	60.38
Venture B52	4708.62	111	Fe-Mg-calcite	ht	0.03	0.03	0.01	0.00	2.30	1.29	1.16	59.46	0.01	0.02	0.03	0.01	0.07	0.00	64.42
Venture B52	4708.62	112	Fe-calcite	ht	0.04	0.02	0.00	0.00	1.40	0.77	0.48	59.93	0.03	0.06	0.03	0.01	0.06	0.00	62.85
Venture B52	4708.62	113	Fe-calcite	ht	0.13	0.03	0.00	0.00	1.84	1.27	0.87	57.34	0.03	0.03	0.05	0.02	0.06	0.00	61.67

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	4708.62	114	Fe-Mg-calcite	ht	0.05	0.15	0.01	0.00	2.23	1.25	1.15	56.95	0.00	0.07	0.06	0.01	0.08	0.00	62.01
Venture B52	4708.62	115	Fe-calcite	ht	0.08	0.00	0.01	0.00	1.92	1.23	0.91	57.02	0.02	0.02	0.04	0.00	0.02	0.00	61.28
Venture B52	4708.62	116	Fe-Mg-calcite	ht	0.04	0.00	0.01	0.00	2.25	1.26	1.08	59.08	0.03	0.03	0.05	0.00	0.06	0.00	63.89
Venture B52	4708.62	117	Fe-Mg-calcite	ht	0.05	0.02	0.00	0.00	2.20	1.29	1.01	58.83	0.03	0.01	0.04	0.00	0.06	0.00	63.53
Venture B52	4708.62	118	Fe-Mg-calcite	ht	0.04	0.00	0.01	0.00	2.09	1.29	1.04	59.32	0.02	0.00	0.03	0.00	0.06	0.00	63.90
Venture B52	4708.62	119	Fe-Mg-calcite	ht	0.10	0.00	0.02	0.00	2.09	1.38	1.02	57.57	0.00	0.01	0.02	0.00	0.06	0.00	62.27
Venture B52	4708.62	120	Fe-Mg-calcite	ht	0.73	0.55	0.35	0.00	2.19	1.14	1.00	54.84	0.03	0.06	0.06	0.01	0.10	0.00	61.06
Venture B52	4708.62	121	Fe-Mg-calcite	ht	0.06	0.01	0.00	0.00	2.14	1.32	1.04	58.29	0.00	0.03	0.02	0.00	0.12	0.00	63.03
Venture B52	4708.62	122	Fe-Mg-calcite	ht	0.52	0.90	0.24	0.00	2.25	1.21	1.07	52.77	0.01	0.04	0.05	0.00	0.12	0.00	59.17
Venture B52	4708.62	123	Fe-Mg-calcite	ht	0.04	0.01	0.00	0.00	2.20	1.25	1.15	55.90	0.02	0.06	0.04	0.01	0.12	0.00	60.80
Venture B52	4708.62	124	Fe-Mg-calcite	ht	0.41	0.00	0.11	0.00	2.04	1.28	1.04	56.39	0.11	0.05	0.06	0.00	0.11	0.00	61.60
Venture B52	4711.15	8	calcite	ht	0.04	0.00	0.00	0.00	0.36	0.62	0.10	61.23	0.00	0.03	0.08	0.00	0.03	0.00	62.48
Venture B52	4711.15	9	calcite	ht	0.05	0.02	0.00	0.00	0.32	0.56	0.10	61.21	0.00	0.02	0.09	0.00	0.00	0.00	62.38
Venture B52	4711.15	10	calcite	ht	0.06	0.00	0.00	0.00	0.30	0.63	0.12	61.95	0.00	0.03	0.06	0.00	0.03	0.00	63.17
Venture B52	4711.15	11	calcite	ht	0.06	0.00	0.00	0.00	0.37	0.54	0.11	60.70	0.00	0.03	0.10	0.00	0.05	0.00	61.95
Venture B52	4711.15	12	calcite	ht	0.04	0.00	0.00	0.01	0.43	0.63	0.11	61.49	0.01	0.04	0.06	0.00	0.01	0.00	62.84
Venture B52	4711.15	13	calcite	ht	0.10	0.01	0.00	0.00	0.30	0.57	0.12	61.33	0.00	0.03	0.08	0.00	0.01	0.00	62.56
Venture B52	4711.15	14	calcite	ht	0.02	0.01	0.00	0.00	0.30	0.56	0.11	59.63	0.00	0.03	0.09	0.00	0.03	0.00	60.77
Venture B52	4711.15	15	calcite	ht	0.00	0.01	0.00	0.01	0.32	0.58	0.11	59.78	0.00	0.03	0.07	0.00	0.03	0.00	60.93
Venture B52	4711.15	16	calcite	ht	0.06	0.01	0.00	0.00	0.37	0.60	0.12	60.59	0.00	0.02	0.07	0.00	0.02	0.00	61.86
Venture B52	4711.15	17	calcite	ht	0.04	0.00	0.00	0.02	0.39	0.64	0.13	59.57	0.00	0.03	0.07	0.00	0.03	0.00	60.92
Venture B52	4711.15	18	calcite	ht	0.08	0.01	0.00	0.00	0.31	0.53	0.10	57.50	0.00	0.04	0.07	0.00	0.00	0.00	58.62
Venture B52	4711.15	19	calcite	ht	0.04	0.00	0.00	0.00	0.33	0.61	0.11	58.46	0.00	0.04	0.07	0.00	0.03	0.00	59.69
Venture B52	4711.15	20	calcite	ht	0.03	0.00	0.00	0.00	0.30	0.52	0.09	57.16	0.00	0.03	0.07	0.00	0.03	0.00	58.24
Venture B52	4711.15	21	calcite	ht	0.04	0.01	0.00	0.00	0.34	0.58	0.10	58.90	0.00	0.03	0.09	0.00	0.01	0.00	60.10
Venture B52	4711.15	22	calcite	ht	0.03	0.04	0.00	0.00	0.34	0.56	0.12	59.14	0.01	0.03	0.10	0.00	0.05	0.00	60.42
Venture B52	4711.15	23	apatite	lt	0.72	0.03	0.00	0.06	0.03	0.01	0.00	53.78	0.05	0.03	40.20	0.03	0.52	0.00	95.47
Venture B52	4711.15	24	apatite	lt	0.07	0.05	0.01	0.08	0.07	0.03	0.00	55.96	0.02	0.05	40.36	0.03	0.08	0.01	96.83
Venture B52	4711.15	25	apatite	lt	0.08	0.05	0.01	0.02	0.13	0.04	0.00	56.12	0.02	0.06	40.66	0.01	0.10	0.04	97.34
Venture B52	4711.15	26	calcite	ht	0.06	0.00	0.00	0.00	0.29	0.61	0.10	60.24	0.00	0.03	0.08	0.00	0.03	0.00	61.43
Venture B52	4711.15	27	calcite	ht	0.05	0.02	0.00	0.01	0.33	0.59	0.10	60.72	0.00	0.02	0.11	0.00	0.00	0.00	61.95
Venture B52	4711.15	28	pyrite	ht	2.07	0.27	1.00	0.18	62.00	0.52	0.97	4.32	0.24	0.11	0.13	0.13	0.90	0.65	73.48
Venture B52	4711.15	29	chlorite	lt	23.88	0.12	16.28	0.05	26.56	0.03	8.96	0.97	0.16	0.10	0.08	0.00	0.09	0.01	77.32
Venture B52	4711.15	30	calcite	ht	0.00	0.00	0.00	0.00	0.41	0.56	0.15	60.26	0.00	0.02	0.04	0.00	0.07	0.00	61.50
Venture B52	4711.15	31	calcite	ht	0.03	0.00	0.00	0.00	0.32	0.58	0.11	57.60	0.00	0.01	0.01	0.00	0.06	0.00	58.73
Venture B52	4711.15	32	calcite	ht	0.09	0.00	0.01	0.00	0.32	0.54	0.14	57.62	0.00	0.01	0.05	0.00	0.10	0.00	58.87

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	4711.15	33	calcite	ht	0.06	0.00	0.00	0.00	0.31	0.56	0.11	58.26	0.00	0.00	0.04	0.00	0.08	0.00	59.43
Venture B52	4711.15	34	calcite	ht	0.02	0.01	0.01	0.00	0.51	0.60	0.11	60.09	0.00	0.00	0.04	0.00	0.24	0.02	61.65
Venture B52	4711.15	35	calcite	ht	0.06	0.00	0.00	0.00	0.36	0.56	0.15	59.94	0.00	0.01	0.03	0.00	0.08	0.00	61.19
Venture B52	4711.15	36	calcite	ht	0.04	0.00	0.00	0.00	0.32	0.59	0.13	60.33	0.00	0.02	0.04	0.00	0.09	0.00	61.56
Venture B52	4711.15	37	calcite	ht	0.03	0.00	0.00	0.00	0.48	0.74	0.23	61.67	0.01	0.01	0.05	0.00	0.07	0.01	63.29
Venture B52	4711.15	38	calcite	ht	0.04	0.01	0.00	0.00	0.35	0.57	0.15	61.23	0.01	0.01	0.02	0.00	0.06	0.00	62.45
Venture B52	4711.15	39	calcite	ht	0.10	0.00	0.00	0.00	0.38	0.57	0.14	60.06	0.00	0.00	0.03	0.00	0.10	0.05	61.44
Venture B52	4711.15	40	calcite	ht	0.06	0.00	0.00	0.00	0.47	0.64	0.23	60.52	0.00	0.02	0.04	0.00	0.23	0.00	62.22
Venture B52	4711.15	41	calcite	ht	0.10	0.00	0.00	0.00	0.33	0.60	0.16	59.36	0.01	0.02	0.03	0.00	0.06	0.00	60.68
Venture B52	4711.15	42	calcite	ht	0.09	0.01	0.00	0.00	0.34	0.54	0.15	60.01	0.01	0.01	0.05	0.00	0.10	0.00	61.30
Venture B52	4715	5	ankerite	gt	0.01	0.00	0.00	0.03	10.12	1.44	11.74	32.61	0.00	0.01	0.05	0.00	0.04	0.00	56.05
Venture B52	4715	6	ankerite	gt	0.02	0.00	0.00	0.02	9.91	1.40	11.53	32.11	0.00	0.03	0.05	0.01	0.06	0.00	55.13
Venture B52	4715	7	ankerite	gt	0.08	0.00	0.01	0.03	9.45	1.45	12.08	31.18	0.00	0.02	0.00	0.00	0.09	0.00	54.38
Venture B52	4715	8	ankerite	gt	0.06	0.00	0.00	0.03	9.40	1.21	11.99	32.23	0.01	0.03	0.02	0.00	0.08	0.00	55.09
Venture B52	4715	9	apatite	gt	0.84	0.01	0.03	0.09	0.08	0.04	0.02	55.53	0.06	0.02	40.03	0.05	0.51	0.00	97.31
Venture B52	4715	10	ankerite	gt	0.02	0.00	0.00	0.03	9.38	1.52	11.30	32.29	0.02	0.02	0.04	0.01	0.06	0.00	54.67
Venture B52	4715	11	ankerite	gt	0.03	0.00	0.00	0.01	9.64	1.53	11.67	32.30	0.04	0.01	0.05	0.00	0.08	0.00	55.35
Venture B52	4715	12	ankerite	gt	0.02	0.00	0.00	0.03	9.68	1.42	11.60	32.04	0.02	0.03	0.02	0.01	0.06	0.00	54.93
Venture B52	4715	13	ankerite	gt	0.02	0.00	0.01	0.05	9.80	1.30	11.18	32.20	0.01	0.02	0.06	0.00	0.10	0.00	54.74
Venture B52	4715	14	ankerite	gt	0.04	0.00	0.00	0.03	9.45	1.41	11.23	32.36	0.00	0.01	0.03	0.02	0.07	0.00	54.65
Venture B52	4715	15	ankerite	gt	0.04	0.00	0.00	0.00	10.00	1.37	11.77	32.44	0.00	0.03	0.04	0.02	0.06	0.00	55.78
Venture B52	4715	16	ankerite	gt	0.02	0.00	0.01	0.03	9.67	1.44	11.39	32.49	0.02	0.02	0.04	0.00	0.09	0.00	55.22
Venture B52	4715	17	ankerite	gt	0.01	0.00	0.00	0.01	9.65	1.47	11.48	32.32	0.00	0.01	0.02	0.00	0.08	0.02	55.07
Venture B52	4715	18	ankerite	gt	0.04	0.00	0.00	0.04	9.82	1.29	11.36	31.59	0.01	0.02	0.03	0.00	0.09	0.01	54.30
Venture B52	4715	19	ankerite	gt	0.08	0.00	0.03	0.01	10.12	1.32	11.62	31.31	0.00	0.03	0.05	0.01	0.10	0.00	54.68
Venture B52	4715	20	calcite	ht	0.05	0.00	0.01	0.02	0.61	0.50	0.22	57.80	0.00	0.02	0.04	0.04	0.18	0.00	59.50
Venture B52	4715	21	calcite	ht	0.04	0.00	0.00	0.02	0.54	0.34	0.14	58.06	0.00	0.02	0.04	0.01	0.12	0.00	59.34
Venture B52	4715	22	calcite	ht	0.04	0.00	0.00	0.03	0.71	0.89	0.36	56.82	0.00	0.03	0.06	0.02	0.11	0.00	59.06
Venture B52	4715	23	calcite	ht	0.08	0.00	0.01	0.03	0.81	0.71	0.28	61.00	0.00	0.04	0.07	0.03	0.13	0.00	63.18
Venture B52	4715	24	calcite	ht	0.08	0.00	0.02	0.00	0.76	0.77	0.26	59.93	0.01	0.01	0.10	0.03	0.12	0.00	62.09
Venture B52	4715	25	Fe-calcite	ht	0.05	0.00	0.01	0.02	1.02	0.95	0.44	56.74	0.04	0.01	0.06	0.00	0.23	0.00	59.59
Venture B52	4715	26	calcite	ht	0.08	0.00	0.01	0.01	0.66	0.72	0.25	59.64	0.00	0.02	0.05	0.02	0.10	0.01	61.56
Venture B52	4715	27	chlorite	lt	20.71	0.17	15.12	0.01	20.87	0.02	7.25	0.71	0.07	0.22	0.03	0.00	0.11	0.00	65.29
Venture B52	4715	28	chlorite	lt	19.68	0.03	13.41	0.00	19.31	0.03	6.40	0.85	0.09	0.13	0.07	0.00	0.07	0.00	60.08
Venture B52	4715	29	chlorite	lt	21.72	1.73	15.68	0.02	22.23	0.05	8.00	0.63	0.08	0.21	0.01	0.00	0.10	0.06	70.53
Venture B52	4715	30	calcite	ht	0.09	0.00	0.00	0.00	0.63	0.66	0.25	59.98	0.02	0.04	0.06	0.01	0.07	0.01	61.82

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	4715	31	calcite	ht	0.05	0.00	0.00	0.00	0.60	0.66	0.24	59.93	0.03	0.15	0.04	0.04	0.05	0.04	61.84
Venture B52	4715	32	K-feldspar	gt	64.82	0.00	18.29	0.01	0.07	0.01	0.00	0.06	0.62	15.88	0.03	0.01	0.00	0.25	100.03
Venture B52	4715	33	calcite	ht	0.06	0.00	0.00	0.03	0.76	0.81	0.29	60.01	0.00	0.05	0.07	0.04	0.07	0.05	62.24
Venture B52	4715	34	calcite	ht	0.06	0.00	0.00	0.00	0.67	0.83	0.27	61.68	0.01	0.03	0.04	0.04	0.11	0.04	63.79
Venture B52	4715	35	calcite	gt	0.07	0.00	0.00	0.00	0.62	0.79	0.27	56.66	0.01	0.02	0.04	0.00	0.09	0.00	58.58
Venture B52	4715	36	calcite	ht	0.06	0.00	0.00	0.00	0.72	0.77	0.28	60.70	0.01	0.03	0.03	0.04	0.11	0.06	62.80
Venture B52	4954.36	125	ankerite	gt	0.00	0.00	0.05	0.00	12.54	1.47	10.18	30.71	0.00	0.01	0.03	0.01	0.02	0.00	55.03
Venture B52	4954.36	126	ankerite	gt	0.00	0.00	0.02	0.00	13.05	1.37	9.46	30.87	0.01	0.02	0.05	0.00	0.02	0.06	54.92
Venture B52	4954.36	127	ankerite	gt	0.03	0.00	0.02	0.00	12.13	1.56	9.73	31.00	0.00	0.02	0.00	0.02	0.02	0.05	54.59
Venture B52	4954.36	128	ankerite	gt	0.03	0.00	0.01	0.00	15.57	1.57	9.42	28.12	0.00	0.02	0.02	0.02	0.02	0.01	54.82
Venture B52	4954.36	129	ankerite	gt	0.07	0.01	0.03	0.00	15.49	1.25	9.41	28.33	0.01	0.01	0.02	0.00	0.00	0.04	54.67
Venture B52	4954.36	130	ankerite	gt	0.05	0.00	0.01	0.00	11.02	1.35	11.12	30.72	0.01	0.02	0.02	0.00	0.01	0.01	54.34
Venture B52	4954.36	131	ankerite	gt	0.00	0.00	0.02	0.00	12.06	1.42	10.50	30.80	0.00	0.03	0.02	0.02	0.02	0.01	54.91
Venture B52	4954.36	132	ankerite	gt	0.01	0.00	0.04	0.00	12.88	1.54	9.96	30.54	0.01	0.02	0.04	0.01	0.01	0.02	55.09
Venture B52	4954.36	133	ankerite	gt	0.05	0.00	0.03	0.00	12.75	1.49	9.90	30.39	0.03	0.02	0.02	0.02	0.00	0.03	54.73
Venture B52	4954.36	134	chlorite	lt	20.60	0.14	18.22	0.07	29.05	0.13	4.39	1.81	0.05	0.38	0.02	0.08	0.09	0.05	75.08
Venture B52	4954.36	135	illite	lt	46.93	0.01	30.21	0.00	1.91	0.04	1.13	0.47	0.17	7.66	0.03	0.00	0.08	0.01	88.66
Venture B52	4954.36	136	ankerite	gt	0.00	0.00	0.03	0.00	13.17	1.50	9.51	30.87	0.01	0.02	0.00	0.00	0.00	0.03	55.16
Venture B52	4954.36	137	ankerite	gt	0.01	0.00	0.03	0.00	12.50	1.70	9.98	30.98	0.01	0.03	0.04	0.00	0.01	0.02	55.30
Venture B52	4954.36	138	ankerite	gt	0.00	0.00	0.01	0.00	11.94	1.63	10.15	31.03	0.02	0.02	0.01	0.01	0.03	0.00	54.87
Venture B52	4954.36	139	ankerite	gt	0.03	0.00	0.01	0.00	11.36	1.29	11.02	30.53	0.01	0.03	0.02	0.00	0.00	0.02	54.31
Venture B52	4954.36	140	ankerite	gt	0.03	0.00	0.02	0.00	12.55	1.38	9.61	31.40	0.02	0.01	0.02	0.03	0.04	0.00	55.10
Venture B52	4954.36	141	ankerite	gt	0.02	0.00	0.03	0.00	11.69	1.55	9.87	31.30	0.01	0.01	0.06	0.00	0.05	0.02	54.62
Venture B52	4954.36	142	ankerite	gt	0.01	0.01	0.03	0.00	12.09	1.52	9.77	31.40	0.01	0.02	0.01	0.03	0.01	0.02	54.94
Venture B52	4954.36	143	ankerite	gt	0.00	0.00	0.02	0.00	12.56	1.54	9.77	30.89	0.00	0.01	0.02	0.02	0.03	0.00	54.86
Venture B52	4954.36	144	ankerite	gt	0.00	0.00	0.02	0.02	13.50	1.40	9.60	30.50	0.00	0.03	0.00	0.00	0.00	0.00	55.07
Venture B52	4954.36	145	ankerite	gt	0.02	0.00	0.02	0.00	13.91	1.23	9.06	30.61	0.01	0.01	0.01	0.00	0.05	0.01	54.94
Venture B52	4954.36	146	ankerite	gt	0.02	0.00	0.02	0.00	14.25	1.03	8.45	31.04	0.02	0.02	0.03	0.01	0.03	0.01	54.94
Venture B52	4954.36	147	ankerite	gt	0.00	0.00	0.02	0.01	13.26	1.32	9.24	30.91	0.01	0.02	0.00	0.00	0.02	0.08	54.89
Venture B52	4954.36	148	ankerite	gt	0.00	0.01	0.01	0.00	12.71	1.50	9.83	30.31	0.00	0.02	0.04	0.00	0.02	0.01	54.47
Venture B52	4954.36	149	albite	lt	55.09	0.00	20.85	0.00	0.31	0.02	0.17	0.74	12.10	0.02	0.00	0.00	0.37	0.00	89.67
Venture B52	4954.36	150	ankerite	gt	0.02	0.00	0.03	0.00	12.79	1.32	9.70	30.56	0.02	0.02	0.03	0.01	0.04	0.00	54.53
Venture B52	4954.36	151	ankerite	gt	0.00	0.00	0.00	0.00	13.21	1.24	9.06	30.54	0.00	0.02	0.03	0.00	0.05	0.02	54.18
Venture B52	5020.1	152	ankerite	gt	0.00	0.01	0.01	0.00	10.80	1.24	11.48	31.61	0.02	0.02	0.02	0.00	0.02	0.04	55.26
Venture B52	5020.1	153	ankerite	gt	0.02	0.00	0.01	0.02	12.93	1.21	9.20	31.56	0.02	0.02	0.04	0.01	0.03	0.04	55.10
Venture B52	5020.1	154	ankerite	gt	0.01	0.00	0.01	0.00	10.36	1.36	11.67	31.30	0.03	0.01	0.01	0.00	0.00	0.00	54.77

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	5020.1	155	calcite	ht	0.02	0.00	0.01	0.00	0.84	0.30	0.16	63.12	0.00	0.05	0.06	0.00	0.04	0.00	64.62
Venture B52	5020.1	156	Fe-calcite	ht	0.05	0.00	0.01	0.01	1.49	0.55	0.43	60.96	0.02	0.04	0.05	0.00	0.00	0.00	63.61
Venture B52	5020.1	157	Fe-calcite	ht	0.06	0.00	0.00	0.00	1.73	0.49	0.46	59.04	0.01	0.01	0.06	0.01	0.00	0.00	61.87
Venture B52	5020.1	158	ankerite	gt	0.00	0.00	0.00	0.00	13.74	1.27	9.57	30.19	0.01	0.01	0.03	0.00	0.00	0.01	54.83
Venture B52	5020.1	159	ankerite	gt	0.00	0.00	0.00	0.00	11.00	1.27	11.03	30.80	0.01	0.00	0.00	0.00	0.00	0.00	54.12
Venture B52	5020.1	160	TiO ₂	lt	1.83	84.07	1.32	0.60	4.45	0.15	0.20	0.94	0.07	0.06	0.07	0.12	0.08	1.12	95.08
Venture B52	5020.1	161	apatite	lt	1.23	0.01	0.74	0.03	0.25	0.03	0.07	54.37	0.19	0.20	35.19	0.05	0.21	0.03	92.58
Venture B52	5020.1	162	ankerite	gt	0.01	0.00	0.00	0.00	10.51	1.20	11.67	30.75	0.01	0.02	0.04	0.00	0.00	0.00	54.21
Venture B52	5020.1	163	ankerite	gt	0.04	0.00	0.01	0.00	12.88	1.23	9.98	30.50	0.01	0.04	0.03	0.00	0.00	0.00	54.73
Venture B52	5020.1	164	ankerite	gt	0.02	0.00	0.02	0.00	12.94	1.20	9.87	30.89	0.01	0.04	0.01	0.00	0.00	0.00	54.98
Venture B52	5020.1	165	ankerite	gt	0.09	0.00	0.01	0.00	14.06	1.27	10.15	28.94	0.01	0.06	0.04	0.00	0.00	0.00	54.63
Venture B52	5020.1	166	calcite	ht	0.00	0.00	0.00	0.00	0.74	0.32	0.16	59.40	0.00	0.04	0.04	0.00	0.06	0.00	60.76
Venture B52	5020.1	167	Fe-calcite	ht	0.05	0.00	0.01	0.00	1.32	0.44	0.41	58.74	0.01	0.03	0.02	0.00	0.06	0.00	61.09
Venture B52	5020.1	168	ankerite	gt	0.08	0.00	0.01	0.00	11.66	1.10	10.35	30.60	0.00	0.03	0.04	0.00	0.00	0.00	53.88
Venture B52	5020.1	169	albite	gt	67.93	0.00	19.14	0.00	0.04	0.00	0.00	0.23	11.90	0.01	0.00	0.00	0.42	0.00	99.67
Venture B52	5020.1	170	Fe-calcite	ht	0.07	0.00	0.03	0.00	1.09	0.35	0.23	59.14	0.00	0.05	0.07	0.00	0.01	0.00	61.04
Venture B52	5020.1	171	ankerite	gt	0.02	0.00	0.00	0.00	14.18	1.26	10.25	28.91	0.00	0.04	0.03	0.00	0.00	0.00	54.69
Venture B52	5020.1	172	Fe-calcite	gt	0.05	0.00	0.00	0.00	1.90	0.45	0.76	54.10	0.00	0.02	0.04	0.00	0.10	0.02	57.44
Venture B52	5020.1	173	ankerite	gt	0.00	0.00	0.00	0.00	10.26	1.19	11.63	31.35	0.00	0.00	0.03	0.00	0.00	0.00	54.45
Venture B52	5020.1	174	ankerite	gt	0.00	0.01	0.00	0.00	13.48	1.38	9.33	30.75	0.00	0.01	0.03	0.00	0.00	0.00	54.99
Venture B52	5020.1	175	ankerite	gt	0.00	0.00	0.00	0.00	13.02	1.13	9.85	30.93	0.01	0.00	0.01	0.00	0.00	0.01	54.97
Venture B52	5020.1	176	ankerite	gt	0.03	0.00	0.00	0.00	13.49	1.23	9.67	30.08	0.00	0.00	0.03	0.00	0.00	0.00	54.52
Venture B52	5020.1	177	ankerite	gt	0.02	0.00	0.00	0.00	10.61	1.20	11.72	30.81	0.00	0.00	0.01	0.00	0.00	0.00	54.37
Venture B52	5020.1	178	Fe-calcite	ht	0.06	0.00	0.01	0.00	1.19	0.36	0.35	58.19	0.00	0.02	0.03	0.00	0.11	0.00	60.31
Venture B52	5020.1	179	pyrite	gt	0.30	0.18	0.17	0.24	56.00	0.12	0.11	0.45	0.11	0.06	0.03	0.22	0.29	0.34	58.63
Venture B52	5020.1	180	calcite	gt	0.09	0.00	0.00	0.00	0.99	0.33	0.27	54.61	0.01	0.01	0.02	0.00	0.08	0.00	56.43
Venture B52	5020.1	181	ankerite	gt	0.01	0.00	0.00	0.00	13.40	1.21	9.48	30.44	0.01	0.01	0.03	0.00	0.00	0.00	54.60
Venture B52	5020.1	182	zircon		34.21	0.21	0.12	0.39	0.32	0.16	0.09	0.08	0.09	0.07	0.38	0.29	1.17	0.45	38.03
Venture B52	5020.1	183	ankerite	gt	0.09	0.00	0.00	0.00	13.20	1.23	9.82	29.91	0.00	0.02	0.03	0.00	0.00	0.00	54.31
Venture B52	5020.1	184	ankerite	lt	0.05	0.00	0.00	0.00	10.83	1.14	11.26	30.35	0.01	0.01	0.03	0.00	0.00	0.00	53.69
Venture B52	5020.1	185	ankerite	gt	0.06	0.00	0.01	0.00	14.69	1.26	10.81	28.01	0.00	0.06	0.04	0.00	0.00	0.01	54.95
Venture B52	5020.1	186	calcite	ht	0.15	0.00	0.04	0.00	0.95	0.37	0.22	60.75	0.03	0.06	0.03	0.00	0.00	0.00	62.60
Venture B52	5020.1	187	ankerite	gt	0.07	0.00	0.00	0.00	14.55	1.25	10.75	27.99	0.03	0.03	0.00	0.01	0.00	0.00	54.67
Venture B52	5020.1	188	ankerite	gt	0.10	0.02	0.01	0.00	13.61	1.23	9.44	30.14	0.02	0.02	0.05	0.00	0.00	0.00	54.65
Venture B52	5020.1	189	calcite	gt	0.12	0.00	0.03	0.00	0.96	0.36	0.31	56.37	0.02	0.03	0.06	0.00	0.09	0.00	58.34
Venture B52	5020.1	190	Fe-calcite	ht	0.05	0.00	0.02	0.00	1.21	0.35	0.39	56.74	0.04	0.03	0.07	0.00	0.16	0.00	59.06

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	5020.1	191	Fe-calcite	ht	0.10	0.02	0.02	0.00	1.24	0.47	0.51	58.43	0.02	0.03	0.05	0.01	0.04	0.00	60.95
Venture B52	5020.1	192	Fe-calcite	gt	0.15	0.00	0.02	0.00	1.94	0.51	0.75	54.24	0.03	0.05	0.04	0.00	0.00	0.00	57.73
Venture B52	5020.1	193	Fe-calcite	ht	0.07	0.01	0.02	0.00	1.09	0.44	0.37	60.48	0.02	0.05	0.06	0.02	0.00	0.00	62.63
Venture B52	5020.1	194	K-feldspar	lt	47.21	0.00	13.86	0.00	4.26	0.33	2.52	8.94	0.33	10.90	0.00	0.00	0.00	0.27	88.62
Venture B52	5020.1	195	ankerite	gt	0.02	0.01	0.02	0.00	14.74	1.32	10.32	28.70	0.03	0.04	0.02	0.00	0.00	0.00	55.22
Venture B52	5020.1	196	ankerite	gt	0.03	0.00	0.01	0.00	13.50	1.29	9.13	30.67	0.03	0.02	0.02	0.00	0.00	0.00	54.69
Venture B52	5020.1	197	ankerite	gt	0.09	0.00	0.03	0.00	13.82	1.20	10.01	29.73	0.00	0.03	0.04	0.00	0.00	0.00	54.94
Venture B52	5020.1	198	Fe-calcite	ht	0.04	0.00	0.02	0.00	1.10	0.39	0.27	59.86	0.01	0.07	0.06	0.01	0.00	0.00	61.84
Venture B52	5020.1	199	ankerite	gt	0.05	0.00	0.00	0.00	12.29	1.24	10.29	31.08	0.02	0.03	0.03	0.01	0.00	0.01	55.06
Venture B52	5020.1	200	ankerite	gt	0.06	0.00	0.02	0.00	13.33	1.11	9.58	30.73	0.03	0.02	0.01	0.00	0.00	0.00	54.90
Venture B52	5020.1	201	Fe-calcite	gt	0.05	0.00	0.01	0.00	1.12	0.38	0.35	55.51	0.01	0.02	0.06	0.00	0.14	0.00	57.64
Venture B52	5020.1	202	calcite	gt	0.06	0.00	0.01	0.00	0.87	0.28	0.24	55.80	0.00	0.03	0.07	0.00	0.11	0.00	57.48
Venture B52	5020.1	203	ankerite	gt	0.11	0.00	0.02	0.00	13.17	1.09	9.53	30.20	0.02	0.03	0.03	0.00	0.00	0.02	54.23
Venture B52	5020.59	125	ankerite	gt	0.01	0.00	0.00	0.00	10.86	1.16	11.24	31.27	0.00	0.02	0.04	0.00	0.03	0.00	54.64
Venture B52	5020.59	126	ankerite	gt	0.00	0.00	0.00	0.00	12.10	0.97	10.70	30.94	0.00	0.01	0.02	0.00	0.04	0.00	54.78
Venture B52	5020.59	127	ankerite	gt	0.00	0.00	0.00	0.00	11.90	0.94	10.74	31.84	0.00	0.00	0.00	0.00	0.08	0.00	55.49
Venture B52	5020.59	128	ankerite	gt	0.01	0.03	0.00	0.00	12.11	0.92	10.91	31.30	0.00	0.01	0.03	0.00	0.04	0.00	55.35
Venture B52	5020.59	129	ankerite	gt	0.39	0.02	0.35	0.00	15.23	1.31	9.56	28.72	0.00	0.03	0.00	0.00	0.01	0.00	55.64
Venture B52	5020.59	130	ankerite	gt	0.00	0.01	0.00	0.00	11.35	1.02	10.50	31.42	0.00	0.01	0.00	0.00	0.05	0.00	54.38
Venture B52	5020.59	131	ankerite	gt	0.00	0.02	0.00	0.00	11.25	1.02	10.65	31.91	0.00	0.02	0.02	0.00	0.07	0.00	54.96
Venture B52	5020.59	132	ankerite	gt	0.01	0.00	0.00	0.00	11.22	0.98	10.39	31.81	0.00	0.02	0.00	0.00	0.07	0.00	54.49
Venture B52	5020.59	133	ankerite	gt	0.00	0.00	0.00	0.00	11.74	0.99	10.50	31.68	0.00	0.01	0.01	0.00	0.06	0.00	55.00
Venture B52	5020.59	134	ankerite	gt	0.01	0.00	0.00	0.00	11.96	0.98	10.84	31.04	0.00	0.02	0.00	0.00	0.03	0.00	54.88
Venture B52	5020.59	135	Fe-calcite	ht	0.06	0.01	0.01	0.00	1.15	0.49	0.32	59.86	0.00	0.04	0.04	0.00	0.04	0.00	62.01
Venture B52	5020.59	136	chlorite	lt	17.63	0.00	16.39	0.00	22.63	0.01	4.01	0.38	0.11	0.06	0.04	0.00	0.11	0.00	61.36
Venture B52	5020.59	137	chlorite	lt	18.01	0.10	16.06	0.00	22.51	0.02	4.28	0.25	0.19	0.05	0.01	0.00	0.08	0.00	61.55
Venture B52	5020.59	138	quartz	gt	96.38	0.03	0.22	0.00	0.16	0.00	0.01	0.43	0.00	0.01	0.00	0.00	0.71	0.00	97.94
Venture B52	5020.59	139	ankerite	gt	4.21	0.00	1.34	0.00	13.53	1.11	10.39	26.55	0.02	1.01	0.01	0.00	0.00	0.01	58.19
Venture B52	5020.59	140	ankerite	gt	0.00	0.01	0.00	0.00	13.68	1.25	10.12	30.16	0.00	0.04	0.00	0.00	0.00	0.00	55.26
Venture B52	5020.59	141	ankerite	gt	0.29	0.00	0.26	0.00	11.57	1.01	10.37	31.76	0.00	0.03	0.02	0.00	0.05	0.00	55.37
Venture B52	5020.59	142	ankerite	gt	0.02	0.00	0.00	0.01	13.37	1.05	10.96	29.62	0.00	0.02	0.00	0.00	0.00	0.00	55.05
Venture B52	5020.59	143	ankerite	gt	0.00	0.01	0.00	0.00	12.25	1.01	10.21	31.50	0.00	0.02	0.00	0.00	0.04	0.00	55.04
Venture B52	5020.59	144	ankerite	gt	0.00	0.02	0.00	0.01	13.28	1.03	10.71	30.28	0.00	0.03	0.00	0.00	0.01	0.00	55.37
Venture B52	5020.59	145	ankerite	gt	0.00	0.00	0.00	0.00	13.24	1.08	9.99	30.06	0.01	0.02	0.01	0.00	0.01	0.00	54.43
Venture B52	5020.59	146	ankerite	gt	0.00	0.00	0.00	0.00	10.96	0.98	10.10	32.15	0.00	0.02	0.00	0.00	0.08	0.00	54.29
Venture B52	5020.59	147	ankerite	gt	0.00	0.00	0.00	0.00	13.29	1.12	10.28	30.18	0.00	0.01	0.03	0.00	0.02	0.00	54.92

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	5020.59	148	ankerite	gt	0.01	0.01	0.00	0.00	12.83	1.04	10.37	30.11	0.00	0.02	0.02	0.00	0.04	0.00	54.45
Venture B52	5020.59	149	ankerite	gt	0.04	0.00	0.00	0.00	11.78	1.01	10.29	30.93	0.00	0.03	0.00	0.00	0.05	0.00	54.12
Venture B52	5020.59	150	ankerite	gt	0.08	0.01	0.01	0.00	13.09	1.05	10.85	29.90	0.00	0.03	0.03	0.00	0.01	0.00	55.04
Venture B52	5020.59	151	ankerite	gt	0.07	0.00	0.00	0.00	13.29	1.02	10.58	29.68	0.00	0.02	0.00	0.00	0.00	0.00	54.65
Venture B52	5022.74	58	ankerite	gt	0.02	0.00	0.00	0.00	13.43	1.06	10.45	29.28	0.02	0.02	0.00	0.00	0.00	0.02	54.29
Venture B52	5022.74	59	ankerite	lt	0.04	0.00	0.01	0.00	11.53	0.95	10.25	30.96	0.00	0.01	0.02	0.00	0.06	0.01	53.84
Venture B52	5022.74	60	ankerite	lt	0.03	0.00	0.00	0.00	11.78	0.99	10.06	30.76	0.04	0.02	0.02	0.01	0.05	0.00	53.78
Venture B52	5022.74	61	ankerite	gt	0.00	0.00	0.01	0.06	13.34	1.07	10.13	29.49	0.03	0.02	0.02	0.00	0.00	0.01	54.18
Venture B52	5022.74	62	ankerite	lt	0.02	0.00	0.00	0.00	11.33	0.96	10.26	31.08	0.02	0.01	0.02	0.00	0.05	0.05	53.79
Venture B52	5022.74	63	ankerite	lt	0.04	0.00	0.00	0.04	12.94	0.99	10.64	29.12	0.00	0.01	0.02	0.02	0.00	0.00	53.82
Venture B52	5022.74	64	ankerite	gt	0.00	0.00	0.00	0.01	13.20	1.04	10.42	30.01	0.03	0.01	0.00	0.01	0.00	0.03	54.77
Venture B52	5022.74	65	ankerite	lt	0.04	0.00	0.01	0.01	10.88	0.90	10.04	31.10	0.00	0.01	0.01	0.00	0.05	0.03	53.10
Venture B52	5022.74	66	ankerite	lt	0.03	0.00	0.00	0.00	11.05	0.93	10.04	30.79	0.03	0.01	0.02	0.00	0.07	0.02	52.99
Venture B52	5022.74	67	ankerite	lt	0.03	0.00	0.00	0.00	13.16	1.03	10.61	28.77	0.01	0.01	0.00	0.01	0.00	0.06	53.70
Venture B52	5022.74	68	Fe-calcite	ht	0.03	0.00	0.01	0.02	1.93	0.47	0.75	58.72	0.02	0.03	0.04	0.02	0.13	0.02	62.19
Venture B52	5022.74	69	ankerite	gt	0.03	0.00	0.02	0.03	13.36	1.22	9.59	30.15	0.02	0.02	0.02	0.00	0.00	0.02	54.47
Venture B52	5022.74	70	ankerite	gt	0.02	0.00	0.01	0.02	12.97	1.26	9.47	30.30	0.01	0.01	0.03	0.00	0.00	0.05	54.13
Venture B52	5022.74	71	ankerite	gt	0.01	0.00	0.00	0.04	13.08	1.25	9.74	30.23	0.01	0.02	0.01	0.00	0.00	0.04	54.42
Venture B52	5022.74	72	ankerite	gt	0.05	0.00	0.05	0.04	13.25	1.24	10.13	30.22	0.02	0.01	0.02	0.00	0.00	0.00	55.03
Venture B52	5022.74	73	ankerite	gt	0.00	0.00	0.00	0.00	13.24	1.22	9.62	30.16	0.00	0.01	0.02	0.04	0.00	0.00	54.32
Venture B52	5022.74	74	calcite	gt	0.07	0.00	0.03	0.00	0.87	0.41	0.31	56.97	0.00	0.03	0.03	0.03	0.05	0.00	58.80
Venture B52	5022.74	75	calcite	gt	0.05	0.00	0.01	0.00	0.82	0.40	0.28	56.62	0.02	0.02	0.04	0.04	0.03	0.00	58.31
Venture B52	5022.74	76	Fe-calcite	gt	0.04	0.00	0.01	0.00	1.49	0.43	0.54	56.99	0.02	0.04	0.05	0.03	0.26	0.00	59.90
Venture B52	5022.74	77	calcite	gt	0.05	0.00	0.02	0.00	0.92	0.41	0.29	56.30	0.02	0.02	0.03	0.02	0.04	0.02	58.12
Venture B52	5022.74	78	Fe-calcite	gt	0.04	0.00	0.00	0.00	1.83	0.57	0.72	54.65	0.02	0.02	0.03	0.02	0.12	0.01	58.02
Venture B52	5022.74	79	Fe-calcite	ht	0.00	0.01	0.00	0.00	0.97	0.29	0.47	59.79	0.04	0.02	0.02	0.01	0.26	0.00	61.87
Venture B52	5022.74	80	calcite	ht	0.00	0.00	0.00	0.00	0.00	0.00	0.05	61.09	0.05	0.01	0.03	0.00	0.27	0.00	61.50
Venture B52	5022.74	81	Fe-calcite	ht	0.02	0.00	0.00	0.00	1.26	0.24	0.56	59.06	0.03	0.01	0.04	0.03	0.23	0.00	61.46
Venture B52	5022.74	82	calcite	ht	0.01	0.05	0.01	0.00	0.72	0.12	0.39	60.51	0.03	0.01	0.07	0.01	0.21	0.00	62.14
Venture B52	5022.74	83	calcite	ht	0.00	0.00	0.00	0.00	0.41	0.10	0.17	60.89	0.05	0.01	0.05	0.00	0.21	0.00	61.90
Venture B52	5022.74	84	calcite	gt	0.01	0.00	0.02	0.00	0.00	0.00	0.02	57.08	0.14	0.00	0.04	0.00	0.24	0.02	57.57
Venture B52	5022.74	85	ankerite	lt	0.03	0.02	0.00	0.00	11.47	0.96	10.23	31.08	0.00	0.02	0.02	0.00	0.01	0.00	53.84
Venture B52	5022.74	86	ankerite	lt	0.08	0.02	0.06	0.00	12.03	1.21	11.52	28.90	0.00	0.02	0.02	0.00	0.00	0.00	53.84
Venture B52	5022.74	87	ankerite	gt	0.00	0.01	0.00	0.00	13.66	1.14	10.19	29.64	0.00	0.05	0.00	0.01	0.00	0.00	54.71
Venture B52	5022.74	88	Fe-calcite	gt	0.04	0.05	0.00	0.00	1.36	0.31	0.32	57.89	0.00	0.06	0.03	0.00	0.07	0.00	60.14
Venture B52	5022.74	89	ankerite	gt	0.02	0.09	0.00	0.00	13.02	1.07	10.16	29.58	0.01	0.05	0.00	0.00	0.00	0.00	54.01

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	5022.74	90	ankerite	gt	0.00	0.01	0.00	0.00	13.37	1.09	10.39	29.34	0.00	0.01	0.03	0.00	0.00	0.00	54.24
Venture B52	5022.74	91	ankerite	gt	0.00	0.01	0.00	0.00	12.77	1.07	10.55	29.98	0.00	0.00	0.02	0.00	0.00	0.00	54.41
Venture B52	5022.74	92	ankerite	lt	0.00	0.00	0.00	0.00	13.22	1.01	10.83	28.68	0.00	0.01	0.00	0.00	0.00	0.00	53.76
Venture B52	5022.74	93	ankerite	gt	0.00	0.01	0.00	0.00	11.23	0.92	9.46	32.51	0.00	0.02	0.02	0.00	0.02	0.00	54.20
Venture B52	5022.74	94	ankerite	lt	0.03	0.01	0.00	0.00	11.09	1.16	11.15	29.96	0.01	0.01	0.02	0.00	0.00	0.00	53.45
Venture B52	5022.74	95	ankerite	gt	0.01	0.03	0.00	0.00	12.96	1.06	10.46	29.50	0.00	0.01	0.01	0.00	0.00	0.00	54.06
Venture B52	5022.74	96	ankerite	lt	0.00	0.01	0.00	0.00	13.09	1.07	10.49	29.17	0.00	0.01	0.00	0.00	0.00	0.00	53.85
Venture B52	5022.74	97	ankerite	gt	0.01	0.01	0.00	0.00	13.02	1.07	10.40	29.40	0.00	0.01	0.04	0.00	0.00	0.00	53.96
Venture B52	5022.74	98	ankerite	gt	0.05	0.02	0.00	0.00	11.25	0.92	10.16	31.47	0.00	0.02	0.02	0.00	0.02	0.00	53.93
Venture B52	5045.32	43	Mg-calcite	ht	0.00	0.00	0.00	0.00	0.70	0.19	1.78	60.77	0.00	0.03	0.20	0.00	0.23	0.00	63.90
Venture B52	5045.32	44	Mg-calcite	ht	0.01	0.00	0.00	0.00	0.68	0.20	1.76	56.89	0.00	0.02	0.17	0.00	0.21	0.00	59.93
Venture B52	5045.32	45	ankerite	gt	0.18	0.00	0.18	0.00	14.49	1.20	9.71	29.58	0.00	0.02	0.04	0.00	0.00	0.05	55.45
Venture B52	5045.32	46	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.15	0.42	1.89	55.81	0.00	0.00	0.18	0.00	0.18	0.02	59.66
Venture B52	5045.32	47	Fe-calcite	ht	0.02	0.00	0.00	0.00	1.28	0.44	2.03	56.28	0.04	0.02	0.58	0.00	0.22	0.00	60.91
Venture B52	5045.32	48	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.30	0.49	2.17	54.39	0.01	0.01	0.44	0.00	0.19	0.00	59.01
Venture B52	5045.32	49	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.52	0.50	1.82	55.76	0.01	0.02	0.18	0.00	0.19	0.00	60.00
Venture B52	5045.32	50	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.03	0.47	0.90	56.35	0.02	0.02	0.11	0.00	0.16	0.00	59.08
Venture B52	5045.32	51	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.56	0.48	0.78	58.96	0.03	0.03	0.16	0.00	0.11	0.00	62.13
Venture B52	5045.32	52	TiO ₂	lt	1.53	86.34	1.29	0.16	3.24	0.09	0.19	1.39	0.09	0.04	0.06	0.06	0.14	1.02	95.63
Venture B52	5045.32	53	Fe-Mg-calcite	ht	0.00	0.00	0.00	0.00	1.28	0.49	2.08	56.29	0.04	0.02	0.52	0.00	0.21	0.00	60.92
Venture B52	5045.32	54	calcite	ht	0.31	0.00	0.24	0.00	0.71	0.37	0.16	60.04	0.01	0.08	0.04	0.01	0.01	0.00	61.98
Venture B52	5045.32	55	calcite	ht	0.16	0.00	0.13	0.00	0.59	0.31	0.13	57.76	0.00	0.10	0.05	0.00	0.02	0.00	59.25
Venture B52	5045.32	56	illite	gt	49.79	0.00	32.74	0.00	0.74	0.00	0.98	0.35	0.15	8.96	0.02	0.00	0.00	0.00	93.73
Venture B52	5045.32	57	illite	lt	44.69	0.00	29.32	0.00	0.76	0.00	0.89	4.96	0.10	8.31	0.03	0.00	0.00	0.00	89.06
Venture B52	5045.32	58	illite	gt	50.30	0.00	33.53	0.00	0.66	0.00	0.93	0.27	0.15	8.96	0.03	0.00	0.00	0.00	94.83
Venture B52	5045.32	59	calcite	ht	0.43	0.00	0.33	0.00	0.80	0.38	0.20	57.13	0.00	0.08	0.05	0.00	0.01	0.00	59.40
Venture B52	5045.32	60	calcite	ht	0.02	0.00	0.03	0.00	0.73	0.39	0.14	60.10	0.00	0.06	0.07	0.00	0.01	0.01	61.55
Venture B52	5045.32	61	Fe-calcite	ht	0.06	0.00	0.04	0.00	1.01	0.40	0.23	59.38	0.01	0.14	0.04	0.00	0.03	0.00	61.34
Venture B52	5045.32	62	illite	gt	49.24	0.00	32.38	0.00	0.97	0.00	0.94	0.26	0.15	9.12	0.02	0.00	0.00	0.00	93.08
Venture B52	5045.32	63	illite	lt	43.02	0.00	28.03	0.00	0.76	0.00	0.84	0.26	0.13	8.23	0.01	0.00	0.00	0.00	81.29
Venture B52	5045.32	64	calcite	ht	0.26	0.00	0.22	0.00	0.79	0.37	0.17	60.33	0.00	0.08	0.03	0.00	0.00	0.01	62.25
Venture B52	5045.32	65	ankerite	gt	0.00	0.00	0.03	0.00	12.24	1.33	9.59	31.20	0.00	0.06	0.03	0.00	0.00	0.00	54.49
Venture B52	5045.32	66	calcite	ht	0.13	0.00	0.10	0.00	0.62	0.35	0.12	59.89	0.00	0.04	0.07	0.00	0.02	0.00	61.34
Venture B52	5045.32	67	Fe-calcite	ht	0.01	0.00	0.01	0.00	1.57	0.67	0.56	59.33	0.00	0.05	0.04	0.00	0.01	0.00	62.24
Venture B52	5045.32	68	illite	lt	42.19	0.00	27.60	0.00	0.60	0.00	0.80	0.24	0.10	7.81	0.03	0.00	0.00	0.00	79.37
Venture B52	5045.32	69	illite	lt	40.21	0.00	26.25	0.00	0.59	0.00	0.74	0.27	0.08	7.43	0.04	0.00	0.00	0.00	75.60

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	5045.32	70	calcite	ht	0.21	0.00	0.16	0.00	0.92	0.35	0.24	60.42	0.00	0.19	0.06	0.00	0.00	0.00	62.56
Venture B52	5045.32	71	Fe-Mg-calcite	ht	0.00	0.00	0.00	0.00	1.32	0.49	2.11	54.53	0.02	0.02	0.39	0.00	0.17	0.00	59.06
Venture B52	5045.32	72	Mg-calcite	ht	0.00	0.00	0.00	0.00	0.71	0.21	1.91	58.72	0.01	0.02	0.19	0.03	0.17	0.00	61.97
Venture B52	5045.32	73	Mg-calcite	ht	0.01	0.00	0.00	0.00	0.67	0.15	1.83	62.46	0.01	0.02	0.17	0.00	0.29	0.00	65.62
Venture B52	5045.32	74	Fe-Mg-calcite	ht	0.01	0.00	0.00	0.00	1.53	0.54	2.47	55.10	0.03	0.01	0.58	0.00	0.16	0.00	60.44
Venture B52	5045.32	75	Fe-Mg-calcite	ht	0.01	0.00	0.00	0.00	1.33	0.48	2.03	55.33	0.04	0.02	0.47	0.00	0.19	0.00	59.90
Venture B52	5045.32	76	Fe-Mg-calcite	ht	0.00	0.00	0.00	0.00	1.09	0.47	1.56	56.19	0.04	0.01	0.23	0.00	0.15	0.00	59.75
Venture B52	5045.32	77	Mg-calcite	ht	0.02	0.00	0.00	0.00	0.64	0.22	1.44	58.47	0.02	0.03	0.16	0.00	0.19	0.00	61.18
Venture B52	5045.32	78	Fe-Mg-calcite	gt	0.01	0.00	0.00	0.00	1.05	0.45	1.48	55.18	0.03	0.01	0.47	0.00	0.13	0.00	58.81
Venture B52	5045.32	79	Fe-Mg-calcite	gt	0.00	0.00	0.00	0.00	1.27	0.46	1.42	54.22	0.07	0.01	0.29	0.00	0.08	0.00	57.82
Venture B52	5045.32	80	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.58	0.49	0.44	57.15	0.00	0.04	0.00	0.00	0.25	0.00	59.96
Venture B52	5045.32	81	Fe-calcite	ht	0.03	0.00	0.01	0.00	1.46	0.47	0.42	56.14	0.02	0.04	0.04	0.00	0.22	0.00	58.85
Venture B52	5045.32	82	Fe-calcite	ht	0.00	0.00	0.00	0.01	2.14	0.62	0.63	57.39	0.00	0.10	0.02	0.00	0.10	0.00	60.99
Venture B52	5045.32	83	Fe-calcite	ht	0.00	0.00	0.00	0.02	1.41	0.43	0.54	53.99	0.00	0.02	0.02	0.00	0.20	0.00	56.64
Venture B52	5045.32	84	Fe-Mg-calcite	ht	0.00	0.00	0.00	0.00	1.38	0.45	2.18	54.85	0.02	0.01	0.31	0.00	0.22	0.00	59.42
Venture B52	5045.32	85	chromite	gt	0.09	0.14	19.26	48.42	20.18	0.47	7.23	0.08	0.03	0.06	0.03	0.18	0.23	0.19	96.59
Venture B52	5045.32	86	apatite	lt	1.26	0.23	0.03	0.06	0.25	0.08	0.10	55.02	0.16	0.05	36.42	0.03	0.34	0.02	94.07
Venture B52	5045.32	87	calcite	ht	0.00	0.00	0.00	0.00	0.66	0.33	0.14	60.66	0.00	0.05	0.01	0.00	0.01	0.00	61.86
Venture B52	5045.32	88	calcite	ht	0.04	0.00	0.00	0.00	0.53	0.28	0.10	61.71	0.00	0.05	0.00	0.00	0.03	0.00	62.74
Venture B52	5045.32	89	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.41	0.52	0.69	57.66	0.03	0.02	0.23	0.00	0.17	0.00	60.75
Venture B52	5045.32	90	Fe-calcite	ht	0.01	0.00	0.00	0.00	1.21	0.48	0.86	58.04	0.02	0.02	0.13	0.00	0.15	0.00	60.92
Venture B52	5045.32	91	Fe-Mg-calcite	ht	0.10	0.00	0.05	0.00	1.48	0.47	1.03	57.53	0.02	0.04	0.15	0.00	0.19	0.00	61.06
Venture B52	5045.32	92	Fe-Mg-calcite	ht	0.00	0.00	0.00	0.00	1.27	0.46	1.78	57.33	0.04	0.03	0.63	0.00	0.23	0.00	61.76
Venture B52	5045.32	93	Fe-Mg-calcite	ht	0.00	0.00	0.02	0.00	1.36	0.50	2.17	56.58	0.01	0.01	0.26	0.00	0.22	0.00	61.13
Venture B52	5045.32	94	Fe-Mg-calcite	gt	0.02	0.00	0.00	0.00	1.45	0.51	2.41	53.30	0.03	0.01	0.47	0.00	0.20	0.00	58.40
Venture B52	5045.32	95	Fe-Mg-calcite	ht	0.00	0.00	0.01	0.00	1.50	0.51	1.89	56.10	0.04	0.02	0.46	0.00	0.24	0.00	60.77
Venture B52	5045.32	96	Fe-Mg-calcite	ht	0.00	0.00	0.01	0.00	1.35	0.54	2.08	55.50	0.05	0.03	0.45	0.00	0.23	0.00	60.22
Venture B52	5045.32	97	Mg-calcite	ht	0.00	0.00	0.01	0.00	0.53	0.13	1.83	61.80	0.01	0.02	0.17	0.00	0.33	0.00	64.84
Venture B52	5045.32	98	Fe-Mg-calcite	ht	0.00	0.00	0.01	0.01	1.49	0.49	2.34	55.05	0.03	0.01	0.42	0.00	0.15	0.00	60.00
Venture B52	5045.32	99	Fe-Mg-calcite	ht	0.00	0.00	0.00	0.01	1.39	0.51	2.14	54.57	0.01	0.02	0.37	0.00	0.17	0.00	59.20
Venture B52	5045.32	100	Mg-calcite	ht	0.00	0.00	0.01	0.00	0.49	0.15	1.79	60.05	0.00	0.02	0.16	0.00	0.26	0.00	62.95
Venture B52	5045.32	101	Fe-Mg-calcite	ht	0.02	0.00	0.01	0.02	1.43	0.51	2.11	57.66	0.05	0.02	0.50	0.01	0.17	0.00	62.50
Venture B52	5045.32	102	Fe-Mg-calcite	gt	0.18	0.13	0.08	0.00	0.97	0.30	1.85	48.17	1.32	0.08	0.28	0.00	0.14	0.00	53.50
Venture B52	5045.32	103	Fe-Mg-calcite	ht	0.01	0.00	0.01	0.00	1.42	0.49	2.28	56.03	0.06	0.00	0.60	0.00	0.19	0.00	61.08
Venture B52	5045.32	104	calcite	ht	0.02	0.00	0.01	0.02	0.67	0.32	0.14	59.96	0.01	0.06	0.00	0.01	0.00	0.00	61.21
Venture B52	5045.32	105	Fe-Mg-calcite	ht	0.00	0.00	0.01	0.00	1.30	0.46	2.00	55.41	0.02	0.01	0.50	0.00	0.16	0.00	59.87

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	5045.32	106	Fe-Mg-calcite	ht	0.03	0.00	0.00	0.00	1.23	0.50	1.95	53.98	0.01	0.02	0.34	0.00	0.18	0.00	58.25
Venture B52	5045.32	107	Fe-Mg-calcite	ht	0.01	0.00	0.02	0.02	1.27	0.48	1.92	55.85	0.05	0.01	0.48	0.00	0.19	0.00	60.31
Venture B52	5045.32	108	Fe-Mg-calcite	gt	0.02	0.00	0.00	0.00	1.51	0.53	2.42	52.37	0.03	0.01	0.49	0.00	0.18	0.00	57.57
Venture B52	5045.32	109	ankerite	gt	0.08	0.00	0.00	0.02	13.53	1.10	10.00	29.68	0.00	0.05	0.00	0.00	0.00	0.00	54.46
Venture B52	5045.32	110	calcite	lt	0.00	0.00	0.01	0.00	0.36	0.16	0.17	40.10	0.00	0.01	0.00	0.00	0.00	0.00	40.81
Venture B52	5045.32	111	albite	gt	68.34	0.00	19.29	0.00	0.21	0.01	0.02	0.43	12.11	0.06	0.00	0.00	0.46	0.00	100.93
Venture B52	5045.32	112	chlorite	gt	23.96	0.22	22.61	0.04	31.09	0.07	5.16	1.17	0.05	0.09	0.00	0.04	0.09	0.03	84.60
Venture B52	5045.32	113	chlorite	gt	23.72	0.04	22.82	0.07	31.82	0.06	5.29	1.15	0.03	0.02	0.00	0.04	0.11	0.01	85.19
Venture B52	5045.32	114	calcite	ht	0.02	0.00	0.00	0.02	0.70	0.32	0.12	59.86	0.00	0.04	0.00	0.00	0.00	0.00	61.09
Venture B52	5045.32	115	calcite	ht	0.02	0.00	0.00	0.04	0.64	0.31	0.08	59.85	0.01	0.04	0.00	0.01	0.00	0.00	60.98
Venture B52	5045.32	116	Mg-calcite	ht	0.01	0.00	0.00	0.01	0.86	0.31	1.63	58.75	0.02	0.02	0.23	0.00	0.17	0.00	62.00
Venture B52	5045.32	117	TiO ₂	gt	1.27	93.38	1.29	0.11	1.72	0.09	0.28	2.76	0.02	0.05	0.00	0.08	0.06	1.06	102.15
Venture B52	5045.32	118	ankerite	gt	0.01	0.02	0.01	0.02	13.74	1.12	9.88	30.15	0.00	0.03	0.00	0.00	0.00	0.00	54.97
Venture B52	5045.32	119	chlorite	gt	23.68	0.11	22.84	0.09	31.43	0.06	5.33	0.48	0.04	0.03	0.00	0.06	0.06	0.08	84.30
Venture B52	5045.32	120	chlorite	lt	23.21	0.42	21.63	0.08	32.19	0.08	5.35	0.73	0.02	0.07	0.00	0.04	0.08	0.05	83.97
Venture B52	5045.32	121	ankerite	gt	0.15	0.03	0.04	0.02	15.63	1.20	9.88	28.04	0.03	0.01	0.00	0.00	0.00	0.00	55.03
Venture B52	5045.32	122	Fe-Mg-calcite	ht	0.00	0.00	0.00	0.02	1.52	0.53	2.56	55.81	0.04	0.04	0.28	0.00	0.16	0.00	60.97
Venture B52	5045.32	123	Fe-Mg-calcite	ht	0.03	0.00	0.00	0.02	1.41	0.48	2.17	54.96	0.03	0.02	0.28	0.00	0.17	0.00	59.55
Venture B52	5045.32	124	ankerite	gt	0.00	0.00	0.00	0.03	15.08	1.16	9.73	28.75	0.00	0.03	0.01	0.00	0.00	0.00	54.79
Venture B52	5047.51	5	ankerite	gt	0.00	0.00	0.00	0.01	12.44	1.45	10.06	30.12	0.00	0.01	0.03	0.02	0.00	0.00	54.14
Venture B52	5047.51	6	ankerite	gt	0.02	0.00	0.01	0.02	12.65	1.20	9.68	30.26	0.02	0.02	0.07	0.01	0.00	0.00	53.96
Venture B52	5047.51	7	ankerite	lt	0.01	0.00	0.02	0.00	12.17	1.38	10.02	30.16	0.00	0.03	0.04	0.00	0.00	0.01	53.85
Venture B52	5047.51	8	ankerite	gt	0.01	0.00	0.01	0.00	12.54	1.57	9.88	30.37	0.00	0.00	0.06	0.02	0.00	0.00	54.46
Venture B52	5047.51	9	ankerite	lt	0.01	0.00	0.01	0.06	12.61	1.14	9.58	30.19	0.00	0.02	0.08	0.00	0.03	0.00	53.71
Venture B52	5047.51	10	ankerite	gt	0.09	0.00	0.01	0.03	12.45	1.61	9.95	29.89	0.00	0.02	0.02	0.02	0.00	0.00	54.08
Venture B52	5047.51	11	ankerite	gt	0.01	0.26	0.01	0.05	12.96	1.44	10.09	29.62	0.01	0.04	0.03	0.02	0.03	0.00	54.55
Venture B52	5047.51	12	ankerite	gt	0.03	0.00	0.03	0.02	12.52	1.37	10.19	29.88	0.01	0.06	0.03	0.02	0.00	0.00	54.14
Venture B52	5047.51	13	ankerite	lt	0.00	0.00	0.02	0.02	12.35	1.17	9.79	30.37	0.01	0.01	0.06	0.00	0.03	0.00	53.83
Venture B52	5047.51	14	ankerite	gt	0.01	0.00	0.03	0.00	12.54	1.24	9.66	30.44	0.04	0.03	0.08	0.02	0.02	0.00	54.11
Venture B52	5047.51	15	ankerite	gt	0.02	0.00	0.02	0.00	12.89	1.22	9.62	30.51	0.02	0.01	0.05	0.02	0.00	0.00	54.37
Venture B52	5047.51	16	ankerite	gt	0.02	0.00	0.04	0.02	12.29	1.16	10.18	30.70	0.04	0.01	0.07	0.00	0.05	0.00	54.57
Venture B52	5047.51	17	ankerite	gt	0.01	0.00	0.02	0.02	12.72	1.50	10.01	30.14	0.01	0.01	0.02	0.00	0.00	0.00	54.46
Venture B52	5047.51	18	ankerite	gt	0.06	0.00	0.02	0.00	12.57	1.39	10.34	29.67	0.01	0.01	0.03	0.01	0.00	0.00	54.11
Venture B52	5047.51	19	ankerite	lt	0.04	0.09	0.04	0.04	12.92	1.28	9.60	29.78	0.00	0.05	0.02	0.02	0.00	0.00	53.86
Venture B52	5047.51	20	ankerite	gt	0.03	0.02	0.02	0.04	12.26	1.52	10.17	30.26	0.00	0.02	0.03	0.03	0.00	0.00	54.40
Venture B52	5047.51	21	ankerite	gt	0.06	0.04	0.01	0.00	12.45	1.41	10.28	29.70	0.00	0.01	0.03	0.04	0.00	0.00	54.03

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	5047.51	22	ankerite	gt	0.07	0.00	0.03	0.01	12.21	1.44	10.19	30.20	0.01	0.02	0.01	0.00	0.00	0.02	54.22
Venture B52	5047.51	23	ankerite	gt	0.01	0.00	0.02	0.00	12.58	1.17	9.95	30.49	0.00	0.01	0.06	0.02	0.00	0.00	54.32
Venture B52	5047.51	24	ankerite	gt	0.42	0.00	0.12	0.01	12.06	1.42	9.83	30.13	0.01	0.05	0.01	0.02	0.00	0.00	54.07
Venture B52	5047.51	25	ankerite	gt	0.00	0.00	0.02	0.03	12.54	1.21	9.84	30.63	0.04	0.00	0.02	0.01	0.03	0.00	54.37
Venture B52	5047.51	26	ankerite	gt	0.05	0.17	0.02	0.00	12.19	1.42	10.22	30.30	0.01	0.02	0.04	0.00	0.00	0.00	54.44
Venture B52	5047.51	27	rutile	gt	0.21	97.44	0.14	0.23	0.40	0.06	0.06	1.10	0.05	0.07	0.03	0.12	0.06	1.19	101.17
Venture B52	5047.51	28	ankerite	gt	0.02	0.26	0.01	0.02	13.49	1.37	9.63	29.70	0.00	0.04	0.05	0.00	0.00	0.00	54.60
Venture B52	5047.51	29	rutile	gt	0.05	95.82	0.04	0.16	0.72	0.10	0.33	2.25	0.02	0.05	0.03	0.11	0.05	1.26	100.99
Venture B52	5047.51	30	illite	lt	47.94	0.31	30.69	0.13	0.99	0.00	1.12	0.51	0.15	8.14	0.00	0.00	0.00	0.00	89.99
Venture B52	5047.51	31	illite	lt	46.40	0.23	29.86	0.07	0.88	0.00	1.03	0.75	0.16	8.24	0.01	0.00	0.00	0.00	87.63
Venture B52	5047.51	32	ankerite	gt	0.01	0.00	0.01	0.01	12.56	1.57	10.17	29.74	0.00	0.01	0.04	0.03	0.00	0.00	54.15
Venture B52	5047.51	33	ankerite	gt	0.01	0.00	0.02	0.00	13.01	1.62	9.77	29.78	0.00	0.01	0.03	0.00	0.00	0.01	54.25
Venture B52	5047.51	34	ankerite	lt	0.03	0.00	0.02	0.00	12.52	1.39	10.37	29.28	0.00	0.00	0.00	0.00	0.00	0.00	53.62
Venture B52	5047.51	35	ankerite	gt	0.01	0.00	0.01	0.00	12.55	1.23	9.99	30.35	0.01	0.01	0.05	0.04	0.01	0.00	54.25
Venture B52	5047.51	36	ankerite	gt	0.07	0.00	0.06	0.00	12.63	1.36	10.42	29.77	0.00	0.03	0.03	0.00	0.00	0.00	54.36
Venture B52	5047.51	37	ankerite	lt	0.11	0.00	0.07	0.00	15.40	1.22	9.93	26.67	0.00	0.03	0.01	0.00	0.00	0.00	53.46
Venture B52	5047.51	38	ankerite	gt	0.05	0.00	0.02	0.00	12.50	1.21	9.79	30.52	0.03	0.01	0.07	0.02	0.04	0.00	54.24
Venture B52	5047.51	39	ankerite	gt	0.04	0.00	0.03	0.00	12.46	1.19	9.96	30.19	0.02	0.01	0.03	0.03	0.03	0.00	54.00
Venture B52	5047.51	40	ankerite	gt	0.06	0.00	0.03	0.00	12.12	1.24	9.91	30.76	0.02	0.02	0.03	0.00	0.07	0.00	54.26
Venture B52	5047.51	41	ankerite	gt	0.16	0.00	0.06	0.00	15.26	1.32	9.98	27.34	0.01	0.02	0.02	0.03	0.00	0.00	54.20
Venture B52	5047.51	42	ankerite	gt	0.03	0.00	0.02	0.01	15.84	1.23	9.74	27.41	0.01	0.02	0.01	0.03	0.00	0.00	54.33
Venture B52	5047.51	43	albite	gt	68.07	0.00	19.05	0.00	0.35	0.02	0.04	0.46	12.25	0.09	0.02	0.00	0.44	0.00	100.79
Venture B52	5047.51	44	ankerite	gt	0.11	0.00	0.03	0.01	15.13	1.24	10.19	27.47	0.00	0.02	0.03	0.00	0.00	0.00	54.24
Venture B52	5047.51	45	ankerite	lt	0.01	0.00	0.02	0.00	12.13	1.20	9.80	30.39	0.00	0.00	0.06	0.02	0.05	0.00	53.68
Venture B52	5047.51	46	ankerite	lt	0.00	0.00	0.01	0.00	12.13	1.57	9.97	29.78	0.00	0.02	0.00	0.00	0.00	0.00	53.49
Venture B52	5047.51	47	ankerite	gt	0.02	0.01	0.04	0.00	12.32	1.44	10.33	30.30	0.00	0.02	0.00	0.00	0.00	0.00	54.48
Venture B52	5047.51	48	ankerite	gt	0.03	0.00	0.01	0.00	12.56	1.23	9.88	30.03	0.04	0.01	0.05	0.00	0.05	0.00	53.90
Venture B52	5047.51	49	ankerite	gt	0.13	0.00	0.05	0.00	13.12	1.55	9.94	29.11	0.03	0.06	0.04	0.02	0.00	0.00	54.05
Venture B52	5047.51	50	ankerite	gt	0.02	0.02	0.01	0.00	12.70	1.61	9.68	30.02	0.00	0.03	0.00	0.01	0.00	0.00	54.10
Venture B52	5047.51	51	ankerite	lt	0.02	0.00	0.01	0.00	12.22	1.23	9.74	30.43	0.01	0.01	0.10	0.01	0.05	0.00	53.84
Venture B52	5047.51	52	ankerite	gt	0.02	0.00	0.02	0.00	12.34	1.23	9.86	30.32	0.00	0.02	0.06	0.02	0.05	0.00	53.93
Venture B52	5047.51	53	ankerite	lt	0.02	0.00	0.01	0.00	12.28	1.42	10.23	29.79	0.01	0.02	0.02	0.01	0.00	0.00	53.81
Venture B52	5113.77	5	ankerite	gt	0.01	0.02	0.02	0.02	14.32	1.25	8.13	31.63	0.00	0.02	0.03	0.00	0.03	0.00	55.48
Venture B52	5113.77	6	ankerite	gt	0.00	0.00	0.01	0.02	13.56	1.26	7.95	32.32	0.03	0.01	0.04	0.00	0.02	0.00	55.22
Venture B52	5113.77	7	ankerite	gt	0.01	0.00	0.01	0.00	13.99	1.21	7.65	32.33	0.02	0.02	0.05	0.00	0.03	0.00	55.33
Venture B52	5113.77	8	ankerite	gt	0.05	0.00	0.02	0.01	13.95	1.20	7.84	31.79	0.01	0.01	0.00	0.00	0.03	0.00	54.92

Appendix 1A: Electron microprobe analyses of minerals from representative samples from Venture B-52 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B52	5113.77	9	ankerite	gt	0.04	0.00	0.01	0.00	13.34	1.26	8.36	31.47	0.03	0.01	0.01	0.00	0.01	0.00	54.55
Venture B52	5113.77	10	ankerite	gt	0.02	0.00	0.00	0.00	14.33	0.99	10.06	29.73	0.01	0.01	0.03	0.00	0.00	0.00	55.17
Venture B52	5113.77	11	illite	lt	47.54	0.00	31.12	0.00	1.04	0.00	0.94	0.26	0.22	8.45	0.00	0.00	0.00	0.00	89.57
Venture B52	5113.77	12	chlorite	gt	24.69	0.06	22.89	0.07	32.73	0.03	4.84	0.09	0.06	0.23	0.06	0.04	0.13	0.07	85.98
Venture B52	5113.77	13	illite	lt	46.32	0.00	30.94	0.00	0.74	0.00	0.86	0.07	0.17	8.47	0.00	0.00	0.00	0.00	87.58
Venture B52	5113.77	14	chlorite	gt	24.87	0.06	23.25	0.04	32.24	0.02	4.72	0.12	0.05	0.35	0.20	0.03	0.22	0.04	86.22
Venture B52	5113.77	15	Fe-calcite	ht	0.03	0.00	0.00	0.00	2.22	0.51	0.57	59.11	0.02	0.01	0.03	0.00	0.08	0.00	62.59
Venture B52	5113.77	16	Fe-calcite	ht	0.00	0.00	0.00	0.00	2.39	0.49	0.54	58.51	0.00	0.01	0.02	0.03	0.10	0.00	62.08
Venture B52	5113.77	17	Fe-calcite	ht	0.01	0.00	0.00	0.00	2.43	0.54	0.60	58.24	0.00	0.00	0.02	0.04	0.10	0.02	62.00
Venture B52	5113.77	18	Fe-calcite	ht	0.03	0.00	0.00	0.00	2.56	0.58	0.61	57.84	0.00	0.02	0.04	0.03	0.07	0.02	61.80
Venture B52	5113.77	19	ankerite	gt	0.00	0.00	0.00	0.00	14.42	1.17	7.68	31.91	0.00	0.01	0.04	0.01	0.00	0.00	55.24
Venture B52	5113.77	20	ankerite	gt	0.00	0.00	0.00	0.03	14.24	1.22	8.03	31.31	0.00	0.02	0.00	0.02	0.00	0.01	54.87
Venture B52	5113.77	21	Fe-calcite	ht	0.03	0.00	0.00	0.00	1.62	0.41	0.28	58.17	0.00	0.02	0.02	0.02	0.17	0.01	60.74
Venture B52	5113.77	22	ankerite	gt	0.01	0.00	0.00	0.00	16.36	1.16	8.66	29.33	0.00	0.02	0.00	0.01	0.00	0.03	55.58
Venture B52	5113.77	23	ankerite	gt	0.00	0.00	0.00	0.00	14.09	1.19	7.87	32.26	0.00	0.02	0.01	0.02	0.00	0.00	55.47
Venture B52	5113.77	24	ankerite	gt	0.02	0.00	0.00	0.01	14.86	1.04	7.78	31.12	0.02	0.03	0.00	0.00	0.00	0.05	54.92
Venture B52	5113.77	25	ankerite	gt	0.00	0.00	0.00	0.00	16.86	1.16	8.90	28.87	0.00	0.02	0.02	0.02	0.00	0.04	55.89
Venture B52	5113.77	26	ankerite	gt	0.00	0.00	0.00	0.01	15.53	1.14	8.02	30.56	0.03	0.03	0.00	0.00	0.01	0.00	55.34
Venture B52	5113.77	27	ankerite	gt	0.05	0.00	0.00	0.00	16.04	1.21	8.54	29.44	0.00	0.02	0.00	0.02	0.00	0.06	55.37
Venture B52	5113.77	28	ankerite	gt	0.02	0.00	0.00	0.00	15.01	1.10	9.55	29.37	0.04	0.03	0.01	0.00	0.00	0.02	55.15
Venture B52	5113.77	29	Fe-calcite	ht	0.02	0.00	0.00	0.00	2.74	0.65	0.67	59.20	0.00	0.02	0.02	0.05	0.08	0.02	63.47
Venture B52	5113.77	30	Fe-calcite	ht	0.00	0.00	0.00	0.00	2.45	0.56	0.58	59.18	0.02	0.02	0.05	0.00	0.11	0.00	62.96
Venture B52	5113.77	31	Fe-calcite	ht	0.00	0.00	0.00	0.00	2.54	0.57	0.60	58.66	0.00	0.02	0.04	0.00	0.08	0.00	62.52
Venture B52	5113.77	32	Fe-calcite	ht	0.01	0.00	0.00	0.00	2.34	0.52	0.56	59.67	0.01	0.02	0.03	0.00	0.13	0.00	63.28
Venture B52	5113.77	33	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.29	0.46	0.17	61.39	0.03	0.05	0.04	0.00	0.09	0.00	63.52
Venture B52	5113.77	34	Fe-calcite	ht	0.02	0.00	0.00	0.00	1.63	0.49	0.33	60.22	0.00	0.02	0.05	0.00	0.14	0.00	62.89

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4701.2	17	Fe-calcite	ht	0.00	0.00	0.00	0.01	1.40	0.15	0.53	57.16	0.00	0.03	0.03	0.00	0.02	0.02	59.36
Venture B13	4701.2	18	Fe-calcite	ht	0.23	0.30	0.16	0.44	1.18	0.30	0.51	56.35	0.14	0.13	0.13	0.36	0.51	0.56	61.32
Venture B13	4701.2	19	Fe-calcite	ht	0.00	0.00	0.03	0.00	1.33	0.18	0.56	55.85	0.00	0.02	0.01	0.01	0.01	0.01	58.01
Venture B13	4701.2	20	calcite	gt	0.20	0.00	0.16	0.00	0.80	0.10	0.51	56.93	0.00	0.04	0.02	0.01	0.09	0.00	58.87
Venture B13	4701.2	21	Fe-calcite	ht	0.28	0.33	0.17	0.47	1.58	0.40	0.68	56.64	0.15	0.14	0.13	0.36	0.43	0.53	62.28
Venture B13	4701.2	22	Fe-calcite	ht	0.24	0.28	0.16	0.46	1.34	0.32	0.71	56.27	0.15	0.13	0.14	0.37	0.48	0.53	61.59
Venture B13	4701.2	23	Fe-calcite	ht	0.00	0.00	0.02	0.02	1.20	0.14	0.66	56.51	0.02	0.03	0.05	0.02	0.11	0.00	58.78
Venture B13	4701.2	24	calcite	ht	0.03	0.00	0.07	0.00	0.57	0.13	0.58	56.67	0.02	0.04	0.02	0.01	0.11	0.02	58.27
Venture B13	4701.2	25	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.51	0.18	0.66	56.13	0.00	0.02	0.02	0.00	0.03	0.03	58.59
Venture B13	4701.2	26	calcite	ht	0.23	0.00	0.21	0.01	0.82	0.16	0.49	57.61	0.00	0.05	0.02	0.00	0.09	0.06	59.75
Venture B13	4701.2	27	calcite	gt	0.26	0.00	0.18	0.01	0.66	0.09	0.47	56.88	0.00	0.05	0.02	0.00	0.12	0.07	58.82
Venture B13	4701.2	28	calcite	gt	0.00	0.00	0.01	0.00	0.81	0.11	0.30	55.95	0.00	0.02	0.04	0.00	0.12	0.00	57.35
Venture B13	4701.2	29	calcite	gt	0.05	0.00	0.06	0.02	0.74	0.12	0.43	56.64	0.00	0.03	0.04	0.00	0.11	0.04	58.29
Venture B13	4701.2	30	calcite	gt	0.44	0.00	0.25	0.00	0.83	0.11	0.43	55.57	0.02	0.07	0.03	0.00	0.13	0.00	57.86
Venture B13	4701.2	31	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.59	0.15	0.66	57.13	0.02	0.01	0.02	0.00	0.08	0.03	59.69
Venture B13	4701.2	32	calcite	gt	0.35	0.00	0.26	0.00	0.84	0.12	0.50	56.29	0.01	0.05	0.02	0.00	0.08	0.00	58.52
Venture B13	4701.2	33	Fe-calcite	ht	0.00	0.00	0.00	0.01	1.22	0.19	0.46	57.77	0.00	0.02	0.03	0.00	0.00	0.00	59.71
Venture B13	4701.2	34	Fe-calcite	gt	1.23	0.01	0.63	0.00	1.87	0.18	0.79	54.51	0.00	0.09	0.10	0.00	0.05	0.00	59.46
Venture B13	4701.2	35	Fe-calcite	ht	0.27	0.29	0.16	0.44	1.84	0.38	0.82	58.12	0.17	0.12	0.15	0.37	0.45	0.57	64.16
Venture B13	4701.2	36	Fe-calcite	ht	0.32	0.00	0.20	0.00	1.52	0.19	0.56	56.46	0.02	0.06	0.16	0.00	0.01	0.00	59.49
Venture B13	4701.2	37	Fe-calcite	ht	0.00	0.00	0.00	0.02	1.34	0.20	0.56	57.10	0.01	0.01	0.06	0.00	0.03	0.00	59.33
Venture B13	4701.2	38	calcite	gt	0.42	0.00	0.31	0.02	0.88	0.18	0.50	54.10	0.02	0.06	0.01	0.00	0.10	0.01	56.62
Venture B13	4701.2	39	Fe-calcite	ht	0.24	0.35	0.17	0.45	1.74	0.43	0.76	57.08	0.17	0.12	0.14	0.36	0.46	0.56	63.03
Venture B13	4701.2	40	Fe-calcite	ht	0.25	0.29	0.16	0.47	1.71	0.34	0.64	57.59	0.15	0.12	0.12	0.34	0.50	0.54	63.26
Venture B13	4701.2	41	Fe-calcite	ht	0.25	0.31	0.16	0.44	1.72	0.42	0.76	57.64	0.17	0.13	0.13	0.35	0.43	0.59	63.49
Venture B13	4701.2	42	Fe-calcite	gt	0.00	0.00	0.05	0.01	1.26	0.17	0.46	54.05	0.02	0.03	0.04	0.00	0.00	0.00	56.08
Venture B13	4701.2	43	Fe-calcite	lt	1.63	0.00	0.66	0.00	1.00	0.07	0.56	33.64	0.17	0.07	0.09	0.00	0.00	0.00	37.89
Venture B13	4701.2	44	Fe-calcite	gt	0.21	0.00	0.08	0.00	1.41	0.21	0.61	54.63	0.09	0.03	0.03	0.00	0.05	0.00	57.33
Venture B13	4701.2	45	Fe-calcite	ht	0.26	0.33	0.17	0.47	1.74	0.40	0.77	55.86	0.17	0.13	0.14	0.36	0.44	0.56	61.78
Venture B13	4701.2	46	Fe-calcite	ht	0.24	0.31	0.17	0.44	2.19	0.39	1.03	56.74	0.15	0.14	0.13	0.38	0.47	0.59	63.37
Venture B13	4701.2	47	calcite	gt	0.62	0.00	0.42	0.00	0.95	0.12	0.51	55.12	0.03	0.08	0.03	0.00	0.11	0.01	58.00
Venture B13	4701.2	48	Fe-calcite	ht	0.00	0.00	0.01	0.04	1.46	0.25	0.56	57.50	0.05	0.03	0.03	0.00	0.00	0.00	59.93
Venture B13	4701.2	49	Fe-calcite	ht	0.57	0.36	0.31	0.45	1.76	0.43	0.74	56.33	0.16	0.19	0.20	0.36	0.45	0.63	62.94
Venture B13	4701.2	50	pseudorutile	gt	0.73	89.19	0.36	0.10	0.57	0.04	0.04	2.10	0.11	0.06	0.03	0.06	0.05	1.25	94.69
Venture B13	4701.2	51	pseudorutile	gt	0.64	62.57	0.29	0.09	0.63	0.06	0.14	15.86	0.26	0.09	0.07	0.04	0.06	0.93	81.73
Venture B13	4701.2	52	Fe-calcite	ht	0.00	0.02	0.00	0.00	1.32	0.24	0.68	55.75	0.17	0.16	0.09	0.00	0.03	0.00	58.46

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4701.2	53	Fe-calcite	gt	0.00	0.01	0.02	0.00	1.24	0.22	0.67	54.32	0.05	0.04	0.04	0.00	0.07	0.00	56.67
Venture B13	4701.2	54	Fe-calcite	gt	0.00	0.02	0.00	0.01	1.33	0.23	0.64	55.11	0.02	0.02	0.02	0.00	0.06	0.00	57.45
Venture B13	4701.2	55	Fe-calcite	ht	0.00	0.00	0.00	0.01	1.34	0.22	0.62	56.98	0.03	0.08	0.04	0.00	0.05	0.01	59.38
Venture B13	4701.2	56	pseudorutile	gt	1.22	87.87	0.61	0.13	0.76	0.05	0.11	1.20	0.24	0.06	0.09	0.06	0.04	1.19	93.63
Venture B13	4701.2	57	pseudorutile	gt	1.29	88.65	0.52	0.10	0.66	0.05	0.07	0.66	0.35	0.10	0.07	0.10	0.05	1.19	93.87
Venture B13	4701.2	58	pseudorutile	gt	1.18	84.22	0.36	0.09	0.74	0.05	0.07	4.18	0.22	0.07	0.05	0.08	0.06	1.12	92.48
Venture B13	4701.2	59	calcite	ht	0.00	0.15	0.01	0.01	0.49	0.23	1.09	57.56	0.03	0.04	0.06	0.01	0.05	0.04	59.77
Venture B13	4701.2	60	Fe-calcite	ht	0.00	0.11	0.01	0.00	1.28	0.21	0.79	55.81	0.03	0.03	0.07	0.00	0.06	0.01	58.41
Venture B13	4701.2	61	calcite	ht	0.00	0.24	0.00	0.00	0.84	0.18	1.29	57.16	0.08	0.05	0.04	0.00	0.04	0.00	59.92
Venture B13	4701.2	62	Fe-calcite	ht	0.00	0.83	0.01	0.00	1.08	0.17	0.43	57.06	0.02	0.04	0.03	0.00	0.02	0.00	59.69
Venture B13	4701.2	63	calcite	gt	0.00	0.08	0.06	0.00	0.74	0.13	0.99	55.27	0.05	0.05	0.07	0.00	0.04	0.00	57.47
Venture B13	4701.2	64	Fe-calcite	ht	0.00	0.06	0.04	0.00	1.46	0.14	0.44	56.82	0.04	0.04	0.04	0.00	0.05	0.00	59.13
Venture B13	4701.2	65	Fe-calcite	ht	0.25	0.32	0.17	0.46	1.29	0.36	0.88	56.02	0.18	0.17	0.16	0.35	0.54	0.56	61.73
Venture B13	4701.2	66	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.21	0.22	0.90	56.45	0.01	0.02	0.05	0.00	0.04	0.00	58.89
Venture B13	4701.2	67	Fe-calcite	ht	0.00	0.00	0.03	0.00	0.95	0.16	0.83	56.83	0.04	0.02	0.06	0.00	0.01	0.00	58.93
Venture B13	4701.2	68	calcite	ht	0.00	0.00	0.03	0.00	0.66	0.12	1.41	57.73	0.06	0.02	0.09	0.00	0.08	0.00	60.19
Venture B13	4701.2	69	Fe-calcite	ht	0.00	0.00	0.02	0.00	1.07	0.15	0.56	57.88	0.01	0.02	0.04	0.00	0.12	0.00	59.87
Venture B13	4708.57	5	ankerite	gt	0.06	0.01	0.01	0.00	10.24	0.89	11.47	31.59	0.00	0.03	0.00	0.00	0.08	0.00	54.38
Venture B13	4708.57	6	ankerite	gt	0.10	0.04	0.01	0.00	10.19	0.82	11.55	31.43	0.01	0.01	0.00	0.00	0.09	0.03	54.29
Venture B13	4708.57	7	ankerite	gt	0.04	0.00	0.01	0.00	10.28	0.81	11.54	31.14	0.01	0.03	0.00	0.00	0.06	0.02	53.95
Venture B13	4708.57	8	ankerite	gt	0.04	0.00	0.01	0.00	10.02	0.91	11.34	31.73	0.00	0.02	0.00	0.00	0.08	0.03	54.19
Venture B13	4708.57	9	ankerite	gt	0.12	0.01	0.02	0.01	10.23	0.87	11.55	31.44	0.01	0.03	0.01	0.00	0.05	0.01	54.37
Venture B13	4708.57	10	ankerite	gt	0.88	0.03	0.23	0.00	10.06	0.82	11.28	31.50	0.01	0.17	0.03	0.00	0.04	0.01	55.07
Venture B13	4708.57	11	ankerite	gt	0.07	0.02	0.01	0.00	9.87	0.79	11.34	32.21	0.00	0.02	0.00	0.00	0.07	0.03	54.43
Venture B13	4708.57	12	ankerite	gt	0.04	0.00	0.02	0.00	9.99	0.84	11.43	31.52	0.01	0.01	0.00	0.00	0.05	0.03	53.92
Venture B13	4708.57	13	ankerite	gt	0.07	0.01	0.01	0.00	10.11	0.90	11.37	31.64	0.00	0.02	0.01	0.00	0.07	0.00	54.20
Venture B13	4708.57	14	chlorite	lt	20.79	10.68	14.01	0.03	18.79	0.11	6.37	2.57	0.16	0.41	0.00	0.00	0.14	0.10	74.17
Venture B13	4708.57	15	calcite	gt	0.00	0.00	0.00	0.00	0.00	0.00	0.41	56.31	0.19	0.01	0.00	0.00	0.05	0.00	56.98
Venture B13	4708.57	16	Fe-calcite	ht	0.07	0.00	0.02	0.00	1.37	0.42	0.62	60.38	0.01	0.00	0.03	0.04	0.04	0.00	62.99
Venture B13	4708.57	17	Fe-calcite	ht	0.06	0.02	0.00	0.00	1.20	0.40	0.56	60.32	0.00	0.01	0.03	0.01	0.04	0.00	62.66
Venture B13	4708.57	18	Fe-calcite	ht	0.15	0.00	0.01	0.00	1.13	0.46	0.47	60.40	0.02	0.01	0.01	0.05	0.00	0.00	62.70
Venture B13	4708.57	19	Fe-calcite	ht	0.08	0.00	0.01	0.00	1.20	0.51	0.51	60.19	0.00	0.00	0.03	0.02	0.02	0.00	62.59
Venture B13	4708.57	20	Fe-calcite	ht	0.14	0.00	0.02	0.00	0.96	0.24	0.33	59.69	0.02	0.01	0.02	0.04	0.20	0.00	61.68
Venture B13	4708.57	21	calcite	ht	0.07	0.04	0.01	0.00	0.88	0.20	0.30	57.89	0.00	0.01	0.01	0.03	0.41	0.00	59.86
Venture B13	4708.57	22	calcite	ht	0.13	0.00	0.01	0.00	0.64	0.56	0.20	61.29	0.01	0.02	0.04	0.03	0.00	0.00	62.93
Venture B13	4708.57	23	Fe-calcite	ht	0.13	0.00	0.01	0.00	1.58	0.91	0.69	59.68	0.00	0.01	0.03	0.01	0.00	0.00	63.05

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4708.57	24	calcite	ht	0.13	0.00	0.00	0.00	0.76	0.49	0.27	60.64	0.00	0.01	0.02	0.00	0.08	0.00	62.40
Venture B13	4708.57	25	Fe-calcite	ht	0.15	0.00	0.00	0.00	1.60	0.99	0.69	58.27	0.00	0.00	0.04	0.00	0.00	0.00	61.74
Venture B13	4708.57	26	Fe-calcite	ht	0.07	0.00	0.00	0.00	1.07	0.59	0.50	59.28	0.00	0.01	0.03	0.00	0.03	0.00	61.58
Venture B13	4708.57	27	Fe-calcite	ht	0.04	0.00	0.01	0.00	1.40	0.90	0.60	60.89	0.00	0.01	0.03	0.02	0.03	0.00	63.92
Venture B13	4708.57	28	ankerite	gt	0.01	0.00	0.00	0.00	10.12	1.00	11.50	31.53	0.00	0.00	0.00	0.00	0.02	0.00	54.19
Venture B13	4708.57	29	ankerite	gt	0.03	0.02	0.02	0.00	10.25	1.05	11.28	31.83	0.00	0.01	0.02	0.00	0.06	0.00	54.58
Venture B13	4708.57	30	ankerite	gt	0.04	0.02	0.00	0.00	9.96	0.90	11.32	32.22	0.02	0.01	0.03	0.04	0.06	0.00	54.63
Venture B13	4708.57	31	ankerite	gt	1.85	0.00	0.52	0.00	10.36	0.80	11.16	30.68	0.01	0.47	0.04	0.02	0.04	0.00	55.93
Venture B13	4708.57	32	ankerite	gt	0.08	0.02	0.00	0.00	10.22	0.89	11.47	31.75	0.02	0.01	0.04	0.00	0.04	0.00	54.53
Venture B13	4708.57	33	ankerite	gt	0.05	0.01	0.01	0.00	10.20	1.04	11.48	31.67	0.03	0.02	0.02	0.00	0.05	0.00	54.58
Venture B13	4708.57	34	ankerite	gt	0.03	0.02	0.00	0.00	10.33	0.91	11.63	32.56	0.02	0.01	0.02	0.01	0.06	0.00	55.61
Venture B13	4708.57	35	ankerite	gt	0.07	0.00	0.00	0.00	9.83	0.96	11.20	32.16	0.03	0.02	0.03	0.01	0.06	0.00	54.38
Venture B13	4708.57	36	ankerite	gt	0.11	0.01	0.00	0.00	10.07	0.89	11.36	31.55	0.01	0.02	0.03	0.01	0.04	0.00	54.10
Venture B13	4708.57	37	ankerite	gt	0.17	0.02	0.00	0.00	10.00	0.96	11.24	31.97	0.03	0.01	0.03	0.00	0.07	0.00	54.52
Venture B13	4708.57	38	Fe-calcite	gt	0.37	0.01	0.18	0.01	1.54	0.41	0.65	56.65	0.01	0.01	0.02	0.02	0.13	0.00	60.03
Venture B13	4708.57	39	Fe-calcite	ht	0.13	0.00	0.01	0.00	1.11	0.43	0.52	60.23	0.01	0.02	0.08	0.00	0.11	0.00	62.65
Venture B13	4708.57	40	calcite	ht	0.09	0.00	0.01	0.01	0.58	0.47	0.18	60.15	0.00	0.01	0.13	0.01	0.02	0.04	61.69
Venture B13	4708.57	41	calcite	ht	0.06	0.00	0.01	0.02	0.69	0.37	0.26	58.90	0.00	0.01	0.11	0.00	0.12	0.00	60.55
Venture B13	4708.57	42	calcite	ht	0.07	0.00	0.01	0.00	0.90	0.26	0.33	58.96	0.00	0.03	0.05	0.01	0.26	0.03	60.91
Venture B13	4708.57	43	Fe-calcite	ht	0.04	0.00	0.01	0.00	1.56	1.04	0.66	60.61	0.00	0.02	0.04	0.00	0.01	0.05	64.03
Venture B13	4708.57	44	Fe-calcite	ht	0.07	0.00	0.00	0.00	1.18	0.48	0.52	59.33	0.02	0.02	0.05	0.03	0.10	0.03	61.83
Venture B13	4708.57	45	Fe-calcite	ht	0.07	0.02	0.01	0.00	1.56	0.41	0.71	60.58	0.00	0.03	0.06	0.03	0.09	0.03	63.60
Venture B13	4708.57	46	Fe-calcite	gt	0.53	0.00	0.32	0.01	1.42	0.56	0.48	54.08	0.00	0.03	0.07	0.00	0.24	0.02	57.75
Venture B13	4711.09	51	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.31	0.66	0.44	61.03	0.03	0.02	0.03	0.01	0.03	0.00	63.55
Venture B13	4711.09	52	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.88	0.67	0.86	58.78	0.02	0.02	0.03	0.00	0.00	0.00	62.26
Venture B13	4711.09	53	Fe-calcite +	gt	3.52	0.00	2.53	0.00	3.41	0.25	1.24	47.98	0.04	0.16	0.07	0.00	0.03	0.00	59.24
Venture B13	4711.09	54	calcite	ht	0.00	0.00	0.00	0.00	0.93	0.16	0.50	61.23	0.03	0.02	0.04	0.00	0.10	0.00	63.01
Venture B13	4711.09	55	calcite	ht	0.09	0.00	0.08	0.00	0.95	0.22	0.48	57.85	0.02	0.02	0.01	0.00	0.06	0.00	59.79
Venture B13	4711.09	56	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.70	0.74	0.70	58.95	0.03	0.02	0.07	0.00	0.00	0.00	62.22
Venture B13	4711.09	57	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.31	0.53	0.47	58.56	0.03	0.02	0.06	0.00	0.00	0.00	60.98
Venture B13	4711.09	58	calcite	ht	1.06	0.00	0.61	0.00	0.91	0.20	0.80	58.51	0.04	0.10	0.07	0.00	0.07	0.00	62.37
Venture B13	4711.09	59	Fe-calcite +	gt	2.19	0.00	1.68	0.00	2.80	0.21	1.02	49.75	0.03	0.05	0.06	0.00	0.07	0.00	57.86
Venture B13	4711.09	60	Fe-calcite	ht	0.01	0.00	0.00	0.00	1.21	0.74	0.48	57.79	0.01	0.02	0.04	0.00	0.00	0.00	60.29
Venture B13	4711.09	61	Fe-calcite	ht	0.01	0.00	0.00	0.00	1.17	0.59	0.40	58.87	0.00	0.02	0.02	0.00	0.00	0.00	61.08
Venture B13	4711.09	62	Fe-calcite	ht	0.00	0.00	0.00	0.02	1.30	0.69	0.43	61.24	0.01	0.02	0.06	0.01	0.00	0.00	63.78
Venture B13	4711.09	63	Fe-calcite	ht	0.00	0.00	0.00	0.02	1.38	0.74	0.53	59.72	0.03	0.01	0.04	0.00	0.00	0.00	62.48

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4711.09	64	calcite	ht	0.21	0.00	0.15	0.00	0.85	0.19	0.44	58.16	0.03	0.03	0.02	0.00	0.06	0.00	60.13
Venture B13	4711.09	65	Fe-calcite	ht	0.02	0.00	0.00	0.00	1.58	0.75	0.51	63.08	0.03	0.02	0.04	0.00	0.00	0.00	66.02
Venture B13	4711.09	66	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.30	0.75	0.47	58.20	0.01	0.01	0.03	0.02	0.00	0.00	60.80
Venture B13	4711.09	67	Fe-calcite	gt	2.06	0.00	1.40	0.00	1.93	0.26	0.84	52.13	0.03	0.13	0.02	0.00	0.06	0.00	58.86
Venture B13	4711.09	68	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.18	0.30	0.37	59.84	0.04	0.02	0.06	0.00	0.00	0.00	61.81
Venture B13	4711.09	69	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.14	0.26	0.37	57.84	0.02	0.03	0.03	0.00	0.00	0.00	59.68
Venture B13	4711.09	70	calcite	ht	0.63	0.00	0.34	0.00	0.96	0.20	0.49	59.21	0.02	0.05	0.02	0.00	0.07	0.00	62.00
Venture B13	4711.09	71	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.36	0.71	0.53	58.03	0.01	0.02	0.04	0.00	0.00	0.00	60.70
Venture B13	4711.09	72	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.14	0.65	0.40	56.43	0.01	0.01	0.04	0.00	0.00	0.00	58.67
Venture B13	4711.09	73	calcite	ht	0.00	0.00	0.00	0.00	0.98	0.30	0.50	59.89	0.02	0.02	0.05	0.00	0.09	0.00	61.86
Venture B13	4711.09	74	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.37	0.66	0.53	56.26	0.03	0.01	0.05	0.00	0.00	0.00	58.92
Venture B13	4711.09	75	calcite	ht	0.19	0.00	0.16	0.00	0.77	0.16	0.48	58.05	0.03	0.02	0.04	0.00	0.07	0.00	59.98
Venture B13	4711.09	76	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.25	0.41	0.35	58.80	0.02	0.02	0.04	0.00	0.03	0.00	60.93
Venture B13	4711.09	77	Fe-calcite	ht	0.02	0.00	0.00	0.01	1.31	0.68	0.31	60.38	0.01	0.02	0.00	0.02	0.06	0.00	62.81
Venture B13	4711.09	78	calcite	ht	0.14	0.00	0.08	0.00	0.67	0.22	0.47	60.17	0.03	0.02	0.00	0.01	0.02	0.00	61.84
Venture B13	4711.09	79	Fe-calcite	gt	0.66	0.00	0.47	0.00	1.09	0.18	0.50	55.13	0.02	0.04	0.00	0.00	0.02	0.00	58.11
Venture B13	4711.09	80	Fe-calcite	ht	0.01	0.00	0.01	0.01	1.13	0.47	0.32	57.81	0.02	0.01	0.01	0.00	0.00	0.00	59.79
Venture B13	4711.09	81	Fe-calcite	gt	0.66	0.00	0.50	0.00	1.40	0.28	0.56	54.21	0.01	0.03	0.01	0.00	0.01	0.00	57.68
Venture B13	4711.09	82	calcite	ht	0.00	0.00	0.00	0.00	0.86	0.18	0.40	62.22	0.02	0.00	0.02	0.00	0.07	0.00	63.78
Venture B13	4711.09	83	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.06	0.40	0.29	59.41	0.02	0.00	0.03	0.00	0.00	0.00	61.22
Venture B13	4711.09	84	Fe-calcite	ht	0.01	0.00	0.00	0.01	1.17	0.25	0.35	58.23	0.00	0.01	0.02	0.00	0.00	0.00	60.04
Venture B13	4711.09	85	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.28	0.24	0.42	57.99	0.03	0.00	0.04	0.00	0.00	0.00	60.00
Venture B13	4711.09	86	Fe-calcite	ht	0.70	0.00	0.48	0.00	1.30	0.19	0.84	56.41	0.03	0.04	0.01	0.00	0.03	0.00	60.02
Venture B13	4711.09	87	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.79	0.70	0.81	59.20	0.00	0.01	0.02	0.03	0.00	0.00	62.57
Venture B13	4711.09	88	calcite	ht	0.07	0.00	0.03	0.00	0.61	0.19	0.40	58.74	0.01	0.01	0.04	0.01	0.06	0.00	60.18
Venture B13	4712.06	89	Fe-calcite	ht	0.03	0.00	0.01	0.00	1.58	1.59	0.62	59.40	0.01	0.02	0.12	0.00	0.10	0.00	63.50
Venture B13	4712.06	90	Fe-calcite	ht	0.03	0.00	0.01	0.00	1.22	1.30	0.55	60.60	0.02	0.04	0.06	0.02	0.14	0.00	63.99
Venture B13	4712.06	91	Fe-calcite	ht	0.02	0.00	0.02	0.00	1.48	1.34	0.75	59.45	0.02	0.03	0.04	0.01	0.11	0.00	63.28
Venture B13	4712.06	92	Fe-calcite	ht	0.06	0.00	0.02	0.00	1.16	1.27	0.54	58.68	0.01	0.01	0.05	0.02	0.12	0.00	61.93
Venture B13	4712.06	93	Fe-calcite	ht	3.64	0.00	0.98	0.00	0.96	0.45	0.31	52.94	0.09	0.51	0.06	0.01	0.10	0.00	60.04
Venture B13	4712.06	94	Fe-calcite	ht	0.04	0.00	0.02	0.00	1.24	1.25	0.60	58.68	0.01	0.03	0.06	0.01	0.12	0.00	62.06
Venture B13	4712.06	95	Fe-calcite	ht	0.02	0.00	0.00	0.00	1.45	1.54	0.59	59.54	0.01	0.02	0.05	0.01	0.07	0.00	63.31
Venture B13	4712.06	96	Fe-calcite	ht	0.03	0.00	0.00	0.01	1.19	1.24	0.50	59.34	0.03	0.03	0.05	0.02	0.10	0.00	62.53
Venture B13	4712.06	97	Fe-calcite	ht	0.01	0.00	0.00	0.00	1.13	1.26	0.51	58.57	0.02	0.02	0.03	0.00	0.12	0.00	61.67
Venture B13	4712.06	98	Fe-calcite	ht	0.07	0.00	0.02	0.00	1.16	1.26	0.56	59.01	0.01	0.01	0.07	0.00	0.15	0.00	62.31
Venture B13	4712.06	99	Fe-calcite	ht	0.02	0.01	0.01	0.00	1.25	1.33	0.53	59.29	0.01	0.04	0.07	0.00	0.11	0.00	62.69

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4712.06	100	Fe-calcite	ht	0.09	0.00	0.02	0.00	1.23	1.24	0.53	58.76	0.01	0.01	0.06	0.00	0.11	0.00	62.06
Venture B13	4712.06	101	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.17	1.28	0.55	59.05	0.01	0.03	0.03	0.02	0.13	0.00	62.29
Venture B13	4712.06	102	Fe-calcite	ht	0.01	0.00	0.00	0.01	1.31	1.03	0.54	61.46	0.01	0.01	0.04	0.00	0.08	0.02	64.52
Venture B13	4712.06	103	Fe-calcite	ht	0.06	0.00	0.00	0.00	1.01	0.87	0.42	60.79	0.02	0.02	0.08	0.01	0.07	0.01	63.35
Venture B13	4712.06	104	calcite	ht	0.07	0.00	0.00	0.00	0.94	0.88	0.39	61.28	0.02	0.02	0.07	0.00	0.05	0.00	63.71
Venture B13	4712.06	105	calcite	ht	0.07	0.00	0.00	0.00	0.91	0.89	0.37	60.89	0.00	0.02	0.05	0.00	0.05	0.00	63.25
Venture B13	4712.06	106	calcite	ht	0.03	0.00	0.00	0.00	0.95	0.87	0.39	61.34	0.00	0.03	0.06	0.00	0.05	0.00	63.73
Venture B13	4712.06	107	Fe-calcite	ht	0.04	0.00	0.00	0.00	1.55	1.22	0.58	60.10	0.00	0.02	0.08	0.00	0.00	0.00	63.60
Venture B13	4712.06	108	calcite	ht	0.00	0.00	0.00	0.00	0.98	0.90	0.41	57.41	0.02	0.02	0.07	0.00	0.06	0.00	59.87
Venture B13	4712.06	109	Fe-calcite	ht	0.04	0.00	0.00	0.00	1.34	1.16	0.50	56.97	0.02	0.01	0.09	0.00	0.03	0.00	60.14
Venture B13	4712.06	110	calcite	ht	0.09	0.00	0.00	0.00	0.92	0.82	0.37	58.81	0.00	0.02	0.06	0.00	0.05	0.02	61.17
Venture B13	4712.06	111	calcite	ht	0.02	0.00	0.00	0.00	0.99	0.84	0.42	59.12	0.01	0.02	0.04	0.00	0.07	0.01	61.53
Venture B13	4712.06	112	calcite	ht	0.04	0.00	0.00	0.00	0.94	0.84	0.34	57.72	0.01	0.03	0.06	0.00	0.08	0.00	60.06
Venture B13	4720.44	39	ankerite	gt	0.02	0.02	0.02	0.00	10.25	1.59	11.79	32.05	0.00	0.01	0.04	0.00	0.08	0.00	55.87
Venture B13	4720.44	40	chlorite	lt	22.35	0.23	15.44	0.05	25.09	0.11	8.94	0.32	0.16	0.07	0.05	0.03	0.06	0.00	72.90
Venture B13	4720.44	41	chlorite	lt	18.39	7.14	12.50	0.01	16.47	0.05	5.86	0.33	0.22	0.50	0.02	0.00	0.03	0.00	61.52
Venture B13	4720.44	42	ankerite	gt	0.04	0.00	0.00	0.00	10.09	1.48	11.45	31.51	0.00	0.03	0.02	0.00	0.05	0.00	54.67
Venture B13	4720.44	43	ankerite	gt	0.01	0.00	0.00	0.02	10.18	1.62	11.47	31.33	0.00	0.02	0.03	0.00	0.08	0.00	54.75
Venture B13	4720.44	44	ankerite	gt	0.00	0.01	0.00	0.00	10.09	1.39	11.66	32.32	0.01	0.02	0.01	0.00	0.08	0.00	55.57
Venture B13	4720.44	45	ankerite	gt	0.00	0.00	0.00	0.00	10.10	1.30	11.81	31.39	0.01	0.03	0.02	0.00	0.08	0.00	54.75
Venture B13	4720.44	46	ankerite	gt	0.02	0.01	0.00	0.00	9.89	1.29	11.59	32.50	0.01	0.01	0.02	0.00	0.06	0.00	55.38
Venture B13	4720.44	47	ankerite	gt	0.01	0.00	0.00	0.00	10.19	1.56	11.66	31.83	0.07	0.04	0.02	0.00	0.09	0.00	55.47
Venture B13	4720.44	48	chlorite	lt	17.57	0.07	12.84	0.03	21.98	0.48	10.05	8.51	0.07	0.03	0.01	0.01	0.10	0.00	71.75
Venture B13	4720.44	49	chlorite	lt	18.29	5.35	11.80	0.01	16.45	0.05	5.68	3.20	0.22	0.42	0.17	0.00	0.06	0.00	61.70
Venture B13	4720.44	50	biotite	lt	52.82	0.72	23.50	0.06	5.09	0.03	2.38	0.09	0.11	7.66	0.00	0.00	0.09	0.00	92.55
Venture B13	4720.44	51	ankerite	gt	0.00	0.00	0.00	0.01	10.12	1.55	11.66	32.47	0.00	0.01	0.00	0.00	0.02	0.00	55.85
Venture B13	4720.44	52	ankerite	gt	0.00	0.00	0.01	0.00	9.89	1.43	11.56	32.28	0.00	0.01	0.00	0.00	0.07	0.00	55.25
Venture B13	4720.44	53	ankerite	gt	0.01	0.00	0.01	0.00	9.87	1.27	12.04	32.43	0.00	0.01	0.02	0.00	0.03	0.00	55.70
Venture B13	4720.44	54	ankerite	gt	0.00	0.00	0.00	0.00	10.07	1.25	11.76	30.94	0.01	0.01	0.00	0.00	0.06	0.00	54.10
Venture B13	4720.44	55	ankerite	gt	0.00	0.01	0.00	0.00	9.90	1.56	11.59	32.50	0.01	0.01	0.00	0.00	0.02	0.00	55.60
Venture B13	4720.44	56	ankerite	gt	0.01	0.00	0.01	0.00	9.93	1.29	11.80	32.46	0.00	0.01	0.00	0.00	0.05	0.00	55.56
Venture B13	4720.44	57	ankerite	gt	0.02	0.00	0.01	0.00	10.00	1.64	11.40	32.32	0.00	0.02	0.01	0.00	0.07	0.00	55.49
Venture B13	4720.44	58	ankerite	gt	0.01	0.00	0.00	0.00	10.11	1.38	11.75	31.93	0.00	0.00	0.01	0.00	0.06	0.00	55.25
Venture B13	4720.44	59	ankerite	gt	0.00	0.00	0.00	0.00	9.72	1.85	11.31	31.50	0.00	0.01	0.00	0.00	0.07	0.00	54.47
Venture B13	4720.44	60	ankerite	gt	0.00	0.00	0.00	0.02	9.92	1.75	11.86	32.82	0.00	0.01	0.00	0.00	0.03	0.00	56.42
Venture B13	4720.44	61	ankerite	gt	0.07	0.00	0.00	0.01	9.88	1.53	11.55	31.56	0.00	0.01	0.00	0.00	0.05	0.00	54.67

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4720.44	62	ankerite	gt	0.00	0.01	0.00	0.01	9.56	1.82	11.68	31.52	0.00	0.01	0.00	0.00	0.01	0.00	54.63
Venture B13	4720.44	63	ankerite	gt	0.04	0.00	0.01	0.02	9.55	1.77	11.75	31.10	0.00	0.01	0.01	0.00	0.02	0.00	54.30
Venture B13	4720.44	64	ankerite	gt	0.04	0.00	0.00	0.02	9.45	1.99	11.45	31.77	0.00	0.01	0.00	0.00	0.06	0.00	54.80
Venture B13	4720.44	65	ankerite	gt	0.00	0.00	0.01	0.01	9.10	2.13	11.31	32.52	0.00	0.02	0.00	0.00	0.04	0.00	55.14
Venture B13	4720.44	66	ankerite	gt	0.01	0.00	0.00	0.02	9.59	1.69	11.86	32.01	0.00	0.01	0.00	0.01	0.01	0.00	55.20
Venture B13	4720.44	67	calcite	ht	0.04	0.00	0.02	0.04	0.72	0.71	0.23	60.06	0.00	0.02	0.02	0.02	0.04	0.00	61.92
Venture B13	4720.44	68	calcite	ht	0.01	0.00	0.01	0.00	0.93	0.83	0.38	60.21	0.01	0.03	0.01	0.00	0.00	0.01	62.43
Venture B13	4720.44	69	calcite	ht	0.00	0.00	0.00	0.00	0.68	0.69	0.33	57.95	0.00	0.01	0.01	0.00	0.00	0.00	59.67
Venture B13	4720.44	70	calcite	ht	0.00	0.00	0.01	0.00	0.52	0.61	0.22	58.68	0.00	0.02	0.01	0.00	0.01	0.01	60.10
Venture B13	4720.44	71	calcite	ht	0.00	0.00	0.01	0.00	0.62	0.59	0.20	60.48	0.01	0.02	0.03	0.00	0.01	0.02	61.99
Venture B13	4720.44	72	calcite	ht	0.02	0.00	0.00	0.00	0.72	0.64	0.23	60.39	0.00	0.02	0.05	0.00	0.00	0.02	62.10
Venture B13	4720.44	73	calcite	gt	0.00	0.00	0.00	0.00	0.68	0.64	0.23	56.14	0.00	0.03	0.01	0.00	0.00	0.03	57.77
Venture B13	4720.44	74	calcite	ht	0.01	0.01	0.03	0.01	0.60	0.71	0.24	59.85	0.02	0.02	0.01	0.00	0.01	0.06	61.55
Venture B13	4727.71	77	calcite	ht	0.00	0.00	0.00	0.00	0.83	1.98	0.40	57.52	0.00	0.03	0.02	0.00	0.41	0.00	61.19
Venture B13	4727.71	78	Fe-calcite	ht	0.02	0.00	0.03	0.00	1.03	2.45	0.59	56.36	0.00	0.01	0.02	0.00	0.23	0.00	60.73
Venture B13	4727.71	79	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.09	0.85	0.46	55.61	0.00	0.02	0.03	0.00	0.09	0.00	58.16
Venture B13	4727.71	80	calcite	ht	0.00	0.00	0.01	0.00	0.89	0.65	0.30	56.91	0.00	0.01	0.02	0.00	0.11	0.00	58.91
Venture B13	4727.71	81	calcite	ht	0.00	0.00	0.01	0.00	0.83	0.97	0.35	56.18	0.00	0.03	0.04	0.00	0.50	0.00	58.90
Venture B13	4727.71	82	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.50	1.08	0.76	55.40	0.00	0.03	0.01	0.00	0.16	0.00	58.94
Venture B13	4727.71	83	calcite	ht	0.00	0.00	0.03	0.00	0.91	0.59	0.31	56.43	0.00	0.03	0.05	0.00	0.76	0.00	59.12
Venture B13	4727.71	84	Fe-calcite	ht	0.00	0.00	0.02	0.00	1.14	0.79	0.45	56.56	0.00	0.03	0.02	0.00	0.10	0.00	59.12
Venture B13	4727.71	85	Fe-calcite	ht	0.00	0.00	0.03	0.00	1.05	2.25	0.58	54.99	0.00	0.02	0.03	0.00	0.18	0.00	59.11
Venture B13	4727.71	86	chlorite	lt	25.62	0.05	18.04	0.01	29.31	0.11	10.21	0.80	0.01	0.05	0.03	0.01	0.12	0.00	84.37
Venture B13	4727.71	87	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.31	0.68	0.57	56.14	0.00	0.02	0.01	0.00	0.09	0.00	58.83
Venture B13	4727.71	88	Fe-calcite	ht	0.00	0.01	0.00	0.00	0.99	0.44	0.29	56.31	0.00	0.03	0.06	0.00	0.77	0.00	58.91
Venture B13	4727.71	89	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.48	0.79	0.64	56.81	0.00	0.03	0.02	0.00	0.09	0.00	59.87
Venture B13	4727.71	90	apatite ?	lt	0.82	0.02	0.05	0.02	0.28	0.04	0.03	53.05	0.08	0.08	37.52	0.04	0.75	0.00	92.76
Venture B13	4727.71	91	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.06	0.66	0.27	56.06	0.00	0.03	0.02	0.00	0.06	0.00	58.14
Venture B13	4727.71	92	Fe-calcite	ht	0.00	0.00	0.02	0.00	0.98	0.75	0.38	57.83	0.00	0.02	0.00	0.00	0.08	0.00	60.07
Venture B13	4727.71	93	chlorite	lt	24.65	0.10	17.75	0.03	28.92	0.09	10.57	1.86	0.04	0.03	0.00	0.00	0.13	0.00	84.19
Venture B13	4727.71	94	calcite	lt	0.00	0.00	0.01	0.00	0.75	1.56	0.36	57.01	0.00	0.02	0.04	0.00	0.62	0.00	60.38
Venture B13	4727.71	95	calcite	gt	0.00	0.00	0.01	0.00	0.18	0.95	0.06	56.86	0.00	0.02	0.00	0.00	0.11	0.00	58.19
Venture B13	4727.71	96	calcite	gt	0.00	0.00	0.00	0.00	0.22	1.04	0.07	56.50	0.00	0.02	0.02	0.00	0.18	0.00	58.05
Venture B13	4727.71	97	calcite	gt	0.00	0.00	0.00	0.00	0.34	1.75	0.22	55.48	0.00	0.01	0.00	0.00	0.21	0.00	58.01
Venture B13	4727.71	98	calcite	gt	0.00	0.00	0.00	0.00	0.70	0.64	0.21	55.55	0.00	0.01	0.02	0.00	0.06	0.00	57.20
Venture B13	4727.71	99	calcite	gt	0.00	0.00	0.03	0.00	0.56	0.52	0.15	56.54	0.00	0.02	0.04	0.00	0.03	0.00	57.89

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4727.71	100	calcite	gt	6.83	0.00	1.85	0.00	0.85	0.60	0.23	47.83	0.01	1.47	0.01	0.00	0.04	0.00	59.73
Venture B13	4727.71	2	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.00	0.68	0.27	61.94	0.00	0.01	0.06	0.01	0.03	0.00	64.01
Venture B13	4730.61	5	calcite	gt	0.68	0.33	0.39	0.46	0.78	0.97	0.40	56.95	0.16	0.09	0.16	0.33	0.61	0.51	62.83
Venture B13	4730.61	6	apatite	lt	0.05	0.01	0.02	0.02	0.15	0.05	0.03	53.09	0.14	0.04	39.18	0.03	0.57	0.08	93.45
Venture B13	4730.61	7	apatite	lt	0.79	0.33	0.18	0.48	0.24	0.20	0.19	53.88	0.18	0.12	36.95	0.38	0.93	0.54	95.38
Venture B13	4730.61	8	calcite	gt	0.38	0.31	0.17	0.41	0.40	0.97	0.24	55.83	0.15	0.11	0.19	0.32	0.57	0.56	60.60
Venture B13	4730.61	9	calcite	gt	0.38	0.30	0.20	0.46	0.38	0.97	0.25	55.34	0.16	0.08	0.15	0.33	0.54	0.53	60.08
Venture B13	4730.61	10	calcite	gt	0.37	0.33	0.19	0.44	0.44	1.04	0.25	57.81	0.16	0.10	0.16	0.36	0.52	0.50	62.67
Venture B13	4730.61	11	calcite	gt	0.38	0.32	0.18	0.44	0.43	1.00	0.26	56.10	0.14	0.11	0.13	0.33	0.57	0.56	60.95
Venture B13	4730.61	12	calcite	lt	0.44	0.31	0.28	0.44	0.47	0.44	1.04	51.82	0.31	0.10	0.13	0.28	0.54	0.51	57.12
Venture B13	4730.61	13	calcite	gt	0.40	0.28	0.17	0.44	0.44	1.01	0.27	57.36	0.16	0.10	0.16	0.36	0.54	0.53	62.23
Venture B13	4730.61	14	calcite	gt	0.32	0.30	0.19	0.44	0.35	1.01	0.26	56.11	0.15	0.09	0.12	0.32	0.56	0.54	60.76
Venture B13	4730.61	15	calcite	gt	0.59	0.32	0.44	0.44	0.74	0.82	0.39	54.00	0.15	0.12	0.10	0.35	0.47	0.49	59.42
Venture B13	4730.61	16	calcite	gt	0.63	0.35	0.27	0.47	0.41	0.97	0.28	55.71	0.14	0.10	0.16	0.33	0.56	0.56	60.95
Venture B13	4730.61	17	calcite	gt	2.04	0.28	0.86	0.44	0.78	0.69	0.48	54.89	0.14	0.34	0.12	0.32	0.90	0.55	62.85
Venture B13	4730.61	18	illite	lt	47.78	0.29	28.68	0.41	3.96	0.19	2.68	0.72	0.20	6.26	0.13	0.29	0.50	0.49	92.58
Venture B13	4730.61	19	illite + chlorite	lt	37.90	0.37	24.98	0.45	13.45	0.20	4.36	0.76	0.18	3.81	0.12	0.30	0.54	0.52	87.95
Venture B13	4730.61	20	illite	lt	46.90	0.29	28.68	0.41	0.83	0.17	1.63	4.78	0.27	6.01	0.12	0.29	0.51	0.54	91.43
Venture B13	4730.61	21	calcite	lt	6.13	0.32	1.85	0.43	0.68	0.77	0.35	52.28	0.27	0.17	0.14	0.32	0.49	0.51	64.73
Venture B13	4730.61	22	Fe-calcite	lt	3.39	0.58	1.86	0.44	1.28	0.91	1.30	52.22	0.15	0.24	0.13	0.34	0.55	0.57	63.96
Venture B13	4730.61	23	calcite	gt	0.68	0.30	0.33	0.43	0.50	1.00	0.27	55.78	0.15	0.21	0.18	0.32	0.57	0.58	61.28
Venture B13	4730.61	24	calcite	gt	0.89	0.55	0.46	0.43	0.51	0.98	0.29	55.26	0.16	0.27	0.14	0.33	0.52	0.53	61.33
Venture B13	4730.61	25	illite	lt	50.47	0.30	30.39	0.41	0.87	0.16	1.84	0.84	0.29	6.82	0.10	0.31	0.53	0.48	93.81
Venture B13	4730.61	26	K-feldspar	lt	61.75	0.00	18.04	0.00	0.03	0.00	0.01	0.02	0.61	14.53	0.00	0.00	0.00	0.16	95.15
Venture B13	4730.61	27	calcite	gt	0.39	0.34	0.19	0.46	0.63	0.72	0.34	57.34	0.15	0.15	0.15	0.35	0.47	0.58	62.26
Venture B13	4730.61	28	calcite	gt	0.65	0.29	0.24	0.45	0.70	0.76	0.38	54.59	0.14	0.12	0.09	0.32	0.67	0.54	59.91
Venture B13	4730.61	29	illite	lt	45.92	0.28	27.57	0.39	0.91	0.17	1.71	0.98	0.25	6.29	0.12	0.27	0.46	0.47	85.78
Venture B13	4730.61	30	calcite	gt	0.43	0.30	0.18	0.45	0.43	1.08	0.20	55.12	0.13	0.11	0.13	0.35	0.47	0.52	59.90
Venture B13	4730.61	31	calcite	gt	0.49	0.31	0.18	0.43	0.50	1.19	0.28	58.18	0.15	0.11	0.16	0.34	0.61	0.51	63.45
Venture B13	4730.61	32	albite	lt	41.00	0.28	17.42	0.41	0.30	0.28	0.19	18.33	2.37	0.10	0.11	0.27	0.66	0.51	82.22
Venture B13	4730.61	33	Qtz + clay		78.33	0.66	9.10	0.42	3.61	0.19	1.48	0.65	0.16	1.79	0.12	0.29	0.87	0.46	98.14
Venture B13	4730.61	34	calcite	gt	0.79	0.52	0.28	0.48	0.44	1.02	0.28	55.36	0.17	0.14	0.12	0.33	0.55	0.55	61.03
Venture B13	4730.61	35	calcite	gt	0.00	0.00	0.00	0.00	0.39	0.88	0.15	58.01	0.00	0.04	0.04	0.00	0.29	0.00	59.80
Venture B13	4730.61	36	Qtz + clay		91.11	0.84	1.48	0.38	0.27	0.15	0.15	0.50	0.14	0.37	0.12	0.28	1.02	0.51	97.32
Venture B13	4730.61	37	Qtz + clay		86.34	0.32	4.66	0.41	1.06	0.17	0.70	0.26	0.14	1.14	0.09	0.27	0.98	0.53	97.09
Venture B13	4730.61	38	calcite	gt	0.10	0.00	0.00	0.00	0.30	1.06	0.19	55.68	0.02	0.02	0.09	0.00	0.14	0.00	57.60

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4730.61	39	calcite	gt	0.53	0.28	0.19	0.45	0.39	0.98	0.26	55.23	0.16	0.10	0.12	0.34	0.57	0.48	60.08
Venture B13	4730.61	40	calcite	gt	0.16	0.00	0.00	0.00	0.21	0.87	0.12	56.03	0.02	0.04	0.06	0.00	0.13	0.00	57.64
Venture B13	4730.61	41	calcite	gt	1.15	0.29	0.37	0.44	0.39	1.01	0.26	55.15	0.15	0.52	0.13	0.33	0.50	0.53	61.21
Venture B13	4730.61	42	calcite	gt	0.01	0.02	0.01	0.00	0.22	0.86	0.13	56.41	0.01	0.05	0.05	0.00	0.12	0.03	57.91
Venture B13	4730.61	43	Fe-calcite	gt	1.20	0.31	0.81	0.46	1.23	1.10	0.53	57.78	0.16	0.13	0.18	0.31	0.56	0.52	65.30
Venture B13	4730.61	44	calcite	lt	1.75	1.21	0.77	0.45	0.58	0.91	0.31	53.55	0.16	0.21	0.13	0.34	0.60	0.53	61.51
Venture B13	4730.61	45	calcite	gt	0.04	0.02	0.01	0.00	0.27	0.90	0.12	56.72	0.01	0.02	0.07	0.00	0.13	0.00	58.33
Venture B13	4730.61	46	calcite	gt	0.16	0.07	0.07	0.00	0.22	0.82	0.12	55.72	0.02	0.05	0.07	0.00	0.14	0.01	57.45
Venture B13	4730.61	47	calcite	lt	7.21	0.55	0.62	0.44	0.57	0.86	0.34	51.94	0.15	0.22	0.13	0.32	0.61	0.54	64.51
Venture B13	4730.61	48	mica	lt	43.64	0.34	34.83	0.00	0.88	0.00	0.60	0.04	1.57	7.33	0.03	0.00	0.00	0.21	89.48
Venture B13	4730.61	49	illite	lt	37.09	2.55	22.38	0.42	1.22	0.27	1.64	12.06	0.27	4.88	0.12	0.27	0.52	0.58	84.27
Venture B13	4730.61	75	calcite	ht	2.55	0.01	1.30	0.00	0.38	0.73	0.22	57.26	0.04	0.34	0.08	0.02	0.15	0.03	63.10
Venture B13	4730.61	76	calcite	ht	0.31	0.04	0.12	0.00	0.24	0.77	0.09	59.47	0.01	0.13	0.06	0.01	0.19	0.00	61.44
Venture B13	4730.61	77	calcite	ht	0.12	0.00	0.07	0.00	0.83	0.63	0.30	59.22	0.01	0.07	0.06	0.00	0.06	0.00	61.39
Venture B13	4730.61	78	chlorite	lt	32.27	0.01	20.60	0.00	0.55	0.19	1.09	21.48	0.14	4.51	0.03	0.00	0.05	0.00	80.91
Venture B13	4730.61	79	illite	gt	51.21	0.00	29.63	0.00	0.72	0.00	1.82	0.57	0.17	7.28	0.02	0.00	0.00	0.00	91.42
Venture B13	4730.61	80	calcite	ht	0.11	0.00	0.02	0.00	0.26	0.82	0.10	61.00	0.01	0.03	0.07	0.02	0.17	0.04	62.65
Venture B13	4730.61	81	calcite	ht	0.12	0.00	0.02	0.00	0.22	0.91	0.11	61.02	0.01	0.04	0.06	0.00	0.12	0.02	62.64
Venture B13	4730.61	82	calcite	ht	0.08	0.00	0.02	0.00	0.20	0.86	0.11	61.08	0.01	0.03	0.07	0.01	0.14	0.03	62.64
Venture B13	4730.61	83	calcite	ht	0.83	0.08	0.27	0.00	0.43	0.78	0.29	59.08	0.01	0.11	0.08	0.01	0.14	0.06	62.17
Venture B13	4730.61	84	calcite	ht	1.36	0.16	0.61	0.00	0.38	0.62	0.34	56.56	0.02	0.17	0.03	0.00	0.12	0.03	60.41
Venture B13	4730.61	85	calcite	ht	0.13	0.00	0.03	0.00	0.19	0.85	0.09	59.12	0.02	0.07	0.09	0.02	0.11	0.02	60.73
Venture B13	4730.61	86	calcite	ht	0.10	0.02	0.02	0.00	0.19	0.85	0.09	59.74	0.01	0.05	0.07	0.00	0.14	0.00	61.28
Venture B13	4730.61	87	calcite	ht	0.16	0.00	0.03	0.00	0.22	0.88	0.09	58.59	0.02	0.04	0.08	0.00	0.11	0.03	60.24
Venture B13	4730.61	88	calcite	ht	0.70	0.37	0.31	0.00	0.28	0.70	0.13	56.88	0.01	0.14	0.07	0.02	0.19	0.00	59.79
Venture B13	4730.61	89	calcite	ht	0.83	0.15	0.36	0.00	0.67	0.72	0.19	56.30	0.02	0.10	0.03	0.01	0.18	0.02	59.58
Venture B13	4730.61	90	calcite	ht	0.19	0.00	0.04	0.00	0.51	0.65	0.16	59.23	0.00	0.03	0.04	0.04	0.04	0.04	60.97
Venture B13	4730.61	91	calcite	ht	0.13	0.00	0.01	0.00	0.28	0.86	0.09	59.82	0.02	0.03	0.07	0.01	0.15	0.00	61.47
Venture B13	4730.61	92	calcite	ht	1.52	0.22	0.72	0.00	0.71	0.74	0.30	54.87	0.04	0.10	0.07	0.00	0.12	0.00	59.40
Venture B13	4730.61	93	calcite	ht	0.14	0.00	0.03	0.00	0.29	0.84	0.14	59.38	0.00	0.04	0.06	0.00	0.24	0.04	61.19
Venture B13	4730.61	94	calcite	ht	0.08	0.04	0.02	0.00	0.22	0.82	0.09	60.18	0.02	0.06	0.06	0.00	0.12	0.00	61.72
Venture B13	4730.61	95	calcite	gt	0.93	0.22	0.45	0.00	0.43	0.77	0.15	55.60	0.03	0.13	0.08	0.00	0.18	0.02	58.99
Venture B13	4730.61	96	Fe-calcite	gt	1.18	0.38	0.57	0.00	1.03	0.72	0.21	51.86	0.02	0.12	0.10	0.00	0.15	0.04	56.37
Venture B13	4730.61	97	calcite	ht	0.91	0.10	0.41	0.00	0.70	0.70	0.27	57.75	0.02	0.08	0.06	0.00	0.20	0.02	61.23
Venture B13	4730.61	98	calcite	ht	1.08	0.04	0.62	0.00	0.57	0.78	0.23	57.27	0.03	0.09	0.15	0.00	0.20	0.06	61.11
Venture B13	4730.61	99	calcite	ht	1.03	0.65	0.50	0.00	0.35	0.74	0.16	55.07	0.03	0.17	0.06	0.00	0.13	0.06	58.96

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4733.33	101	Fe-calcite	ht	0.00	0.01	0.00	0.00	1.05	1.10	0.43	57.60	0.00	0.02	0.00	0.01	0.08	0.00	60.29
Venture B13	4733.33	102	calcite	gt	0.01	0.00	0.02	0.00	0.84	0.81	0.31	56.44	0.02	0.02	0.03	0.00	0.08	0.00	58.56
Venture B13	4733.33	103	Fe-calcite	ht	0.00	0.01	0.02	0.00	1.65	1.43	0.73	55.36	0.00	0.02	0.03	0.00	0.32	0.00	59.56
Venture B13	4733.33	104	Fe-calcite	ht	0.00	0.02	0.03	0.00	1.01	0.91	0.30	55.93	0.00	0.03	0.04	0.03	0.10	0.00	58.40
Venture B13	4733.33	105	Fe-calcite	gt	5.12	0.00	1.52	0.00	1.06	0.62	0.28	48.08	0.57	0.03	0.03	0.00	0.08	0.00	57.40
Venture B13	4733.33	106	calcite	ht	0.05	0.00	0.01	0.00	0.82	0.75	0.30	57.06	0.01	0.02	0.01	0.02	0.12	0.00	59.17
Venture B13	4733.33	107	chlorite	lt	18.49	3.39	13.21	0.00	18.48	0.03	5.32	0.20	0.18	0.20	0.00	0.00	0.07	0.00	59.58
Venture B13	4733.33	108	chlorite	lt	25.83	0.09	20.10	0.08	30.63	0.10	8.34	0.18	0.20	0.04	0.01	0.01	0.14	0.00	85.74
Venture B13	4733.33	109	Fe-calcite	ht	0.03	0.00	0.02	0.00	0.93	0.65	0.34	57.24	0.00	0.02	0.04	0.02	0.10	0.00	59.39
Venture B13	4733.33	110	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.16	0.95	0.51	56.83	0.00	0.02	0.02	0.00	0.03	0.00	59.54
Venture B13	4733.33	111	Fe-calcite	ht	0.06	0.01	0.03	0.00	1.20	0.95	0.46	56.80	0.00	0.06	0.05	0.00	0.03	0.00	59.64
Venture B13	4733.33	112	chlorite	lt	16.56	11.06	11.46	0.00	14.18	0.00	4.18	1.15	0.21	0.62	0.06	0.00	0.03	0.03	59.54
Venture B13	4733.33	113	calcite	gt	0.00	0.00	0.01	0.00	0.51	0.58	0.12	57.18	0.00	0.07	0.05	0.01	0.02	0.00	58.54
Venture B13	4733.33	114	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.05	1.18	0.42	57.47	0.00	0.03	0.00	0.01	0.09	0.00	60.27
Venture B13	4733.33	115	calcite	ht	0.03	0.00	0.01	0.00	0.80	0.73	0.30	57.08	0.00	0.03	0.00	0.00	0.10	0.00	59.07
Venture B13	4733.33	116	Fe-calcite	ht	0.08	0.00	0.01	0.00	1.21	1.00	0.57	56.30	0.01	0.03	0.02	0.00	0.03	0.00	59.25
Venture B13	4733.33	117	Fe-calcite	ht	0.45	0.57	0.25	0.00	1.36	1.36	0.62	53.69	0.00	0.04	0.09	0.02	0.16	0.00	58.62
Venture B13	4733.33	118	Fe-calcite	gt	0.87	0.01	0.66	0.00	1.83	0.87	0.69	51.92	0.00	0.03	0.03	0.00	0.13	0.00	57.03
Venture B13	4733.33	119	calcite	ht	0.11	0.00	0.01	0.00	0.86	0.74	0.30	56.94	0.00	0.02	0.04	0.02	0.07	0.00	59.11
Venture B13	4733.33	120	francolite ?	lt	5.98	0.22	4.13	0.00	4.84	0.05	1.42	33.98	0.17	0.37	23.57	0.00	0.13	0.00	74.87
Venture B13	4733.33	121	francolite ?	lt	0.81	0.04	0.02	0.03	0.12	0.06	0.04	52.63	0.05	0.03	36.95	0.04	0.60	0.00	91.44
Venture B13	4733.33	122	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.10	1.18	0.43	55.58	0.00	0.01	0.01	0.02	0.16	0.00	58.50
Venture B13	4733.33	123	Fe-calcite	gt	0.00	0.00	0.01	0.00	0.96	1.08	0.35	55.37	0.00	0.02	0.04	0.00	0.09	0.00	57.92
Venture B13	4733.33	124	calcite	ht	0.00	0.00	0.03	0.00	0.81	0.84	0.30	56.74	0.00	0.02	0.03	0.00	0.55	0.00	59.32
Venture B13	4733.33	125	calcite	gt	0.00	0.00	0.02	0.00	0.84	0.81	0.27	54.81	0.00	0.03	0.02	0.00	0.08	0.00	56.87
Venture B13	4733.33	126	Fe-calcite	gt	0.00	0.00	0.03	0.00	1.19	1.03	0.39	54.86	0.00	0.02	0.02	0.01	0.16	0.00	57.73
Venture B13	4733.33	127	calcite	gt	0.00	0.00	0.02	0.00	0.76	0.78	0.23	54.88	0.00	0.01	0.06	0.00	0.10	0.00	56.84
Venture B13	4733.33	128	francolite ?	lt	0.43	0.00	0.14	0.04	0.64	0.55	0.21	50.63	0.06	0.01	24.91	0.01	0.61	0.00	78.27
Venture B13	4953.03	129	calcite	gt	0.00	0.00	0.01	0.00	0.87	0.55	0.24	56.37	0.00	0.03	0.01	0.01	0.05	0.00	58.13
Venture B13	4953.03	130	calcite	gt	0.00	0.00	0.00	0.00	0.54	0.47	0.13	56.15	0.00	0.01	0.02	0.01	0.01	0.00	57.35
Venture B13	4953.03	131	Fe-calcite	ht	0.00	0.01	0.00	0.00	1.64	0.92	0.72	55.54	0.00	0.02	0.02	0.00	0.09	0.00	58.97
Venture B13	4953.03	132	barite	gt	0.13	3.99	0.20	0.49	0.25	0.22	0.11	0.11	0.36	0.10	0.10	0.38	4.45	56.27	67.17
Venture B13	4953.03	133	barite	gt	0.20	4.10	0.17	0.53	0.23	0.23	0.14	0.11	0.39	0.10	0.05	0.41	3.58	57.37	67.63
Venture B13	4953.03	134	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.03	0.65	0.36	55.33	0.00	0.02	0.02	0.01	0.27	0.00	57.70
Venture B13	4953.03	135	calcite	gt	0.00	0.01	0.00	0.00	0.66	0.49	0.16	57.30	0.00	0.00	0.02	0.00	0.01	0.00	58.65
Venture B13	4953.03	136	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.22	0.72	0.40	55.21	0.00	0.02	0.02	0.00	0.05	0.00	57.65

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4953.03	137	Fe-calcite	gt	0.67	0.00	0.52	0.00	1.61	0.59	0.43	53.42	0.00	0.02	0.04	0.00	0.04	0.00	57.34
Venture B13	4953.03	138	Fe-calcite	ht	0.25	0.00	0.22	0.00	1.68	0.72	0.56	55.07	0.00	0.01	0.03	0.00	0.11	0.00	58.66
Venture B13	4953.03	139	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.02	0.65	0.37	55.82	0.00	0.02	0.04	0.00	0.00	0.00	57.93
Venture B13	4953.03	140	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.00	0.55	0.39	55.15	0.00	0.01	0.03	0.00	0.17	0.00	57.30
Venture B13	4953.03	141	calcite	gt	0.00	0.00	0.00	0.00	0.80	0.52	0.25	55.75	0.00	0.01	0.03	0.00	0.16	0.00	57.52
Venture B13	4953.03	142	Fe-calcite	ht	0.00	0.01	0.01	0.01	1.01	0.59	0.33	58.28	0.00	0.00	0.03	0.00	0.01	0.00	60.28
Venture B13	4953.03	143	calcite	ht	0.01	0.00	0.01	0.00	0.89	0.55	0.30	57.46	0.00	0.01	0.03	0.00	0.02	0.00	59.28
Venture B13	4953.03	144	calcite	gt	0.00	0.02	0.00	0.00	0.91	0.54	0.29	53.85	0.00	0.00	0.03	0.00	0.02	0.00	55.66
Venture B13	4953.03	145	calcite	gt	0.00	0.00	0.00	0.00	0.92	0.69	0.23	53.77	0.00	0.01	0.03	0.00	0.00	0.00	55.66
Venture B13	4953.03	146	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.06	0.76	0.30	55.46	0.00	0.01	0.01	0.00	0.00	0.00	57.59
Venture B13	4953.03	147	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.26	0.76	0.51	55.58	0.00	0.02	0.04	0.00	0.04	0.00	58.21
Venture B13	4953.03	148	chlorite	lt	17.91	0.00	15.70	0.00	21.83	0.01	4.39	0.11	0.17	0.04	0.00	0.00	0.00	0.06	60.22
Venture B13	4953.03	149	illite	lt	25.82	0.19	16.16	0.00	6.38	0.00	1.67	0.11	0.24	3.13	0.03	0.00	0.00	0.00	53.72
Venture B13	4953.03	150	illite	lt	29.37	0.42	14.90	0.00	3.23	0.00	1.17	0.17	0.32	3.89	0.05	0.00	0.00	0.00	53.54
Venture B13	4953.03	151	chlorite	lt	19.42	0.02	16.71	0.01	22.70	0.01	4.70	0.12	0.18	0.05	0.00	0.00	0.01	0.00	63.94
Venture B13	4956.56	5	Fe-calcite	ht	0.26	0.00	0.11	0.00	1.43	0.66	0.42	56.04	0.01	0.04	0.03	0.00	0.29	0.00	59.28
Venture B13	4956.56	6	calcite	ht	0.01	0.00	0.01	0.00	0.73	0.45	0.12	58.36	0.00	0.05	0.06	0.01	0.04	0.00	59.82
Venture B13	4956.56	9	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.26	0.63	0.40	56.05	0.02	0.01	0.03	0.00	0.01	0.00	58.43
Venture B13	4956.56	10	Fe-calcite	ht	0.04	0.00	0.04	0.00	1.81	1.02	0.69	54.39	0.01	0.04	0.09	0.00	0.10	0.00	58.21
Venture B13	4956.56	11	Fe-calcite	ht	0.02	0.00	0.04	0.00	1.20	0.68	0.44	57.63	0.00	0.02	0.06	0.00	0.03	0.00	60.12
Venture B13	4956.56	12	chlorite	lt	18.81	0.05	15.57	0.05	20.92	0.05	4.00	1.39	0.13	0.15	0.10	0.01	0.09	0.00	61.34
Venture B13	4956.56	13	chlorite	lt	21.15	0.05	16.78	0.01	21.83	0.00	4.29	0.27	0.19	0.15	0.08	0.00	0.07	0.00	64.89
Venture B13	4956.56	14	clay	lt	42.31	2.14	21.82	0.00	9.86	0.03	2.99	0.41	0.37	4.26	0.07	0.01	0.05	0.00	84.31
Venture B13	4956.56	15	chlorite	lt	18.15	0.00	15.64	0.03	20.55	0.03	4.26	0.54	0.18	0.12	0.04	0.01	0.09	0.00	59.64
Venture B13	4956.56	16	ankerite	gt	0.00	0.00	0.01	0.00	11.17	1.50	10.19	30.99	0.00	0.02	0.00	0.00	0.03	0.00	53.93
Venture B13	4956.56	17	ankerite	lt	0.00	0.03	0.01	0.02	10.67	1.52	9.82	29.83	0.00	0.01	0.04	0.00	0.04	0.00	51.99
Venture B13	4956.56	18	ankerite	gt	0.00	0.00	0.02	0.01	10.95	1.67	10.13	30.43	0.02	0.02	0.05	0.03	0.01	0.00	53.35
Venture B13	4956.56	19	clay?	lt	2.27	0.03	0.50	0.00	22.54	0.68	2.22	8.30	0.57	0.04	0.06	0.20	0.05	0.00	37.45
Venture B13	4956.56	20	clay ?	lt	4.94	0.02	3.14	0.05	19.06	0.35	1.03	0.31	0.21	0.04	0.00	0.18	0.03	0.00	29.38
Venture B13	4956.56	21	ankerite	lt	0.11	0.04	0.04	0.00	10.67	1.52	9.86	29.52	0.02	0.03	0.02	0.00	0.05	0.00	51.88
Venture B13	4959.54	7	Fe-calcite	ht	0.00	0.00	0.02	0.00	1.26	0.42	0.24	58.50	0.00	0.04	0.05	0.01	0.07	0.01	60.63
Venture B13	4959.54	8	Fe-calcite	gt	0.00	0.00	0.02	0.00	1.14	0.48	0.35	56.28	0.00	0.05	0.04	0.01	0.02	0.00	58.38
Venture B13	4959.54	9	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.03	0.41	0.24	56.31	0.01	0.04	0.02	0.01	0.06	0.00	58.14
Venture B13	4959.54	10	chlorite	lt	28.28	0.50	23.42	0.03	25.29	0.03	5.50	0.27	0.07	1.53	0.05	0.02	0.07	0.02	85.09
Venture B13	4959.54	11	albite	gt	68.37	0.00	19.37	0.00	0.03	0.00	0.00	0.18	12.43	0.03	0.00	0.00	0.36	0.00	100.78
Venture B13	4959.54	12	chlorite	lt	23.52	0.05	2.17	0.00	10.57	0.01	2.29	4.87	0.37	0.20	0.04	0.00	0.03	0.00	44.12

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4959.54	13	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.09	0.47	0.24	57.49	0.02	0.02	0.05	0.00	0.03	0.00	59.41
Venture B13	4959.54	14	Fe-calcite	ht	0.00	0.00	0.02	0.00	0.98	0.56	0.35	57.22	0.01	0.03	0.03	0.02	0.02	0.00	59.23
Venture B13	4959.54	15	Fe-calcite	ht	0.00	0.01	0.03	0.00	1.11	0.68	0.37	56.42	0.02	0.04	0.03	0.01	0.05	0.00	58.77
Venture B13	4959.54	16	Fe-calcite	gt	0.00	0.00	0.01	0.00	0.98	0.54	0.33	55.55	0.02	0.03	0.05	0.00	0.04	0.00	57.54
Venture B13	4959.54	17	Fe-calcite	lt	0.00	0.00	0.02	0.00	1.01	0.39	0.31	50.11	0.01	0.03	0.05	0.00	0.06	0.00	51.98
Venture B13	4959.54	18	chlorite	lt	25.25	0.06	22.56	0.03	29.16	0.04	5.86	0.17	0.05	0.63	0.07	0.03	0.07	0.00	83.97
Venture B13	4959.54	19	Fe-calcite	ht	0.00	0.00	0.02	0.00	1.13	0.40	0.25	58.86	0.01	0.08	0.04	0.00	0.02	0.00	60.82
Venture B13	4959.54	20	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.03	0.41	0.26	56.89	0.01	0.04	0.04	0.00	0.05	0.00	58.73
Venture B13	4959.54	21	Fe-calcite	ht	0.00	0.00	0.03	0.00	1.09	0.42	0.27	56.90	0.02	0.07	0.02	0.00	0.04	0.00	58.85
Venture B13	4959.54	22	pyrite	gt	1.03	0.18	0.79	0.22	55.60	0.14	0.68	0.23	0.45	0.12	0.09	0.24	0.19	0.32	60.28
Venture B13	4959.54	23	chlorite	lt	33.79	0.53	24.88	0.01	20.53	0.06	4.54	0.18	0.11	3.05	0.01	0.00	0.02	0.06	87.76
Venture B13	4959.54	24	chlorite	lt	28.42	0.22	24.24	0.05	27.57	0.03	5.64	0.12	0.04	1.24	0.08	0.00	0.10	0.08	87.84
Venture B13	4959.54	25	apatite	lt	0.88	0.00	0.01	0.06	0.12	0.02	0.11	49.63	0.13	0.03	35.24	0.04	0.46	0.04	86.76
Venture B13	4959.54	26	Fe-calcite	ht	0.00	0.00	0.07	0.00	1.36	0.69	0.36	56.12	0.00	0.14	0.06	0.00	0.00	0.03	58.84
Venture B13	4959.54	27	chlorite	lt	22.79	0.00	17.56	0.00	22.87	0.01	4.42	0.06	0.11	0.18	0.06	0.00	0.06	0.01	68.12
Venture B13	4959.54	28	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.00	0.36	0.24	55.85	0.02	0.02	0.04	0.00	0.02	0.01	57.57
Venture B13	4959.54	29	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.15	0.52	0.36	55.89	0.01	0.03	0.02	0.00	0.00	0.00	57.97
Venture B13	4959.54	30	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.07	0.46	0.36	50.73	0.01	0.01	0.02	0.00	0.03	0.00	52.70
Venture B13	4959.54	31	albite	gt	67.29	0.00	19.29	0.00	0.05	0.00	0.00	1.24	12.16	0.30	0.02	0.00	0.35	0.00	100.70
Venture B13	4959.54	32	Fe-calcite	ht	0.00	0.00	0.00	0.00	0.94	0.50	0.32	56.68	0.00	0.04	0.04	0.00	0.00	0.00	58.51
Venture B13	4959.54	33	illite	lt	44.84	9.22	25.16	0.00	0.92	0.00	1.84	0.63	0.35	6.54	0.00	0.00	0.03	0.02	89.55
Venture B13	4959.54	34	chlorite	lt	28.95	0.04	23.82	0.01	25.71	0.04	5.73	0.36	0.21	1.22	0.01	0.00	0.13	0.01	86.23
Venture B13	4965.29	39	ankerite	lt	0.00	0.03	0.00	0.00	10.60	0.47	10.68	28.19	0.00	0.02	0.00	0.00	0.01	0.00	50.00
Venture B13	4965.29	40	ankerite	lt	0.00	0.03	0.13	0.25	11.18	1.73	10.32	28.48	0.10	0.02	0.06	0.00	0.03	0.00	52.33
Venture B13	4965.29	41	ankerite	lt	0.00	0.03	0.11	0.24	11.15	1.85	10.72	28.10	0.08	0.00	0.08	0.00	0.04	0.00	52.41
Venture B13	4965.29	42	ankerite	gt	0.00	0.00	0.14	0.25	11.08	1.67	10.43	29.57	0.08	0.03	0.08	0.00	0.08	0.01	53.42
Venture B13	4965.29	43	apatite	lt	0.00	0.08	0.11	0.32	0.08	0.12	0.02	50.90	0.11	0.04	36.99	0.05	0.16	0.05	89.03
Venture B13	4965.29	44	ankerite	gt	0.00	0.07	0.11	0.30	10.98	1.97	10.31	29.72	0.08	0.02	0.03	0.00	0.02	0.00	53.61
Venture B13	4965.29	45	Fe-calcite	gt	0.00	0.02	0.12	0.27	1.38	0.90	0.47	54.81	0.08	0.03	0.05	0.00	0.05	0.00	58.20
Venture B13	4965.29	46	calcite	gt	0.00	0.00	0.12	0.24	0.90	0.61	0.29	56.06	0.09	0.03	0.07	0.00	0.05	0.00	58.46
Venture B13	4965.29	47	Fe-calcite	ht	0.09	0.02	0.11	0.27	1.16	0.67	0.36	55.93	0.09	0.03	0.07	0.01	0.08	0.00	58.88
Venture B13	4965.29	48	Fe-calcite	gt	0.08	0.02	0.11	0.26	1.10	0.68	0.35	55.23	0.06	0.04	0.09	0.02	0.08	0.00	58.12
Venture B13	4965.29	49	ankerite	gt	0.00	0.02	0.12	0.26	10.99	1.93	10.34	29.38	0.08	0.03	0.04	0.00	0.04	0.02	53.26
Venture B13	4965.29	50	ankerite	gt	0.00	0.01	0.12	0.27	11.19	1.93	10.58	30.01	0.08	0.02	0.05	0.00	0.04	0.00	54.30
Venture B13	4965.29	51	Fe-calcite	ht	0.00	0.03	0.11	0.27	1.67	0.88	0.62	55.51	0.08	0.03	0.09	0.00	0.05	0.00	59.35
Venture B13	4965.29	52	Fe-calcite	ht	0.03	0.03	0.11	0.28	1.22	0.69	0.33	56.52	0.07	0.03	0.10	0.03	0.11	0.00	59.54

Appendix 1B: Electron microprobe analyses of minerals from representative samples from Venture B-13 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture B13	4965.29	53	Fe-calcite	ht	0.00	0.02	0.11	0.29	1.21	0.79	0.37	57.08	0.10	0.03	0.05	0.02	0.05	0.00	60.11
Venture B13	4965.29	54	Fe-calcite	ht	0.00	0.02	0.11	0.30	1.03	0.71	0.29	57.76	0.07	0.03	0.08	0.01	0.06	0.00	60.47
Venture B13	4965.29	55	Fe-calcite	ht	0.00	0.02	0.11	0.29	1.14	0.73	0.31	57.18	0.08	0.04	0.08	0.00	0.07	0.00	60.05
Venture B13	4965.29	56	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.02	0.61	0.30	58.25	0.00	0.03	0.05	0.00	0.04	0.00	60.32
Venture B13	4965.29	57	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.07	0.58	0.36	53.96	0.00	0.02	0.04	0.00	0.02	0.00	56.05
Venture B13	4965.29	58	Fe-calcite	ht	0.00	0.00	0.03	0.00	1.04	0.67	0.36	57.13	0.02	0.02	0.04	0.01	0.03	0.00	59.36
Venture B13	4965.29	59	Fe-calcite	lt	0.20	0.00	0.15	0.00	0.99	0.44	0.37	48.24	0.05	0.05	0.13	0.00	0.00	0.00	50.62
Venture B13	4965.29	60	ankerite	lt	0.11	0.01	0.10	0.00	10.86	1.68	9.99	28.65	0.01	0.07	0.05	0.00	0.00	0.03	51.58
Venture B13	4965.29	61	ankerite	gt	0.00	0.00	0.00	0.00	12.44	1.43	10.90	28.17	0.00	0.01	0.02	0.00	0.00	0.00	52.96
Venture B13	4965.29	62	ankerite	gt	0.00	0.00	0.00	0.00	11.25	1.61	10.46	30.15	0.00	0.02	0.07	0.00	0.01	0.00	53.57
Venture B13	4965.29	63	ankerite	gt	0.00	0.00	0.00	0.00	11.15	1.56	10.01	29.99	0.02	0.02	0.06	0.00	0.05	0.00	52.84
Venture B13	4965.29	64	ankerite	lt	0.00	0.00	0.00	0.00	10.84	1.48	10.21	29.79	0.00	0.02	0.02	0.00	0.02	0.00	52.39
Venture B13	4965.29	65	ankerite	gt	0.00	0.01	0.00	0.00	11.30	1.54	10.66	30.16	0.00	0.02	0.05	0.00	0.04	0.02	53.80
Venture B13	4965.29	66	ankerite	gt	0.00	0.00	0.00	0.00	11.23	1.73	10.43	29.90	0.01	0.02	0.04	0.00	0.03	0.03	53.42
Venture B13	4965.29	67	ankerite	lt	0.00	0.00	0.00	0.00	10.70	1.49	10.11	29.28	0.00	0.02	0.07	0.00	0.03	0.00	51.70
Venture B13	4965.29	68	ankerite	gt	0.00	0.00	0.00	0.00	11.02	1.62	10.04	30.87	0.01	0.02	0.04	0.00	0.01	0.00	53.63
Venture B13	4965.29	69	ankerite	lt	0.00	0.00	0.00	0.00	11.08	1.50	9.97	29.59	0.00	0.02	0.03	0.00	0.02	0.00	52.22
Venture B13	4965.29	70	ankerite	gt	0.00	0.01	0.00	0.00	10.86	1.53	9.95	30.55	0.02	0.03	0.06	0.00	0.04	0.00	53.04
Venture B13	4965.29	71	ankerite	gt	0.00	0.00	0.00	0.00	11.19	1.51	10.36	30.74	0.00	0.03	0.08	0.00	0.06	0.00	53.96
Venture B13	4965.29	72	ankerite	gt	0.00	0.02	0.00	0.00	11.49	1.55	10.56	29.98	0.00	0.02	0.04	0.00	0.00	0.00	53.66
Venture B13	4965.29	73	ankerite	lt	0.00	0.00	0.01	0.00	10.83	1.52	10.20	29.07	0.00	0.02	0.02	0.00	0.01	0.00	51.68
Venture B13	4965.29	74	ankerite	lt	0.00	0.00	0.01	0.00	11.17	1.74	10.46	27.79	0.00	0.01	0.05	0.00	0.03	0.00	51.26
Venture B13	4965.29	75	ankerite	gt	0.00	0.00	0.00	0.00	10.83	1.80	10.38	30.15	0.00	0.01	0.08	0.00	0.05	0.00	53.29
Venture B13	4965.29	76	ankerite	lt	0.04	0.01	0.03	0.02	11.01	1.48	10.33	29.62	0.00	0.02	0.00	0.01	0.04	0.04	52.66

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4710.03	79	calcite	gt	0.00	0.00	0.00	0.00	0.67	0.05	0.24	56.71	0.01	0.04	0.04	0.02	0.17	0.00	57.94
Venture H22	4710.03	80	calcite	gt	0.00	0.00	0.00	0.00	0.03	0.00	0.25	57.62	0.04	0.03	0.03	0.02	0.08	0.00	58.10
Venture H22	4710.03	81	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.48	0.15	0.59	56.79	0.00	0.02	0.00	0.03	0.09	0.03	59.18
Venture H22	4710.03	82	Fe-calcite	ht	0.00	0.02	0.00	0.00	1.55	0.18	0.63	56.65	0.00	0.03	0.05	0.01	0.00	0.03	59.15
Venture H22	4710.03	83	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.37	0.17	0.57	57.55	0.01	0.02	0.06	0.00	0.00	0.00	59.76
Venture H22	4710.03	84	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.23	0.19	0.47	57.55	0.01	0.03	0.04	0.00	0.00	0.01	59.52
Venture H22	4710.03	85	Fe-calcite	ht	0.00	0.02	0.00	0.00	1.51	0.20	0.62	57.55	0.00	0.03	0.02	0.01	0.02	0.00	59.98
Venture H22	4710.03	86	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.22	0.18	0.52	55.89	0.00	0.02	0.05	0.01	0.01	0.03	57.92
Venture H22	4710.03	87	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.29	0.18	0.57	54.70	0.01	0.03	0.04	0.00	0.00	0.00	56.83
Venture H22	4710.03	88	Fe-calcite	gt	0.57	0.15	0.39	0.00	1.94	0.14	0.63	52.39	0.02	0.02	0.02	0.00	0.03	0.03	56.33
Venture H22	4710.03	89	Fe-calcite	ht	0.00	0.00	0.00	0.02	1.62	0.13	0.59	56.72	0.00	0.02	0.04	0.01	0.11	0.02	59.29
Venture H22	4710.03	90	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.39	0.21	0.58	56.18	0.00	0.03	0.08	0.00	0.00	0.00	58.48
Venture H22	4710.03	91	Fe-calcite	ht	0.00	0.02	0.00	0.00	1.21	0.57	0.60	55.92	0.00	0.03	0.04	0.01	0.12	0.00	58.50
Venture H22	4710.03	92	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.36	0.18	0.56	55.85	0.02	0.03	0.04	0.02	0.03	0.00	58.09
Venture H22	4710.03	93	Fe-calcite	gt	0.00	0.00	0.08	0.00	1.56	0.15	0.59	53.67	0.00	0.02	0.02	0.00	0.07	0.00	56.16
Venture H22	4710.03	94	Fe-calcite	ht	0.00	0.01	0.00	0.00	1.43	0.18	0.56	57.20	0.00	0.03	0.03	0.01	0.00	0.00	59.44
Venture H22	4710.03	95	chlorite	lt	32.44	7.79	4.30	0.12	18.27	0.08	1.09	30.13	0.03	0.04	0.03	0.02	0.20	0.19	94.72
Venture H22	4710.03	96	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.44	0.17	0.57	56.14	0.00	0.03	0.00	0.00	0.00	0.00	58.36
Venture H22	4710.03	97	Fe-calcite	ht	0.00	0.01	0.00	0.00	1.46	0.18	0.63	56.55	0.00	0.03	0.03	0.00	0.00	0.00	58.90
Venture H22	4710.03	98	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.54	0.16	0.66	57.62	0.00	0.03	0.03	0.02	0.00	0.02	60.09
Venture H22	4710.03	99	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.49	0.17	0.60	58.69	0.02	0.01	0.01	0.00	0.02	0.00	61.01
Venture H22	4710.03	100	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.42	0.20	0.59	57.66	0.02	0.03	0.03	0.01	0.03	0.00	59.98
Venture H22	4710.03	101	calcite	ht	0.00	0.00	0.00	0.00	0.42	0.19	0.15	57.86	0.01	0.02	0.02	0.00	0.09	0.00	58.76
Venture H22	4710.03	102	Fe-calcite	ht	0.00	0.00	0.01	0.01	1.34	0.18	0.57	56.90	0.02	0.01	0.05	0.01	0.02	0.00	59.12
Venture H22	4710.03	103	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.34	0.19	0.57	55.58	0.02	0.00	0.01	0.00	0.00	0.00	57.70
Venture H22	4710.03	104	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.16	0.16	0.55	50.62	0.06	0.01	0.03	0.00	0.01	0.00	52.61
Venture H22	4710.03	105	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.40	0.13	0.53	55.37	0.01	0.00	0.00	0.00	0.15	0.00	57.59
Venture H22	4710.03	106	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.43	0.18	0.56	57.33	0.01	0.02	0.03	0.00	0.01	0.00	59.59
Venture H22	4710.03	107	Fe-calcite	gt	0.00	0.01	0.00	0.00	1.22	0.10	0.46	55.27	0.02	0.01	0.04	0.00	0.14	0.00	57.26
Venture H22	4710.03	108	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.15	0.15	0.47	55.98	0.03	0.03	0.01	0.00	0.07	0.00	57.91
Venture H22	4710.03	109	Fe-calcite	gt	0.10	0.00	0.01	0.00	1.25	0.13	0.60	53.70	0.05	0.02	0.04	0.00	0.03	0.00	55.94
Venture H22	4710.03	110	Fe-calcite	gt	0.00	0.05	0.00	0.00	1.77	0.14	0.74	53.00	0.02	0.02	0.03	0.02	0.11	0.00	55.91
Venture H22	4710.03	111	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.17	0.12	0.49	57.62	0.00	0.02	0.04	0.00	0.13	0.00	59.60
Venture H22	4710.03	112	calcite	gt	0.00	0.00	0.04	0.00	0.88	0.18	0.45	56.33	0.00	0.03	0.02	0.00	0.14	0.00	58.07
Venture H22	4710.03	113	calcite	ht	0.00	0.00	0.02	0.00	0.72	0.17	0.42	56.86	0.00	0.02	0.02	0.00	0.07	0.01	58.31
Venture H22	4710.03	114	calcite	gt	0.00	0.00	0.08	0.00	0.74	0.21	0.38	56.47	0.00	0.04	0.03	0.00	0.11	0.00	58.06

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4710.03	115	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.25	0.13	0.45	57.48	0.01	0.03	0.07	0.01	0.01	0.00	59.45
Venture H22	4710.03	116	calcite	lt	0.17	0.00	0.31	0.00	0.85	0.22	0.40	50.16	0.00	0.03	0.03	0.00	0.09	0.00	52.26
Venture H22	4710.03	117	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.47	0.19	0.62	57.60	0.00	0.03	0.05	0.00	0.00	0.00	59.95
Venture H22	4710.03	118	calcite	gt	0.00	0.00	0.01	0.00	0.56	0.04	0.17	55.27	0.00	0.02	0.02	0.00	0.16	0.00	56.25
Venture H22	4710.03	119	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.43	0.18	0.62	55.49	0.01	0.02	0.05	0.00	0.02	0.00	57.82
Venture H22	4710.03	120	calcite	gt	0.00	0.00	0.01	0.03	0.86	0.09	0.33	56.15	0.00	0.03	0.03	0.00	0.10	0.01	57.64
Venture H22	4710.03	121	Fe-calcite	ht	0.00	0.00	0.02	0.00	1.52	0.17	0.60	57.40	0.00	0.02	0.03	0.00	0.00	0.02	59.78
Venture H22	4710.03	122	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.66	0.21	0.65	57.08	0.00	0.02	0.08	0.00	0.01	0.02	59.73
Venture H22	4710.03	123	Fe-calcite	ht	0.00	0.00	0.02	0.01	1.45	0.16	0.57	56.71	0.00	0.02	0.07	0.02	0.02	0.00	59.04
Venture H22	4710.03	124	calcite	gt	0.00	0.00	0.02	0.01	0.89	0.09	0.27	56.81	0.00	0.02	0.07	0.00	0.14	0.00	58.32
Venture H22	4710.03	125	Fe-calcite	ht	0.00	0.00	0.00	0.01	1.42	0.19	0.57	56.56	0.00	0.01	0.04	0.00	0.00	0.00	58.81
Venture H22	4710.03	126	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.23	0.18	0.47	56.66	0.00	0.03	0.02	0.00	0.04	0.00	58.64
Venture H22	4710.03	127	Fe-calcite	ht	0.00	0.00	0.00	0.01	1.69	0.20	0.66	56.49	0.00	0.02	0.07	0.00	0.02	0.01	59.17
Venture H22	4710.03	128	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.29	0.16	0.54	57.66	0.00	0.03	0.04	0.01	0.01	0.00	59.73
Venture H22	4710.03	129	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.32	0.19	0.58	57.07	0.01	0.02	0.03	0.00	0.00	0.00	59.21
Venture H22	4710.03	130	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.22	0.17	0.50	57.20	0.00	0.02	0.04	0.00	0.01	0.04	59.20
Venture H22	4710.03	131	Fe-calcite	ht	0.00	0.00	0.00	0.01	1.64	0.16	0.67	57.91	0.00	0.02	0.04	0.03	0.01	0.00	60.50
Venture H22	4710.03	132	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.43	0.14	0.55	57.20	0.02	0.02	0.05	0.00	0.05	0.00	59.46
Venture H22	4710.03	133	calcite	gt	0.00	0.00	0.00	0.00	0.49	0.09	0.13	56.32	0.00	0.01	0.04	0.01	0.12	0.00	57.20
Venture H22	4710.03	134	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.46	0.15	0.50	55.88	0.00	0.01	0.02	0.00	0.07	0.00	58.10
Venture H22	4710.03	135	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.44	0.18	0.51	56.07	0.01	0.02	0.05	0.02	0.03	0.00	58.32
Venture H22	4710.03	136	calcite	gt	0.00	0.00	0.01	0.00	0.03	0.00	0.59	53.97	0.17	0.02	0.01	0.00	0.13	0.00	54.93
Venture H22	4710.03	137	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.19	0.16	0.42	56.52	0.00	0.01	0.04	0.02	0.00	0.00	58.36
Venture H22	4710.03	138	Fe-calcite	gt	0.00	0.00	0.01	0.00	0.97	0.09	0.34	55.49	0.00	0.00	0.02	0.04	0.16	0.00	57.13
Venture H22	4710.03	139	Fe-calcite	gt	0.00	0.00	0.00	0.00	0.98	0.21	0.53	55.14	0.00	0.01	0.03	0.02	0.14	0.00	57.06
Venture H22	4710.03	140	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.13	0.13	0.40	55.15	0.02	0.01	0.04	0.00	0.02	0.00	56.90
Venture H22	4710.03	141	Fe-calcite	gt	0.00	0.00	0.01	0.04	1.16	0.16	0.41	56.33	0.00	0.02	0.06	0.03	0.01	0.02	58.25
Venture H22	4710.03	142	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.25	0.13	0.46	55.03	0.02	0.01	0.06	0.01	0.16	0.00	57.13
Venture H22	4710.03	143	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.08	0.17	0.39	56.54	0.00	0.02	0.03	0.00	0.03	0.00	58.26
Venture H22	4710.03	144	apatite	lt	0.77	0.00	0.02	0.05	0.07	0.03	0.04	49.93	0.11	0.02	34.74	0.05	0.53	0.06	86.43
Venture H22	4710.03	145	Fe-calcite	gt	0.00	0.00	0.01	0.01	1.17	0.17	0.43	54.87	0.00	0.00	0.03	0.01	0.00	0.00	56.71
Venture H22	4715.4	7	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.17	1.04	0.60	53.91	0.03	0.03	0.05	0.00	0.08	0.00	56.91
Venture H22	4715.4	8	calcite	gt	0.00	0.00	0.00	0.00	0.55	0.59	0.19	52.70	0.00	0.02	0.05	0.00	0.06	0.00	54.17
Venture H22	4715.4	9	calcite	gt	0.00	0.00	0.00	0.00	0.46	0.63	0.21	53.15	0.02	0.02	0.05	0.00	0.09	0.00	54.63
Venture H22	4715.4	10	calcite	gt	0.00	0.00	0.00	0.00	0.50	0.74	0.23	52.72	0.03	0.02	0.06	0.00	0.14	0.00	54.45
Venture H22	4715.4	11	Fe-calcite	gt	0.00	0.00	0.01	0.00	0.98	0.58	0.34	53.30	0.02	0.02	0.02	0.00	0.08	0.00	55.36

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4715.4	12	calcite	gt	0.00	0.01	0.01	0.00	0.45	0.59	0.09	55.73	0.01	0.03	0.04	0.00	0.18	0.00	57.12
Venture H22	4715.4	13	calcite	gt	0.00	0.01	0.00	0.01	0.52	0.59	0.15	53.59	0.02	0.02	0.04	0.00	0.09	0.00	55.04
Venture H22	4715.4	14	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.32	0.76	0.49	51.92	0.03	0.03	0.03	0.00	0.20	0.00	54.78
Venture H22	4715.4	15	apatite	lt	0.55	0.02	0.05	0.06	0.14	0.02	0.09	54.48	0.10	0.03	39.65	0.00	0.51	0.02	95.74
Venture H22	4715.4	16	apatite	lt	0.96	0.01	0.02	0.08	0.09	0.02	0.04	54.69	0.05	0.03	38.96	0.01	0.50	0.03	95.50
Venture H22	4715.4	17	Fe-calcite	gt	0.00	0.01	0.00	0.00	1.39	0.76	0.57	53.47	0.00	0.03	0.06	0.00	0.17	0.00	56.47
Venture H22	4715.4	18	calcite	gt	0.00	0.02	0.00	0.00	0.41	0.55	0.14	52.05	0.00	0.01	0.03	0.00	0.15	0.00	53.37
Venture H22	4715.4	19	calcite	gt	0.00	0.01	0.00	0.00	0.47	0.61	0.16	55.00	0.00	0.03	0.05	0.00	0.13	0.00	56.46
Venture H22	4715.4	20	calcite	gt	0.00	0.01	0.00	0.00	0.37	0.46	0.10	54.97	0.01	0.04	0.05	0.00	0.11	0.00	56.13
Venture H22	4715.4	21	Fe-calcite	gt	0.00	0.03	0.01	0.00	1.05	0.46	0.34	52.00	0.00	0.03	0.05	0.00	0.09	0.00	54.06
Venture H22	4715.4	22	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.42	0.83	0.53	52.55	0.00	0.03	0.03	0.00	0.17	0.00	55.56
Venture H22	4715.4	23	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.60	0.82	0.60	53.36	0.00	0.02	0.05	0.00	0.17	0.00	56.62
Venture H22	4715.4	24	apatite	lt	0.66	0.02	0.03	0.07	0.08	0.02	0.03	55.46	0.06	0.02	39.76	0.03	0.36	0.02	96.61
Venture H22	4715.4	25	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.31	0.77	0.48	53.72	0.00	0.03	0.06	0.00	0.20	0.00	56.57
Venture H22	4715.4	26	rutile	gt	0.00	97.82	0.04	0.09	0.21	0.04	0.02	0.46	0.00	0.04	0.03	0.07	0.06	1.13	100.02
Venture H22	4715.4	27	calcite	gt	0.00	0.00	0.00	0.05	0.80	0.80	0.34	55.74	0.01	0.02	0.04	0.00	0.07	0.05	57.92
Venture H22	4715.4	28	calcite	gt	0.00	0.00	0.02	0.03	0.42	0.53	0.16	54.68	0.00	0.02	0.00	0.01	0.15	0.01	56.02
Venture H22	4715.4	29	Fe-calcite	gt	0.00	0.00	0.01	0.03	1.51	0.86	0.67	53.57	0.02	0.02	0.03	0.00	0.19	0.04	56.95
Venture H22	4715.4	30	calcite	gt	0.00	0.00	0.01	0.00	0.54	0.70	0.20	55.61	0.02	0.01	0.02	0.00	0.09	0.01	57.21
Venture H22	4715.4	31	calcite	gt	0.00	0.00	0.01	0.02	0.61	0.60	0.19	55.34	0.01	0.03	0.05	0.00	0.15	0.04	57.06
Venture H22	4715.4	32	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.34	0.80	0.47	51.72	0.00	0.01	0.02	0.00	0.14	0.00	54.52
Venture H22	4715.4	33	calcite	gt	0.00	0.00	0.01	0.05	0.50	0.56	0.16	53.95	0.01	0.03	0.04	0.00	0.10	0.03	55.45
Venture H22	4715.4	34	apatite	lt	0.92	0.00	0.04	0.09	0.05	0.02	0.07	53.69	0.08	0.02	37.95	0.02	0.39	0.06	93.40
Venture H22	4715.4	35	Fe-calcite	ht	0.00	0.00	0.00	0.01	1.41	0.80	0.56	57.05	0.00	0.02	0.00	0.00	0.15	0.00	60.00
Venture H22	4715.4	36	calcite	gt	0.00	0.00	0.01	0.02	0.54	0.67	0.21	54.99	0.01	0.01	0.07	0.00	0.10	0.03	56.66
Venture H22	4715.4	37	calcite	gt	0.00	0.00	0.00	0.01	0.44	0.74	0.19	53.57	0.00	0.02	0.04	0.00	0.14	0.00	55.15
Venture H22	4715.4	38	Fe-calcite	gt	0.00	0.00	0.00	0.05	1.54	0.83	0.59	51.92	0.00	0.01	0.00	0.00	0.16	0.02	55.13
Venture H22	4715.4	39	calcite	gt	0.00	0.00	0.01	0.02	0.50	0.59	0.12	55.46	0.02	0.03	0.05	0.00	0.13	0.00	56.93
Venture H22	4715.4	40	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.48	0.81	0.51	54.52	0.00	0.02	0.00	0.00	0.18	0.02	57.55
Venture H22	4715.4	41	Fe-calcite	gt	0.00	0.00	0.01	0.04	1.10	0.67	0.36	53.58	0.00	0.02	0.00	0.00	0.15	0.05	55.98
Venture H22	4715.4	42	calcite	ht	0.00	0.00	0.01	0.01	0.44	0.62	0.14	57.84	0.01	0.02	0.02	0.00	0.12	0.00	59.24
Venture H22	4715.4	43	calcite	gt	0.00	0.00	0.02	0.02	0.32	0.61	0.11	52.49	0.02	0.01	0.02	0.00	0.11	0.00	53.74
Venture H22	4715.4	44	Fe-calcite	gt	0.00	0.00	0.02	0.03	1.04	0.53	0.30	54.14	0.02	0.02	0.00	0.00	0.38	0.05	56.53
Venture H22	4715.4	45	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.59	0.84	0.60	53.46	0.00	0.02	0.00	0.00	0.16	0.07	56.74
Venture H22	4715.4	46	Fe-calcite	gt	0.00	0.00	0.02	0.03	1.25	0.66	0.45	54.20	0.01	0.02	0.04	0.01	0.17	0.03	56.87
Venture H22	4715.4	47	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.31	0.57	0.38	55.42	0.00	0.03	0.05	0.00	0.38	0.00	58.14

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4715.4	48	calcite	gt	0.00	0.00	0.00	0.00	0.29	0.68	0.10	55.93	0.01	0.03	0.04	0.00	0.15	0.00	57.23
Venture H22	4715.4	49	calcite	gt	0.00	0.00	0.00	0.00	0.52	0.85	0.22	55.35	0.02	0.03	0.04	0.00	0.12	0.00	57.16
Venture H22	4715.4	50	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.33	0.69	0.46	57.56	0.00	0.01	0.03	0.00	0.19	0.00	60.28
Venture H22	4715.4	51	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.50	0.82	0.54	54.95	0.00	0.04	0.06	0.00	0.24	0.00	58.14
Venture H22	4724.94	52	calcite	gt	0.00	0.00	0.00	0.00	0.18	0.69	0.10	56.05	0.00	0.02	0.05	0.00	0.16	0.00	57.24
Venture H22	4724.94	53	calcite	gt	0.00	0.00	0.00	0.00	0.19	0.63	0.08	56.50	0.00	0.02	0.03	0.00	0.13	0.00	57.57
Venture H22	4724.94	54	calcite	gt	0.00	0.00	0.00	0.00	0.19	0.78	0.10	55.94	0.00	0.02	0.05	0.00	0.06	0.00	57.13
Venture H22	4724.94	55	apatite	lt	0.63	0.00	0.00	0.04	0.08	0.04	0.07	55.37	0.07	0.03	40.01	0.01	0.48	0.04	96.88
Venture H22	4724.94	56	calcite	ht	0.00	0.00	0.00	0.00	0.70	2.40	0.49	57.16	0.00	0.02	0.02	0.00	0.07	0.00	60.87
Venture H22	4724.94	57	calcite	gt	0.00	0.00	0.00	0.00	0.25	1.11	0.13	55.19	0.00	0.01	0.03	0.00	0.04	0.00	56.75
Venture H22	4724.94	58	calcite	gt	0.00	0.00	0.00	0.00	0.24	0.81	0.08	53.99	0.00	0.01	0.02	0.00	0.03	0.01	55.21
Venture H22	4724.94	59	calcite	gt	0.00	0.00	0.00	0.00	0.15	0.66	0.08	55.59	0.00	0.01	0.02	0.00	0.12	0.00	56.63
Venture H22	4724.94	60	calcite	gt	0.00	0.00	0.00	0.00	0.19	0.89	0.10	54.56	0.00	0.02	0.03	0.00	0.03	0.00	55.82
Venture H22	4724.94	61	calcite	gt	0.00	0.00	0.00	0.00	0.23	0.65	0.09	55.51	0.00	0.02	0.03	0.00	0.04	0.00	56.57
Venture H22	4724.94	62	calcite	gt	0.00	0.00	0.00	0.00	0.22	0.93	0.09	56.54	0.00	0.03	0.04	0.01	0.07	0.00	57.93
Venture H22	4724.94	63	calcite	gt	0.07	0.00	0.06	0.00	0.38	0.70	0.12	52.86	0.00	0.02	0.02	0.00	0.03	0.00	54.25
Venture H22	4724.94	64	calcite	gt	0.00	0.01	0.00	0.00	0.20	0.61	0.08	56.55	0.00	0.02	0.03	0.00	0.06	0.00	57.55
Venture H22	4724.94	65	calcite	gt	0.00	0.00	0.00	0.00	0.19	0.68	0.06	56.05	0.00	0.02	0.04	0.00	0.08	0.00	57.12
Venture H22	4724.94	66	calcite	gt	0.00	0.00	0.00	0.00	0.45	1.64	0.22	55.76	0.00	0.02	0.04	0.00	0.09	0.00	58.22
Venture H22	4724.94	67	calcite	gt	0.00	0.00	0.01	0.00	0.70	0.66	0.24	56.20	0.00	0.04	0.03	0.00	0.16	0.00	58.03
Venture H22	4724.94	68	Fe-calcite	gt	0.00	0.00	0.02	0.00	0.95	0.88	0.39	54.57	0.00	0.02	0.01	0.00	0.14	0.00	57.00
Venture H22	4724.94	69	calcite	gt	0.00	0.00	0.01	0.00	0.18	0.61	0.07	55.71	0.00	0.03	0.02	0.00	0.32	0.00	56.97
Venture H22	4724.94	70	calcite	gt	0.00	0.00	0.02	0.00	0.16	0.64	0.05	53.53	0.00	0.01	0.02	0.00	0.03	0.00	54.47
Venture H22	4724.94	71	calcite	gt	0.00	0.00	0.02	0.00	0.18	0.66	0.07	56.09	0.00	0.03	0.04	0.00	0.29	0.00	57.38
Venture H22	4724.94	72	calcite	gt	0.00	0.00	0.02	0.00	0.20	0.67	0.07	55.24	0.01	0.02	0.03	0.01	0.07	0.04	56.38
Venture H22	4724.94	73	calcite	gt	0.00	0.00	0.03	0.00	0.22	0.96	0.07	56.01	0.00	0.03	0.02	0.00	0.05	0.06	57.45
Venture H22	4724.94	74	apatite	lt	0.92	0.00	0.05	0.05	0.11	0.02	0.04	54.95	0.06	0.04	38.18	0.01	0.40	0.02	94.84
Venture H22	4724.94	75	calcite	ht	0.00	0.00	0.01	0.00	0.88	0.83	0.37	57.39	0.00	0.02	0.05	0.00	0.19	0.00	59.75
Venture H22	4724.94	76	calcite	gt	0.00	0.00	0.02	0.00	0.80	0.52	0.31	54.19	0.02	0.01	0.01	0.02	0.09	0.00	55.98
Venture H22	4724.94	77	calcite	gt	0.00	0.00	0.02	0.00	0.20	1.10	0.07	56.12	0.00	0.02	0.01	0.00	0.03	0.00	57.58
Venture H22	4724.94	78	chlorite	lt	38.50	0.13	12.89	0.00	19.55	0.00	6.49	1.22	0.13	0.11	0.00	0.00	0.17	0.04	79.24
Venture H22	4724.94	79	calcite	gt	0.00	0.00	0.02	0.00	0.92	0.52	0.33	55.50	0.01	0.03	0.03	0.02	0.14	0.00	57.51
Venture H22	4724.94	80	calcite	gt	0.00	0.00	0.00	0.00	0.74	0.61	0.34	53.94	0.00	0.03	0.02	0.00	0.09	0.00	55.77
Venture H22	4724.94	81	calcite	gt	0.00	0.00	0.00	0.00	0.60	0.60	0.28	57.58	0.00	0.02	0.01	0.00	0.08	0.02	59.18
Venture H22	4724.94	82	chlorite	lt	24.29	0.08	18.78	0.03	27.21	0.04	8.41	0.39	0.12	0.24	0.00	0.00	0.06	0.04	79.68
Venture H22	4724.94	83	chlorite	lt	25.20	2.20	19.03	0.05	27.15	0.06	9.29	0.26	0.10	0.10	0.00	0.03	0.15	0.05	83.67

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4727.85	88	calcite	gt	0.00	0.00	0.01	0.00	0.78	0.40	0.22	54.32	0.00	0.03	0.03	0.00	0.03	0.03	55.84
Venture H22	4727.85	89	calcite	gt	0.00	0.02	0.00	0.02	0.08	0.49	1.40	53.12	0.00	0.01	0.07	0.01	0.11	0.00	55.32
Venture H22	4727.85	90	calcite	gt	0.00	0.00	0.00	0.02	0.49	0.36	0.10	55.53	0.00	0.03	0.00	0.00	0.01	0.00	56.54
Venture H22	4727.85	91	calcite	gt	0.00	0.00	0.00	0.06	0.10	0.61	2.09	52.53	0.01	0.03	0.26	0.00	0.09	0.01	55.78
Venture H22	4727.85	92	calcite	gt	0.00	0.00	0.01	0.01	0.14	0.52	0.68	53.41	0.00	0.02	0.11	0.01	0.10	0.02	55.03
Venture H22	4727.85	93	calcite	gt	0.00	0.00	0.01	0.04	0.26	0.38	0.57	53.28	0.01	0.02	0.04	0.01	0.11	0.00	54.73
Venture H22	4727.85	94	calcite	gt	0.00	0.00	0.00	0.03	0.37	1.10	0.21	54.72	0.00	0.02	0.12	0.03	0.08	0.02	56.71
Venture H22	4727.85	95	calcite	gt	0.00	0.00	0.00	0.04	0.76	0.41	0.23	54.46	0.00	0.07	0.02	0.00	0.12	0.00	56.11
Venture H22	4727.85	96	calcite	gt	0.00	0.00	0.00	0.04	0.22	0.74	0.44	53.33	0.00	0.03	0.10	0.03	0.12	0.01	55.04
Venture H22	4727.85	97	calcite	gt	0.00	0.00	0.01	0.02	0.32	0.89	0.25	53.83	0.00	0.02	0.11	0.02	0.15	0.00	55.62
Venture H22	4727.85	98	calcite	gt	0.00	0.00	0.05	0.04	0.80	0.48	0.31	54.42	0.00	0.03	0.01	0.02	0.14	0.00	56.30
Venture H22	4727.85	99	calcite	gt	0.00	0.00	0.01	0.01	0.16	0.49	0.90	53.99	0.02	0.04	0.11	0.03	0.13	0.00	55.90
Venture H22	4727.85	100	calcite	gt	0.00	0.00	0.01	0.04	0.12	0.54	1.06	53.54	0.00	0.03	0.11	0.00	0.11	0.04	55.61
Venture H22	4727.85	101	calcite	gt	0.00	0.00	0.00	0.01	0.12	0.10	0.59	56.25	0.00	0.01	0.06	0.00	0.21	0.00	57.37
Venture H22	4727.85	102	calcite	gt	0.00	0.00	0.00	0.04	0.36	0.85	0.27	54.91	0.00	0.02	0.03	0.03	0.14	0.00	56.65
Venture H22	4727.85	103	calcite	gt	0.00	0.00	0.00	0.03	0.31	0.79	0.30	51.65	0.01	0.02	0.06	0.00	0.12	0.00	53.29
Venture H22	4727.85	104	calcite	gt	0.00	0.00	0.00	0.02	0.34	0.96	0.49	55.45	0.00	0.02	0.10	0.02	0.11	0.00	57.52
Venture H22	4727.85	105	rutile	lt	0.00	90.91	0.07	0.11	0.58	0.08	0.00	4.74	0.03	0.02	0.00	0.11	0.06	1.08	97.79
Venture H22	4727.85	106	apatite	lt	0.13	0.01	0.02	0.11	0.07	0.07	0.01	54.49	0.02	0.02	39.88	0.04	1.17	0.03	96.08
Venture H22	4727.85	107	Fe-calcite	gt	1.12	0.04	0.70	0.01	1.16	0.70	1.21	53.40	0.01	0.01	0.03	0.00	0.12	0.00	58.50
Venture H22	4727.85	108	calcite	gt	0.00	0.00	0.00	0.05	0.36	0.91	0.42	54.66	0.01	0.06	0.12	0.00	0.11	0.00	56.69
Venture H22	4727.85	109	calcite	gt	0.00	0.01	0.01	0.00	0.26	0.95	0.81	55.89	0.03	0.06	0.19	0.00	0.10	0.00	58.30
Venture H22	4727.85	110	calcite	gt	0.00	0.00	0.01	0.00	0.17	0.81	1.13	53.65	0.02	0.01	0.10	0.00	0.14	0.00	56.04
Venture H22	4727.85	111	Fe-calcite	gt	0.08	0.02	0.18	0.00	0.95	0.45	0.34	53.26	0.02	0.05	0.00	0.00	0.17	0.00	55.52
Venture H22	4727.85	112	calcite	gt	0.00	0.01	0.01	0.00	0.22	0.80	0.55	54.78	0.02	0.03	0.17	0.03	0.13	0.00	56.74
Venture H22	4727.85	113	pyrite	gt	0.00	0.16	0.10	0.20	56.89	0.14	0.12	0.36	0.59	0.08	0.04	0.23	0.16	0.29	59.36
Venture H22	4727.85	114	apatite	lt	0.09	0.02	0.03	0.05	0.01	0.00	0.01	54.57	0.05	0.02	40.59	0.04	1.06	0.00	96.54
Venture H22	4727.85	115	calcite	gt	0.27	0.02	0.01	0.00	0.15	0.76	0.71	51.80	0.03	0.02	0.17	0.00	0.09	0.00	54.04
Venture H22	4727.85	116	quartz	gt	99.91	0.00	0.13	0.00	0.00	0.00	0.00	0.26	0.00	0.02	0.00	0.00	0.61	0.00	100.93
Venture H22	4727.85	117	Fe-calcite	gt	0.00	0.02	0.01	0.00	0.24	0.99	1.45	53.97	0.02	0.02	0.16	0.01	0.07	0.00	56.97
Venture H22	4727.85	118	Fe-calcite	gt	0.00	0.00	0.01	0.00	0.12	0.67	1.05	52.59	0.00	0.04	0.11	0.00	0.12	0.00	54.72
Venture H22	4727.85	119	Fe-calcite	gt	0.01	0.02	0.01	0.00	0.20	0.51	1.32	53.61	0.03	0.04	0.11	0.00	0.09	0.00	55.95
Venture H22	4727.85	120	quartz + calcite		73.88	0.00	0.10	0.00	0.03	0.10	0.12	12.92	0.02	0.00	0.00	0.00	0.47	0.00	87.64
Venture H22	4727.85	121	calcite	gt	0.00	0.00	0.01	0.00	0.24	0.84	0.84	53.35	0.02	0.04	0.19	0.00	0.13	0.00	55.65
Venture H22	4727.85	122	calcite	gt	0.00	0.01	0.01	0.00	0.22	0.85	0.67	53.16	0.02	0.03	0.22	0.00	0.08	0.00	55.27
Venture H22	4727.85	123	calcite	gt	0.00	0.01	0.01	0.00	0.35	0.45	0.12	56.12	0.02	0.10	0.03	0.00	0.01	0.03	57.25

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4727.85	124	quartz + calcite		84.03	0.00	0.06	0.00	0.00	0.05	0.05	7.72	0.02	0.01	0.00	0.00	0.51	0.00	92.47
Venture H22	4727.85	125	calcite	gt	0.84	0.01	0.01	0.00	0.36	1.07	0.29	52.43	0.04	0.05	0.19	0.00	0.07	0.00	55.36
Venture H22	4727.85	126	calcite	gt	0.07	0.00	0.02	0.00	0.13	0.55	0.63	54.01	0.03	0.02	0.11	0.00	0.11	0.00	55.66
Venture H22	4895.77	127	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.67	0.79	0.19	51.87	0.00	0.03	0.02	0.00	0.03	0.00	54.60
Venture H22	4895.77	128	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.87	0.68	0.36	53.12	0.01	0.01	0.01	0.00	0.09	0.00	56.16
Venture H22	4895.77	129	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.78	0.68	0.38	55.74	0.01	0.03	0.03	0.01	0.08	0.00	58.75
Venture H22	4895.77	130	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.36	0.62	0.31	53.18	0.02	0.03	0.01	0.00	0.16	0.00	55.69
Venture H22	4895.77	131	Fe-calcite	gt	0.00	0.00	0.00	0.02	1.57	0.70	0.27	54.09	0.00	0.02	0.04	0.00	0.05	0.00	56.77
Venture H22	4895.77	132	Fe-calcite	gt	0.00	0.01	0.00	0.03	2.51	0.86	0.55	52.45	0.01	0.03	0.02	0.00	0.40	0.00	56.89
Venture H22	4895.77	133	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.45	0.64	0.24	54.13	0.00	0.03	0.02	0.00	0.11	0.00	56.61
Venture H22	4895.77	134	Fe-calcite	ht	0.00	0.00	0.00	0.00	2.48	0.90	0.56	53.85	0.01	0.03	0.02	0.01	0.37	0.00	58.24
Venture H22	4895.77	135	ankerite	gt	0.00	0.00	0.00	0.02	13.29	1.88	7.64	32.07	0.04	0.01	0.01	0.00	0.04	0.00	55.00
Venture H22	4895.77	136	Fe-calcite	gt	0.00	0.00	0.00	0.02	1.53	0.69	0.25	53.97	0.00	0.01	0.00	0.00	0.13	0.00	56.62
Venture H22	4895.77	137	Fe-calcite	gt	0.00	0.00	0.01	0.00	2.50	0.84	0.58	51.79	0.01	0.02	0.02	0.00	0.40	0.00	56.16
Venture H22	4895.77	138	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.65	0.63	0.32	53.50	0.00	0.02	0.01	0.00	0.16	0.00	56.29
Venture H22	4895.77	139	Fe-calcite	gt	0.00	0.00	0.00	0.03	1.40	0.56	0.22	55.35	0.01	0.02	0.01	0.01	0.15	0.00	57.76
Venture H-22	4909.12	11	ankerite	gt	0.00	0.00	0.03	0.00	15.25	1.03	7.53	30.84	0.01	0.00	0.04	0.00	0.02	0.00	54.75
Venture H-22	4909.12	12	ankerite	gt	0.00	0.00	0.01	0.00	15.12	1.00	7.64	30.86	0.02	0.00	0.07	0.00	0.03	0.00	54.75
Venture H-22	4909.12	13	ankerite	gt	0.00	0.04	0.04	0.00	14.97	1.05	7.59	30.97	0.02	0.00	0.04	0.00	0.05	0.00	54.77
Venture H-22	4909.12	14	ankerite	gt	0.00	0.00	0.04	0.00	14.85	1.02	7.75	30.45	0.04	0.01	0.02	0.01	0.03	0.00	54.22
Venture H-22	4909.12	15	ankerite	gt	0.00	0.02	0.01	0.00	14.78	1.01	7.40	31.63	0.01	0.00	0.04	0.01	0.06	0.00	54.97
Venture H-22	4909.12	16	ankerite	gt	0.00	0.00	0.00	0.00	14.80	1.03	7.29	30.90	0.01	0.00	0.02	0.02	0.03	0.00	54.09
Venture H-22	4909.12	17	ankerite	gt	0.00	0.00	0.01	0.00	15.71	1.01	7.85	30.22	0.00	0.00	0.03	0.04	0.03	0.00	54.90
Venture H-22	4909.12	18	ankerite	gt	0.00	0.00	0.02	0.00	15.20	1.02	7.67	30.71	0.02	0.00	0.04	0.00	0.06	0.00	54.72
Venture H-22	4909.12	19	ankerite	gt	0.00	0.00	0.00	0.00	14.71	1.03	7.31	31.56	0.00	0.00	0.01	0.01	0.08	0.00	54.71
Venture H-22	4909.12	20	ankerite	gt	0.00	0.00	0.02	0.00	15.08	1.03	7.62	31.18	0.01	0.00	0.01	0.03	0.03	0.00	55.01
Venture H-22	4909.12	21	ankerite	gt	0.00	0.00	0.00	0.00	14.70	1.01	7.43	31.08	0.00	0.00	0.00	0.01	0.04	0.00	54.27
Venture H-22	4909.12	22	ankerite	gt	0.00	0.00	0.00	0.00	15.33	0.98	7.84	31.08	0.01	0.00	0.00	0.01	0.02	0.00	55.28
Venture H-22	4909.12	23	ankerite	gt	0.00	0.00	0.00	0.00	14.82	1.03	7.41	30.97	0.00	0.00	0.01	0.02	0.04	0.00	54.32
Venture H-22	4909.12	24	apatite	lt	0.31	0.04	0.03	0.06	0.30	0.04	0.06	53.94	0.10	0.01	40.98	0.09	0.70	0.02	96.68
Venture H-22	4909.12	25	ankerite	gt	0.00	0.00	0.00	0.00	14.77	1.03	7.31	31.24	0.02	0.00	0.02	0.00	0.04	0.00	54.45
Venture H-22	4909.12	26	ankerite	gt	0.00	0.00	0.00	0.00	15.03	0.98	7.38	30.86	0.00	0.00	0.02	0.01	0.03	0.00	54.31
Venture H-22	4909.12	27	ankerite	gt	0.00	0.00	0.01	0.00	15.20	1.00	7.60	31.63	0.01	0.00	0.04	0.01	0.08	0.00	55.57
Venture H-22	4909.12	28	ankerite	gt	0.00	0.00	0.03	0.00	16.23	0.88	8.04	29.45	0.01	0.00	0.02	0.00	0.00	0.00	54.66
Venture H-22	4909.12	29	ankerite	gt	0.00	0.00	0.01	0.00	15.45	1.05	7.70	30.66	0.00	0.00	0.01	0.00	0.06	0.00	54.93
Venture H-22	4909.12	30	ankerite	gt	0.00	0.02	0.04	0.02	16.01	1.06	8.12	29.30	0.00	0.00	0.00	0.02	0.03	0.00	54.63

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H-22	4909.12	31	ankerite	gt	0.00	0.08	0.02	0.00	14.86	1.03	7.76	30.97	0.00	0.01	0.04	0.03	0.03	0.00	54.83
Venture H-22	4909.12	32	ankerite	gt	0.00	0.02	0.00	0.00	15.39	1.05	7.42	30.18	0.00	0.00	0.03	0.01	0.05	0.00	54.13
Venture H-22	4909.12	33	barite	gt	0.00	4.92	0.08	0.00	0.05	0.00	0.00	0.00	0.24	0.00	0.05	0.03	2.22	58.34	65.93
Venture H-22	4909.12	34	barite	gt	0.00	4.83	0.06	0.00	0.01	0.01	0.00	0.01	0.25	0.00	0.02	0.00	4.29	55.29	64.77
Venture H-22	4909.12	35	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.07	0.13	0.14	53.72	0.00	0.00	0.02	0.00	0.00	0.00	55.08
Venture H-22	4909.12	36	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.09	0.15	0.12	53.46	0.00	0.00	0.02	0.00	0.00	0.00	54.85
Venture H-22	4909.12	37	calcite	gt	0.00	0.00	0.00	0.00	0.80	0.08	0.11	55.65	0.00	0.00	0.00	0.00	0.00	0.00	56.64
Venture H-22	4909.12	38	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.47	0.21	0.21	54.35	0.00	0.00	0.02	0.00	0.00	0.00	56.25
Venture H-22	4909.12	39	ankerite	gt	0.00	0.00	0.00	0.00	14.93	0.78	7.63	30.87	0.00	0.00	0.00	0.00	0.00	0.00	54.21
Venture H-22	4909.12	40	ankerite	gt	0.00	0.00	0.00	0.00	14.84	0.78	7.52	31.11	0.00	0.00	0.00	0.00	0.00	0.00	54.25
Venture H-22	4909.12	41	ankerite	gt	0.00	0.00	0.00	0.00	15.12	0.80	7.44	30.29	0.00	0.00	0.00	0.00	0.00	0.00	53.65
Venture H-22	4909.12	42	ankerite	gt	0.00	0.00	0.08	0.00	14.98	0.85	7.47	30.85	0.00	0.00	0.01	0.00	0.00	0.00	54.24
Venture H-22	4909.12	43	ankerite	gt	0.00	0.00	0.00	0.00	15.18	0.81	7.75	30.67	0.00	0.00	0.00	0.00	0.00	0.00	54.41
Venture H-22	4909.12	44	ankerite	gt	0.00	0.00	0.00	0.00	14.44	0.79	7.54	31.18	0.00	0.00	0.00	0.00	0.00	0.00	53.94
Venture H-22	4909.12	45	ankerite	gt	0.00	0.00	0.00	0.00	14.76	0.78	7.58	30.86	0.00	0.00	0.00	0.00	0.00	0.00	53.98
Venture H-22	4909.12	46	ankerite	gt	0.00	0.00	0.00	0.00	14.73	0.86	7.62	30.58	0.00	0.00	0.00	0.00	0.00	0.00	53.79
Venture H-22	4912.3	47	ankerite	gt	2.89	0.06	2.33	0.00	14.22	0.87	7.24	29.38	0.00	0.00	0.06	0.00	0.08	0.00	57.13
Venture H-22	4912.3	48	ankerite	gt	0.00	0.03	0.01	0.00	15.44	0.95	7.91	30.10	0.00	0.00	0.03	0.00	0.06	0.00	54.52
Venture H-22	4912.3	49	ankerite	gt	0.00	0.01	0.01	0.00	14.99	0.79	7.86	30.86	0.01	0.01	0.04	0.00	0.08	0.00	54.66
Venture H-22	4912.3	50	ankerite	gt	0.00	0.01	0.02	0.00	15.65	0.72	8.33	29.97	0.01	0.01	0.03	0.00	0.02	0.00	54.78
Venture H-22	4912.3	51	ankerite	gt	0.00	0.00	0.00	0.00	14.47	0.95	7.42	30.77	0.01	0.01	0.05	0.00	0.03	0.00	53.71
Venture H-22	4912.3	52	ankerite	gt	0.00	0.03	0.03	0.01	14.49	0.93	7.71	31.26	0.00	0.01	0.05	0.00	0.07	0.00	54.58
Venture H-22	4912.3	53	ankerite	gt	0.02	0.03	0.00	0.00	14.15	1.02	7.57	31.51	0.02	0.01	0.04	0.03	0.07	0.00	54.45
Venture H-22	4912.3	54	ankerite	gt	0.00	0.00	0.00	0.00	14.44	1.02	7.78	31.16	0.03	0.00	0.04	0.00	0.10	0.00	54.59
Venture H-22	4912.3	55	ankerite	gt	0.02	0.03	0.02	0.02	14.36	0.97	7.82	30.77	0.02	0.01	0.03	0.00	0.08	0.00	54.15
Venture H-22	4912.3	56	ankerite	gt	0.00	0.04	0.01	0.00	14.38	0.96	7.74	31.48	0.01	0.00	0.05	0.00	0.09	0.00	54.77
Venture H-22	4912.3	57	ankerite	gt	0.48	0.01	0.18	0.00	17.25	1.04	8.89	27.93	0.01	0.15	0.05	0.00	0.03	0.00	56.01
Venture H-22	4912.3	58	ankerite	gt	0.00	0.03	0.00	0.00	14.60	0.94	7.81	31.12	0.00	0.01	0.02	0.01	0.06	0.00	54.61
Venture H-22	4912.3	59	ankerite	gt	0.00	0.02	0.00	0.01	14.62	0.89	7.76	31.38	0.01	0.00	0.02	0.00	0.04	0.00	54.75
Venture H-22	4912.3	60	apatite	gt	1.48	0.08	0.06	0.06	0.25	0.08	0.08	54.65	0.13	0.03	38.67	0.06	0.41	0.06	96.10
Venture H-22	4912.3	61	ankerite	gt	0.00	0.01	0.01	0.00	14.69	0.93	7.69	31.08	0.00	0.00	0.03	0.01	0.08	0.00	54.53
Venture H-22	4912.3	62	ankerite	gt	0.00	0.06	0.00	0.01	14.56	0.90	7.59	31.20	0.05	0.00	0.06	0.02	0.05	0.00	54.49
Venture H-22	4912.3	63	ankerite	gt	0.00	0.03	0.00	0.00	14.34	0.95	7.61	31.00	0.05	0.02	0.04	0.00	0.07	0.00	54.11
Venture H-22	4912.3	64	ankerite	gt	0.00	0.01	0.02	0.03	17.75	1.40	8.26	27.57	0.00	0.01	0.03	0.00	0.03	0.00	55.10
Venture H-22	4912.3	65	ankerite	gt	0.02	0.01	0.02	0.00	17.99	0.92	8.22	27.52	0.00	0.01	0.05	0.05	0.00	0.00	54.80
Venture H-22	4912.3	66	ankerite	gt	0.00	0.01	0.01	0.03	15.27	0.75	8.25	30.19	0.00	0.00	0.02	0.01	0.06	0.00	54.59

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H-22	4912.3	67	ankerite	gt	0.00	0.00	0.01	0.00	15.42	0.75	8.38	30.44	0.01	0.00	0.02	0.00	0.01	0.00	55.04
Venture H-22	4912.3	68	ankerite	gt	0.00	0.00	0.02	0.00	15.00	0.73	8.04	30.70	0.01	0.00	0.01	0.00	0.02	0.01	54.54
Venture H-22	4912.3	69	ankerite	gt	0.01	0.00	0.01	0.00	17.77	1.06	8.14	27.78	0.01	0.00	0.01	0.00	0.00	0.00	54.79
Venture H-22	4912.3	70	ankerite	gt	0.00	0.00	0.02	0.01	15.69	0.77	8.32	30.12	0.02	0.00	0.03	0.00	0.05	0.00	55.03
Venture H-22	4912.3	71	ankerite	gt	0.00	0.00	0.00	0.00	16.52	0.77	8.19	29.24	0.00	0.00	0.02	0.00	0.01	0.00	54.77
Venture H-22	4912.3	72	ankerite	gt	0.00	0.00	0.03	0.01	15.88	0.73	8.27	29.14	0.00	0.00	0.00	0.00	0.00	0.03	54.09
Venture H-22	4912.3	73	ankerite	gt	0.00	0.00	0.00	0.01	15.12	0.75	8.26	30.93	0.00	0.00	0.01	0.00	0.01	0.00	55.10
Venture H-22	4912.3	74	ankerite	gt	0.00	0.02	0.01	0.02	15.19	0.78	8.04	30.60	0.00	0.00	0.03	0.00	0.04	0.01	54.73
Venture H-22	4912.3	75	ankerite	gt	0.00	0.00	0.00	0.00	15.41	0.70	8.32	30.70	0.01	0.00	0.00	0.00	0.02	0.01	55.17
Venture H-22	4912.3	76	ankerite	gt	0.00	0.00	0.01	0.00	15.88	0.72	8.36	30.06	0.00	0.00	0.02	0.04	0.01	0.02	55.12
Venture H-22	4912.3	77	ankerite	gt	0.00	0.00	0.02	0.01	15.66	0.74	8.42	30.35	0.00	0.00	0.03	0.00	0.03	0.05	55.32
Venture H-22	4912.3	78	ankerite	gt	0.00	0.07	0.01	0.01	15.63	0.82	7.68	31.04	0.01	0.00	0.00	0.00	0.03	0.07	55.39
Venture H-22	4912.3	79	ankerite	gt	0.00	0.01	0.01	0.00	14.98	0.92	7.80	31.75	0.00	0.00	0.00	0.00	0.07	0.02	55.55
Venture H-22	4912.3	80	ankerite	gt	0.00	0.00	0.00	0.00	15.03	0.94	7.68	31.21	0.02	0.00	0.00	0.00	0.03	0.02	54.93
Venture H-22	4912.3	81	ankerite	gt	0.00	0.00	0.00	0.00	15.31	0.71	8.28	30.66	0.03	0.00	0.03	0.00	0.02	0.04	55.07
Venture H-22	4912.3	82	ankerite	gt	0.00	0.04	0.02	0.01	18.00	0.82	8.10	27.98	0.03	0.00	0.01	0.00	0.00	0.07	55.09
Venture H-22	4912.3	83	ankerite	gt	0.00	0.00	0.01	0.00	15.36	0.85	7.73	30.74	0.01	0.00	0.01	0.02	0.04	0.00	54.77
Venture H-22	4914.42	90	ankerite	gt	0.00	0.02	0.01	0.00	15.27	0.79	8.25	30.33	0.00	0.00	0.02	0.06	0.05	0.01	54.81
Venture H-22	4914.42	91	ankerite	gt	0.00	0.00	0.01	0.00	15.02	0.82	8.00	30.32	0.00	0.00	0.03	0.01	0.06	0.00	54.27
Venture H-22	4914.42	92	ankerite	gt	0.00	0.00	0.00	0.00	15.07	0.91	8.10	30.23	0.01	0.00	0.03	0.00	0.06	0.01	54.43
Venture H-22	4914.42	93	ankerite	gt	0.00	0.02	0.01	0.01	14.79	0.78	7.91	30.50	0.03	0.00	0.01	0.04	0.08	0.00	54.19
Venture H-22	4914.42	94	ankerite	gt	0.00	0.01	0.01	0.00	16.09	0.82	8.37	28.54	0.03	0.00	0.03	0.04	0.00	0.00	53.92
Venture H-22	4914.42	95	ankerite	gt	0.00	0.01	0.03	0.00	16.39	0.85	8.16	29.10	0.07	0.00	0.02	0.06	0.02	0.00	54.70
Venture H-22	4914.42	96	ankerite	gt	0.00	0.01	0.00	0.00	15.58	0.75	8.36	28.88	0.01	0.00	0.02	0.02	0.03	0.00	53.67
Venture H-22	4914.42	97	ankerite	gt	0.00	0.00	0.01	0.00	15.96	0.75	8.38	29.55	0.01	0.00	0.01	0.01	0.02	0.00	54.71
Venture H-22	4914.42	98	ankerite	gt	0.00	0.00	0.01	0.00	15.34	0.75	8.26	30.53	0.01	0.00	0.02	0.05	0.04	0.00	55.02
Venture H-22	4914.42	99	ankerite	gt	0.00	0.00	0.00	0.00	15.94	0.75	8.34	30.24	0.01	0.00	0.04	0.01	0.01	0.00	55.35
Venture H-22	4914.42	100	ankerite	gt	0.00	0.00	0.01	0.00	15.22	0.81	8.19	30.98	0.07	0.00	0.00	0.02	0.04	0.00	55.35
Venture H-22	4914.42	101	ankerite	gt	0.00	0.00	0.02	0.00	14.84	0.78	8.09	30.63	0.00	0.00	0.03	0.01	0.04	0.00	54.44
Venture H-22	4914.42	102	ankerite	gt	0.01	0.00	0.03	0.00	15.53	0.67	8.54	30.28	0.09	0.00	0.01	0.00	0.05	0.00	55.21
Venture H-22	4914.42	103	ankerite	gt	0.00	0.00	0.02	0.00	16.21	0.81	8.28	30.01	0.04	0.00	0.03	0.02	0.03	0.00	55.46
Venture H-22	4914.42	104	ankerite	gt	0.00	0.02	0.03	0.00	16.40	0.75	8.54	29.81	0.00	0.00	0.05	0.03	0.03	0.00	55.65
Venture H-22	4914.42	105	ankerite	gt	0.00	0.02	0.02	0.00	17.18	1.08	8.29	29.00	0.02	0.00	0.01	0.02	0.00	0.00	55.64
Venture H-22	4914.42	106	ankerite	gt	0.00	0.00	0.00	0.00	16.02	0.71	8.51	30.49	0.03	0.01	0.02	0.00	0.03	0.00	55.83
Venture H-22	4914.42	107	ankerite	gt	0.00	0.01	0.03	0.00	16.08	0.71	8.44	30.03	0.11	0.00	0.02	0.02	0.03	0.00	55.48
Venture H-22	4914.42	108	ankerite	gt	0.00	0.00	0.01	0.00	16.24	0.78	8.65	29.30	0.05	0.00	0.02	0.02	0.04	0.00	55.12

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H-22	4914.42	109	ankerite	gt	0.00	0.02	0.01	0.00	16.35	0.79	8.47	30.06	0.04	0.00	0.02	0.00	0.04	0.00	55.79
Venture H-22	4914.42	110	ankerite	gt	0.00	0.01	0.00	0.00	15.90	0.76	8.27	30.41	0.00	0.00	0.03	0.01	0.05	0.01	55.46
Venture H-22	4914.42	111	ankerite	gt	0.00	0.00	0.02	0.01	16.36	0.86	8.35	29.79	0.04	0.00	0.01	0.00	0.03	0.00	55.45
Venture H-22	4914.42	112	ankerite	gt	0.00	0.00	0.00	0.01	15.81	0.80	8.34	30.25	0.05	0.00	0.03	0.01	0.05	0.00	55.34
Venture H-22	4914.42	113	ankerite	gt	0.37	0.00	0.45	0.01	17.15	0.78	7.94	29.04	0.00	0.00	0.03	0.00	0.02	0.01	55.81
Venture H-22	4914.42	114	ankerite	gt	0.00	0.00	0.03	0.01	15.11	0.77	8.36	30.59	0.02	0.00	0.01	0.03	0.02	0.00	54.95
Venture H-22	4914.42	115	ankerite	gt	0.00	0.00	0.00	0.01	15.37	0.89	8.20	30.76	0.00	0.00	0.02	0.03	0.10	0.00	55.37
Venture H-22	4914.42	116	ankerite	gt	0.00	0.00	0.00	0.00	14.88	0.82	8.20	30.70	0.06	0.00	0.01	0.00	0.03	0.00	54.71
Venture H-22	4914.42	117	ankerite	gt	0.00	0.00	0.00	0.03	16.25	0.85	8.11	29.65	0.05	0.00	0.00	0.01	0.05	0.01	55.02
Venture H-22	4914.42	118	ankerite	gt	0.00	0.00	0.02	0.00	15.68	0.76	8.58	29.70	0.05	0.00	0.00	0.00	0.06	0.00	54.85
Venture H-22	4914.42	119	ankerite	gt	0.00	0.00	0.00	0.00	15.02	0.85	8.13	30.91	0.02	0.00	0.03	0.00	0.06	0.02	55.04
Venture H-22	4914.42	120	ankerite	gt	0.00	0.00	0.00	0.00	14.64	0.86	8.09	31.90	0.04	0.00	0.01	0.01	0.07	0.02	55.63
Venture H-22	4914.42	121	ankerite	gt	0.00	0.00	0.02	0.00	15.03	0.77	8.20	31.05	0.00	0.00	0.01	0.00	0.04	0.00	55.12
Venture H-22	4914.42	122	ankerite	gt	0.00	0.00	0.00	0.02	14.99	0.87	8.04	31.43	0.02	0.00	0.06	0.03	0.07	0.00	55.52
Venture H-22	4914.42	123	ankerite	gt	0.00	0.00	0.00	0.00	15.30	0.83	8.08	31.35	0.01	0.00	0.02	0.00	0.07	0.00	55.66
Venture H-22	4914.42	124	ankerite	gt	0.00	0.00	0.00	0.00	14.84	0.80	8.04	31.07	0.02	0.00	0.02	0.00	0.06	0.00	54.86
Venture H-22	4914.42	125	ankerite	gt	0.00	0.00	0.01	0.01	15.33	0.74	8.41	31.26	0.02	0.00	0.03	0.00	0.07	0.00	55.89
Venture H-22	4914.42	126	ankerite	gt	0.00	0.01	0.00	0.00	15.51	0.83	8.51	31.31	0.01	0.00	0.03	0.03	0.04	0.00	56.28
Venture H-22	4914.42	127	ankerite	gt	0.00	0.00	0.01	0.01	18.41	0.99	8.05	28.50	0.01	0.00	0.02	0.01	0.00	0.00	56.01
Venture H-22	4914.42	128	albite	gt	68.89	0.00	19.41	0.00	0.13	0.00	0.00	0.12	11.68	0.00	0.00	0.00	0.44	0.00	100.67
Venture H-22	4914.42	129	albite	gt	69.11	0.00	19.37	0.00	0.21	0.00	0.00	0.14	11.84	0.00	0.00	0.00	0.40	0.00	101.07
Venture H-22	4914.42	130	ankerite	gt	0.00	0.02	0.00	0.00	15.39	0.73	8.41	30.60	0.07	0.00	0.03	0.01	0.02	0.00	55.28
Venture H22	4957.21	45	ankerite	gt	0.00	0.00	0.02	0.00	11.12	1.26	10.20	31.56	0.01	0.03	0.01	0.00	0.09	0.00	54.31
Venture H22	4957.21	46	ankerite	gt	0.21	0.01	0.33	0.00	11.65	1.20	10.00	30.48	0.00	0.02	0.00	0.01	0.06	0.05	54.01
Venture H22	4957.21	47	ankerite	lt	0.00	0.00	0.01	0.00	11.24	1.27	10.07	30.22	0.00	0.02	0.00	0.01	0.08	0.04	52.98
Venture H22	4957.21	48	ankerite	lt	0.00	0.04	0.02	0.00	10.78	1.23	9.73	30.76	0.00	0.04	0.06	0.00	0.11	0.00	52.77
Venture H22	4957.21	49	ankerite	lt	0.00	0.03	0.02	0.00	10.99	1.30	9.62	30.76	0.00	0.03	0.05	0.01	0.07	0.00	52.88
Venture H22	4957.21	50	ankerite	lt	0.00	0.05	0.02	0.00	11.24	1.22	10.27	30.71	0.00	0.03	0.03	0.00	0.06	0.00	53.61
Venture H22	4957.21	51	ankerite	gt	0.00	0.00	0.01	0.01	11.38	1.23	10.15	31.22	0.00	0.02	0.04	0.01	0.10	0.00	54.16
Venture H22	4957.21	52	ankerite	lt	0.00	0.00	0.03	0.00	11.01	1.19	9.55	31.56	0.01	0.02	0.06	0.00	0.07	0.01	53.51
Venture H22	4957.21	53	ankerite	lt	0.04	0.01	0.03	0.00	11.00	1.27	9.70	31.00	0.03	0.05	0.03	0.00	0.09	0.00	53.24
Venture H22	4957.21	54	ankerite	lt	0.00	0.27	0.03	0.00	11.23	1.26	9.74	30.59	0.00	0.03	0.06	0.00	0.04	0.01	53.26
Venture H22	4957.21	55	ankerite	lt	0.00	0.00	0.00	0.00	11.29	1.29	10.01	30.34	0.00	0.02	0.04	0.00	0.05	0.00	53.05
Venture H22	4957.21	56	ankerite	lt	0.00	0.00	0.02	0.00	11.70	1.12	9.80	30.45	0.01	0.02	0.06	0.01	0.04	0.03	53.25
Venture H22	4957.21	57	ankerite	lt	0.03	0.00	0.03	0.00	11.45	1.21	10.08	30.29	0.00	0.01	0.04	0.00	0.04	0.00	53.17
Venture H22	4957.21	58	ankerite	lt	0.00	0.00	0.00	0.00	12.06	1.16	9.78	29.53	0.00	0.01	0.05	0.00	0.02	0.01	52.63

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4957.21	59	ankerite	lt	0.00	0.00	0.04	0.00	12.03	1.16	9.70	29.59	0.00	0.03	0.05	0.00	0.01	0.00	52.61
Venture H22	4957.21	60	ankerite	lt	0.04	0.00	0.02	0.00	11.61	1.16	10.24	29.91	0.01	0.02	0.05	0.00	0.01	0.00	53.07
Venture H22	4957.21	61	ankerite	lt	0.00	0.00	0.00	0.00	11.08	1.28	9.55	31.29	0.00	0.02	0.06	0.00	0.11	0.02	53.41
Venture H22	4957.21	62	ankerite	lt	0.00	0.00	0.01	0.00	10.75	1.23	9.57	31.29	0.00	0.02	0.05	0.00	0.10	0.03	53.06
Venture H22	4957.21	63	ankerite	lt	0.00	0.00	0.01	0.00	11.13	1.32	9.55	31.36	0.00	0.01	0.03	0.00	0.10	0.03	53.55
Venture H22	4957.21	64	ankerite	gt	0.00	0.00	0.01	0.00	11.06	1.31	9.98	31.74	0.00	0.04	0.02	0.00	0.06	0.00	54.22
Venture H22	4957.21	65	ankerite	gt	0.00	0.00	0.00	0.00	11.17	1.31	9.97	31.65	0.00	0.02	0.04	0.00	0.10	0.00	54.26
Venture H22	4957.21	66	ankerite	lt	0.00	0.00	0.00	0.01	11.45	1.26	9.58	31.32	0.00	0.02	0.06	0.00	0.08	0.00	53.78
Venture H22	4957.21	67	ankerite	lt	0.01	0.00	0.03	0.00	10.71	1.30	9.45	31.52	0.01	0.02	0.04	0.00	0.10	0.03	53.22
Venture H22	4957.21	68	ankerite	lt	0.00	0.00	0.03	0.00	11.61	1.27	10.34	29.65	0.00	0.01	0.03	0.00	0.04	0.04	53.03
Venture H22	4957.21	69	ankerite	lt	0.00	0.00	0.03	0.00	11.26	1.25	9.62	30.31	0.00	0.02	0.07	0.00	0.00	0.00	52.57
Venture H22	4957.21	70	ankerite	lt	0.00	0.00	0.04	0.00	11.26	1.36	9.83	30.51	0.00	0.01	0.04	0.02	0.03	0.00	53.10
Venture H22	4957.21	71	ankerite	lt	0.00	0.00	0.04	0.00	11.27	1.27	10.08	30.35	0.00	0.01	0.04	0.01	0.00	0.06	53.13
Venture H22	4957.21	72	ankerite	lt	0.00	0.00	0.04	0.00	11.48	1.33	9.86	30.60	0.00	0.02	0.03	0.01	0.02	0.04	53.42
Venture H22	4957.21	73	ankerite	lt	0.00	0.12	0.03	0.00	11.93	1.07	10.16	29.95	0.00	0.02	0.06	0.01	0.00	0.02	53.37
Venture H22	4957.21	74	ankerite	lt	0.00	0.13	0.01	0.00	11.30	1.28	9.75	30.21	0.00	0.00	0.06	0.02	0.06	0.00	52.82
Venture H22	4957.21	75	ankerite	gt	0.00	0.00	0.03	0.01	11.26	1.31	9.90	32.82	0.00	0.02	0.01	0.01	0.08	0.00	55.42
Venture H22	4957.21	76	ankerite	lt	0.00	0.02	0.03	0.01	11.04	1.33	9.88	30.63	0.00	0.00	0.05	0.00	0.03	0.00	53.02
Venture H22	4957.21	77	ankerite	gt	0.00	0.00	0.05	0.03	11.00	1.21	9.84	32.04	0.00	0.01	0.01	0.00	0.07	0.00	54.25
Venture H22	4957.21	78	ankerite	lt	0.00	0.00	0.03	0.00	10.89	1.25	9.49	31.84	0.01	0.02	0.02	0.01	0.05	0.00	53.60
Venture H22	4957.21	79	ankerite	lt	0.00	0.00	0.03	0.01	11.03	1.29	9.66	30.93	0.00	0.03	0.00	0.00	0.09	0.00	53.05
Venture H22	4957.21	80	ankerite	lt	0.00	0.02	0.02	0.05	12.22	1.12	9.95	30.23	0.00	0.05	0.01	0.00	0.03	0.00	53.71
Venture H22	4957.21	81	ankerite	lt	0.01	0.00	0.04	0.00	11.62	1.07	9.97	30.07	0.01	0.02	0.02	0.00	0.03	0.00	52.87
Venture H22	4960.22	89	ankerite	gt	0.00	0.04	0.05	0.05	14.32	0.99	9.46	28.71	0.02	0.02	0.01	0.02	0.10	0.05	53.83
Venture H22	4960.22	90	ankerite	gt	0.06	0.05	0.07	0.07	14.11	0.91	9.28	29.05	0.04	0.04	0.02	0.04	0.08	0.05	53.88
Venture H22	4960.22	91	ankerite	gt	0.04	0.04	0.08	0.09	15.21	0.98	9.39	28.20	0.05	0.03	0.02	0.03	0.06	0.07	54.29
Venture H22	4960.22	92	ankerite	lt	0.00	0.01	0.02	0.07	12.05	1.22	10.04	29.61	0.06	0.04	0.03	0.01	0.12	0.00	53.29
Venture H22	4960.22	93	ankerite	lt	0.00	0.03	0.02	0.05	11.47	0.95	10.28	30.22	0.02	0.03	0.00	0.00	0.11	0.05	53.23
Venture H22	4960.22	94	ankerite	gt	0.09	0.04	0.08	0.07	15.76	0.86	9.60	27.40	0.11	0.04	0.00	0.03	0.08	0.07	54.23
Venture H22	4960.22	95	ankerite	gt	0.01	0.07	0.06	0.06	14.80	0.86	9.37	29.18	0.05	0.03	0.02	0.04	0.06	0.03	54.64
Venture H22	4960.22	96	ankerite	gt	0.00	0.00	0.02	0.00	14.56	0.84	9.98	30.29	0.00	0.02	0.00	0.00	0.02	0.00	55.74
Venture H22	4960.22	97	ankerite	gt	0.00	0.00	0.03	0.00	13.94	0.92	9.48	29.12	0.00	0.02	0.00	0.00	0.00	0.00	53.51
Venture H22	4960.22	98	ankerite	gt	0.00	0.00	0.00	0.00	13.55	0.93	9.80	29.53	0.01	0.03	0.01	0.00	0.00	0.00	53.86
Venture H22	4960.22	99	ankerite	gt	0.00	0.00	0.01	0.00	14.50	0.93	9.55	30.34	0.00	0.03	0.02	0.00	0.00	0.00	55.39
Venture H22	4960.22	100	ankerite	gt	0.13	0.00	0.11	0.00	14.06	0.91	9.40	29.12	0.00	0.04	0.02	0.00	0.01	0.00	53.80
Venture H22	4960.74	11	ankerite	lt	0.00	0.00	0.02	0.02	11.53	1.18	10.02	30.65	0.01	0.02	0.03	0.00	0.08	0.00	53.55

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4960.74	12	ankerite	lt	0.00	0.00	0.02	0.00	11.78	1.30	9.96	30.52	0.01	0.02	0.09	0.00	0.02	0.00	53.71
Venture H22	4960.74	13	ankerite	lt	0.00	0.03	0.02	0.00	11.51	1.28	10.09	30.35	0.00	0.03	0.03	0.00	0.03	0.00	53.38
Venture H22	4960.74	14	calcite	gt	0.05	0.03	0.04	0.00	0.75	0.35	0.19	56.17	0.00	0.02	0.03	0.02	0.14	0.04	57.84
Venture H22	4960.74	15	Fe-calcite	ht	0.03	0.03	0.04	0.01	1.11	0.41	0.30	56.85	0.01	0.02	0.02	0.03	0.13	0.00	58.99
Venture H22	4960.74	16	calcite	gt	0.00	0.02	0.03	0.01	0.80	0.38	0.18	53.56	0.01	0.02	0.02	0.00	0.14	0.00	55.18
Venture H22	4960.74	17	calcite	gt	0.00	0.00	0.02	0.05	0.14	0.04	1.33	54.79	0.01	0.02	0.14	0.02	0.18	0.00	56.74
Venture H22	4960.74	18	Fe-calcite	gt	0.03	0.04	0.03	0.00	0.95	0.41	0.26	54.60	0.01	0.02	0.04	0.02	0.13	0.00	56.54
Venture H22	4960.74	19	Fe-calcite	ht	0.10	0.01	0.04	0.01	1.33	0.45	0.36	56.25	0.02	0.02	0.03	0.03	0.17	0.00	58.81
Venture H22	4960.74	20	Fe-calcite	ht	0.00	0.01	0.03	0.00	1.42	0.47	0.49	55.85	0.01	0.02	0.03	0.02	0.13	0.00	58.48
Venture H22	4960.74	21	Fe-calcite	ht	0.00	0.03	0.01	0.03	1.19	0.46	0.34	57.04	0.01	0.02	0.04	0.02	0.12	0.01	59.32
Venture H22	4960.74	22	Fe-calcite	ht	0.05	0.05	0.04	0.00	1.36	0.46	0.45	56.12	0.01	0.03	0.03	0.03	0.11	0.00	58.74
Venture H22	4960.74	23	Fe-calcite	gt	0.02	0.00	0.03	0.03	1.12	0.46	0.33	52.98	0.01	0.02	0.05	0.00	0.10	0.00	55.15
Venture H22	4960.74	24	ankerite	lt	0.00	0.00	0.05	0.02	13.84	1.01	9.67	28.86	0.00	0.01	0.06	0.00	0.02	0.00	53.52
Venture H22	4960.74	25	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.23	0.45	0.33	55.86	0.00	0.02	0.03	0.05	0.12	0.00	58.10
Venture H22	4960.74	26	ankerite	gt	0.00	0.00	0.03	0.00	12.57	1.25	9.56	30.33	0.01	0.02	0.03	0.00	0.04	0.00	53.83
Venture H22	4960.74	27	ankerite	gt	0.00	0.00	0.02	0.02	12.79	1.30	9.48	30.09	0.01	0.02	0.03	0.01	0.02	0.00	53.76
Venture H22	4960.74	28	Fe-calcite	gt	0.01	0.01	0.02	0.02	1.23	0.41	0.39	53.70	0.02	0.02	0.06	0.03	0.12	0.00	56.04
Venture H22	4960.74	29	Fe-calcite	gt	0.40	0.02	0.41	0.03	1.64	0.37	0.41	51.72	0.01	0.02	0.03	0.02	0.19	0.04	55.31
Venture H22	4960.74	30	ankerite	gt	0.00	0.01	0.03	0.00	12.40	1.15	9.66	30.52	0.03	0.01	0.03	0.00	0.01	0.00	53.84
Venture H22	4960.74	31	ankerite	lt	0.03	0.00	0.01	0.00	12.43	1.22	9.47	29.99	0.00	0.02	0.05	0.00	0.01	0.00	53.24
Venture H22	4960.74	32	ankerite	lt	0.00	0.00	0.02	0.00	11.70	1.18	10.02	30.01	0.00	0.02	0.07	0.00	0.04	0.00	53.07
Venture H22	4960.74	33	ankerite	gt	0.00	0.00	0.00	0.00	12.29	1.17	9.91	31.57	0.00	0.02	0.04	0.00	0.02	0.00	55.02
Venture H22	4960.74	34	ankerite	lt	0.02	0.00	0.04	0.00	12.21	1.01	9.91	29.90	0.00	0.02	0.04	0.00	0.00	0.00	53.15
Venture H22	4960.74	35	Fe-calcite	ht	0.02	0.00	0.04	0.01	1.04	0.39	0.28	57.10	0.02	0.01	0.05	0.05	0.15	0.00	59.17
Venture H22	4960.74	36	Fe-calcite	ht	0.03	0.01	0.02	0.02	1.37	0.45	0.42	56.44	0.02	0.02	0.04	0.04	0.10	0.00	58.98
Venture H22	4960.74	37	Fe-calcite	ht	0.03	0.01	0.02	0.01	1.22	0.38	0.20	56.35	0.00	0.02	0.06	0.04	0.10	0.00	58.44
Venture H22	4966.21	56	Fe-calcite	ht	0.00	0.01	0.00	0.00	2.05	0.78	0.68	55.52	0.00	0.02	0.03	0.02	0.19	0.00	59.28
Venture H22	4966.21	57	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.71	0.68	0.62	54.18	0.00	0.01	0.06	0.00	0.25	0.00	57.53
Venture H22	4966.21	58	Fe-calcite	gt	0.00	0.00	0.00	0.00	2.29	0.75	0.91	53.35	0.00	0.03	0.03	0.00	0.18	0.00	57.54
Venture H22	4966.21	59	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.79	0.59	0.68	53.82	0.00	0.05	0.02	0.00	0.10	0.01	57.05
Venture H22	4966.21	60	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.50	0.51	0.51	54.95	0.00	0.02	0.03	0.00	0.29	0.00	57.81
Venture H22	4966.21	61	Fe-calcite	gt	0.00	0.05	0.00	0.00	1.34	0.46	0.28	53.33	0.00	0.03	0.01	0.00	0.03	0.00	55.53
Venture H22	4966.21	62	Fe-calcite	gt	0.00	0.01	0.00	0.00	1.86	0.73	0.66	54.18	0.01	0.02	0.05	0.00	0.20	0.00	57.71
Venture H22	4966.21	63	Fe-calcite	ht	0.01	0.00	0.00	0.00	1.93	0.67	0.62	54.22	0.01	0.01	0.03	0.00	0.29	0.00	57.77
Venture H22	4966.21	64	Fe-calcite	ht	0.00	0.01	0.02	0.00	1.31	0.45	0.26	53.11	0.00	0.05	0.03	0.00	0.04	0.00	55.28
Venture H22	4966.21	65	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.40	0.51	0.39	53.60	0.00	0.02	0.05	0.00	0.10	0.00	56.06

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4966.21	66	Fe-calcite	ht	0.00	0.00	0.00	0.00	2.01	0.81	0.72	54.21	0.01	0.01	0.03	0.00	0.18	0.00	57.99
Venture H22	4966.21	67	Fe-calcite	gt	0.00	0.01	0.00	0.00	1.94	0.75	0.69	53.56	0.02	0.02	0.06	0.00	0.19	0.01	57.25
Venture H22	4966.21	68	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.83	0.77	0.63	52.93	0.00	0.03	0.02	0.00	0.21	0.00	56.43
Venture H22	4966.21	69	Fe-calcite	lt	0.86	0.05	0.70	0.00	2.24	0.69	0.65	46.95	0.00	0.08	0.04	0.00	0.22	0.00	52.49
Venture H22	4966.21	70	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.12	0.41	0.60	54.71	0.03	0.01	0.05	0.00	0.18	0.00	57.11
Venture H22	4966.21	71	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.22	0.36	0.24	54.31	0.00	0.01	0.03	0.00	0.12	0.00	56.30
Venture H22	4966.21	72	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.07	0.47	0.24	53.77	0.00	0.02	0.05	0.00	0.06	0.00	55.68
Venture H22	4966.21	73	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.54	0.58	0.43	53.24	0.00	0.05	0.02	0.00	0.13	0.00	56.00
Venture H22	4966.21	74	Fe-calcite	gt	0.00	0.00	0.17	0.00	1.91	0.52	0.61	53.10	0.00	0.01	0.04	0.00	0.16	0.00	56.52
Venture H22	4966.21	75	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.46	0.47	0.32	51.71	0.00	0.03	0.04	0.00	0.06	0.00	54.10
Venture H22	4966.21	76	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.75	0.75	0.53	57.10	0.01	0.02	0.03	0.00	0.20	0.00	60.40
Venture H22	4966.21	77	Fe-calcite	gt	0.01	0.00	0.00	0.00	1.68	0.72	0.61	52.17	0.00	0.03	0.03	0.00	0.15	0.00	55.39
Venture H22	4966.21	78	Fe-calcite	gt	0.00	0.01	0.00	0.00	1.78	0.73	0.58	55.26	0.01	0.03	0.02	0.00	0.27	0.01	58.70
Venture H22	4966.21	79	Fe-calcite	gt	0.00	0.01	0.00	0.00	1.30	0.43	0.25	52.51	0.00	0.03	0.01	0.00	0.05	0.00	54.59
Venture H22	4966.21	80	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.67	0.73	0.60	52.95	0.00	0.02	0.02	0.00	0.26	0.00	56.26
Venture H22	4966.21	81	calcite	gt	0.00	0.00	0.00	0.00	0.81	0.33	0.12	56.03	0.00	0.03	0.03	0.00	0.03	0.00	57.37
Venture H22	4966.21	82	Fe-calcite	gt	0.00	0.01	0.00	0.00	1.45	0.62	0.47	52.56	0.00	0.03	0.05	0.00	0.24	0.00	55.42
Venture H22	4966.21	83	Fe-calcite	gt	0.02	0.00	0.00	0.00	1.50	0.64	0.46	53.16	0.00	0.03	0.00	0.00	0.25	0.00	56.07
Venture H22	4966.21	84	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.56	0.72	0.51	53.96	0.00	0.03	0.04	0.01	0.20	0.05	57.07
Venture H22	4966.21	85	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.02	0.34	0.87	53.29	0.00	0.05	0.07	0.00	0.23	0.00	55.87
Venture H22	4966.21	86	Fe-calcite	ht	0.00	0.03	0.00	0.00	1.99	0.80	0.71	53.49	0.00	0.03	0.04	0.00	0.22	0.00	57.30
Venture H22	4966.21	87	Fe-calcite	gt	0.00	0.01	0.00	0.00	1.12	0.44	0.23	53.00	0.00	0.01	0.02	0.00	0.03	0.00	54.86
Venture H22	4966.21	88	Fe-calcite	ht	0.00	0.02	0.00	0.00	2.01	0.79	0.68	53.63	0.00	0.04	0.04	0.00	0.19	0.02	57.42
Venture H22	4972.18	8	ankerite	gt	0.00	0.00	0.02	0.00	11.27	1.01	10.32	31.51	0.00	0.01	0.01	0.00	0.06	0.00	54.21
Venture H22	4972.18	9	ankerite	lt	0.00	0.00	0.04	0.00	11.44	1.08	10.12	30.72	0.00	0.00	0.03	0.00	0.05	0.00	53.48
Venture H22	4972.18	10	ankerite	gt	0.00	0.00	0.04	0.00	11.46	1.05	9.97	31.35	0.01	0.01	0.02	0.00	0.05	0.00	53.96
Venture H22	4972.18	11	ankerite	gt	0.00	0.00	0.04	0.00	14.77	1.21	9.21	29.14	0.00	0.01	0.00	0.00	0.00	0.00	54.37
Venture H22	4972.18	12	ankerite	gt	0.00	0.00	0.04	0.00	11.27	1.00	10.53	31.52	0.01	0.02	0.00	0.01	0.05	0.00	54.45
Venture H22	4972.18	13	ankerite	gt	0.00	0.00	0.03	0.00	11.21	1.02	10.04	31.47	0.01	0.01	0.02	0.00	0.06	0.00	53.87
Venture H22	4972.18	14	ankerite	gt	0.01	0.00	0.03	0.00	11.71	1.14	10.16	30.82	0.00	0.01	0.00	0.00	0.03	0.00	53.91
Venture H22	4972.18	15	ankerite	lt	0.00	0.00	0.01	0.00	12.18	1.11	10.16	29.90	0.00	0.01	0.00	0.00	0.02	0.00	53.39
Venture H22	4972.18	16	ankerite	gt	0.00	0.09	0.04	0.01	11.70	1.16	9.98	30.83	0.02	0.01	0.02	0.00	0.04	0.00	53.89
Venture H22	4972.18	17	ankerite	gt	0.03	0.00	0.07	0.02	14.45	1.15	9.26	29.32	0.00	0.03	0.00	0.00	0.00	0.00	54.32
Venture H22	4972.18	18	ankerite	gt	0.00	0.01	0.04	0.03	14.43	1.06	9.24	29.32	0.00	0.03	0.00	0.00	0.00	0.00	54.16
Venture H22	4972.18	19	ankerite	gt	0.00	0.00	0.02	0.00	11.29	1.03	10.07	31.44	0.01	0.01	0.01	0.00	0.04	0.00	53.92
Venture H22	4972.18	20	ankerite	lt	0.00	0.02	0.03	0.00	11.36	0.99	10.21	30.23	0.01	0.01	0.00	0.00	0.04	0.00	52.90

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4972.18	21	ankerite	lt	0.00	0.00	0.01	0.00	11.05	1.04	10.03	30.49	0.00	0.03	0.02	0.00	0.09	0.00	52.75
Venture H22	4972.18	22	ankerite	lt	0.02	0.00	0.02	0.01	11.17	0.99	10.00	30.83	0.00	0.02	0.03	0.01	0.10	0.01	53.20
Venture H22	4972.18	23	ankerite	lt	0.00	0.00	0.01	0.03	11.18	0.93	10.29	30.40	0.00	0.03	0.01	0.00	0.11	0.00	52.99
Venture H22	4972.18	24	ankerite	lt	0.03	0.00	0.01	0.00	11.12	1.00	10.03	30.09	0.00	0.01	0.03	0.00	0.06	0.07	52.46
Venture H22	4972.18	25	ankerite	lt	0.00	0.00	0.02	0.00	11.91	1.36	9.67	29.60	0.00	0.03	0.01	0.01	0.04	0.00	52.65
Venture H22	4972.18	26	ankerite	lt	0.00	0.02	0.00	0.00	11.55	1.19	10.10	30.43	0.00	0.02	0.02	0.00	0.04	0.00	53.38
Venture H22	4972.18	27	ankerite	lt	0.00	0.00	0.01	0.00	12.08	1.16	10.08	29.80	0.00	0.02	0.02	0.00	0.05	0.00	53.23
Venture H22	4972.18	28	ankerite	lt	0.01	0.00	0.04	0.00	11.56	1.05	10.05	30.28	0.00	0.02	0.03	0.00	0.07	0.05	53.15
Venture H22	4972.18	29	ankerite	lt	0.00	0.00	0.02	0.00	11.48	1.09	9.97	30.19	0.00	0.02	0.03	0.00	0.08	0.01	52.89
Venture H22	4972.18	30	ankerite	gt	0.35	0.00	0.35	0.00	11.37	0.94	10.13	30.78	0.00	0.02	0.04	0.00	0.11	0.00	54.09
Venture H22	4972.18	31	ankerite	gt	0.00	0.00	0.01	0.00	11.63	1.05	10.22	31.08	0.00	0.02	0.02	0.00	0.07	0.00	54.10
Venture H22	4972.18	32	ankerite	lt	0.03	0.00	0.01	0.00	11.47	1.11	10.08	30.33	0.00	0.02	0.00	0.03	0.07	0.00	53.14
Venture H22	4972.18	33	ankerite	gt	0.00	0.00	0.03	0.00	11.65	1.11	10.12	31.12	0.00	0.02	0.00	0.00	0.06	0.01	54.12
Venture H22	4972.18	34	ankerite	lt	0.01	0.00	0.02	0.01	11.53	1.10	10.00	30.65	0.01	0.03	0.03	0.00	0.04	0.04	53.45
Venture H22	4972.18	35	ankerite	lt	0.00	0.01	0.01	0.01	11.98	1.08	9.78	30.66	0.00	0.02	0.03	0.00	0.05	0.04	53.68
Venture H22	4972.18	36	ankerite	lt	0.04	0.00	0.02	0.01	11.17	1.14	10.11	30.72	0.00	0.03	0.03	0.00	0.07	0.02	53.35
Venture H22	4972.18	37	ankerite	lt	0.00	0.00	0.01	0.00	11.15	0.95	10.05	30.98	0.00	0.03	0.04	0.00	0.10	0.00	53.31
Venture H22	4972.18	38	ankerite	lt	0.00	0.00	0.00	0.02	11.89	1.17	10.20	30.38	0.00	0.03	0.03	0.00	0.07	0.01	53.79
Venture H22	4972.18	39	ankerite	gt	0.01	0.00	0.02	0.00	11.65	1.04	10.35	31.58	0.01	0.02	0.02	0.00	0.12	0.00	54.83
Venture H22	4972.18	40	ankerite	gt	0.00	0.00	0.01	0.02	11.82	1.16	10.14	31.48	0.00	0.03	0.00	0.00	0.07	0.00	54.73
Venture H22	4972.18	41	ankerite	gt	0.00	0.03	0.00	0.00	12.00	1.17	10.44	30.28	0.00	0.02	0.02	0.00	0.06	0.03	54.05
Venture H22	4972.18	42	ankerite	lt	0.00	0.01	0.01	0.01	11.87	1.11	9.98	30.64	0.00	0.02	0.01	0.00	0.03	0.04	53.72
Venture H22	4972.18	43	ankerite	gt	0.00	0.01	0.01	0.00	11.27	0.98	10.25	31.97	0.02	0.02	0.00	0.00	0.06	0.00	54.57
Venture H22	4972.18	44	albite	gt	68.80	0.00	19.71	0.00	0.10	0.00	0.00	0.03	11.43	0.02	0.00	0.00	0.44	0.00	100.52
Venture H22	4972.18	45	albite	gt	64.77	0.01	22.32	0.00	0.23	0.00	0.00	3.06	9.48	0.25	0.00	0.00	0.41	0.00	100.52
Venture H22	4972.18	46	ankerite	lt	0.12	0.02	0.10	0.00	11.76	1.11	10.06	30.09	0.01	0.02	0.01	0.01	0.01	0.00	53.34
Venture H22	4972.18	47	ankerite	lt	0.00	0.00	0.01	0.00	11.52	1.13	9.88	31.07	0.01	0.02	0.00	0.01	0.07	0.00	53.72
Venture H22	4972.18	48	ankerite	lt	0.00	0.01	0.03	0.00	11.32	1.11	9.77	30.45	0.00	0.01	0.02	0.00	0.03	0.00	52.76
Venture H22	4972.18	49	ankerite	lt	0.00	0.03	0.00	0.00	11.36	1.10	10.07	30.55	0.02	0.01	0.00	0.00	0.03	0.00	53.17
Venture H22	4976.26	82	ankerite	gt	0.03	0.00	0.03	0.00	13.96	1.12	9.47	29.22	0.00	0.02	0.00	0.00	0.00	0.00	53.85
Venture H22	4976.26	83	ankerite	lt	0.00	0.03	0.04	0.00	11.44	0.94	9.76	30.44	0.00	0.01	0.00	0.00	0.07	0.00	52.72
Venture H22	4976.26	84	ankerite	lt	0.03	0.01	0.03	0.01	13.97	1.02	9.29	28.33	0.00	0.01	0.02	0.02	0.00	0.00	52.73
Venture H22	4976.26	85	ankerite	gt	0.00	0.00	0.03	0.00	13.45	0.95	9.69	30.43	0.00	0.01	0.02	0.01	0.07	0.00	54.65
Venture H22	4976.26	86	ankerite	lt	0.01	0.01	0.02	0.00	14.33	1.01	9.16	28.97	0.00	0.01	0.00	0.02	0.00	0.00	53.54
Venture H22	4976.26	87	ankerite	lt	0.68	0.15	0.57	0.00	11.00	0.76	9.79	30.29	0.00	0.02	0.07	0.00	0.11	0.00	53.45
Venture H22	4976.26	88	ankerite	lt	0.00	0.00	0.03	0.00	10.35	0.80	10.06	31.54	0.02	0.02	0.00	0.01	0.09	0.00	52.92

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4976.26	89	ankerite	lt	0.01	0.01	0.01	0.00	10.60	0.77	10.34	31.27	0.02	0.02	0.01	0.03	0.11	0.00	53.18
Venture H22	4976.26	90	ankerite	gt	0.00	0.00	0.01	0.01	13.99	1.10	9.57	29.24	0.04	0.03	0.00	0.04	0.00	0.00	54.04
Venture H22	4976.26	91	ankerite	lt	0.00	0.00	0.01	0.02	10.73	0.77	10.32	31.27	0.05	0.03	0.01	0.02	0.08	0.00	53.30
Venture H22	4976.26	92	ankerite	lt	0.00	0.00	0.00	0.00	10.40	0.81	9.95	31.18	0.02	0.02	0.00	0.00	0.10	0.00	52.49
Venture H22	4976.26	93	ankerite	lt	0.00	0.00	0.02	0.00	10.66	0.79	10.36	30.18	0.02	0.01	0.00	0.03	0.09	0.02	52.19
Venture H22	4976.26	94	ankerite	lt	0.00	0.00	0.02	0.00	10.61	0.81	9.72	31.35	0.01	0.02	0.00	0.04	0.08	0.00	52.66
Venture H22	4976.26	95	ankerite	lt	0.01	0.00	0.02	0.00	10.55	0.83	10.31	30.77	0.04	0.01	0.00	0.04	0.13	0.00	52.69
Venture H22	4976.26	96	ankerite	lt	0.00	0.00	0.01	0.02	10.72	0.95	10.00	31.02	0.01	0.03	0.00	0.01	0.09	0.00	52.86
Venture H22	4976.26	97	ankerite	lt	0.00	0.00	0.01	0.00	12.02	1.39	9.98	29.91	0.00	0.01	0.00	0.02	0.00	0.00	53.34
Venture H22	4976.26	98	ankerite	lt	0.00	0.00	0.02	0.00	10.54	0.77	9.80	30.90	0.01	0.01	0.00	0.03	0.08	0.00	52.17
Venture H22	4976.26	99	ankerite	lt	0.00	0.00	0.03	0.03	15.30	0.93	9.29	27.77	0.00	0.03	0.01	0.00	0.00	0.00	53.39
Venture H22	4976.26	100	ankerite	lt	0.00	0.00	0.01	0.01	10.87	0.77	9.81	31.01	0.00	0.00	0.01	0.02	0.10	0.00	52.61
Venture H22	4976.26	101	ankerite	lt	0.00	0.00	0.02	0.01	10.95	0.78	10.17	30.81	0.01	0.02	0.00	0.00	0.07	0.00	52.85
Venture H22	4976.26	102	ankerite	lt	0.00	0.00	0.01	0.00	10.68	0.80	9.98	31.47	0.02	0.02	0.01	0.03	0.12	0.00	53.13
Venture H22	4976.26	103	ankerite	lt	0.00	0.02	0.03	0.02	14.28	1.16	8.92	28.69	0.04	0.02	0.00	0.01	0.00	0.00	53.19
Venture H22	4976.26	104	ankerite	gt	0.00	0.01	0.02	0.01	10.70	0.82	10.31	30.83	0.01	0.03	0.00	0.02	0.08	0.01	52.85
Venture H22	4976.26	105	ankerite	lt	0.00	0.00	0.01	0.01	10.51	0.75	10.18	31.67	0.02	0.01	0.00	0.01	0.10	0.02	53.28
Venture H22	4976.26	106	ankerite	lt	0.00	0.01	0.00	0.02	10.73	0.83	10.19	31.09	0.00	0.02	0.00	0.03	0.08	0.00	53.00
Venture H22	4976.26	107	ankerite	lt	0.00	0.00	0.03	0.01	10.94	0.92	10.45	30.56	0.01	0.02	0.00	0.02	0.09	0.00	53.04
Venture H22	4976.26	108	ankerite	lt	0.00	0.02	0.02	0.00	10.84	0.94	10.15	31.01	0.00	0.01	0.01	0.00	0.15	0.00	53.15
Venture H22	4976.26	109	ankerite	lt	0.03	0.00	0.00	0.01	11.10	1.08	10.22	30.21	0.00	0.02	0.02	0.00	0.10	0.00	52.78
Venture H22	4976.26	110	ankerite	lt	0.00	1.00	0.03	0.03	10.88	0.90	10.04	30.27	0.03	0.02	0.02	0.00	0.11	0.00	53.33
Venture H22	4976.26	111	ankerite	lt	0.00	0.02	0.01	0.01	10.79	0.88	9.84	30.73	0.01	0.04	0.03	0.00	0.14	0.00	52.50
Venture H22	4976.26	112	ankerite	lt	0.00	0.01	0.01	0.01	10.77	0.95	10.12	30.45	0.01	0.02	0.01	0.01	0.09	0.00	52.47
Venture H22	4976.26	113	ankerite	lt	0.00	0.02	0.02	0.01	11.94	1.14	9.82	29.90	0.00	0.02	0.01	0.01	0.07	0.00	52.98
Venture H22	4976.26	114	ankerite	lt	0.00	0.00	0.02	0.00	10.85	0.75	9.72	31.22	0.02	0.01	0.01	0.00	0.16	0.00	52.77
Venture H22	4976.26	115	ankerite	lt	0.00	0.01	0.01	0.02	13.56	0.98	9.39	28.88	0.02	0.03	0.01	0.02	0.04	0.00	52.95
Venture H22	4976.26	116	ankerite	lt	0.06	0.01	0.05	0.03	14.31	1.11	9.13	28.94	0.03	0.03	0.03	0.00	0.02	0.00	53.73
Venture H22	4976.26	117	ankerite	lt	0.00	0.01	0.02	0.00	13.74	1.08	9.58	28.84	0.00	0.02	0.00	0.00	0.03	0.03	53.35
Venture H22	4976.26	118	ankerite	gt	0.07	0.03	0.13	0.04	15.84	1.24	9.47	27.00	0.00	0.02	0.03	0.00	0.02	0.00	53.88
Venture H22	4976.26	119	ankerite	lt	0.00	0.01	0.02	0.04	13.99	1.18	9.47	28.83	0.01	0.01	0.01	0.00	0.03	0.00	53.58
Venture H22	4976.26	120	ankerite	gt	0.00	0.00	0.01	0.02	14.24	1.06	9.46	29.23	0.00	0.02	0.00	0.00	0.03	0.00	54.08
Venture H22	4985.73	7	ankerite	gt	0.00	0.02	0.01	0.00	11.95	1.44	10.10	32.25	0.00	0.02	0.01	0.00	0.04	0.00	55.85
Venture H22	4985.73	8	K-feldspar	gt	64.24	0.01	18.26	0.00	0.16	0.01	0.01	0.11	0.87	14.69	0.00	0.00	0.00	0.08	98.44
Venture H22	4985.73	9	ankerite	gt	0.00	0.02	0.02	0.00	11.47	1.50	10.13	31.59	0.01	0.01	0.00	0.00	0.02	0.00	54.79
Venture H22	4985.73	10	ankerite	gt	0.00	0.00	0.01	0.00	11.35	1.45	9.78	31.44	0.00	0.02	0.01	0.00	0.01	0.00	54.08

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4985.73	11	albite	gt	68.34	0.00	19.56	0.00	0.12	0.00	0.00	0.25	11.27	0.08	0.00	0.00	0.48	0.00	100.11
Venture H22	4985.73	12	ankerite	gt	0.04	0.01	0.06	0.00	13.23	1.33	9.57	30.11	0.01	0.02	0.00	0.00	0.00	0.01	54.40
Venture H22	4985.73	13	ankerite	gt	0.00	0.01	0.01	0.00	11.58	1.37	9.79	32.07	0.01	0.02	0.02	0.00	0.03	0.00	54.91
Venture H22	4985.73	14	ankerite	gt	0.00	0.00	0.02	0.00	10.98	1.36	9.17	33.49	0.00	0.02	0.00	0.00	0.09	0.00	55.13
Venture H22	4985.73	15	ankerite	gt	0.00	0.00	0.02	0.00	11.43	1.44	9.13	31.76	0.00	0.02	0.02	0.00	0.09	0.00	53.90
Venture H22	4985.73	16	ankerite	lt	0.00	0.00	0.00	0.00	11.06	1.51	9.06	31.94	0.02	0.01	0.01	0.00	0.15	0.00	53.77
Venture H22	4985.73	17	ankerite	gt	0.05	0.00	0.01	0.00	11.24	1.53	9.29	32.17	0.01	0.01	0.02	0.00	0.10	0.00	54.44
Venture H22	4985.73	18	ankerite	gt	0.00	0.01	0.02	0.00	11.27	1.42	9.69	33.10	0.01	0.02	0.00	0.00	0.09	0.02	55.64
Venture H22	4985.73	19	ankerite	gt	0.00	0.00	0.02	0.00	11.46	1.38	9.74	31.61	0.00	0.02	0.03	0.00	0.09	0.00	54.35
Venture H22	4985.73	20	ankerite	gt	0.00	0.00	0.02	0.00	12.08	1.39	10.04	31.47	0.00	0.02	0.01	0.00	0.08	0.00	55.12
Venture H22	4985.73	21	ankerite	gt	0.06	0.00	0.02	0.00	11.69	1.28	9.64	31.15	0.00	0.02	0.02	0.00	0.06	0.00	53.93
Venture H22	4985.73	22	ankerite	lt	0.06	0.00	0.07	0.00	11.90	1.40	10.06	30.10	0.01	0.03	0.02	0.00	0.06	0.00	53.71
Venture H22	4985.73	23	ankerite	gt	0.00	0.00	0.02	0.00	12.18	1.39	10.45	30.77	0.01	0.01	0.02	0.00	0.04	0.00	54.87
Venture H22	4985.73	24	ankerite	gt	0.00	0.01	0.01	0.00	11.81	1.33	9.84	31.07	0.02	0.02	0.01	0.00	0.07	0.00	54.19
Venture H22	4985.73	25	ankerite	gt	0.00	0.00	0.02	0.00	11.93	1.39	10.03	30.62	0.00	0.01	0.01	0.00	0.04	0.00	54.06
Venture H22	4985.73	26	ankerite	gt	0.00	0.00	0.01	0.00	11.55	1.50	9.56	32.32	0.03	0.01	0.03	0.00	0.10	0.00	55.12
Venture H22	4985.73	27	ankerite	gt	0.00	0.00	0.01	0.00	11.55	1.42	9.78	32.65	0.01	0.02	0.00	0.00	0.06	0.00	55.50
Venture H22	4985.73	28	ankerite	gt	0.00	0.00	0.00	0.00	11.63	1.33	9.77	31.58	0.01	0.02	0.01	0.00	0.04	0.00	54.40
Venture H22	4985.73	29	ankerite	gt	0.01	0.00	0.01	0.00	11.67	1.39	9.71	31.46	0.01	0.01	0.02	0.00	0.07	0.00	54.35
Venture H22	4985.73	30	ankerite	gt	0.00	0.00	0.02	0.00	10.81	1.46	8.50	34.57	0.03	0.02	0.04	0.00	0.11	0.00	55.56
Venture H22	4985.73	31	ankerite	gt	0.00	0.00	0.01	0.00	11.41	1.41	9.65	33.29	0.01	0.03	0.02	0.00	0.08	0.00	55.91
Venture H22	4985.73	32	Mg-calcite	ht	0.05	0.00	0.02	0.00	0.05	0.02	3.42	57.11	0.05	0.04	0.15	0.00	0.26	0.00	61.16
Venture H22	4985.73	33	Mg-calcite	ht	0.00	0.00	0.03	0.00	0.02	0.04	3.66	58.29	0.08	0.02	0.20	0.01	0.24	0.00	62.59
Venture H22	4985.73	34	ankerite	gt	0.00	0.00	0.00	0.00	11.56	1.47	9.73	33.07	0.02	0.02	0.03	0.00	0.09	0.00	56.01
Venture H22	4985.73	35	ankerite	gt	0.02	0.00	0.02	0.00	11.44	1.40	9.68	32.85	0.03	0.01	0.00	0.00	0.04	0.00	55.50
Venture H22	4985.73	36	ankerite	gt	0.00	0.00	0.00	0.00	11.84	1.35	9.95	32.79	0.02	0.02	0.01	0.00	0.05	0.00	56.03
Venture H22	4985.73	37	ankerite	gt	0.00	0.00	0.06	0.00	12.04	1.34	10.20	32.01	0.02	0.02	0.02	0.00	0.06	0.00	55.76
Venture H22	4985.73	38	ankerite	gt	0.00	0.01	0.00	0.00	11.19	1.38	9.78	32.29	0.02	0.02	0.02	0.00	0.07	0.00	54.77
Venture H22	4985.73	39	ankerite	gt	0.00	0.01	0.01	0.00	14.24	1.19	9.01	29.68	0.02	0.02	0.01	0.00	0.02	0.00	54.21
Venture H22	4985.73	40	ankerite	gt	0.00	0.00	0.01	0.00	12.15	1.41	10.09	32.58	0.00	0.01	0.03	0.00	0.09	0.00	56.36
Venture H22	4985.73	41	ankerite	gt	0.00	0.00	0.02	0.00	11.74	1.28	10.25	31.84	0.00	0.00	0.04	0.00	0.08	0.00	55.24
Venture H22	4985.73	42	ankerite	gt	0.00	0.00	0.02	0.00	11.35	1.45	9.68	32.49	0.00	0.01	0.05	0.00	0.09	0.00	55.13
Venture H22	4985.73	43	ankerite	gt	0.00	0.00	0.01	0.00	11.76	1.36	9.89	32.21	0.00	0.02	0.01	0.00	0.06	0.00	55.31
Venture H22	4985.73	44	ankerite	gt	0.00	0.00	0.01	0.00	11.51	1.44	9.64	31.52	0.00	0.00	0.02	0.00	0.04	0.00	54.18
Venture H22	4985.73	45	ankerite	gt	0.00	0.00	0.03	0.00	11.82	1.40	10.06	31.54	0.00	0.00	0.03	0.00	0.05	0.01	54.94
Venture H22	4985.73	46	chlorite	lt	26.01	0.15	20.50	0.01	19.65	0.02	3.51	0.50	0.02	1.27	0.04	0.00	0.08	0.00	71.76

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	4985.73	47	ankerite	gt	0.00	0.00	0.02	0.00	12.01	1.33	10.02	31.45	0.00	0.01	0.03	0.00	0.06	0.00	54.93
Venture H22	4985.73	48	ankerite	gt	0.00	0.00	0.03	0.00	11.81	1.36	9.77	31.96	0.00	0.01	0.02	0.00	0.05	0.00	55.00
Venture H22	4985.73	49	ankerite	lt	0.00	0.00	0.01	0.00	11.73	1.35	9.67	31.02	0.00	0.01	0.05	0.00	0.03	0.00	53.86
Venture H22	4985.73	50	ankerite	gt	0.00	0.00	0.03	0.00	12.21	1.33	9.91	31.98	0.00	0.00	0.01	0.00	0.04	0.00	55.51
Venture H22	4985.73	51	ankerite	gt	0.00	0.00	0.05	0.00	12.35	1.32	10.31	30.46	0.00	0.01	0.02	0.00	0.05	0.00	54.56
Venture H22	4985.73	52	Fe-calcite	ht	0.00	0.00	0.02	0.00	1.30	0.67	0.26	58.94	0.00	0.02	0.04	0.00	0.25	0.00	61.49
Venture H22	4985.73	53	ankerite	gt	0.00	0.00	0.01	0.00	11.88	1.36	9.94	32.19	0.00	0.00	0.04	0.00	0.05	0.00	55.47
Venture H22	5012.19	60	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.96	0.98	0.85	58.67	0.03	0.03	0.02	0.00	0.13	0.00	62.67
Venture H22	5012.19	61	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.81	0.92	0.74	59.28	0.01	0.03	0.00	0.01	0.28	0.00	63.08
Venture H22	5012.19	62	calcite	gt	0.00	0.00	0.00	0.00	0.44	0.32	0.10	55.41	0.01	0.09	0.02	0.00	0.03	0.00	56.43
Venture H22	5012.19	63	K-feldspar	lt	63.31	0.00	18.66	0.00	0.00	0.00	0.02	0.26	0.44	14.36	0.00	0.00	0.00	0.30	97.34
Venture H22	5012.19	64	calcite	ht	0.08	0.00	0.03	0.00	0.76	0.43	0.19	57.73	0.02	0.08	0.04	0.00	0.03	0.00	59.38
Venture H22	5012.19	65	calcite	ht	0.65	0.00	0.06	0.00	0.89	0.49	0.21	61.78	0.04	0.04	0.00	0.03	0.04	0.00	64.25
Venture H22	5012.19	66	Fe-calcite	ht	0.03	0.00	0.00	0.00	0.98	0.46	0.21	61.92	0.03	0.07	0.00	0.01	0.06	0.00	63.76
Venture H22	5012.19	67	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.74	0.94	0.75	58.10	0.03	0.02	0.01	0.01	0.15	0.00	61.75
Venture H22	5012.19	68	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.68	0.88	0.64	58.80	0.01	0.03	0.00	0.00	0.25	0.00	62.29
Venture H22	5012.19	69	illite	lt	45.75	0.34	19.19	0.00	13.45	0.00	2.97	0.33	0.35	2.87	0.00	0.00	0.21	0.00	85.47
Venture H22	5012.19	70	quartz	gt	96.32	0.00	0.98	0.00	0.00	0.00	0.01	0.29	0.06	0.04	0.00	0.00	0.64	0.00	98.35
Venture H22	5012.19	71	illite	ht	52.21	0.00	35.01	0.00	0.50	0.00	0.61	0.59	0.57	6.31	0.00	0.00	0.09	0.00	95.89
Venture H22	5012.19	72	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.89	1.00	0.80	59.10	0.00	0.04	0.00	0.01	0.13	0.00	62.97
Venture H22	5012.19	73	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.34	0.69	0.48	60.00	0.03	0.03	0.00	0.00	0.05	0.00	62.64
Venture H22	5012.19	74	Fe-calcite	ht	0.56	0.00	0.45	0.00	1.87	0.63	0.52	56.55	0.04	0.04	0.00	0.01	0.05	0.00	60.73
Venture H22	5012.19	75	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.66	0.89	0.68	58.05	0.02	0.03	0.02	0.00	0.21	0.00	61.56
Venture H22	5012.19	76	Fe-calcite	ht	0.15	0.00	0.11	0.00	1.91	0.50	0.56	54.88	0.04	0.09	0.00	0.00	0.06	0.00	58.31
Venture H22	5012.19	77	Fe-calcite	ht	0.01	0.00	0.01	0.00	0.95	0.55	0.27	61.39	0.01	0.07	0.01	0.02	0.06	0.00	63.33
Venture H22	5012.19	78	calcite	ht	0.00	0.00	0.00	0.00	0.66	0.51	0.17	54.97	0.00	0.03	0.02	0.00	0.02	0.00	56.38
Venture H22	5012.19	79	calcite	ht	0.05	0.00	0.04	0.00	0.76	0.33	0.16	61.78	0.01	0.05	0.03	0.00	0.02	0.00	63.23
Venture H22	5012.19	80	Fe-calcite	ht	0.03	0.00	0.01	0.00	1.91	0.85	0.62	59.94	0.00	0.05	0.01	0.00	0.03	0.00	63.44
Venture H22	5012.19	81	Fe-calcite	ht	0.76	0.00	0.28	0.00	1.76	0.76	0.54	56.31	0.01	0.10	0.02	0.00	0.02	0.00	60.55
Venture H22	5012.19	82	Fe-calcite	ht	0.05	0.00	0.02	0.00	1.30	0.66	0.47	56.53	0.01	0.02	0.02	0.00	0.03	0.00	59.11
Venture H22	5012.19	83	Fe-calcite	ht	0.01	0.00	0.02	0.00	2.11	1.06	0.77	55.94	0.00	0.03	0.01	0.00	0.12	0.00	60.06
Venture H22	5012.19	84	Fe-calcite	ht	0.01	0.00	0.00	0.00	1.88	0.90	0.79	56.86	0.00	0.02	0.01	0.00	0.16	0.00	60.63
Venture H22	5012.19	85	Fe-calcite	ht	0.10	0.00	0.03	0.00	1.82	1.02	0.67	58.63	0.00	0.02	0.03	0.00	0.09	0.00	62.42
Venture H22	5012.19	86	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.88	0.95	0.77	58.85	0.00	0.04	0.00	0.00	0.16	0.02	62.68
Venture H22	5012.19	87	Fe-calcite	ht	0.12	0.00	0.05	0.00	1.68	0.86	0.60	58.76	0.00	0.04	0.00	0.00	0.15	0.00	62.27
Venture H22	5012.19	88	Fe-calcite	ht	0.02	0.00	0.00	0.00	1.57	0.80	0.59	58.34	0.00	0.02	0.02	0.00	0.22	0.00	61.58

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	5012.19	89	Fe-calcite	ht	0.02	0.00	0.01	0.00	1.96	1.05	0.84	58.83	0.00	0.03	0.02	0.00	0.11	0.02	62.89
Venture H22	5012.19	90	Fe-calcite	ht	0.00	0.01	0.00	0.01	2.00	0.97	0.79	58.36	0.00	0.03	0.02	0.00	0.17	0.00	62.36
Venture H22	5012.19	91	Fe-calcite	ht	0.00	0.00	0.02	0.00	1.13	0.24	0.25	60.47	0.00	0.04	0.00	0.00	0.35	0.00	62.51
Venture H22	5012.19	92	Fe-calcite	ht	0.00	0.00	0.01	0.00	1.29	0.65	0.49	58.56	0.00	0.03	0.01	0.00	0.00	0.00	61.04
Venture H22	5012.19	93	Fe-calcite	ht	0.01	0.02	0.02	0.00	1.99	0.94	0.83	55.46	0.02	0.04	0.01	0.00	0.12	0.00	59.46
Venture H22	5012.19	94	Fe-calcite	ht	0.02	0.00	0.00	0.00	1.99	1.03	0.89	56.60	0.00	0.02	0.00	0.00	0.15	0.00	60.70
Venture H22	5012.19	95	Fe-calcite	ht	0.00	0.00	0.02	0.00	2.19	1.05	0.86	55.96	0.00	0.03	0.00	0.00	0.10	0.00	60.22
Venture H22	5012.19	96	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.95	0.97	0.74	57.88	0.00	0.02	0.02	0.00	0.26	0.00	61.85
Venture H22	5012.19	97	Fe-calcite	ht	0.02	0.00	0.01	0.00	1.63	0.82	0.64	57.80	0.00	0.04	0.00	0.00	0.26	0.00	61.23
Venture H22	5012.19	98	Fe-calcite	ht	0.35	0.01	0.08	0.00	1.36	0.70	0.51	58.93	0.00	0.08	0.00	0.00	0.00	0.00	62.02
Venture H22	5012.19	99	Fe-calcite	ht	0.00	0.00	0.00	0.01	1.34	0.71	0.50	59.16	0.00	0.08	0.00	0.00	0.00	0.00	61.81
Venture H22	5012.19	100	Fe-calcite	ht	0.08	0.01	0.01	0.00	1.30	0.66	0.49	58.44	0.00	0.05	0.01	0.00	0.00	0.00	61.05
Venture H22	5012.19	101	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.09	0.50	0.28	58.80	0.00	0.03	0.01	0.00	0.04	0.00	60.75
Venture H22	5012.19	102	Fe-calcite	ht	0.00	0.00	0.00	0.00	2.03	0.98	0.85	58.51	0.00	0.03	0.01	0.00	0.11	0.00	62.52
Venture H22	5012.19	103	francolite	lt	1.19	0.05	0.01	0.07	0.18	0.05	0.06	52.39	0.08	0.04	34.04	0.04	0.77	0.05	89.01
Venture H22	5012.19	104	Fe-calcite	ht	0.00	0.00	0.00	0.00	2.38	1.16	0.96	58.20	0.00	0.04	0.00	0.00	0.12	0.00	62.87
Venture H22	5012.19	105	Fe-calcite	ht	0.07	0.00	0.01	0.00	1.36	0.69	0.53	60.05	0.00	0.03	0.01	0.00	0.00	0.00	62.74
Venture H22	5012.19	106	Fe-calcite	ht	1.20	0.00	0.72	0.00	2.16	0.64	0.62	54.13	0.00	0.03	0.00	0.00	0.07	0.03	59.59
Venture H22	5018.98	58	ankerite	gt	0.00	0.00	0.00	0.00	10.82	1.38	10.14	34.16	0.04	0.05	0.03	0.00	0.09	0.00	56.71
Venture H22	5018.98	59	ankerite	gt	0.00	0.00	0.01	0.01	10.89	1.11	11.60	31.68	0.05	0.02	0.00	0.00	0.00	0.00	55.36
Venture H22	5018.98	60	ankerite	gt	0.00	0.01	0.03	0.03	12.08	1.25	10.04	31.28	0.02	0.02	0.04	0.00	0.05	0.00	54.86
Venture H22	5018.98	61	ankerite	lt	0.00	0.01	0.00	0.00	11.51	1.38	9.53	31.04	0.04	0.02	0.00	0.00	0.02	0.00	53.55
Venture H22	5018.98	62	ankerite	gt	0.01	0.00	0.00	0.00	10.48	1.35	10.43	32.91	0.04	0.02	0.02	0.00	0.08	0.05	55.39
Venture H22	5018.98	63	ankerite	lt	0.00	0.00	0.02	0.00	10.36	1.21	10.69	31.06	0.05	0.04	0.04	0.00	0.04	0.00	53.50
Venture H22	5018.98	64	ankerite	lt	0.00	0.00	0.00	0.01	10.45	1.28	10.88	30.31	0.03	0.02	0.03	0.00	0.03	0.00	53.04
Venture H22	5018.98	65	ankerite	gt	0.00	0.00	0.01	0.00	10.62	1.28	10.80	32.03	0.03	0.05	0.02	0.00	0.03	0.00	54.87
Venture H22	5018.98	66	ankerite	gt	0.00	0.00	0.03	0.01	10.49	1.38	10.70	31.44	0.03	0.01	0.02	0.00	0.01	0.00	54.11
Venture H22	5018.98	67	ankerite	lt	0.00	0.00	0.00	0.00	10.64	1.34	10.90	30.77	0.03	0.03	0.00	0.00	0.03	0.00	53.75
Venture H22	5018.98	68	ankerite	gt	0.00	0.02	0.00	0.00	10.59	1.28	10.56	32.37	0.05	0.03	0.02	0.00	0.04	0.00	54.96
Venture H22	5018.98	69	ankerite	lt	0.00	0.00	0.00	0.00	10.19	1.24	10.74	31.03	0.04	0.02	0.03	0.00	0.05	0.00	53.34
Venture H22	5018.98	70	ankerite	gt	1.90	0.01	1.74	0.01	12.81	1.27	10.82	26.94	0.05	0.03	0.02	0.00	0.00	0.00	55.60
Venture H22	5018.98	71	ankerite	gt	0.00	0.01	0.00	0.01	10.28	1.31	10.75	31.97	0.04	0.02	0.03	0.00	0.01	0.00	54.43
Venture H22	5018.98	72	ankerite	lt	0.00	0.00	0.02	0.00	11.05	1.01	11.00	29.76	0.03	0.03	0.01	0.00	0.00	0.00	52.90
Venture H22	5018.98	73	illite + chlorite	lt	46.82	0.03	28.30	0.03	4.98	0.02	2.31	0.34	0.33	6.42	0.00	0.00	0.01	0.00	89.59
Venture H22	5018.98	74	ankerite	gt	0.00	0.00	0.03	0.00	10.98	1.21	10.97	32.12	0.04	0.02	0.06	0.00	0.03	0.00	55.45
Venture H22	5018.98	75	ankerite	gt	0.00	0.00	0.02	0.02	10.27	1.28	10.44	32.50	0.03	0.03	0.02	0.00	0.03	0.00	54.63

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	5018.98	76	ankerite	gt	0.08	0.00	0.02	0.00	10.66	1.23	10.15	31.71	0.04	0.03	0.01	0.01	0.06	0.04	54.05
Venture H22	5018.98	77	ankerite	gt	2.75	0.02	1.18	0.00	12.00	1.05	11.02	27.10	0.04	0.58	0.01	0.00	0.00	0.02	55.76
Venture H22	5018.98	78	ankerite	gt	0.00	0.00	0.01	0.00	10.56	1.27	10.60	32.24	0.05	0.03	0.00	0.00	0.06	0.00	54.82
Venture H22	5018.98	79	ankerite	gt	0.00	0.00	0.02	0.00	10.64	1.29	11.01	32.40	0.03	0.01	0.00	0.00	0.05	0.02	55.47
Venture H22	5018.98	80	ankerite	gt	0.00	0.00	0.01	0.00	10.41	1.36	10.64	31.34	0.03	0.02	0.02	0.00	0.05	0.00	53.88
Venture H22	5018.98	81	ankerite	gt	0.00	0.00	0.00	0.00	10.32	1.27	10.81	31.84	0.02	0.04	0.01	0.00	0.07	0.00	54.38
Venture H22	5018.98	82	ankerite	gt	0.09	0.00	0.09	0.00	13.81	1.42	10.19	28.35	0.03	0.05	0.02	0.00	0.00	0.00	54.05
Venture H22	5018.98	83	ankerite	gt	0.00	0.00	0.02	0.00	10.50	1.25	10.53	31.58	0.02	0.02	0.00	0.00	0.07	0.00	53.99
Venture H22	5018.98	84	ankerite	gt	0.00	0.00	0.00	0.01	10.66	1.41	10.85	32.13	0.04	0.01	0.00	0.00	0.07	0.05	55.23
Venture H22	5018.98	85	ankerite	gt	0.00	0.00	0.01	0.00	10.48	1.38	10.79	32.02	0.02	0.01	0.04	0.01	0.01	0.00	54.78
Venture H22	5018.98	86	ankerite	gt	0.00	0.00	0.00	0.00	10.86	1.41	10.12	33.04	0.04	0.03	0.00	0.00	0.05	0.00	55.55
Venture H22	5018.98	87	ankerite	gt	0.00	0.00	0.01	0.00	10.55	1.32	10.90	31.90	0.03	0.03	0.01	0.02	0.03	0.01	54.81
Venture H22	5018.98	88	ankerite	gt	0.02	0.00	0.01	0.00	11.08	1.16	10.84	30.91	0.02	0.03	0.00	0.00	0.00	0.01	54.07
Venture H22	5018.98	89	??		0.01	0.00	0.03	0.00	0.47	0.30	0.21	40.34	0.08	0.01	0.01	0.00	0.04	0.00	41.49
Venture H22	5018.98	90	ankerite	gt	0.00	0.00	0.00	0.00	10.55	1.32	10.77	32.79	0.02	0.02	0.00	0.00	0.06	0.00	55.54
Venture H22	5018.98	91	ankerite	gt	0.00	0.00	0.01	0.00	10.86	1.24	11.17	31.93	0.03	0.02	0.01	0.00	0.01	0.00	55.28
Venture H22	5018.98	92	ankerite	gt	0.00	0.00	0.02	0.00	13.51	1.03	10.18	29.22	0.03	0.03	0.00	0.00	0.01	0.01	54.02
Venture H22	5018.98	93	ankerite	gt	0.00	0.00	0.02	0.00	10.89	1.02	11.90	31.46	0.03	0.02	0.02	0.01	0.00	0.01	55.37
Venture H22	5018.98	94	ankerite	gt	0.00	0.00	0.02	0.00	10.82	1.32	10.97	32.15	0.03	0.02	0.01	0.02	0.06	0.00	55.43
Venture H22	5018.98	95	ankerite	gt	0.00	0.00	0.00	0.00	10.70	1.31	10.89	32.95	0.03	0.02	0.00	0.00	0.05	0.00	55.94
Venture H22	5021.58	96	ankerite	gt	0.01	0.00	0.00	0.02	10.80	1.18	11.84	32.92	0.00	0.01	0.00	0.00	0.02	0.00	56.79
Venture H22	5021.58	97	ankerite	gt	0.02	0.00	0.01	0.00	10.36	1.31	10.96	32.29	0.00	0.01	0.00	0.00	0.02	0.00	54.99
Venture H22	5021.58	98	ankerite	gt	0.04	0.03	0.04	0.00	11.21	1.01	11.25	30.35	0.01	0.03	0.00	0.00	0.00	0.00	53.97
Venture H22	5021.58	99	ankerite	gt	0.02	0.01	0.01	0.01	10.43	1.34	10.56	32.41	0.00	0.02	0.00	0.00	0.06	0.00	54.86
Venture H22	5021.58	100	calcite	ht	0.01	0.01	0.03	0.00	0.81	0.60	0.18	60.42	0.00	0.03	0.00	0.03	0.11	0.00	62.23
Venture H22	5021.58	101	calcite	gt	0.00	0.00	0.00	0.00	0.71	0.28	0.26	54.93	0.02	0.02	0.06	0.02	0.43	0.02	56.75
Venture H22	5021.58	102	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.11	0.64	0.32	54.12	0.02	0.02	0.02	0.02	0.03	0.01	56.31
Venture H22	5021.58	103	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.43	0.60	0.58	53.46	0.00	0.03	0.04	0.02	0.10	0.00	56.26
Venture H22	5021.58	104	Fe-calcite	gt	0.02	0.00	0.02	0.00	1.08	0.43	0.23	54.55	0.00	0.01	0.05	0.01	0.03	0.00	56.44
Venture H22	5021.58	105	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.02	0.65	0.25	54.37	0.01	0.01	0.02	0.01	0.05	0.04	56.43
Venture H22	5021.58	106	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.02	0.55	0.43	53.68	0.01	0.03	0.02	0.01	0.00	0.03	55.78
Venture H22	5021.58	107	Mg-calcite	gt	0.00	0.00	0.01	0.00	0.13	0.06	3.10	51.16	0.07	0.03	0.15	0.01	0.13	0.00	54.83
Venture H22	5021.58	108	Mg-calcite	gt	0.00	0.00	0.01	0.00	0.17	0.08	3.95	51.34	0.08	0.02	0.17	0.00	0.10	0.01	55.93
Venture H22	5021.58	109	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.19	0.50	0.57	52.37	0.00	0.02	0.03	0.02	0.04	0.00	54.74
Venture H22	5021.58	110	Fe-calcite	gt	0.01	0.00	0.01	0.03	1.05	0.50	0.52	52.73	0.00	0.03	0.02	0.01	0.05	0.05	55.02
Venture H22	5021.58	111	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.59	0.67	0.64	53.77	0.00	0.02	0.03	0.00	0.13	0.07	56.92

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	5021.58	112	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.50	0.62	0.59	53.12	0.05	0.05	0.02	0.01	0.16	0.03	56.14
Venture H22	5021.58	113	calcite	gt	0.00	0.00	0.00	0.02	0.78	0.39	0.29	55.85	0.01	0.01	0.04	0.04	0.23	0.00	57.65
Venture H22	5021.58	114	Fe-calcite	gt	0.03	0.00	0.00	0.01	1.02	0.41	0.22	55.12	0.00	0.02	0.03	0.01	0.01	0.00	56.88
Venture H22	5021.58	115	calcite	gt	0.05	0.00	0.00	0.01	0.82	0.41	0.29	55.88	0.00	0.02	0.03	0.02	0.04	0.00	57.55
Venture H22	5021.58	116	Fe-calcite	ht	0.00	0.00	0.00	0.00	1.07	0.39	0.22	58.03	0.02	0.01	0.00	0.03	0.08	0.02	59.89
Venture H22	5021.58	117	Fe-calcite	gt	0.00	0.00	0.00	0.00	0.92	0.43	0.36	54.14	0.00	0.01	0.00	0.01	0.07	0.00	55.94
Venture H22	5021.58	118	Fe-calcite	gt	0.02	0.00	0.01	0.00	0.90	0.62	0.24	54.76	0.02	0.01	0.00	0.04	0.14	0.01	56.77
Venture H22	5021.58	119	calcite	gt	0.04	0.00	0.01	0.03	0.68	0.28	0.24	55.03	0.02	0.01	0.00	0.03	0.45	0.08	56.89
Venture H22	5021.58	120	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.29	0.58	0.58	52.86	0.01	0.02	0.00	0.02	0.21	0.07	55.65
Venture H22	5021.58	121	Fe-calcite	gt	0.00	0.00	0.00	0.03	0.91	0.50	0.18	55.37	0.00	0.01	0.00	0.03	0.09	0.00	57.12
Venture H22	5021.58	122	Fe-calcite	gt	0.00	0.00	0.00	0.01	0.91	0.32	0.18	55.40	0.02	0.01	0.00	0.05	0.08	0.00	56.97
Venture H22	5021.58	123	Fe-calcite	gt	0.00	0.00	0.00	0.00	0.91	0.45	0.36	54.51	0.00	0.01	0.00	0.04	0.08	0.00	56.36
Venture H22	5021.58	124	calcite	gt	0.02	0.00	0.01	0.00	0.81	0.31	0.29	53.54	0.04	0.00	0.00	0.03	0.36	0.01	55.41
Venture H22	5021.58	125	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.10	0.42	0.30	52.70	0.01	0.01	0.00	0.05	0.12	0.00	54.72
Venture H22	5021.58	126	calcite	gt	0.00	0.00	0.00	0.00	0.79	0.50	0.25	54.33	0.01	0.01	0.00	0.04	0.12	0.00	56.05
Venture H22	5021.58	127	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.51	0.61	0.61	53.93	0.01	0.01	0.00	0.03	0.19	0.01	56.91
Venture H22	5021.58	128	Fe-calcite	gt	0.00	0.00	0.00	0.03	1.62	0.72	0.74	54.45	0.00	0.01	0.00	0.03	0.13	0.00	57.73
Venture H22	5021.58	129	calcite	gt	0.00	0.00	0.00	0.00	0.74	0.41	0.23	52.41	0.01	0.01	0.00	0.04	0.12	0.01	53.99
Venture H22	5021.58	130	calcite	lt	0.00	0.00	0.00	0.01	0.03	0.03	0.27	52.34	0.10	0.01	0.01	0.03	0.14	0.00	52.97
Venture H22	5021.58	131	calcite	gt	0.00	0.00	0.00	0.00	0.12	0.06	0.20	54.49	0.06	0.01	0.00	0.02	0.11	0.02	55.08
Venture H22	5021.58	132	Fe-calcite	gt	0.00	0.00	0.02	0.00	1.24	0.50	0.54	52.87	0.01	0.02	0.00	0.04	0.27	0.00	55.49
Venture H22	5021.58	133	calcite	gt	0.00	0.00	0.00	0.00	0.72	0.34	0.26	53.02	0.01	0.01	0.00	0.02	0.55	0.04	54.94
Venture H22	5021.58	134	calcite	gt	0.00	0.00	0.00	0.01	0.86	0.68	0.17	54.44	0.01	0.00	0.00	0.01	0.10	0.01	56.31
Venture H22	5021.58	135	Fe-calcite	gt	0.03	0.00	0.01	0.03	1.01	0.60	0.24	54.11	0.02	0.01	0.00	0.01	0.13	0.02	56.23
Venture H22	5021.58	136	calcite	gt	0.02	0.01	0.03	0.00	0.72	0.32	0.24	55.58	0.00	0.02	0.03	0.00	0.49	0.00	57.47
Venture H22	5021.58	137	calcite	gt	0.00	0.00	0.00	0.00	0.86	0.29	0.25	55.59	0.01	0.02	0.02	0.00	0.39	0.00	57.43
Venture H22	5021.58	138	calcite	gt	0.00	0.00	0.00	0.02	0.61	0.32	0.22	53.93	0.00	0.02	0.04	0.00	0.27	0.00	55.41
Venture H22	5021.58	139	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.63	0.66	0.66	53.74	0.00	0.01	0.01	0.00	0.10	0.00	56.81
Venture H22	5021.58	140	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.48	0.65	0.45	53.99	0.01	0.03	0.02	0.00	0.07	0.00	56.70
Venture H22	5021.58	141	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.14	0.49	0.43	54.66	0.00	0.02	0.05	0.00	0.17	0.00	56.97
Venture H22	5021.58	142	calcite	gt	0.00	0.00	0.00	0.00	0.71	0.42	0.34	54.31	0.01	0.03	0.04	0.00	0.17	0.00	56.04
Venture H22	5028.32	107	ankerite	gt	0.00	0.00	0.00	0.01	13.89	1.02	9.60	29.57	0.00	0.01	0.02	0.00	0.00	0.01	54.13
Venture H22	5028.32	108	ankerite	gt	0.00	0.00	0.00	0.00	10.10	1.26	11.80	31.38	0.00	0.00	0.01	0.00	0.00	0.01	54.56
Venture H22	5028.32	109	ankerite	gt	0.00	0.00	0.00	0.00	10.33	1.10	10.69	33.17	0.00	0.00	0.04	0.00	0.07	0.00	55.41
Venture H22	5028.32	110	ankerite	lt	0.00	0.01	0.00	0.00	14.17	0.92	9.47	29.15	0.00	0.03	0.03	0.00	0.00	0.02	53.79
Venture H22	5028.32	111	ankerite	gt	0.00	0.00	0.00	0.00	10.94	1.15	10.13	31.75	0.00	0.02	0.01	0.00	0.07	0.00	54.07

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	5028.32	112	ankerite	lt	0.01	0.00	0.00	0.02	13.05	1.02	9.61	29.77	0.00	0.02	0.02	0.00	0.00	0.00	53.51
Venture H22	5028.32	113	ankerite	lt	0.00	0.02	0.00	0.00	10.32	1.05	9.88	32.42	0.01	0.01	0.02	0.00	0.05	0.00	53.78
Venture H22	5028.32	114	ankerite	gt	0.00	0.00	0.00	0.00	13.45	1.42	9.55	29.49	0.00	0.01	0.03	0.00	0.00	0.00	53.95
Venture H22	5028.32	115	ankerite	gt	0.00	0.00	0.00	0.00	10.20	1.12	10.81	32.79	0.01	0.03	0.03	0.00	0.07	0.01	55.06
Venture H22	5028.32	116	ankerite	gt	0.00	0.00	0.00	0.02	14.23	1.02	9.53	29.60	0.00	0.00	0.01	0.00	0.00	0.01	54.42
Venture H22	5028.32	117	ankerite	gt	0.00	0.00	0.01	0.02	13.67	1.09	9.89	29.62	0.00	0.01	0.03	0.00	0.00	0.02	54.37
Venture H22	5028.32	118	ankerite	gt	0.00	0.00	0.02	0.00	13.54	1.08	9.86	29.55	0.00	0.02	0.03	0.00	0.00	0.01	54.10
Venture H22	5028.32	119	ankerite	lt	0.00	0.00	0.00	0.00	15.00	1.00	9.75	27.90	0.00	0.01	0.00	0.00	0.00	0.03	53.69
Venture H22	5028.32	120	ankerite	gt	0.00	0.00	0.00	0.00	13.65	1.40	9.48	29.87	0.00	0.01	0.00	0.00	0.00	0.00	54.41
Venture H22	5028.32	121	ankerite	gt	0.00	0.00	0.00	0.00	10.56	1.18	11.84	31.73	0.01	0.01	0.01	0.00	0.00	0.01	55.35
Venture H22	5028.32	122	ankerite	gt	0.00	0.00	0.00	0.00	10.29	1.29	11.68	31.40	0.00	0.01	0.00	0.00	0.00	0.01	54.69
Venture H22	5028.32	123	ankerite	gt	0.00	0.00	0.01	0.00	14.31	1.12	9.91	30.21	0.00	0.02	0.02	0.00	0.00	0.02	55.62
Venture H22	5028.32	124	ankerite	gt	0.00	0.00	0.00	0.02	14.15	0.97	9.70	29.29	0.00	0.01	0.02	0.00	0.00	0.01	54.18
Venture H22	5028.32	125	ankerite	gt	2.23	0.00	0.00	0.00	9.93	1.02	10.01	31.92	0.01	0.01	0.01	0.00	0.13	0.01	55.28
Venture H22	5028.32	126	ankerite	gt	0.00	0.00	0.01	0.00	13.58	1.29	9.62	29.37	0.01	0.03	0.00	0.00	0.01	0.00	53.91
Venture H22	5028.32	127	ankerite	gt	0.00	0.00	0.00	0.02	14.46	0.99	9.47	29.69	0.01	0.03	0.02	0.00	0.01	0.00	54.71
Venture H22	5028.32	128	ankerite	lt	0.00	0.01	0.01	0.00	9.93	1.07	10.19	32.32	0.03	0.02	0.01	0.00	0.12	0.00	53.71
Venture H22	5028.32	129	ankerite	gt	0.00	0.00	0.01	0.00	13.82	0.97	9.56	29.61	0.01	0.02	0.03	0.00	0.02	0.00	54.05
Venture H22	5028.32	130	ankerite	gt	0.00	0.01	0.01	0.00	14.82	1.13	10.39	27.69	0.00	0.02	0.03	0.00	0.01	0.00	54.10
Venture H22	5028.32	131	ankerite	gt	0.05	0.00	0.02	0.00	14.51	1.28	10.40	27.53	0.02	0.01	0.02	0.00	0.00	0.00	53.85
Venture H22	5028.32	132	ankerite	gt	0.07	0.00	0.04	0.00	14.28	0.98	9.45	29.34	0.01	0.02	0.01	0.00	0.00	0.00	54.21
Venture H22	5028.32	133	ankerite	gt	0.04	0.00	0.01	0.00	14.19	0.94	9.49	29.86	0.04	0.02	0.00	0.01	0.02	0.00	54.62
Venture H22	5028.32	134	ankerite	lt	0.00	0.00	0.02	0.01	14.49	1.01	9.12	28.95	0.00	0.01	0.01	0.00	0.00	0.00	53.63
Venture H22	5028.32	135	ankerite	lt	0.02	0.00	0.02	0.00	9.76	1.04	10.04	31.82	0.00	0.03	0.02	0.00	0.12	0.00	52.88
Venture H22	5028.32	136	ankerite	lt	0.00	0.00	0.03	0.00	13.69	1.04	9.54	29.36	0.01	0.03	0.01	0.00	0.02	0.00	53.72
Venture H22	5028.32	137	ankerite	lt	0.04	0.00	0.05	0.03	13.65	1.05	10.28	28.48	0.00	0.04	0.02	0.01	0.02	0.00	53.67
Venture H22	5028.32	138	ankerite	lt	0.04	0.02	0.02	0.00	14.12	0.99	9.36	28.85	0.01	0.02	0.02	0.00	0.02	0.00	53.47
Venture H22	5028.32	139	ankerite	lt	0.00	0.02	0.00	0.00	14.20	0.94	9.24	29.29	0.01	0.03	0.03	0.01	0.00	0.00	53.77
Venture H22	5028.32	140	ankerite	lt	0.04	0.00	0.02	0.00	13.61	1.13	9.42	29.43	0.00	0.04	0.02	0.00	0.01	0.00	53.73
Venture H22	5028.32	141	ankerite	gt	0.00	0.00	0.02	0.01	14.52	0.99	9.19	29.23	0.01	0.03	0.02	0.00	0.01	0.00	54.02
Venture H22	5028.32	142	ankerite	lt	0.00	0.00	0.03	0.00	13.30	1.02	9.69	28.62	0.00	0.03	0.03	0.00	0.00	0.00	52.71
Venture H22	5028.32	143	ankerite	lt	0.00	0.00	0.01	0.00	14.06	0.97	9.45	29.06	0.01	0.01	0.02	0.00	0.01	0.01	53.61
Venture H22	5028.32	144	ankerite	lt	0.11	0.00	0.05	0.00	12.59	1.29	11.22	27.75	0.03	0.02	0.03	0.00	0.00	0.00	53.11
Venture H22	5028.32	145	ankerite	lt	0.03	0.01	0.02	0.00	13.56	0.92	9.50	28.88	0.00	0.03	0.03	0.02	0.00	0.00	52.99
Venture H22	5028.32	146	ankerite	gt	0.00	0.02	0.00	0.00	13.44	1.24	10.14	30.43	0.03	0.01	0.01	0.00	0.01	0.00	55.34
Venture H22	5028.32	147	ankerite	lt	0.02	0.00	0.01	0.00	11.35	1.25	9.59	30.30	0.03	0.02	0.03	0.00	0.07	0.00	52.67

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	5028.32	148	ankerite	lt	0.03	0.01	0.00	0.00	14.23	0.98	9.27	28.70	0.01	0.02	0.03	0.00	0.00	0.00	53.29
Venture H22	5028.32	149	ankerite	lt	0.00	0.01	0.00	0.00	14.17	0.99	9.40	28.85	0.02	0.02	0.05	0.00	0.00	0.00	53.51
Venture H22	5028.32	150	calcite	ht	0.03	0.01	0.02	0.00	0.86	0.32	0.24	60.03	0.02	0.03	0.07	0.02	0.50	0.00	62.14
Venture H22	5028.32	151	ankerite	lt	0.00	0.00	0.00	0.00	13.89	1.03	9.43	28.95	0.01	0.02	0.01	0.00	0.00	0.00	53.33
Venture H22	5050.55	7	Fe-calcite	ht	0.00	0.00	0.00	0.00	2.29	0.91	0.81	54.07	0.00	0.01	0.01	0.01	0.29	0.00	58.41
Venture H22	5050.55	8	Fe-calcite	gt	0.00	0.00	0.00	0.02	2.15	0.91	0.72	53.24	0.01	0.02	0.01	0.02	0.25	0.00	57.34
Venture H22	5050.55	9	Fe-calcite	gt	0.00	0.01	0.00	0.00	2.09	0.88	0.68	53.14	0.01	0.04	0.02	0.00	0.26	0.00	57.13
Venture H22	5050.55	10	Fe-calcite	ht	0.00	0.00	0.00	0.00	2.45	0.94	0.93	53.75	0.00	0.03	0.01	0.03	0.29	0.00	58.42
Venture H22	5050.55	11	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.53	0.76	0.48	52.92	0.05	0.02	0.01	0.02	0.27	0.00	56.06
Venture H22	5050.55	12	Fe-calcite	gt	0.00	0.00	0.01	0.00	2.39	0.98	0.89	52.53	0.01	0.03	0.00	0.00	0.19	0.00	57.01
Venture H22	5050.55	13	Fe-calcite	gt	0.00	0.00	0.00	0.00	2.00	0.87	0.68	52.52	0.01	0.03	0.03	0.00	0.29	0.00	56.44
Venture H22	5050.55	14	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.95	0.80	0.59	51.78	0.00	0.02	0.04	0.01	0.26	0.00	55.44
Venture H22	5050.55	15	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.41	0.74	0.46	52.05	0.01	0.03	0.03	0.00	0.22	0.00	54.94
Venture H22	5050.55	16	Fe-calcite	gt	0.00	0.00	0.01	0.00	2.02	0.92	0.69	53.20	0.00	0.02	0.04	0.02	0.17	0.00	57.09
Venture H22	5050.55	17	Fe-calcite	gt	0.00	0.00	0.01	0.00	2.04	0.88	0.71	53.41	0.00	0.02	0.03	0.00	0.16	0.00	57.26
Venture H22	5050.55	18	Fe-calcite	gt	0.00	0.00	0.03	0.00	2.34	0.89	0.83	52.87	0.00	0.02	0.05	0.00	0.31	0.00	57.35
Venture H22	5050.55	19	Fe-calcite	gt	0.00	0.00	0.02	0.00	1.95	0.91	0.70	51.99	0.00	0.02	0.05	0.00	0.20	0.00	55.84
Venture H22	5050.55	20	Fe-calcite	gt	0.00	0.00	0.01	0.00	2.34	0.88	0.82	52.49	0.00	0.02	0.03	0.01	0.25	0.00	56.84
Venture H22	5050.55	21	Fe-calcite	gt	0.01	0.00	0.02	0.00	2.32	0.98	0.87	52.94	0.00	0.03	0.03	0.00	0.13	0.00	57.32
Venture H22	5050.55	22	Fe-calcite	gt	0.00	0.00	0.02	0.00	1.80	0.89	0.51	53.21	0.00	0.03	0.04	0.00	0.27	0.00	56.76
Venture H22	5050.55	23	Fe-calcite	gt	0.00	0.00	0.01	0.00	2.09	0.89	0.73	51.32	0.00	0.03	0.05	0.00	0.12	0.00	55.25
Venture H22	5050.55	24	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.52	0.87	0.49	53.87	0.01	0.02	0.04	0.00	0.20	0.00	57.02
Venture H22	5050.55	25	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.68	0.91	0.49	53.59	0.00	0.02	0.02	0.00	0.24	0.00	56.96
Venture H22	5050.55	26	albite	lt	61.01	0.00	21.49	0.00	0.00	0.00	0.01	1.22	4.50	0.01	0.00	0.00	0.35	0.00	88.57
Venture H22	5050.55	27	Fe-calcite	gt	0.00	0.00	0.02	0.00	2.39	0.99	0.79	52.60	0.01	0.04	0.04	0.00	0.29	0.00	57.19
Venture H22	5050.55	28	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.85	0.87	0.59	53.42	0.00	0.03	0.02	0.00	0.23	0.00	57.00
Venture H22	5050.55	29	Fe-calcite	gt	0.00	0.00	0.03	0.00	1.90	0.91	0.58	52.67	0.00	0.03	0.03	0.00	0.17	0.00	56.31
Venture H22	5050.55	30	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.85	0.96	0.64	53.81	0.00	0.03	0.03	0.00	0.17	0.00	57.49
Venture H22	5050.55	31	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.27	0.44	0.33	55.07	0.00	0.05	0.04	0.00	0.07	0.00	57.29
Venture H22	5050.55	32	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.76	0.83	0.58	53.65	0.00	0.02	0.05	0.00	0.26	0.00	57.17
Venture H22	5050.55	33	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.67	0.75	0.59	51.53	0.00	0.04	0.02	0.00	0.16	0.00	54.77
Venture H22	5050.55	34	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.83	0.88	0.60	54.19	0.01	0.03	0.07	0.00	0.26	0.00	57.86
Venture H22	5050.55	35	Fe-calcite	gt	0.00	0.00	0.02	0.00	2.25	1.02	0.93	52.76	0.00	0.04	0.03	0.01	0.19	0.00	57.23
Venture H22	5050.55	36	Fe-calcite	gt	0.00	0.00	0.00	0.00	2.35	1.00	0.82	53.24	0.03	0.01	0.01	0.00	0.22	0.00	57.67
Venture H22	5050.55	37	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.77	0.85	0.55	54.30	0.03	0.02	0.01	0.00	0.30	0.00	57.81
Venture H22	5050.55	38	Fe-calcite	gt	0.01	0.00	0.00	0.00	1.87	0.91	0.61	53.91	0.03	0.05	0.02	0.03	0.19	0.00	57.64

Appendix 1C: Electron microprobe analyses of minerals from representative samples from Venture H-22 well.

Well	Depth (m)	No.	Mineral	QD	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	NiO	SrO	BaO	Total
Venture H22	5050.55	39	Fe-calcite	gt	0.02	0.00	0.01	0.00	2.15	0.97	0.73	52.62	0.01	0.02	0.01	0.01	0.21	0.00	56.76
Venture H22	5050.55	40	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.61	0.79	0.51	53.50	0.03	0.01	0.03	0.00	0.29	0.00	56.77
Venture H22	5050.55	41	Fe-calcite	gt	0.00	0.00	0.00	0.00	2.02	0.93	0.68	53.61	0.02	0.01	0.03	0.02	0.21	0.04	57.56
Venture H22	5050.55	42	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.69	0.81	0.49	54.50	0.00	0.02	0.04	0.00	0.28	0.00	57.83
Venture H22	5050.55	43	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.45	0.80	0.44	54.72	0.02	0.01	0.02	0.02	0.21	0.04	57.72
Venture H22	5050.55	44	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.86	0.90	0.60	52.85	0.03	0.01	0.02	0.00	0.22	0.00	56.51
Venture H22	5050.55	45	Fe-calcite	gt	0.00	0.00	0.01	0.00	2.14	0.98	0.85	53.66	0.01	0.01	0.03	0.02	0.18	0.00	57.91
Venture H22	5050.55	46	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.63	0.86	0.50	54.27	0.03	0.02	0.05	0.00	0.23	0.00	57.59
Venture H22	5050.55	47	Fe-calcite	gt	0.00	0.00	0.01	0.00	2.07	0.93	0.71	53.13	0.02	0.02	0.02	0.02	0.18	0.01	57.12
Venture H22	5050.55	48	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.59	0.81	0.51	54.96	0.01	0.02	0.02	0.00	0.32	0.00	58.25
Venture H22	5050.55	49	Fe-calcite	gt	0.00	0.00	0.01	0.00	1.96	0.94	0.68	53.98	0.02	0.02	0.04	0.00	0.17	0.00	57.81
Venture H22	5050.55	50	Fe-calcite	gt	0.00	0.00	0.00	0.00	2.02	0.99	0.65	53.27	0.00	0.01	0.04	0.00	0.21	0.00	57.20
Venture H22	5050.55	51	Fe-calcite	gt	0.00	0.00	0.00	0.00	1.77	0.90	0.62	53.68	0.01	0.03	0.04	0.00	0.18	0.00	57.23

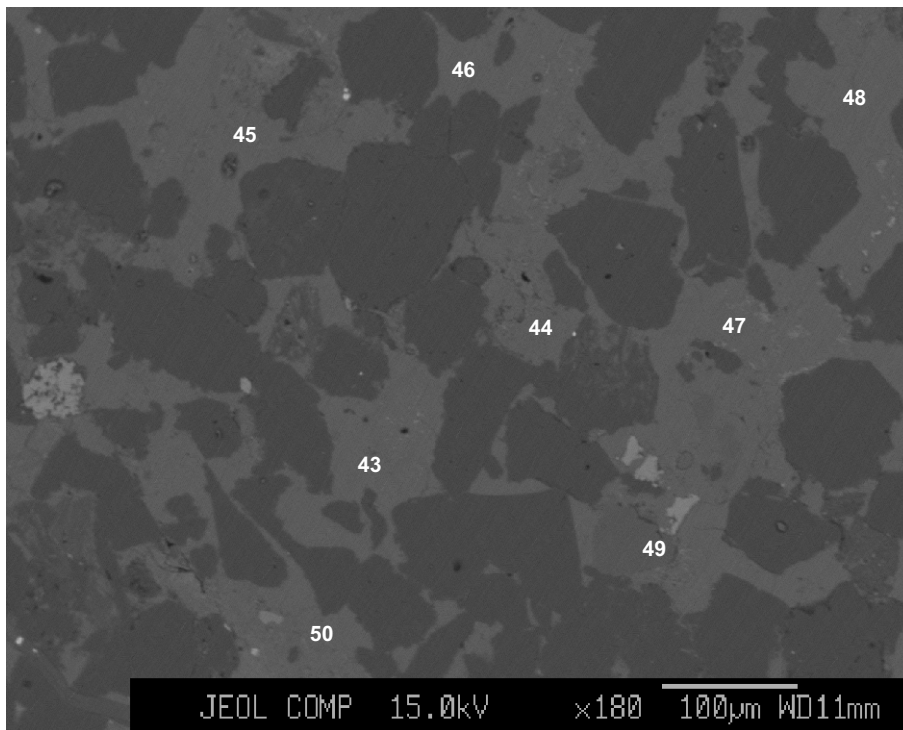
Appendix 2: Back-scattered electron images

A: Venture B-52

B: Venture B-13

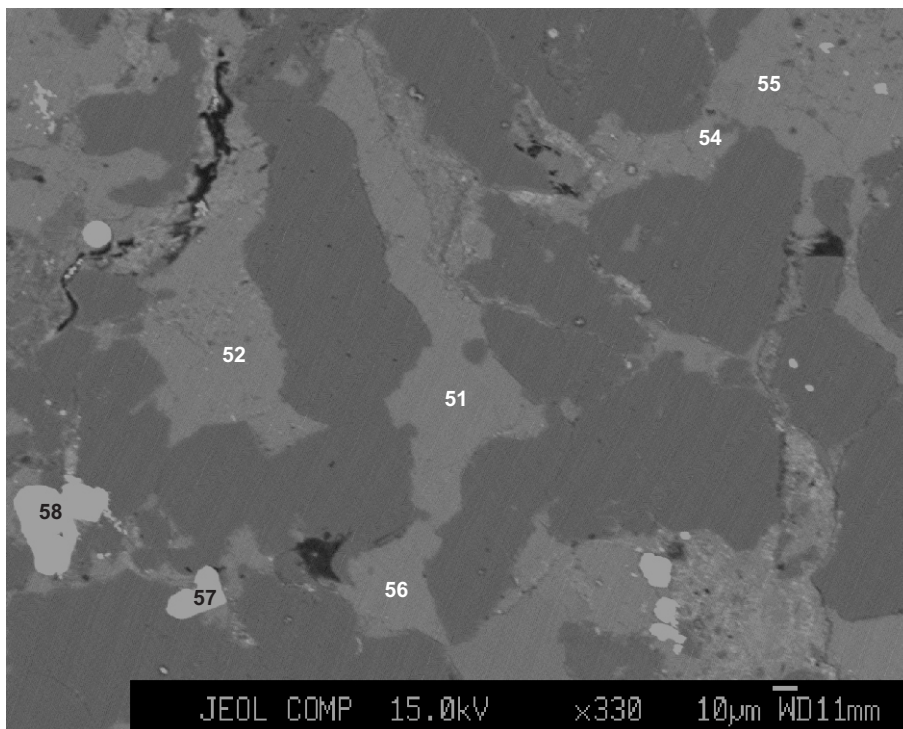
C: Venture H-22

Appendix 2A : Back-scattered electron images for Venture B-52



- 43: Fe-calcite
- 44: Fe-calcite
- 45: calcite
- 46: Fe-calcite
- 47: Fe-calcite + clay
- 48: Fe-calcite
- 49: Fe-Mg-calcite
- 50: Fe-calcite

Figure 1: Venture B-52-4708.62



- 51: Fe-Mg-calcite
- 52: Fe-Mg-calcite
- 53: Fe-calcite
- 54: Fe-calcite
- 55: calcite
- 56: calcite
- 57: zircon?
- 58: zircon

Figure 2: Venture B-52-4708.62

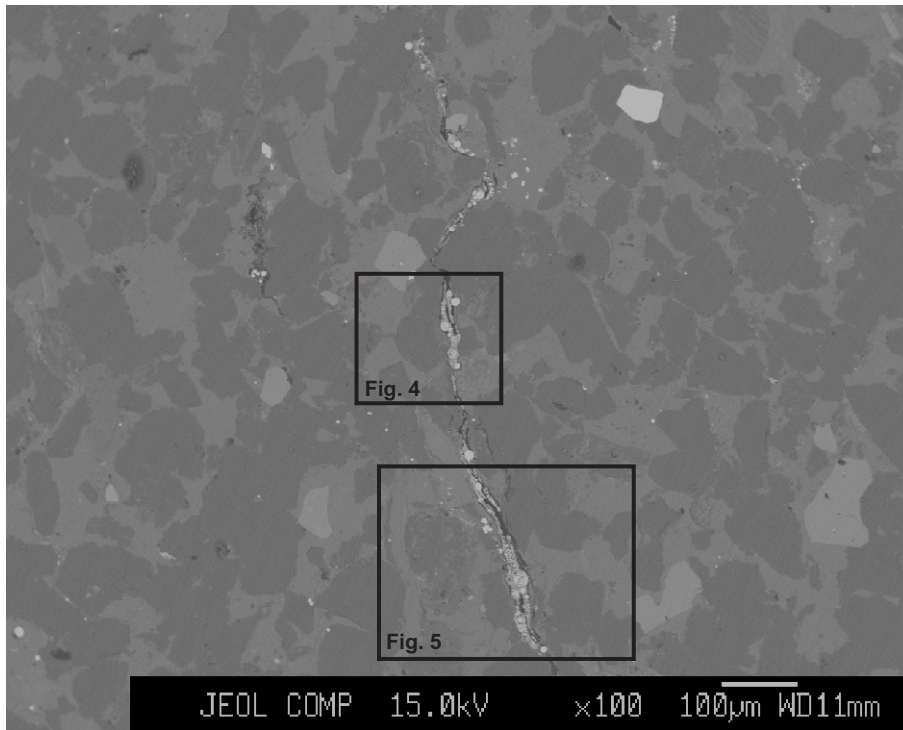
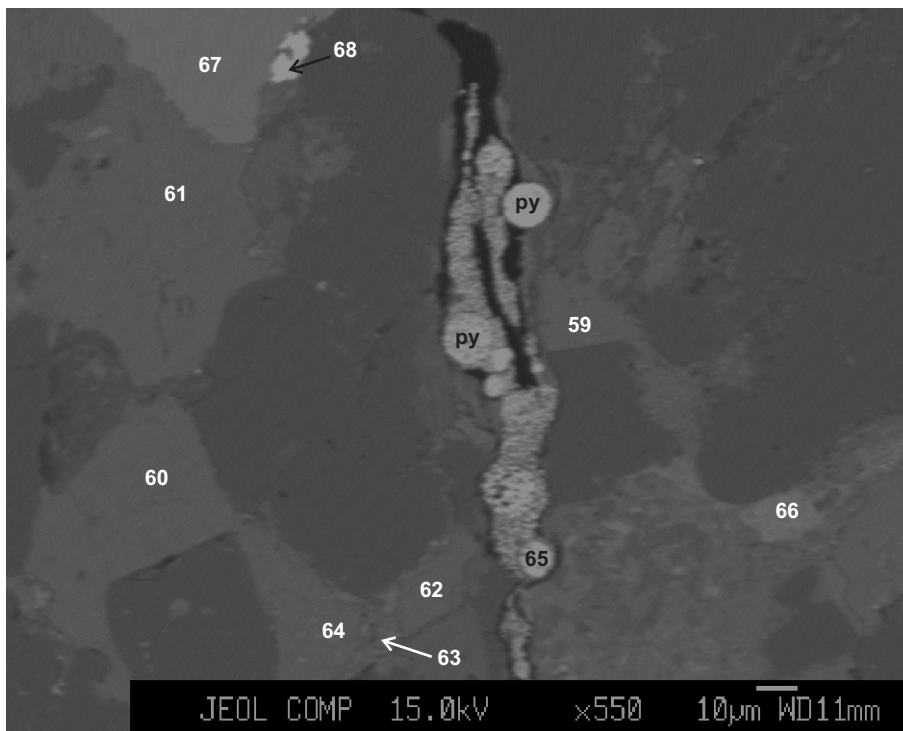
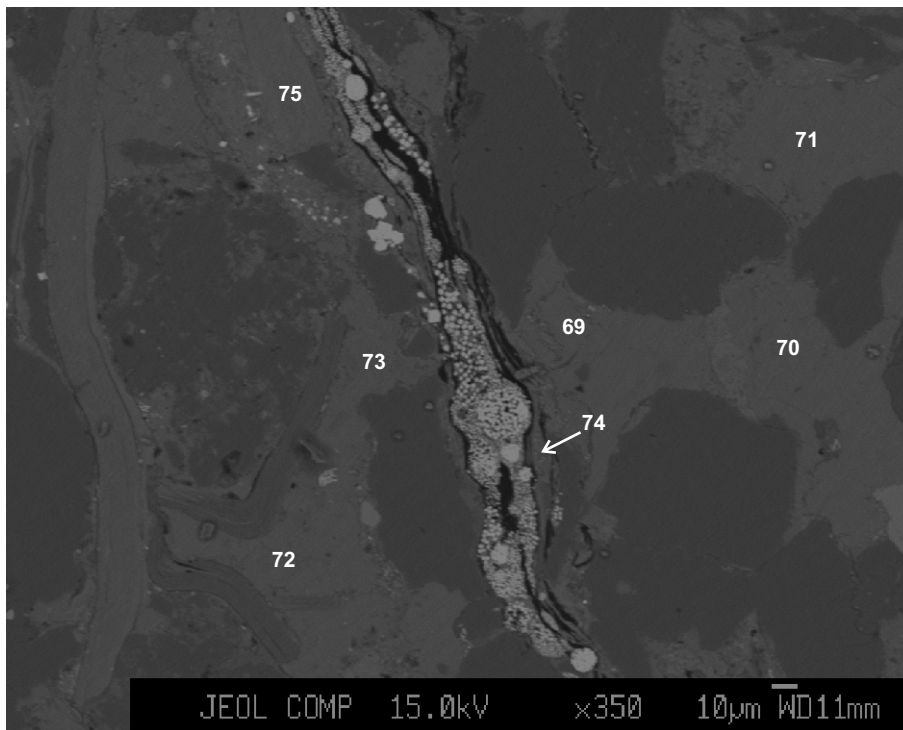


Figure 3: Venture B-52-4708.62



- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite
- 62: calcite
- 63: TiO₂ + clay
- 64: calcite + clay
- 65: pyrite
- 66: TiO₂
- 67: apatite
- 68: zircon?

Figure 4: Venture B-52-4708.62



- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-Mg-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: clay
- 75: biotite?

Figure 5: Venture B-52-4708.62

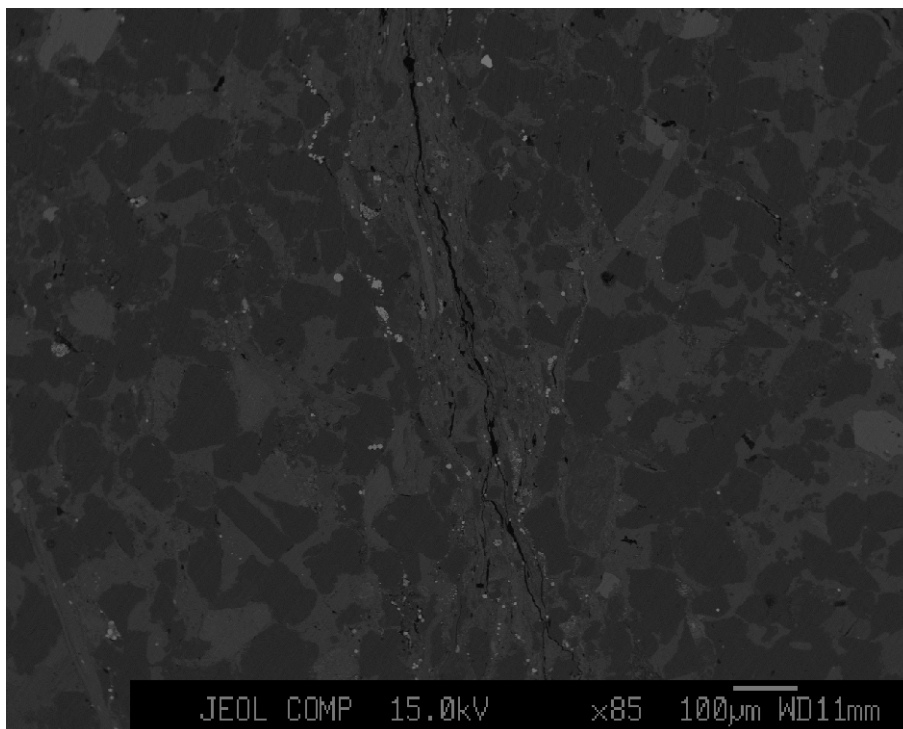
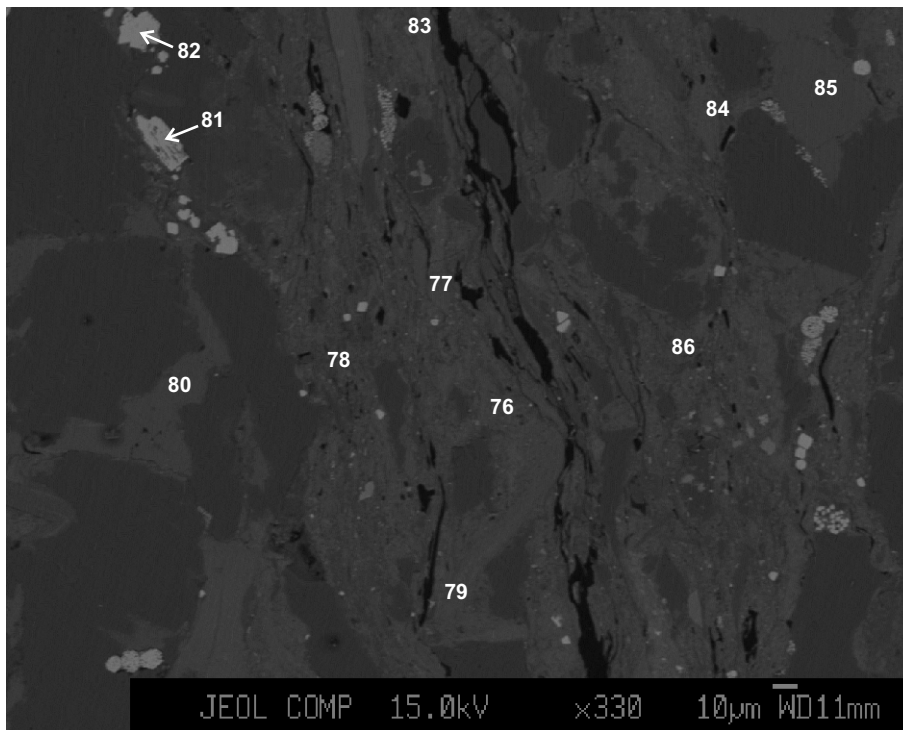
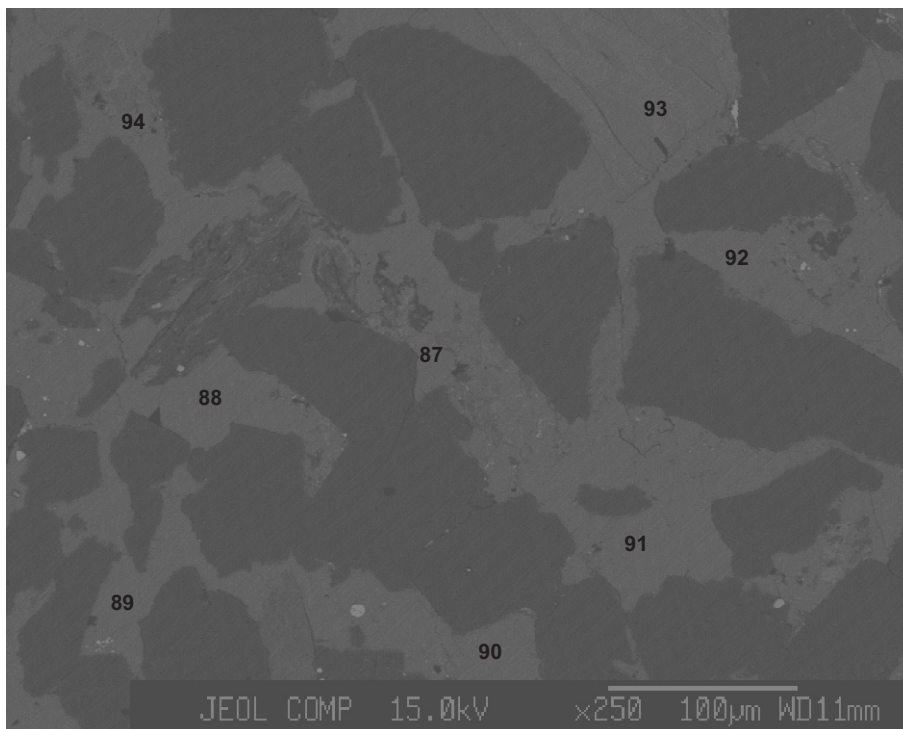


Figure 6: Venture B-52-4708.62



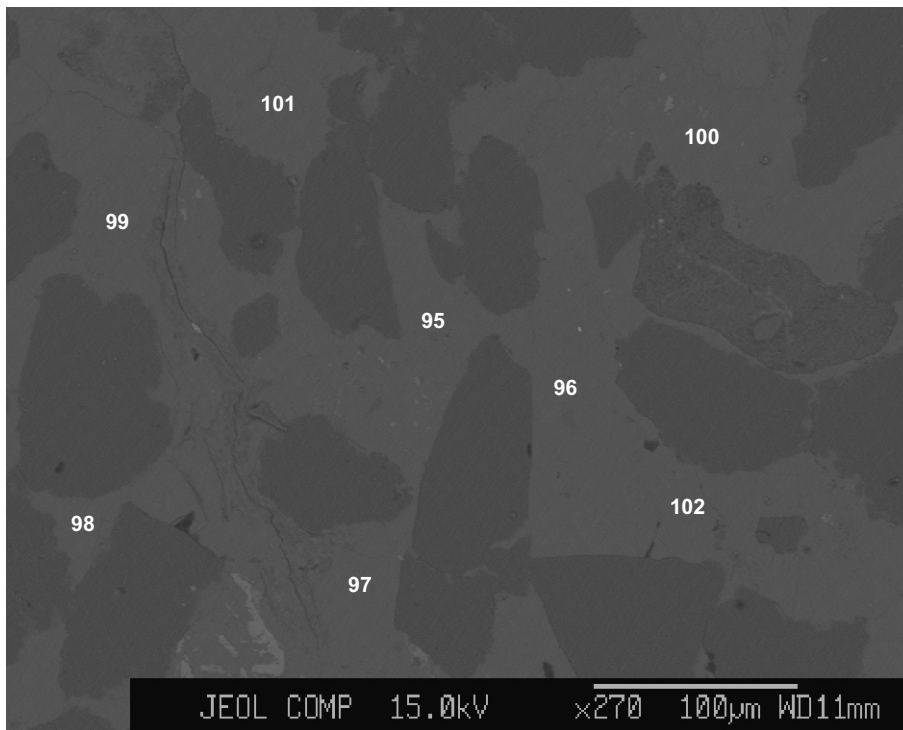
- 76: clay
- 77: clay
- 78: clay
- 79: clay
- 80: Fe-calcite
- 81: pyrite
- 82: pyrite
- 83: clay
- 84: clay
- 85: calcite
- 86: clay

Figure 7: Venture B-52-4708.62



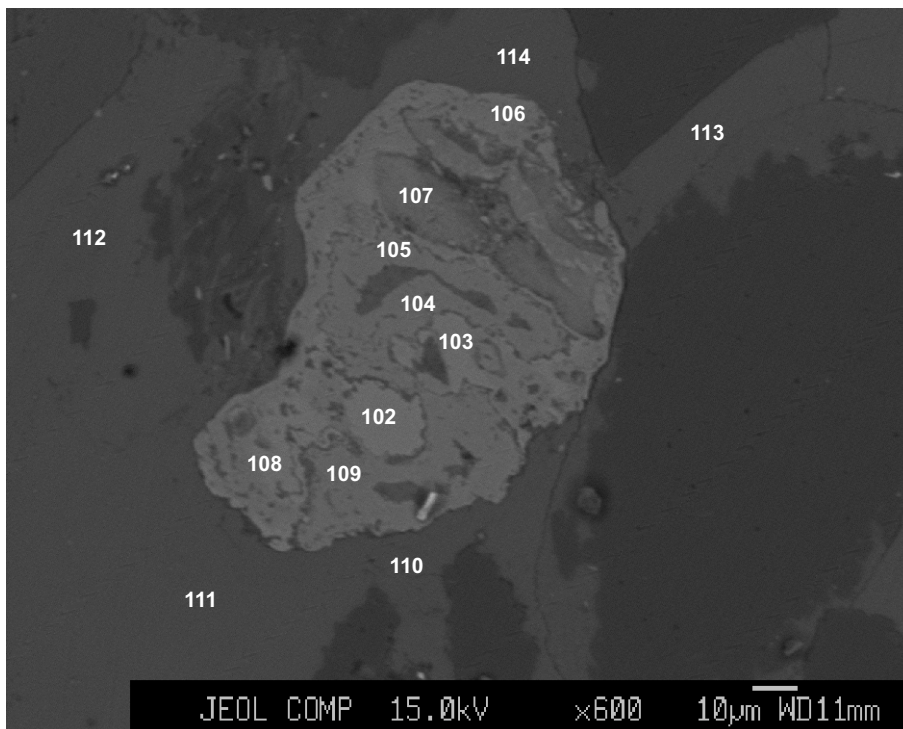
- 87: Fe-calcite + clay
- 88: Fe-Mg-calcite
- 89: Fe-Mg-calcite
- 90: Fe-Mg-calcite
- 91: Fe-Mg-calcite
- 92: Fe-Mg-calcite
- 93: Clay
- 94: Fe-Mg-calcite

Figure 8: Venture B-52-4708.62



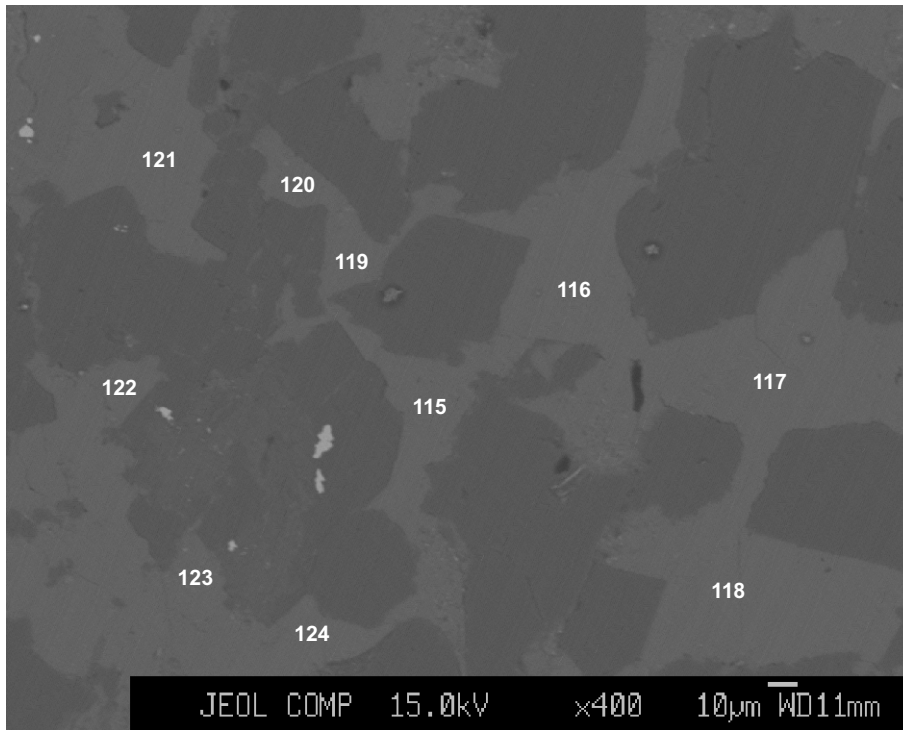
- 95: Fe-calcite
- 96: calcite
- 97: Fe-Mg-calcite
- 98: Fe-Mg-calcite
- 99: Fe-Mg-calcite
- 100: Fe-Mg-calcite
- 101: Fe-Mg-calcite + clay

Figure 9: Venture B-52-4708.62



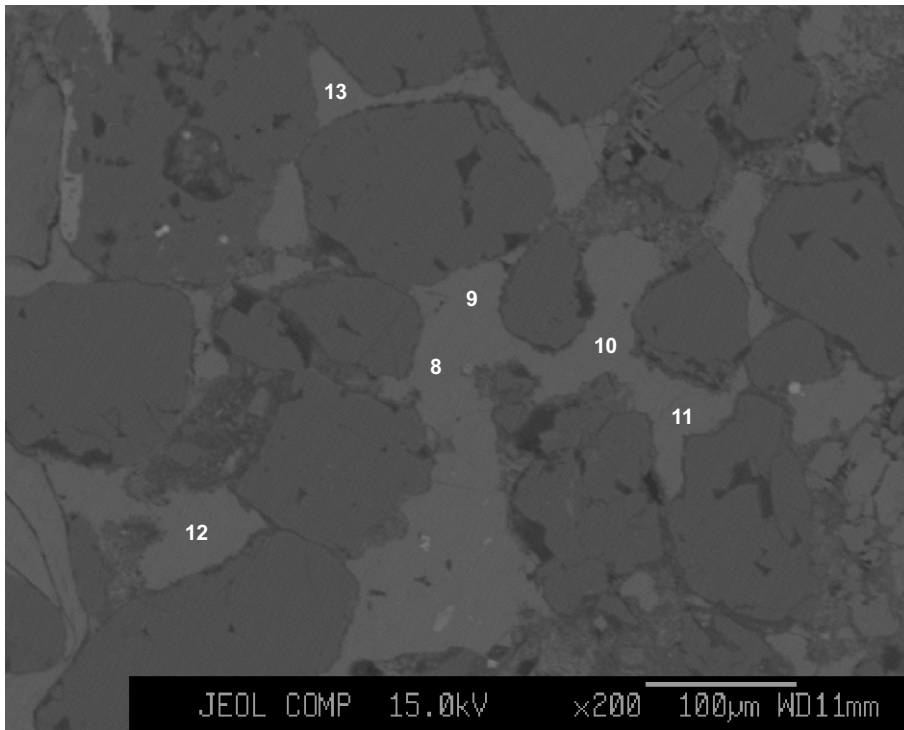
- 102: calcite
- 103: TiO₂
- 104: TiO₂
- 105: TiO₂
- 106: TiO₂
- 107: TiO₂
- 108: TiO₂
- 109: TiO₂
- 110: Fe-Mg-calcite
- 111: Fe-Mg-calcite
- 112: Fe-calcite
- 113: Fe-calcite
- 114: Fe-Mg-calcite

Figure 10: Venture B-52-4708.62



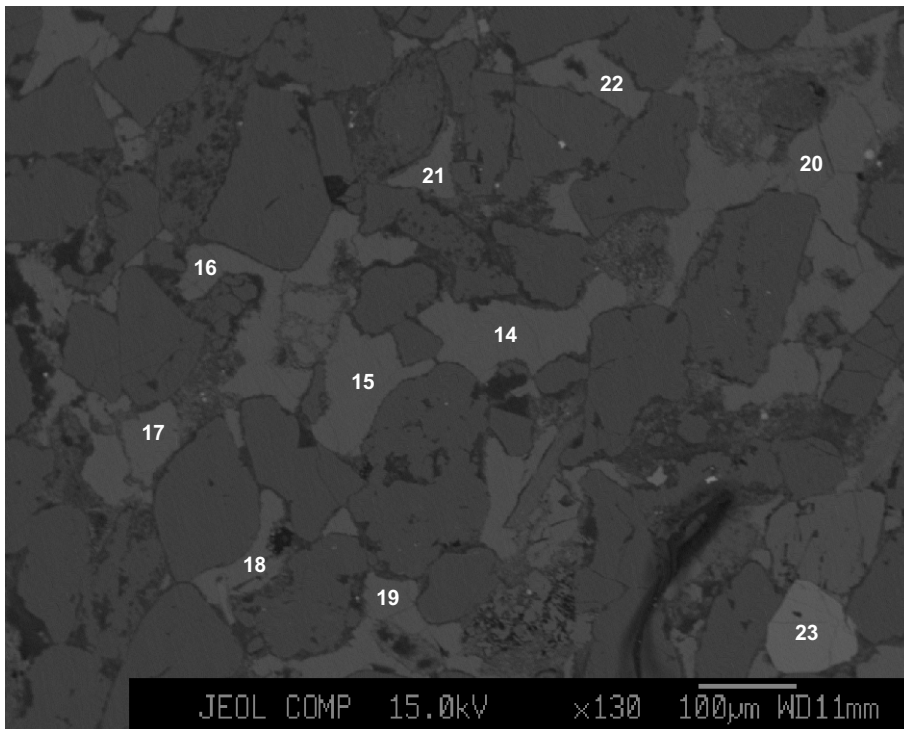
- 115: Fe-calcite
- 116: Fe-Mg-calcite
- 117: Fe-Mg-calcite
- 118: Fe-Mg-calcite
- 119: Fe-Mg-calcite
- 120: Fe-Mg-calcite
- 121: Fe-Mg-calcite
- 122: Fe-Mg-calcite
- 123: Fe-Mg-calcite
- 124: Fe-Mg-calcite

Figure 11: Venture B-52-4708.62



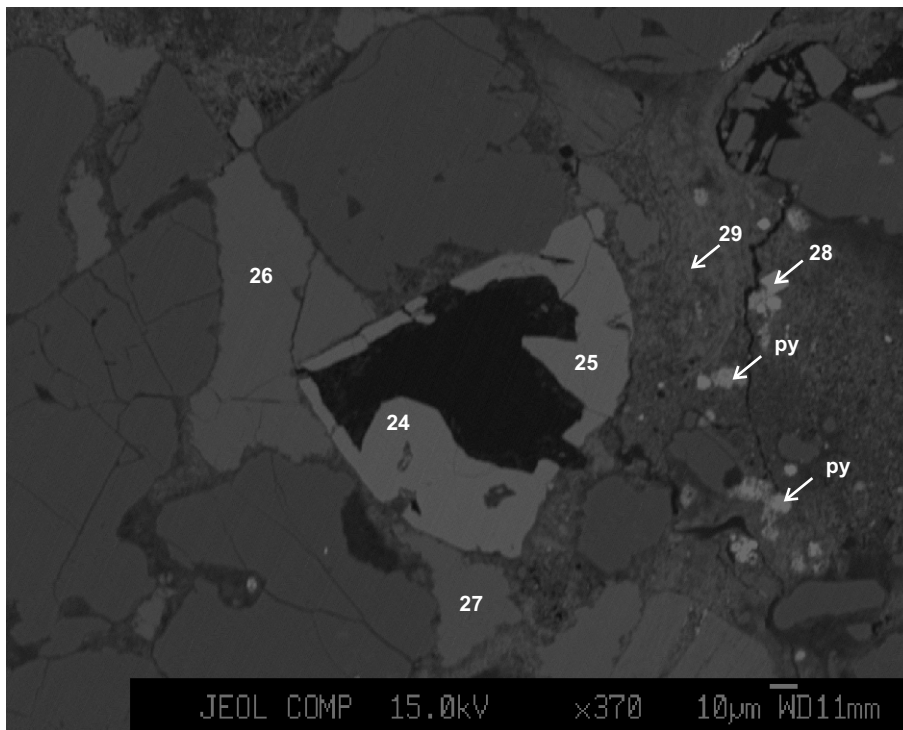
- 8: calcite
- 9: calcite
- 10: calcite
- 11: calcite
- 12: calcite
- 13: calcite

Figure 12: Venture B-52-4711.15



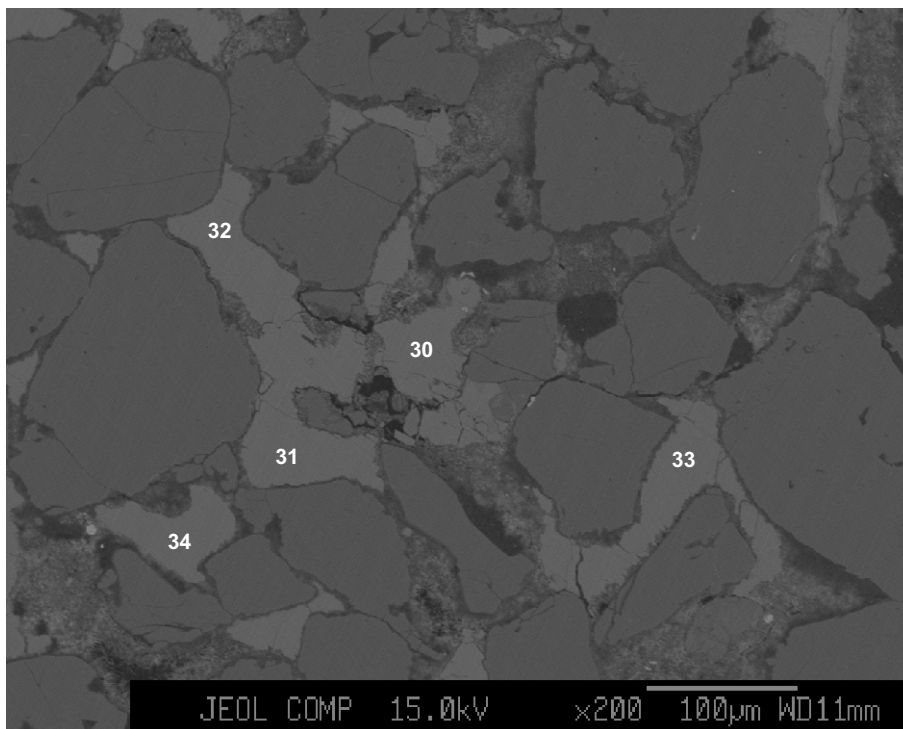
- 14: calcite
- 15: calcite
- 16: calcite
- 17: calcite
- 18: calcite
- 19: calcite
- 20: calcite
- 21: calcite
- 22: calcite
- 23: apatite

Figure 13: Venture B-52-4711.15



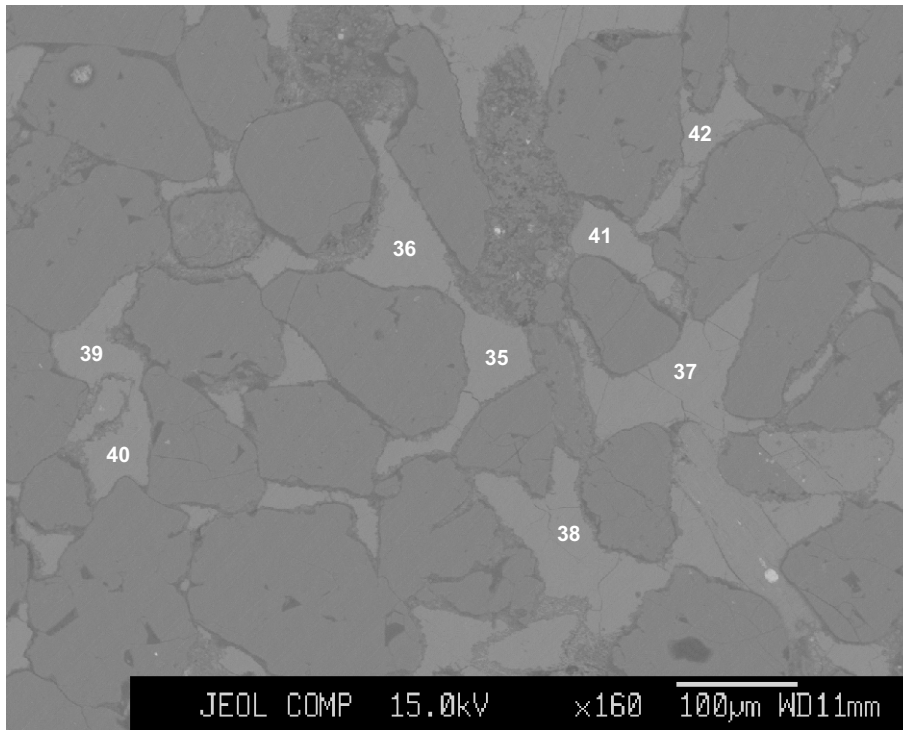
- 24: apatite
- 25: apatite
- 26: calcite
- 27: calcite
- 28: pyrite
- 29: chlorite

Figure 14: Venture B-52-4711.15



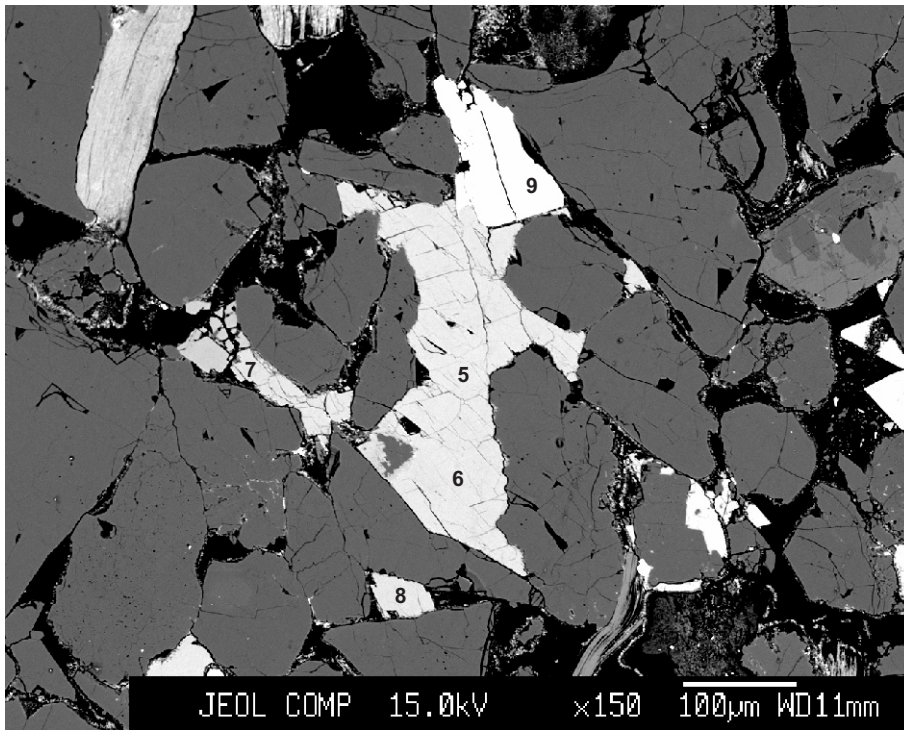
- 30: calcite
- 31: calcite
- 32: calcite
- 33: calcite
- 34: calcite

Figure 15: Venture B-52-4711.15



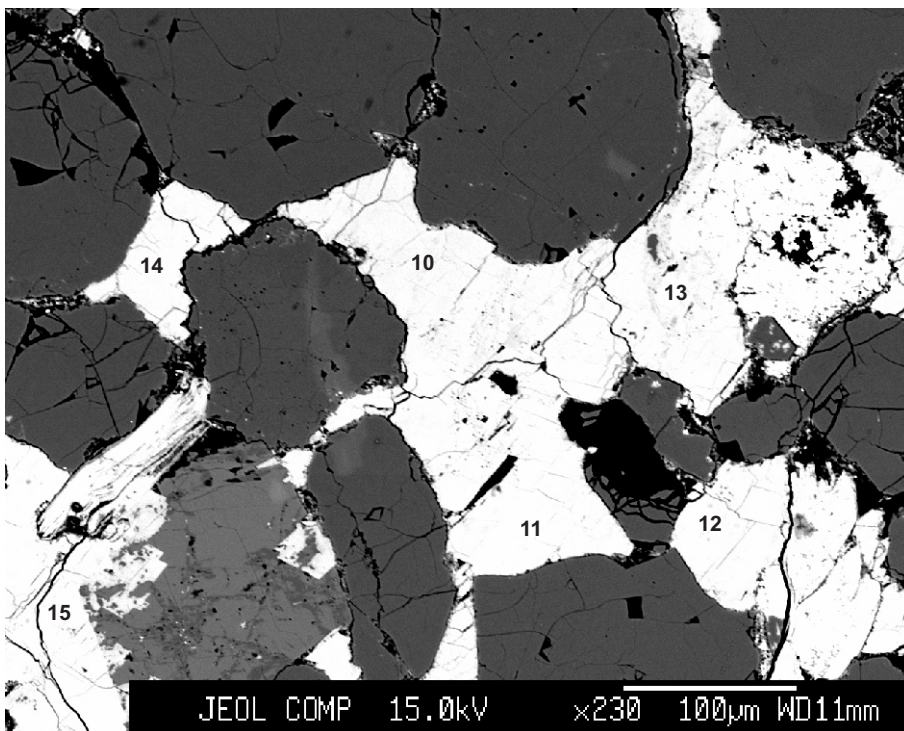
- 35: calcite
- 36: calcite
- 37: calcite
- 38: calcite
- 39: calcite
- 40: calcite
- 41: calcite
- 42: calcite

Figure 16: Venture B-52-4711.15



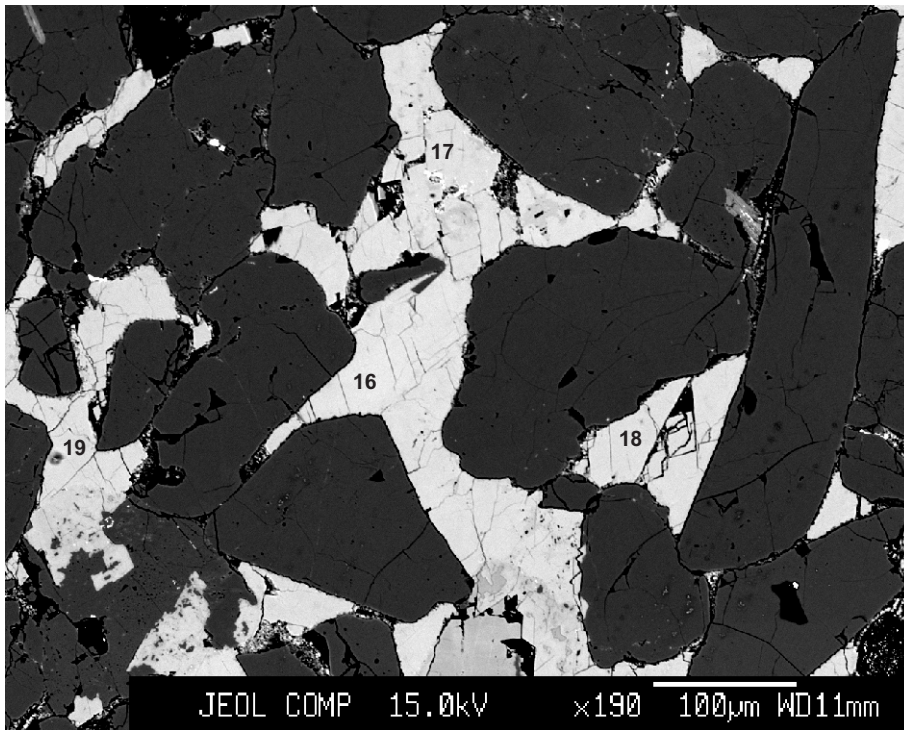
- 5: ankerite
- 6: ankerite
- 7: ankerite
- 8: ankerite
- 9: apatite

Figure 17: Venture B-52-4715



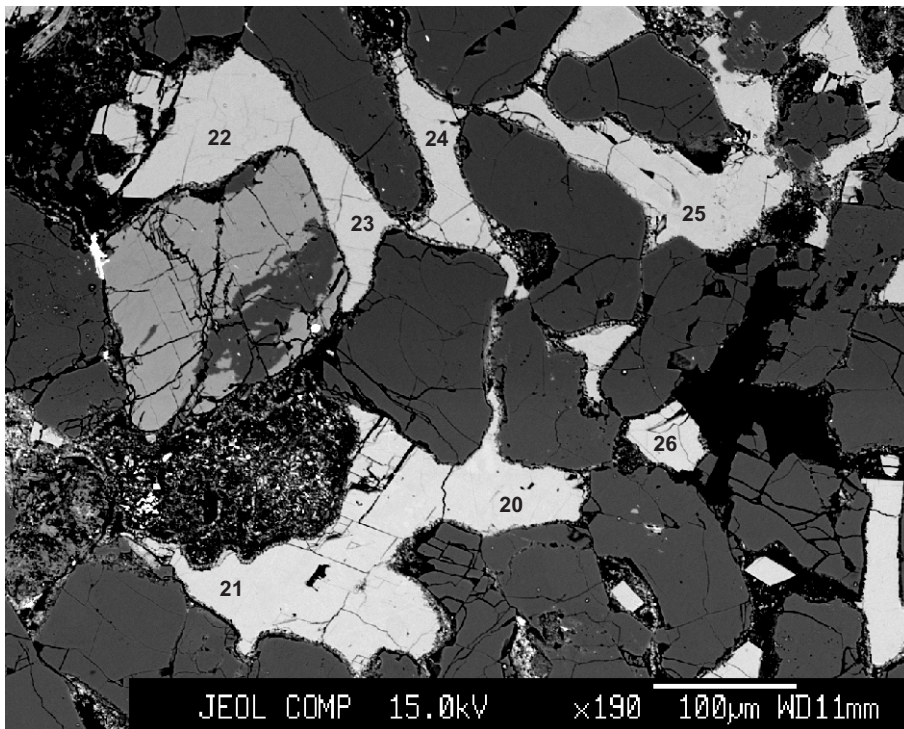
- 10: ankerite
- 11: ankerite
- 12: ankerite
- 13: ankerite
- 14: ankerite
- 15: ankerite

Figure 18: Venture B-52-4715



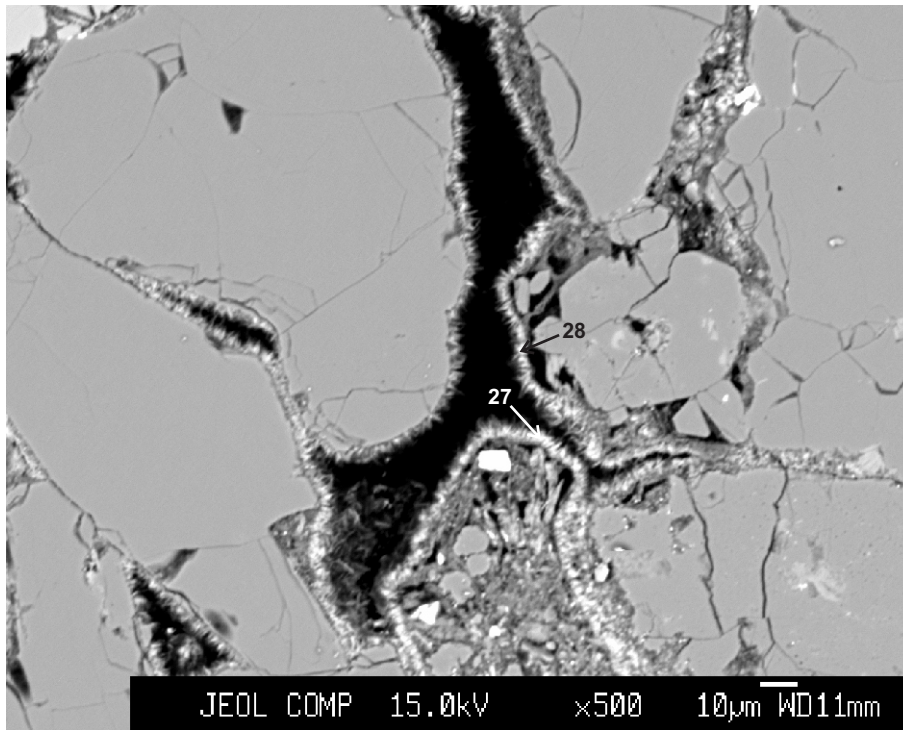
- 16: ankerite
- 17: ankerite
- 18: ankerite
- 19: ankerite

Figure 19: Venture B-52-4715



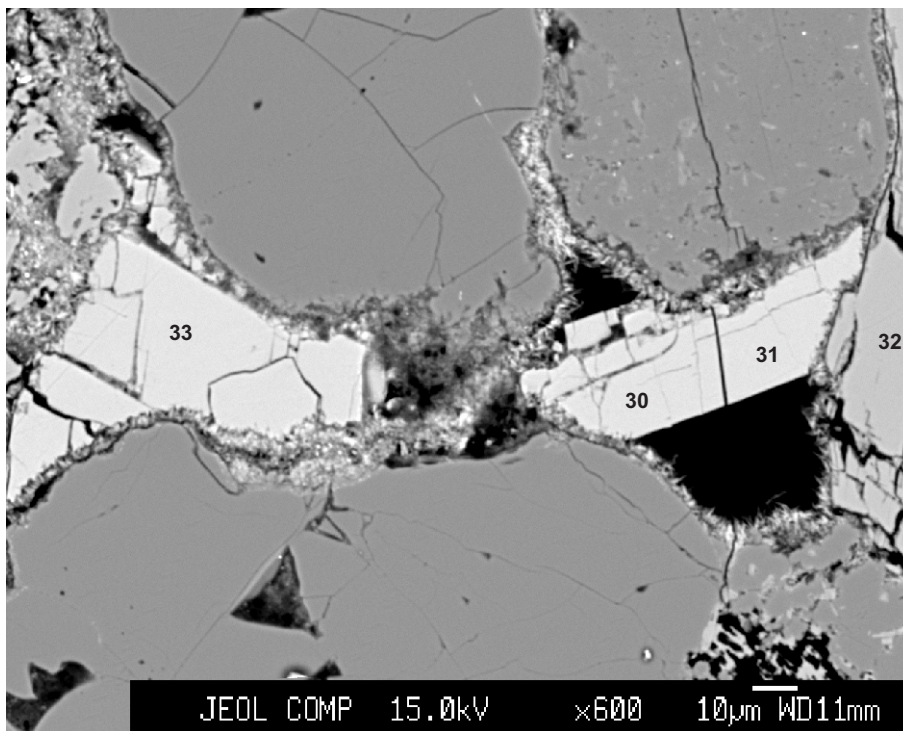
- 20: calcite
- 21: calcite
- 22: calcite
- 23: calcite
- 24: calcite
- 25: Fe-calcite
- 26: calcite

Figure 20: Venture B-52-4715



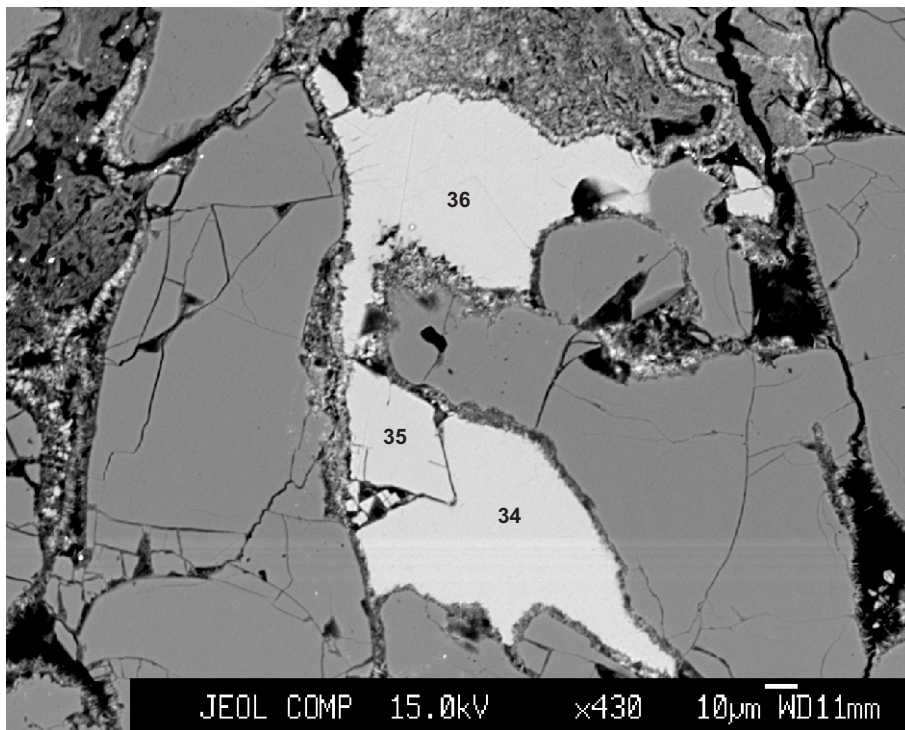
27: chlorite
28: chlorite

Figure 21: Venture B-52-4715



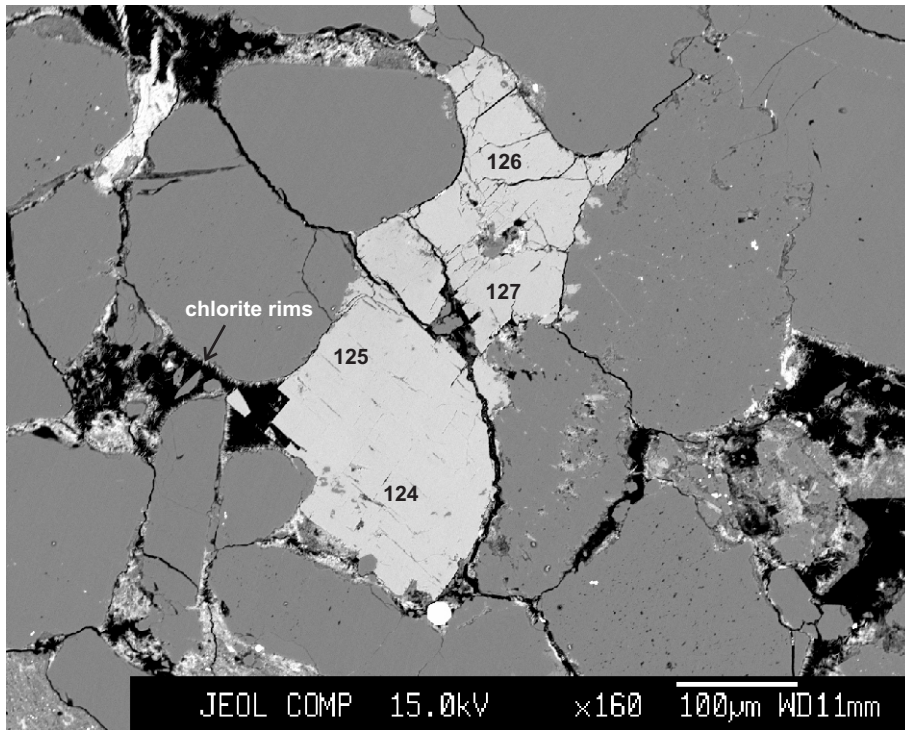
30: calcite
31: calcite
32: K-feldspar
33: calcite

Figure 22: Venture B-52-4715



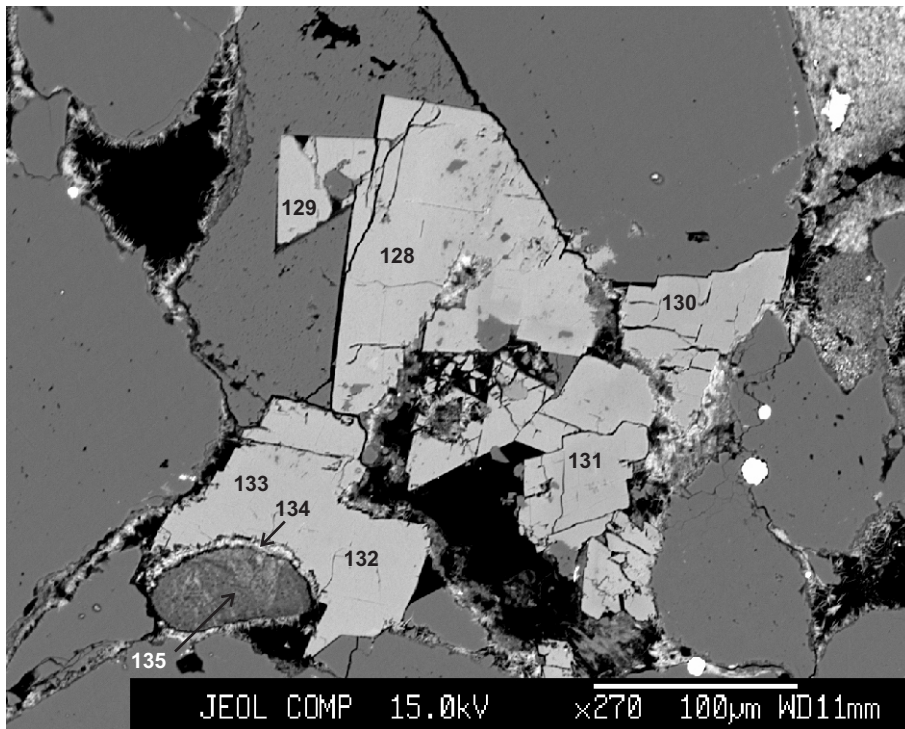
34: calcite
35: calcite
36: calcite

Figure 23: Venture B-52-4715



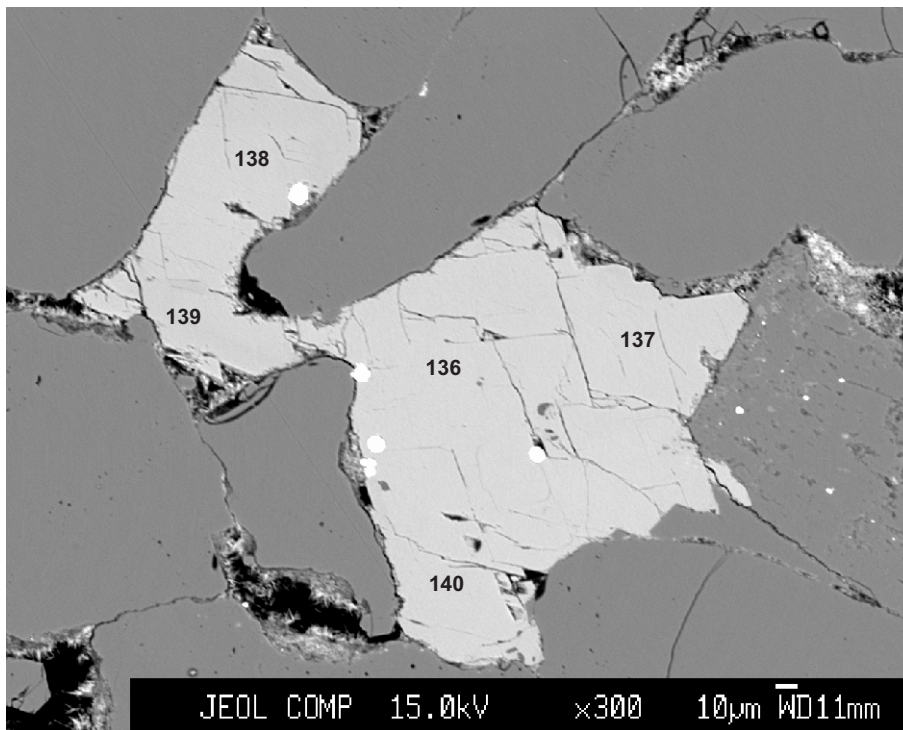
- 124: ankerite
- 125: ankerite
- 126: ankerite
- 127: ankerite

Figure 24: Venture B-52-4954.36



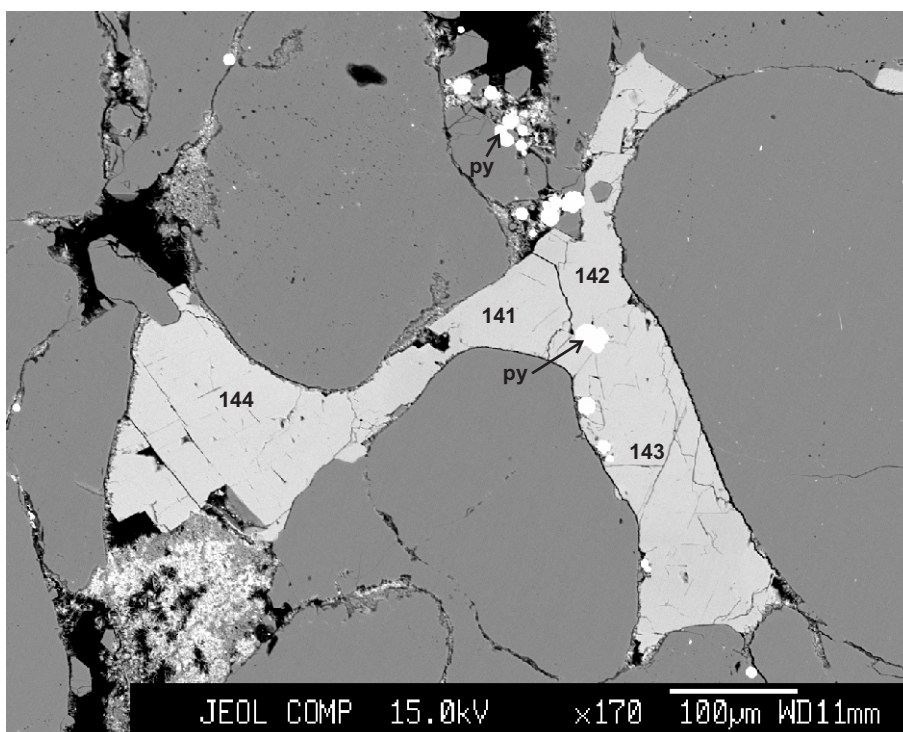
- 128: ankerite
- 129: ankerite
- 130: ankerite
- 131: ankerite
- 132: ankerite
- 133: ankerite
- 134: chlorite
- 135: illite

Figure 25: Venture B-52-4954.36



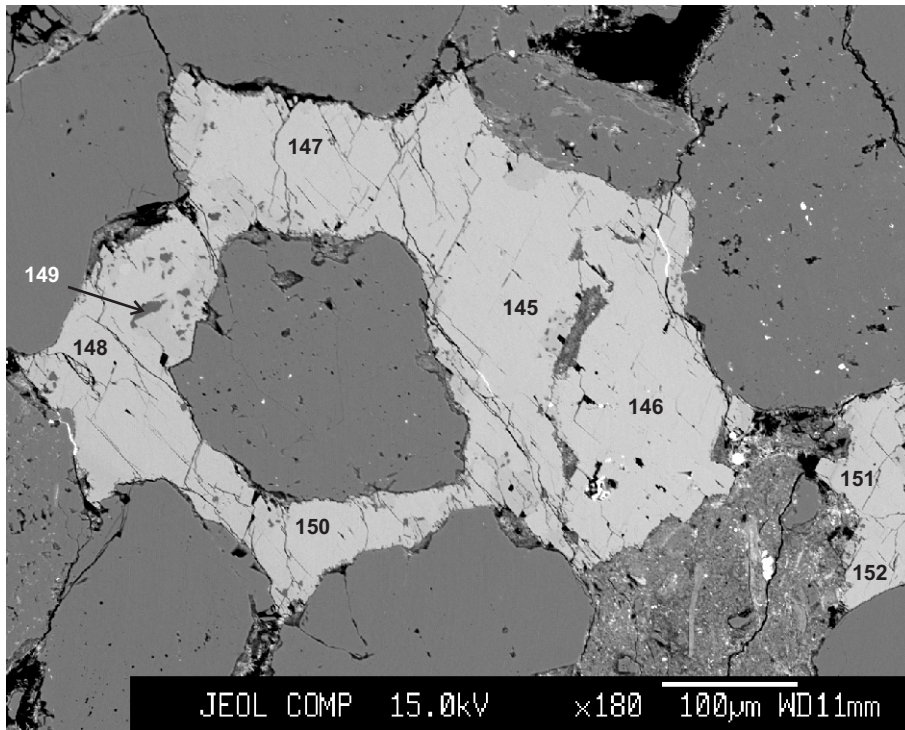
136: ankerite
 137: ankerite
 138: ankerite
 139: ankerite
 140: ankerite

Figure 26: Venture B-52-4954.36



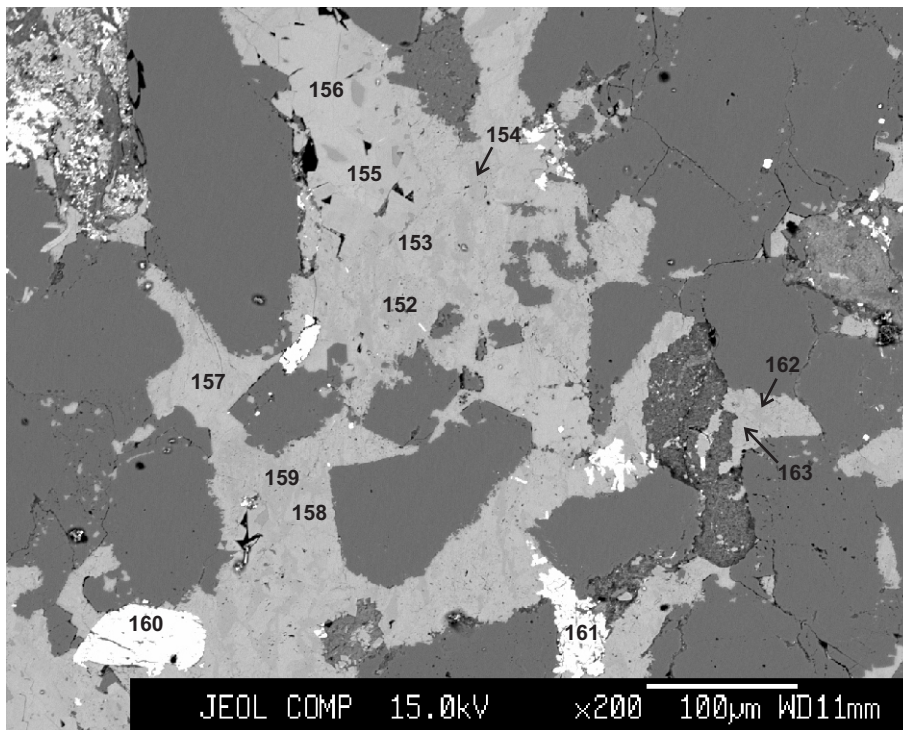
141: ankerite
 142: ankerite
 143: ankerite
 144: ankerite

Figure 27: Venture B-52-4954.36



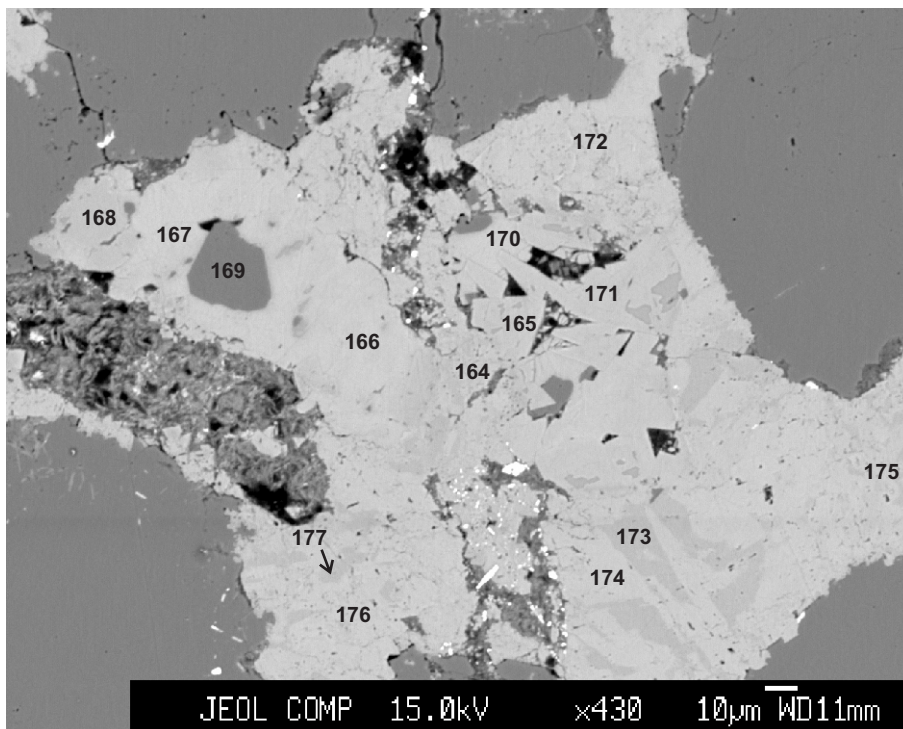
- 145: ankerite
- 146: ankerite
- 147: ankerite
- 148: ankerite
- 149: albite
- 150: ankerite
- 151: ankerite

Figure 28: Venture B-52-4954.36



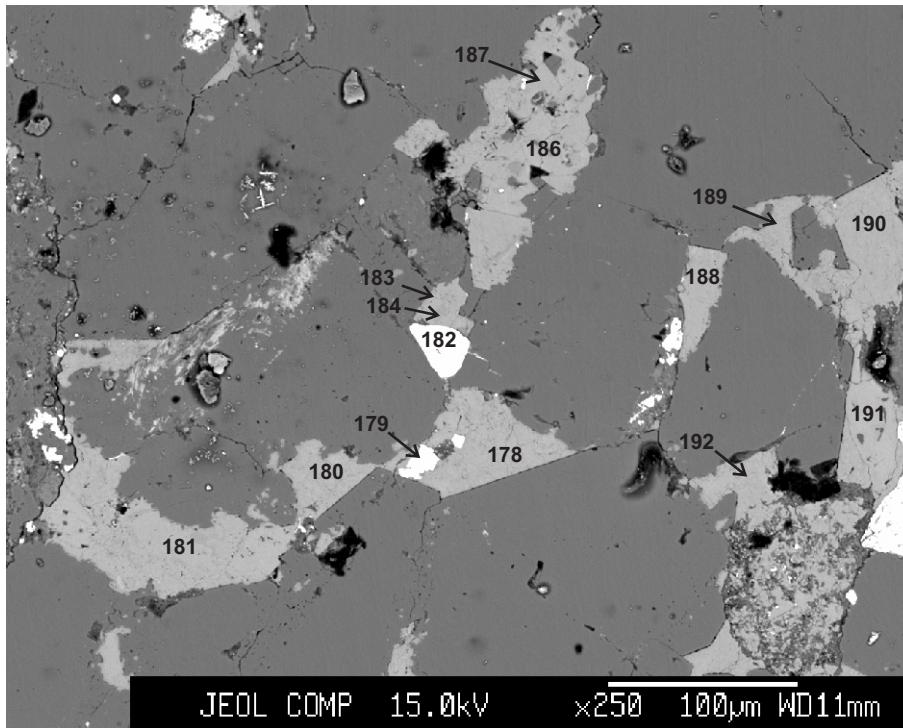
- 152: ankerite
- 153: ankerite
- 154: ankerite
- 155: calcite
- 156: Fe-calcite
- 157: ankerite
- 158: ankerite
- 159: ankerite
- 160: TiO₂
- 161: apatite
- 162: ankerite
- 163: ankerite

Figure 29: Venture B-52-5020.1



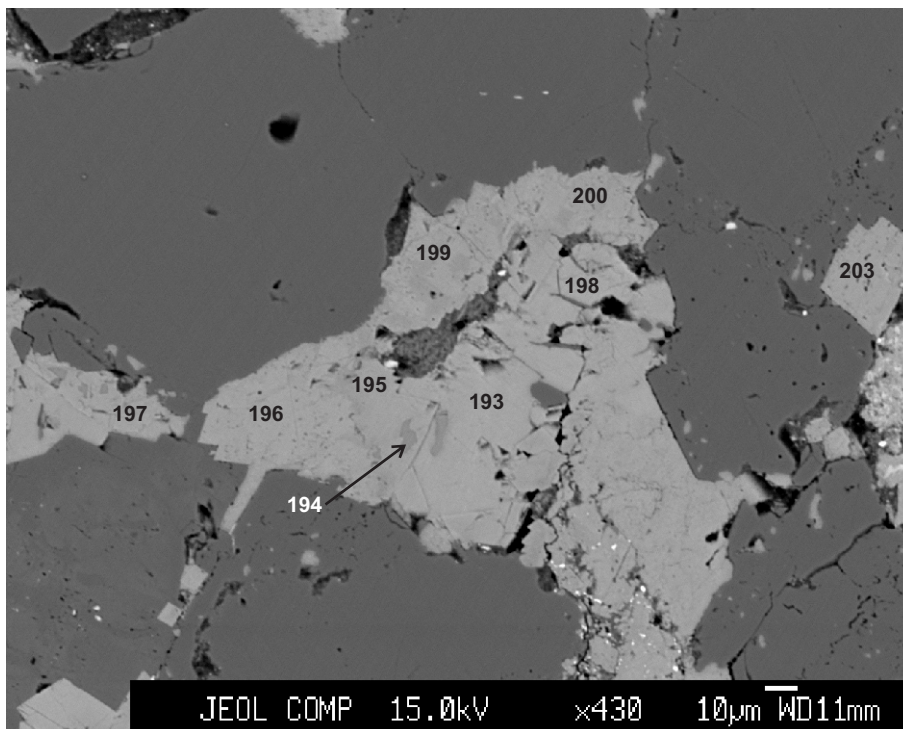
- 164: ankerite
- 165: ankerite
- 166: calcite
- 167: Fe-calcite
- 168: ankerite
- 169: albite
- 170: Fe-calcite
- 171: ankerite
- 172: Fe-calcite
- 173: ankerite
- 174: ankerite
- 175: ankerite
- 176: ankerite
- 177: ankerite

Figure 30: Venture B-52-5020.1



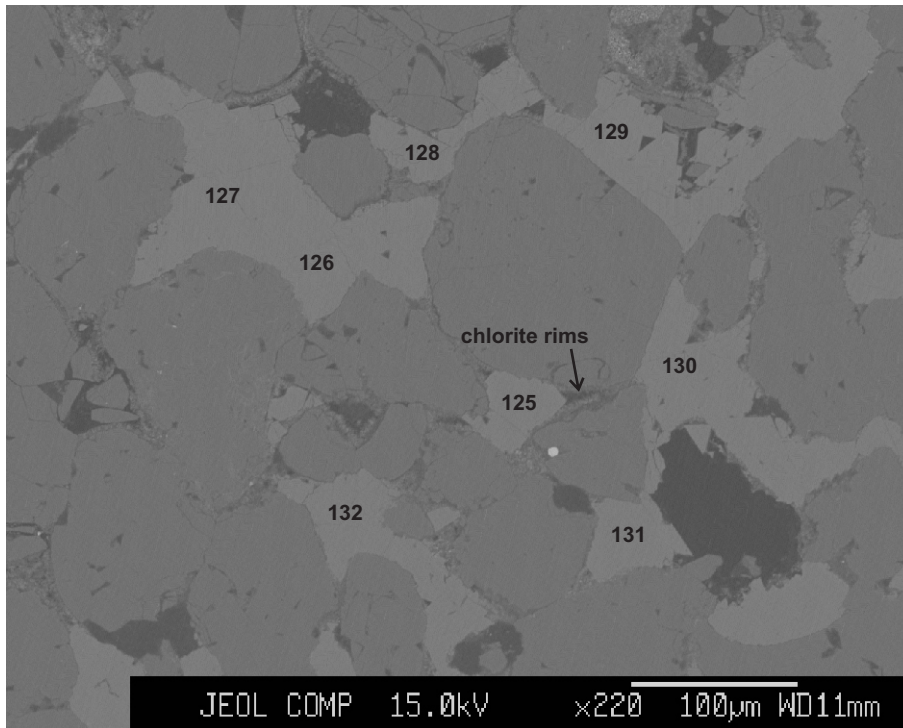
- 178: Fe-calcite
- 179: pyrite
- 180: calcite
- 181: ankerite
- 182: zircon
- 183: ankerite
- 184: ankerite
- 185: ankerite
- 186: calcite
- 187: ankerite
- 188: ankerite
- 189: calcite
- 190: Fe-calcite
- 191: Fe-calcite
- 192: Fe-calcite

Figure 31: Venture B-52-5020.1



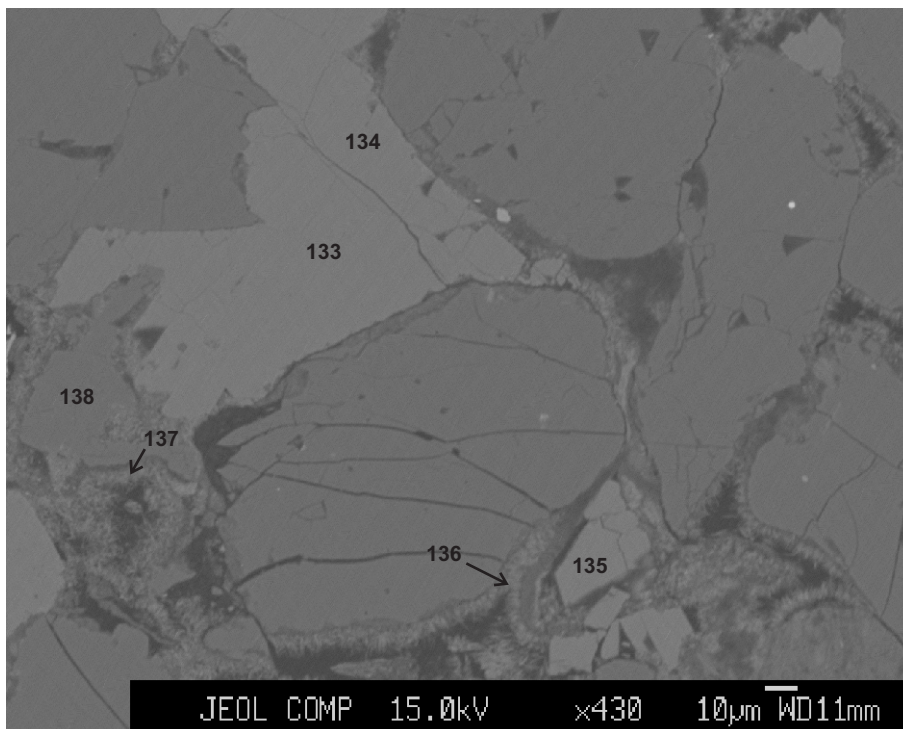
- 193: Fe-calcite
- 194: K-feldspar
- 195: ankerite
- 196: ankerite
- 197: ankerite
- 198: Fe-calcite
- 199: ankerite
- 200: ankerite
- 201: Fe-calcite
- 202: calcite
- 203: ankerite

Figure 32: Venture B-52-5020.1



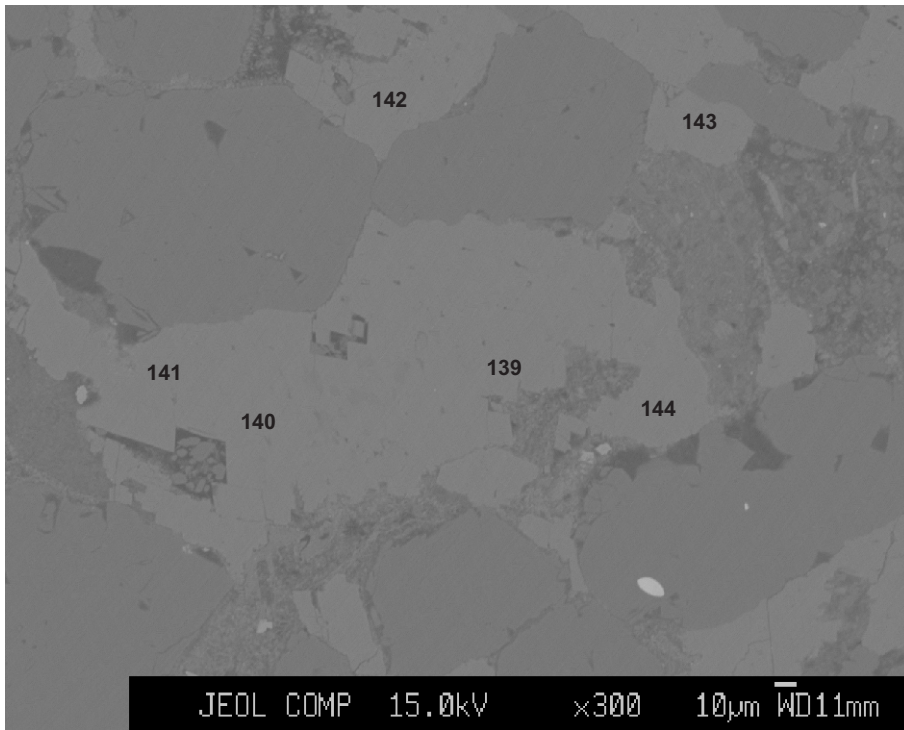
- 125: ankerite
- 126: ankerite
- 127: ankerite
- 128: ankerite
- 129: ankerite
- 130: ankerite
- 131: ankerite
- 132: ankerite

Figure 33: Venture B-52-5020.59



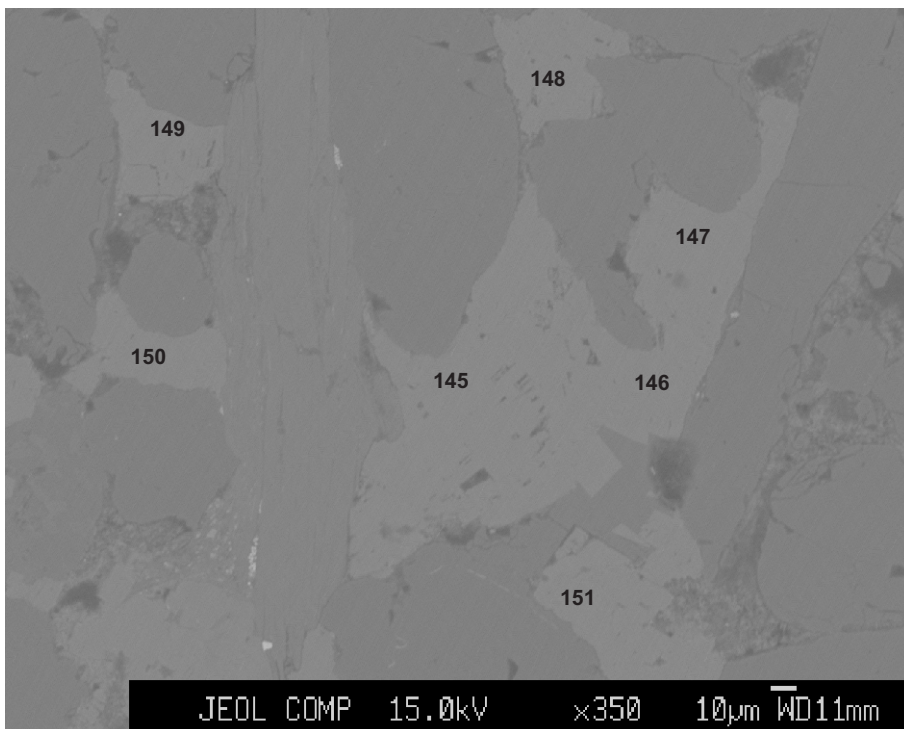
- 133: ankerite
- 134: ankerite
- 135: Fe-calcite
- 136: chlorite
- 137: chlorite
- 138: quartz

Figure 34: Venture B-52-5020.59



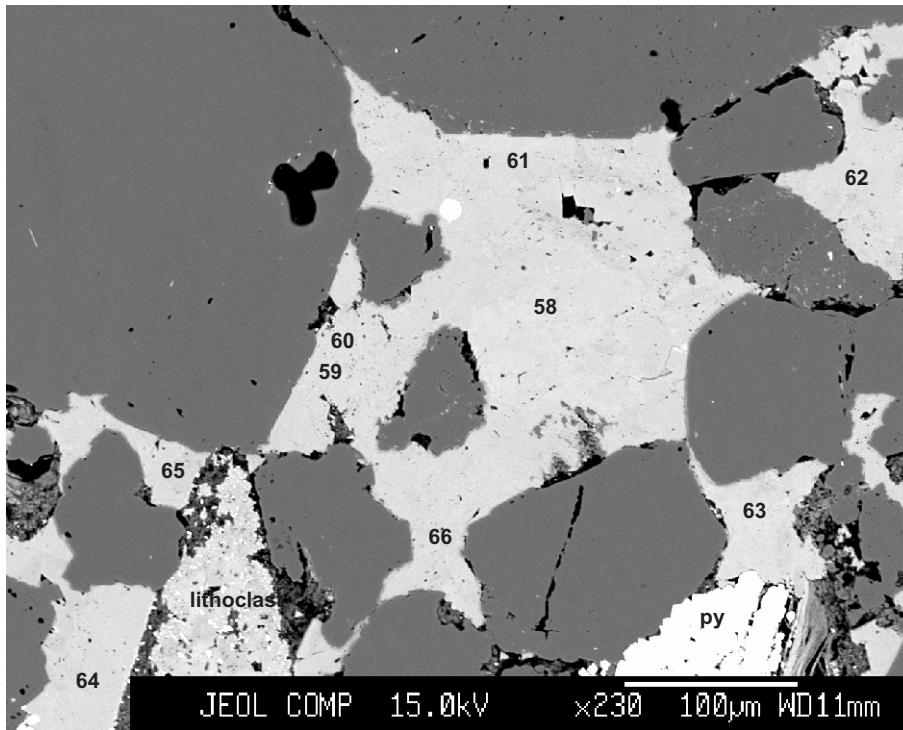
139: ankerite
140: ankerite
141: ankerite
142: ankerite
143: ankerite
144: ankerite

Figure 35: Venture B-52-5020.59



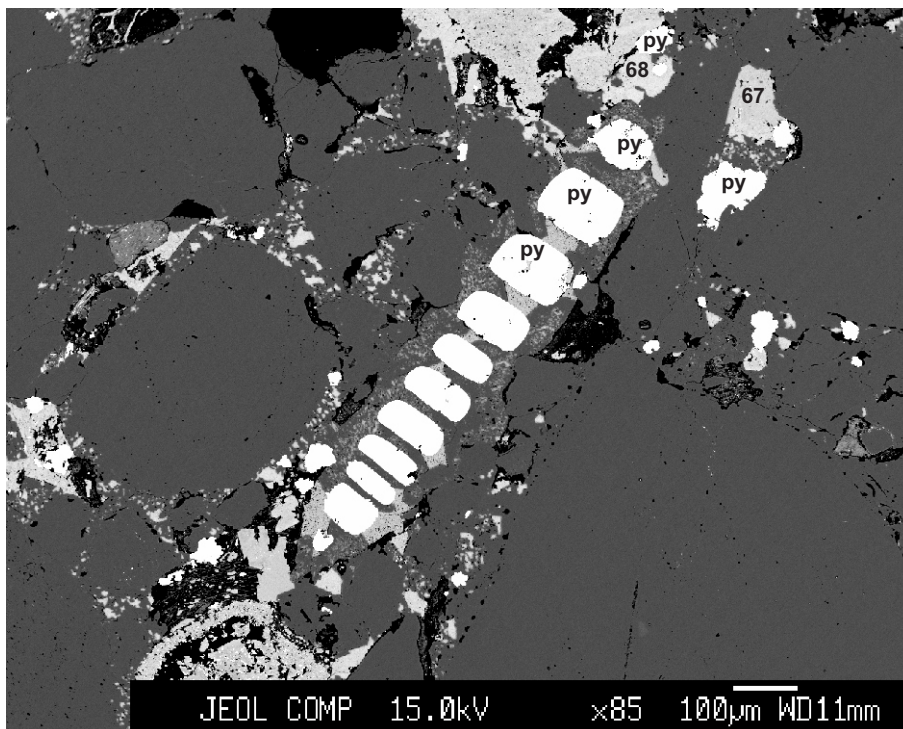
146: ankerite
147: ankerite
148: ankerite
149: ankerite
150: ankerite
151: ankerite

Figure 36: Venture B-52-5020.59



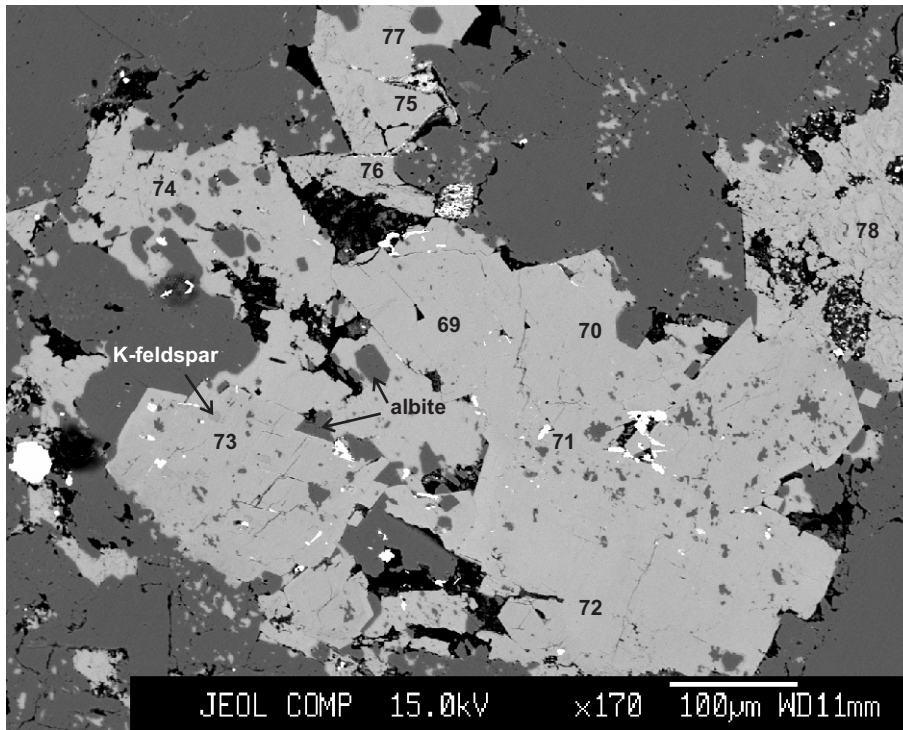
- 58: ankerite
- 59: ankerite
- 60: ankerite
- 61: ankerite
- 62: ankerite
- 63: ankerite
- 64: ankerite
- 65: ankerite
- 66: ankerite

Figure 37: Venture B-52-5022.74



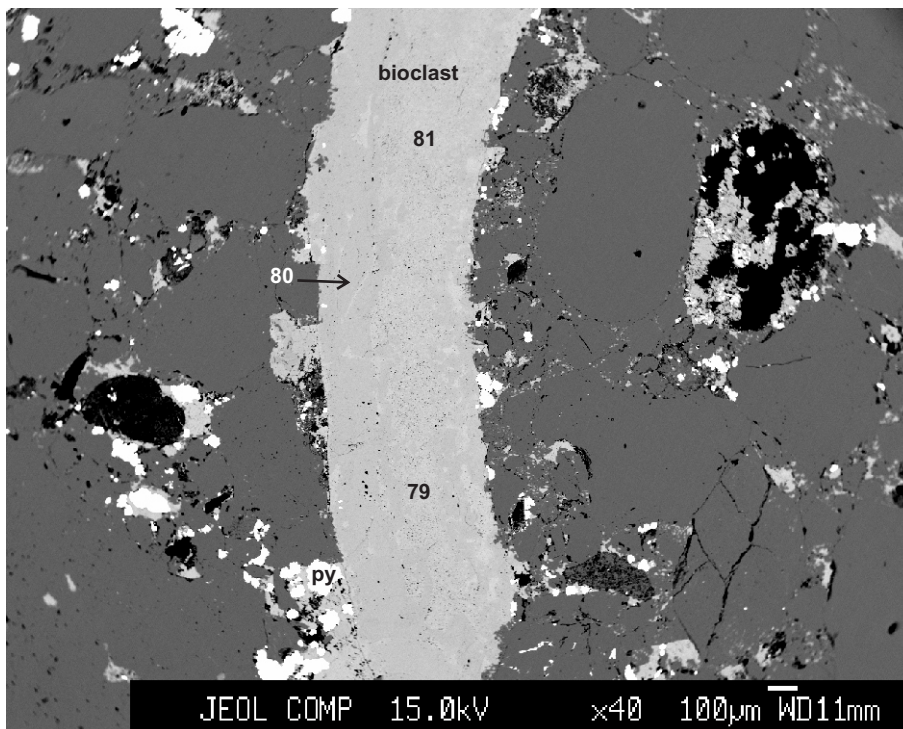
- 67: ankerite
- 68: Fe-calcite

Figure 38: Venture B-52-5022.47



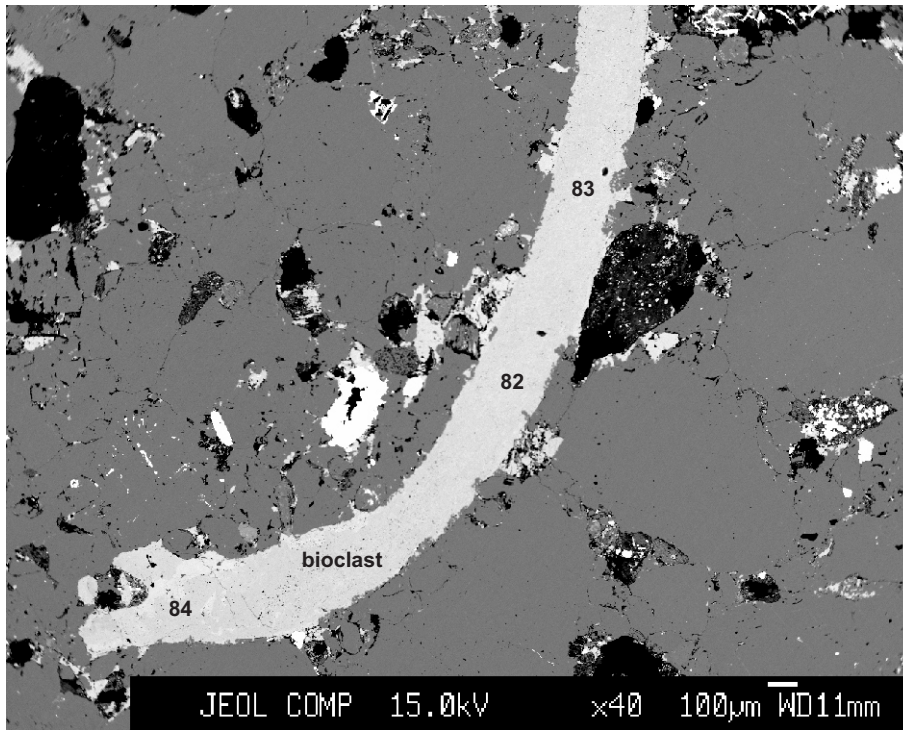
- 69: ankerite
- 70: ankerite
- 71: ankerite
- 72: ankerite
- 73: ankerite
- 74: calcite
- 75: calcite
- 76: Fe-calcite
- 77: calcite
- 78: Fe-calcite

Figure 39: Venture B-52-5022.74



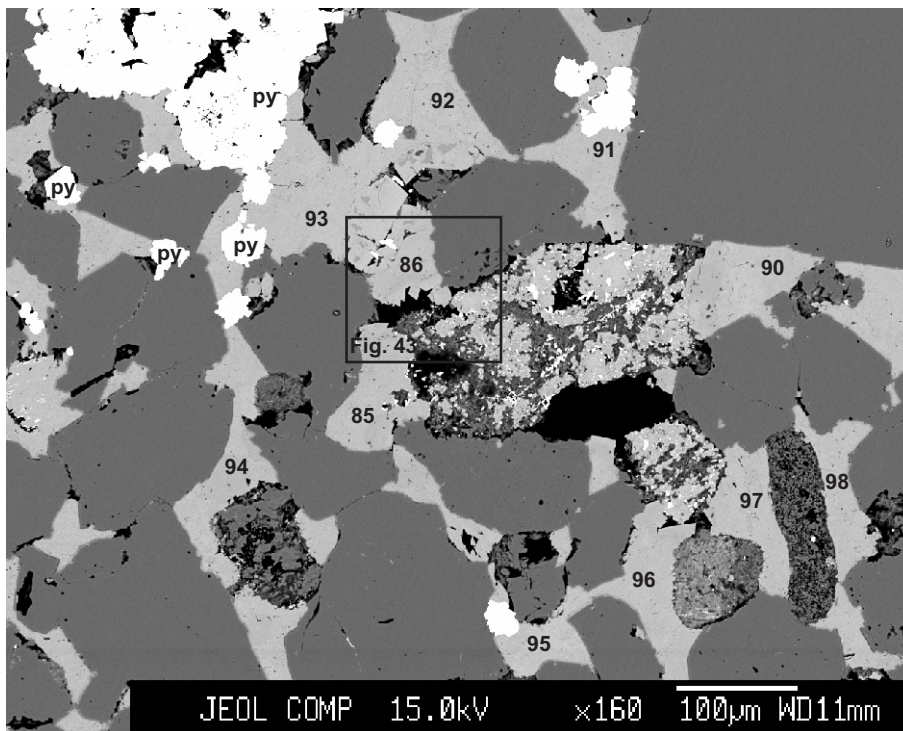
- 79: Fe-calcite
- 80: calcite
- 81: Fe-calcite

Figure 40: Venture B-52-5022.47



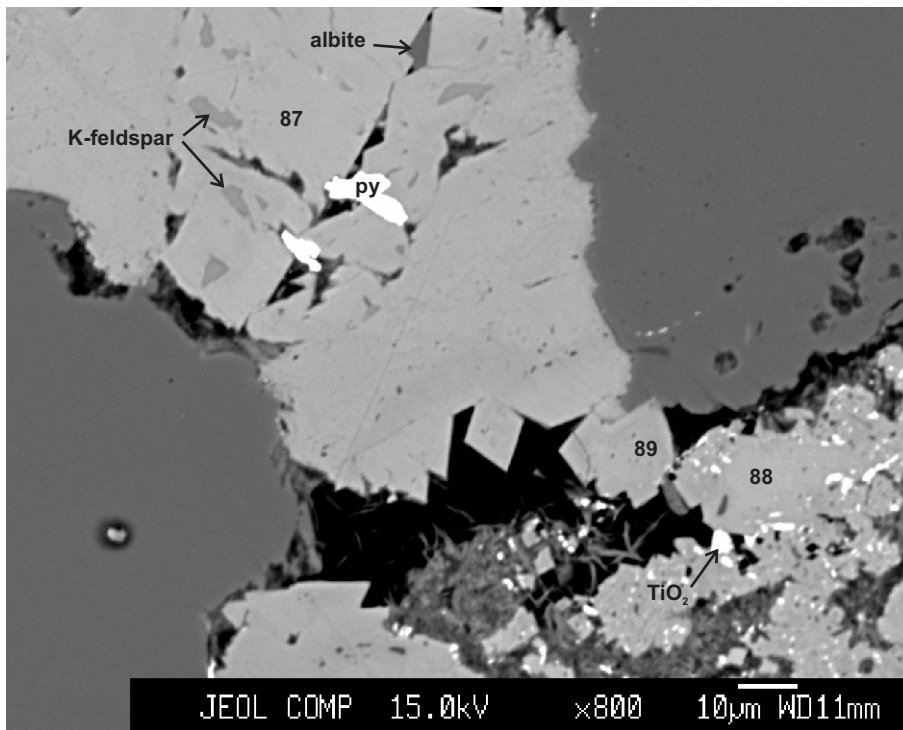
- 82: calcite
- 83: calcite
- 84: calcite

Figure 41: Venture B-52-5022.74



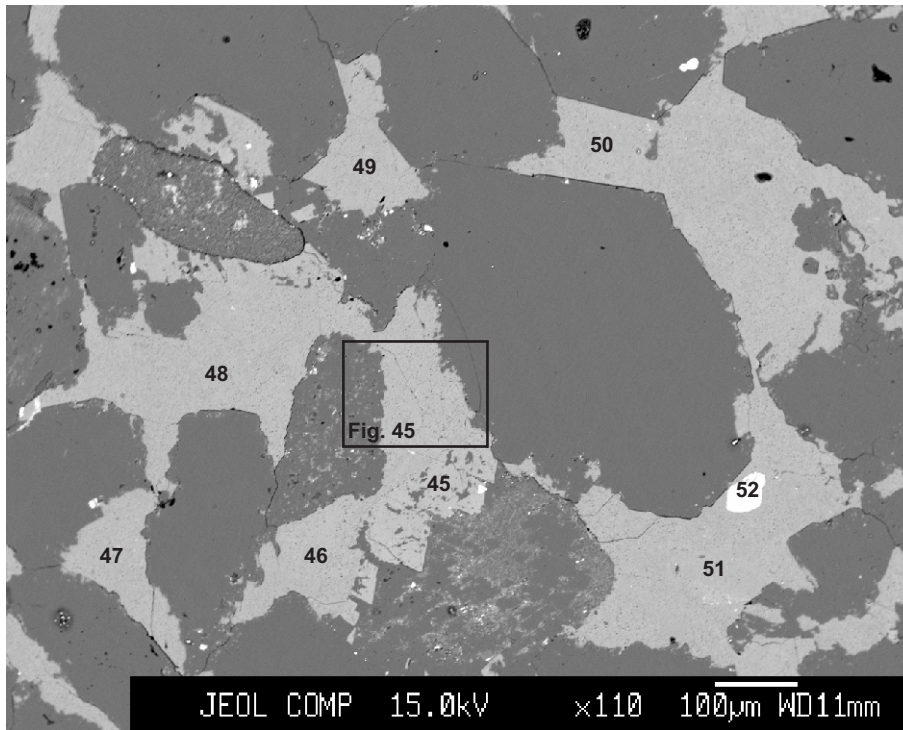
- 85: ankerite
- 86: ankerite
- 87: ankerite
- 88: Fe-calcite
- 89: ankerite
- 90: ankerite
- 91: ankerite
- 92: ankerite
- 93: ankerite
- 94: ankerite
- 95: ankerite
- 96: ankerite
- 97: ankerite
- 98: ankerite

Figure 42: Venture B-52-5022.47



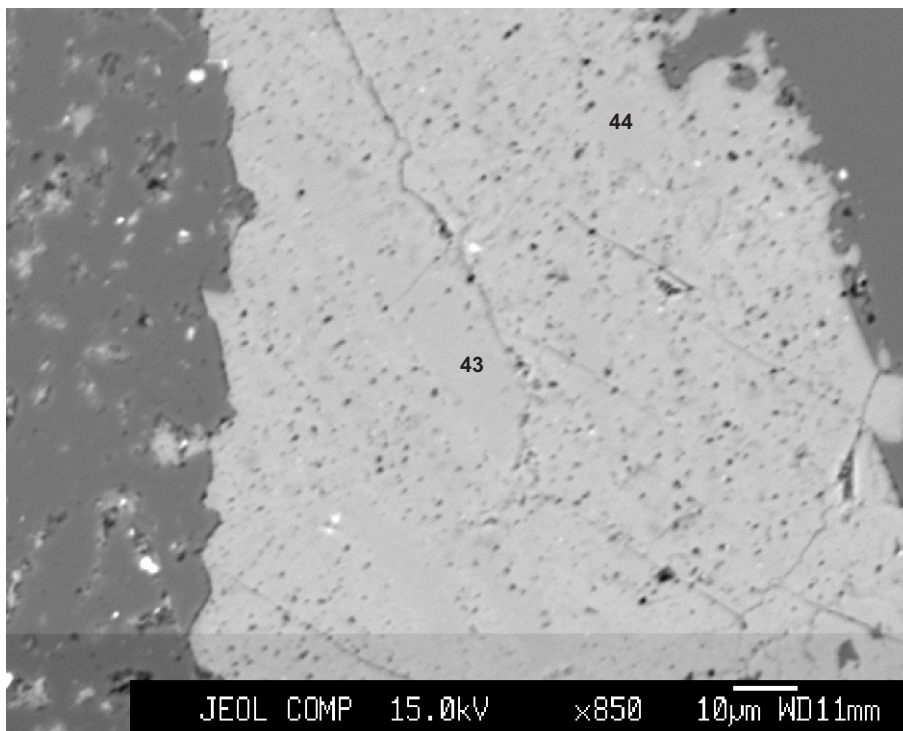
87: ankerite
88: Fe-calcite
89: ankerite

Figure 43: Venture B-52-5022.74



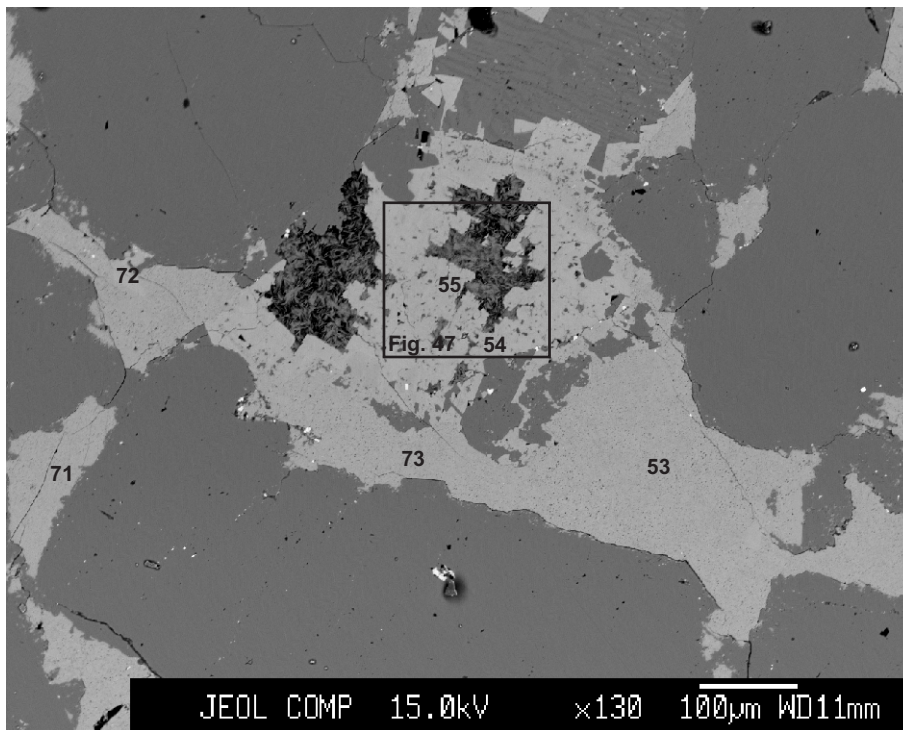
- 45: ankerite
- 46: Fe-calcite
- 47: Fe-calcite
- 48: Fe-calcite
- 49: Fe-calcite
- 50: Fe-calcite
- 51: Fe-calcite
- 52: TiO₂

Figure 44: Venture B-52-5045.32



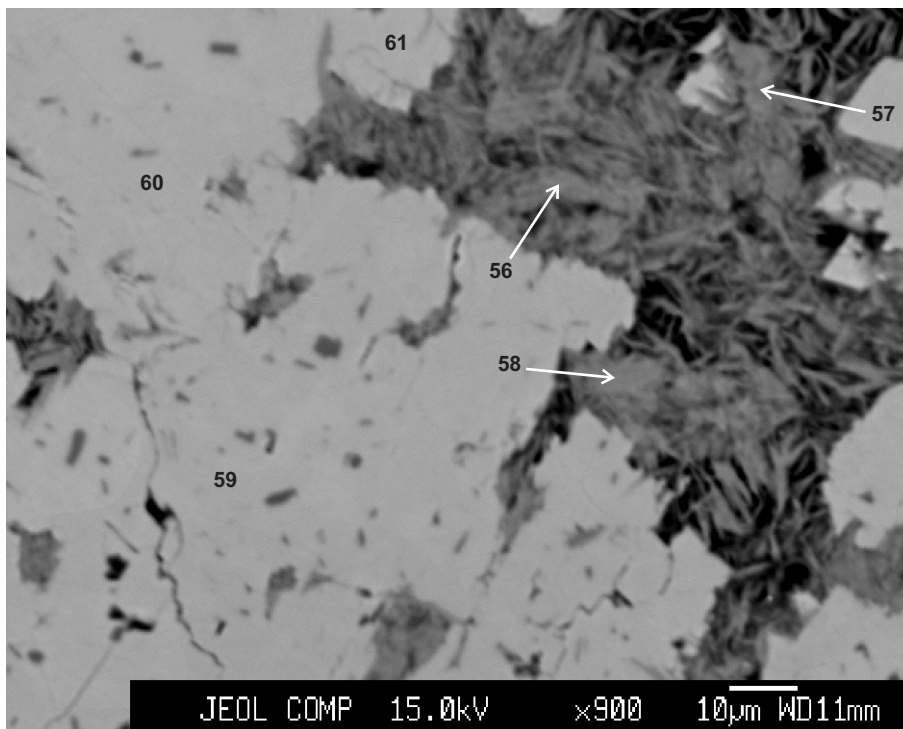
- 43: Mg-calcite
- 44: Mg-calcite

Figure 45: Venture B-52-5045.32



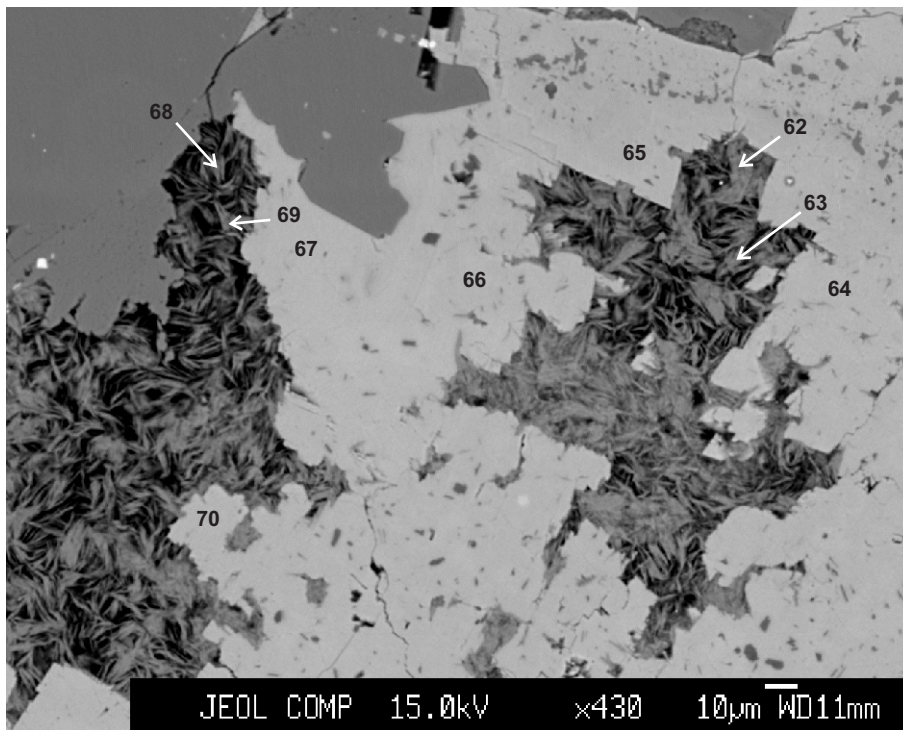
- 53: Fe-Mg-calcite
- 54: calcite
- 55: calcite
- 71: Fe-Mg-calcite
- 72: Mg-calcite
- 73: Mg-calcite

Figure 46: Venture B-52-5045.32



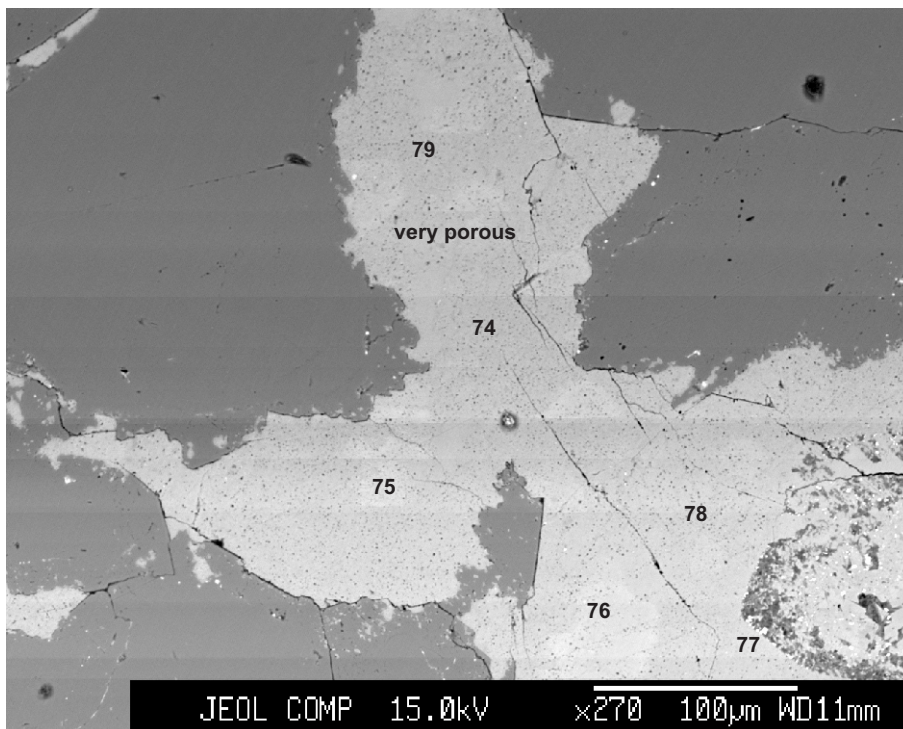
- 56: illite
- 57: illite
- 58: illite
- 59: calcite
- 60: calcite
- 61: Fe-calcite

Figure 47: Venture B-52-5045.32



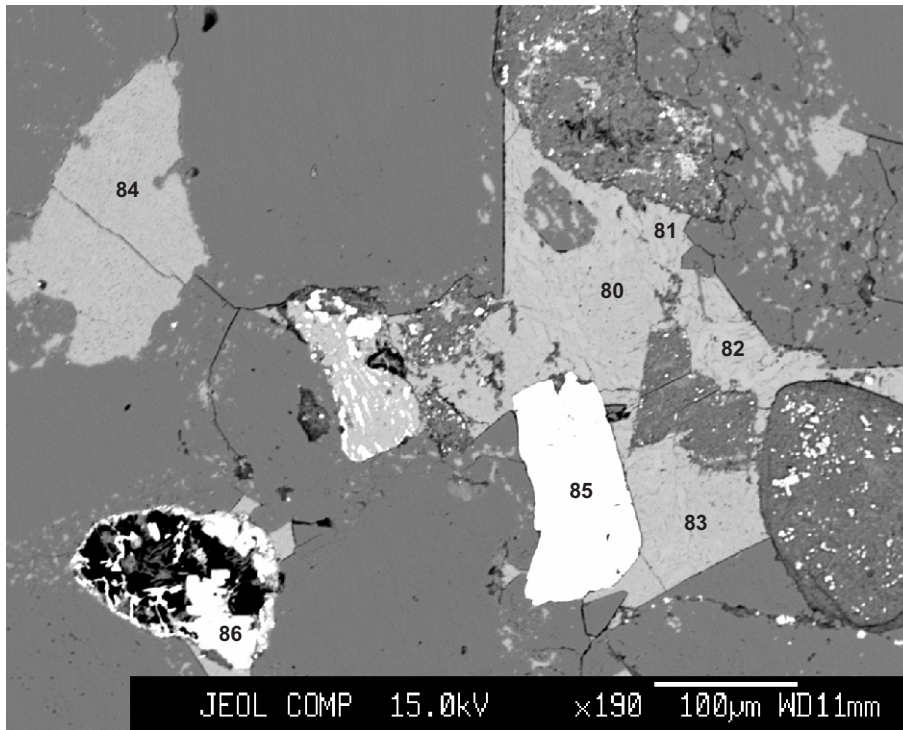
- 62: illite
- 63: illite
- 64: calcite
- 65: ankerite
- 66: calcite
- 67: Fe-calcite
- 68: illite
- 69: illite
- 70: calcite

Figure 48: Venture B-52-5045.32



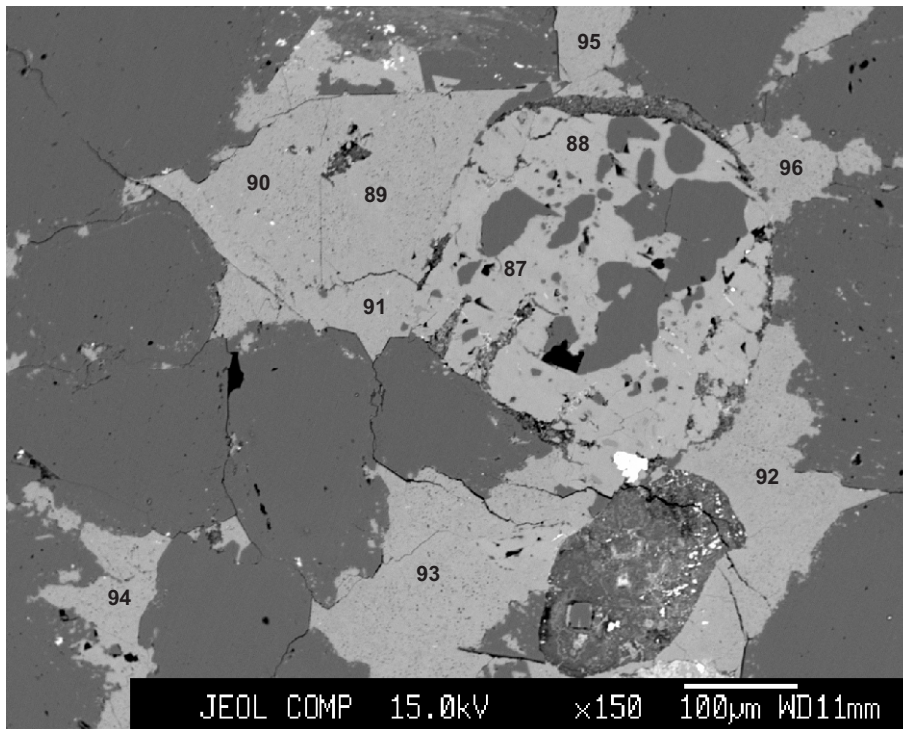
- 74: Fe-Mg-calcite
- 75: Fe-Mg-calcite
- 76: Fe-Mg-calcite
- 77: Mg-calcite
- 78: Fe-Mg-calcite
- 79: Fe-Mg-calcite

Figure 49: Venture B-52-5045.32



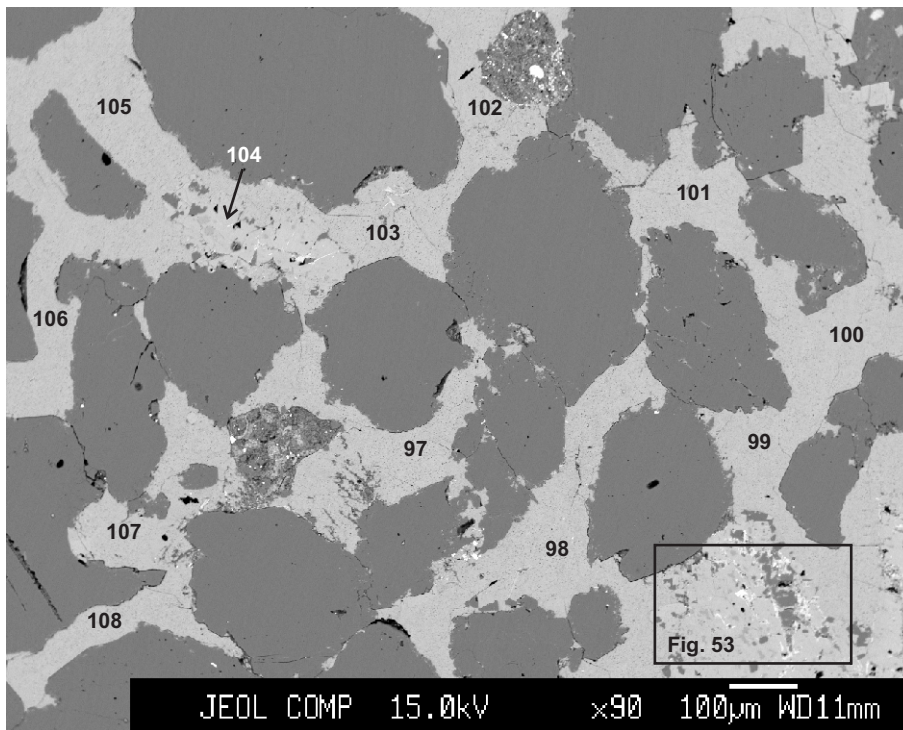
- 80: Fe-calcite
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-Mg-calcite
- 85: chromite
- 86: apatite

Figure 50: Venture B-52-5045.32



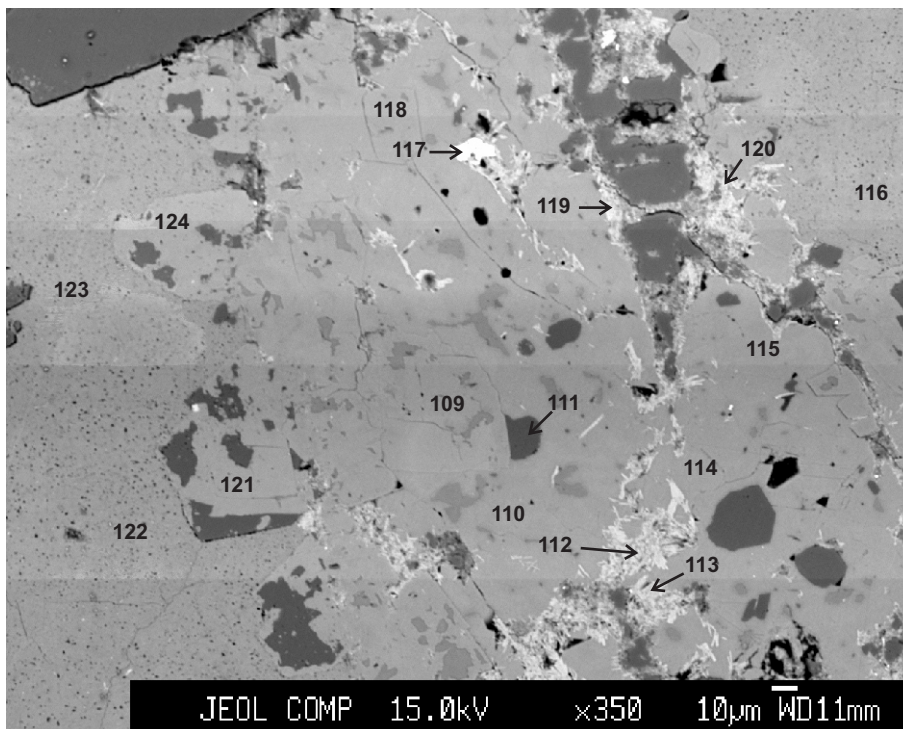
- 87: calcite
- 88: calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-Mg-calcite
- 92: Fe-Mg-calcite
- 93: Fe-Mg-calcite
- 94: Fe-Mg-calcite
- 95: Fe-Mg-calcite
- 96: Fe-Mg-calcite

Figure 51: Venture B-52-5045.32



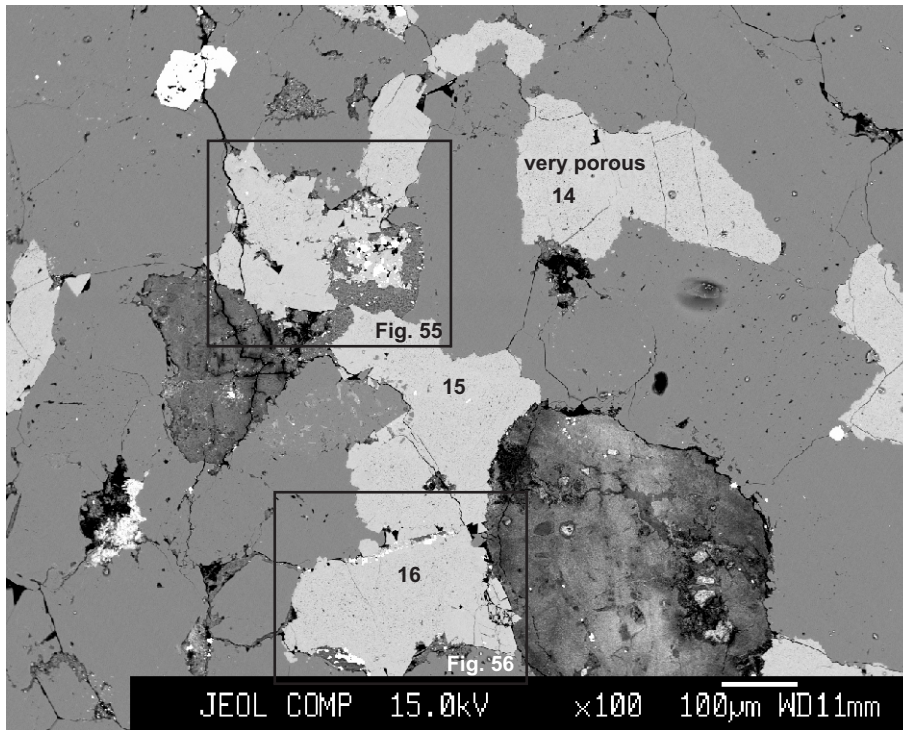
- 97: Mg-calcite
- 98: Fe-Mg-calcite
- 99: Fe-Mg-calcite
- 100: Mg-calcite
- 101: Fe-Mg-calcite
- 102: Fe-Mg-calcite
- 103: Fe-Mg-calcite
- 104: calcite
- 105: Fe-Mg-calcite
- 106: Fe-Mg-calcite
- 107: Fe-Mg-calcite
- 108: Fe-Mg-calcite

Figure 52: Venture B-52-5045.32



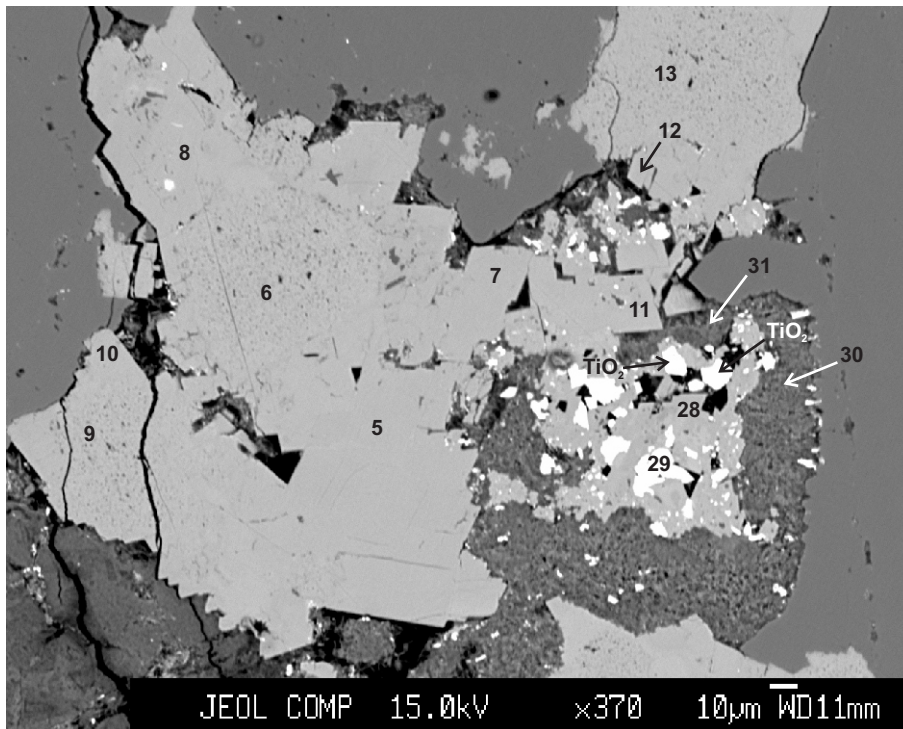
- 109: ankerite
- 110: calcite
- 111: albite
- 112: chlorite
- 113: chlorite
- 114: calcite
- 115: calcite
- 116: Mg-calcite
- 117: TiO₂
- 118: ankerite
- 119: chlorite
- 120: chlorite
- 121: ankerite
- 122: Fe-Mg-calcite
- 123: Fe-Mg-calcite
- 124: ankerite

Figure 53: Venture B-52-5045.32



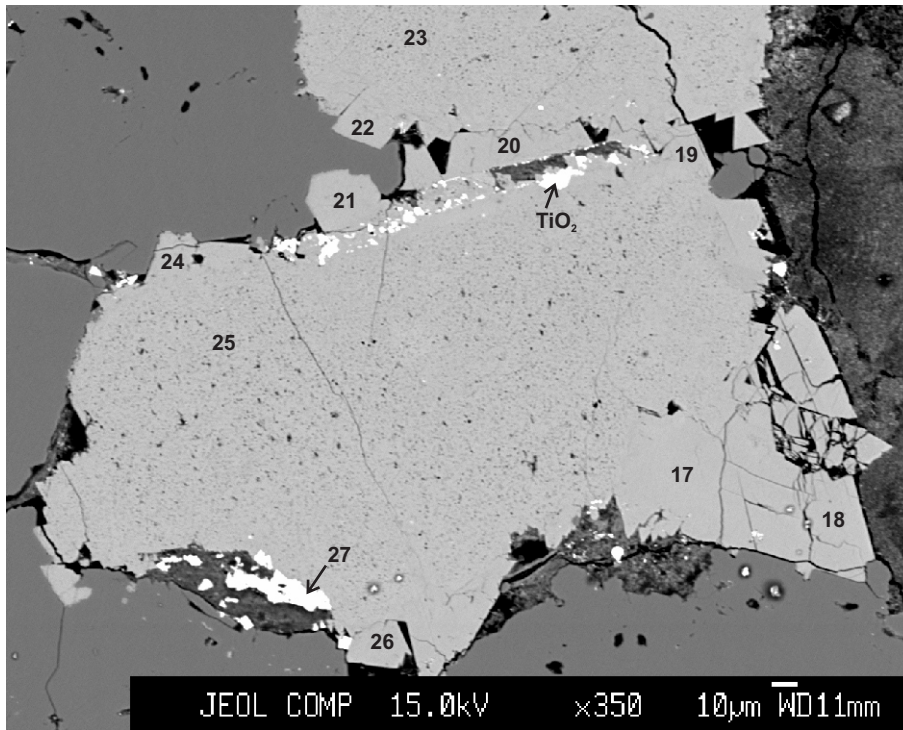
- 14: ankerite
- 15: ankerite
- 16: ankerite

Figure 54: Venture B-52-5047.51



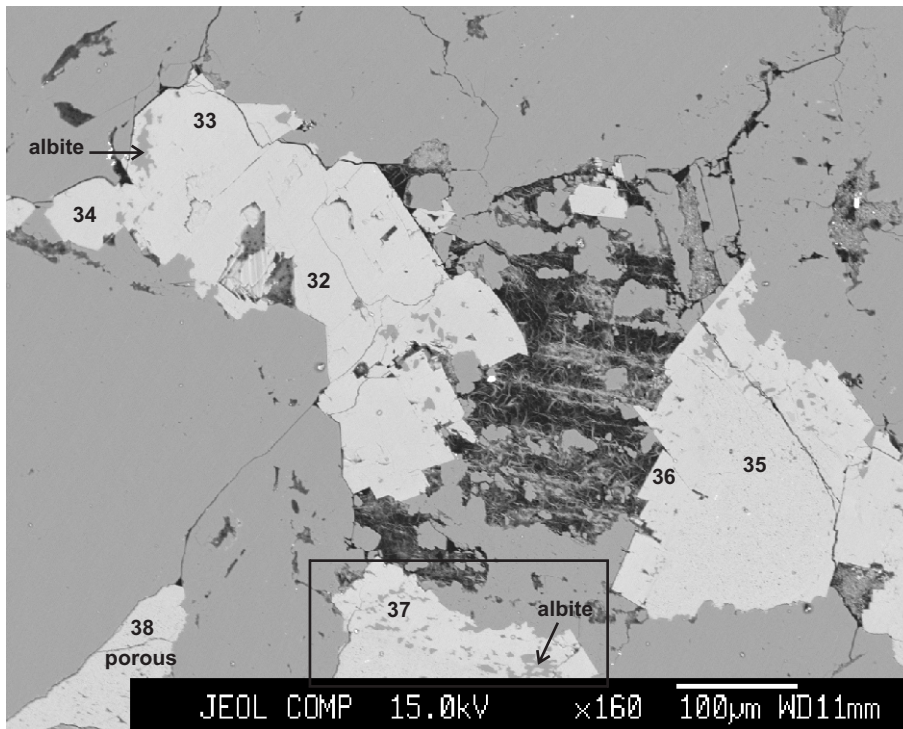
- 5: ankerite
- 6: ankerite
- 7: ankerite
- 8: ankerite
- 9: ankerite
- 10: ankerite
- 11: ankerite
- 12: ankerite
- 13: ankerite
- 28: ankerite
- 29: TiO₂
- 30: illite
- 31: illite

Figure 55: Venture B-52-5047.51



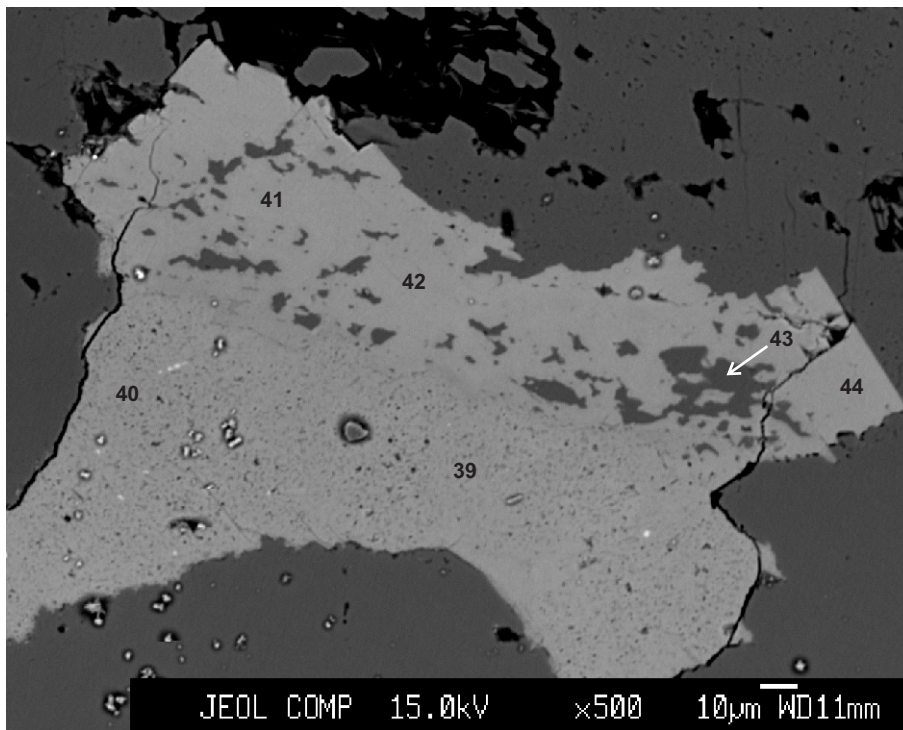
- 17: ankerite
- 18: ankerite
- 19: ankerite
- 20: ankerite
- 21: ankerite
- 22: ankerite
- 23: ankerite
- 24: ankerite
- 25: ankerite
- 26: ankerite
- 27: TiO₂
- 28: ankerite
- 29: TiO₂

Figure 56: Venture B-52-5047.51



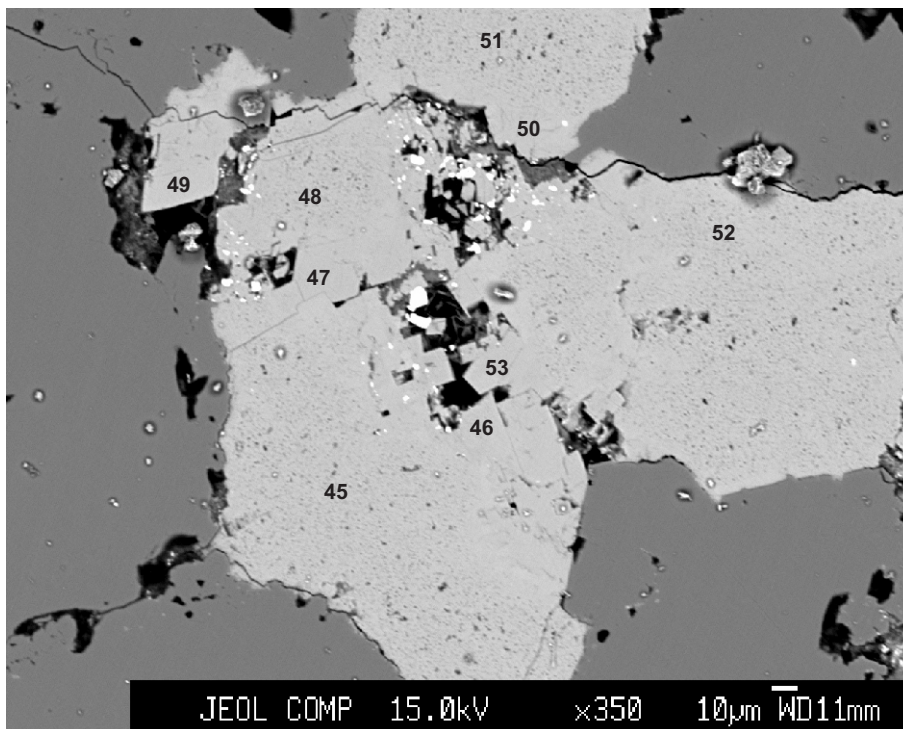
- 32: ankerite
- 33: ankerite
- 34: ankerite
- 35: ankerite
- 36: ankerite
- 37: ankerite
- 38: ankerite

Figure 57: Venture B-52-5047.51



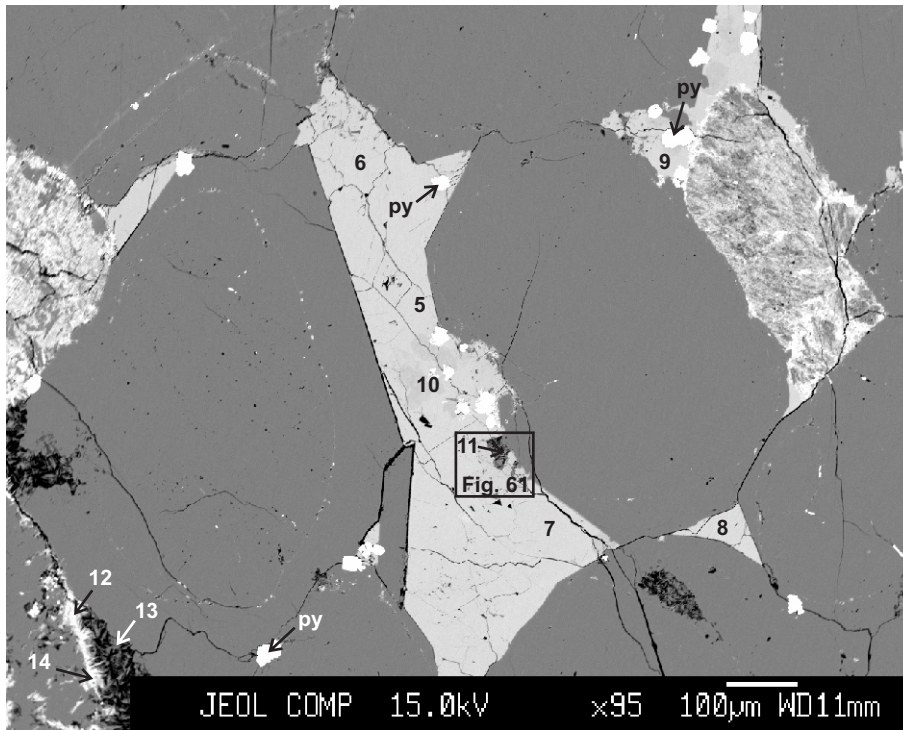
- 39: ankerite
- 40: ankerite
- 41: ankerite
- 42: ankerite
- 43: albite
- 44: ankerite

Figure 58: Venture B-52-5047.51



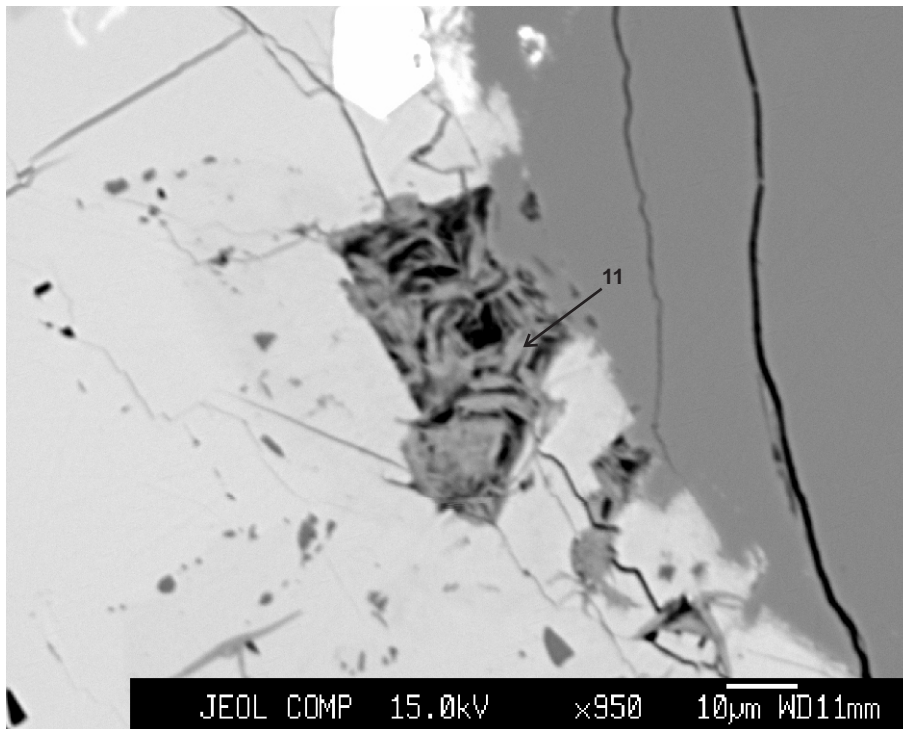
- 45: ankerite
- 46: ankerite
- 47: ankerite
- 48: ankerite
- 49: ankerite
- 50: ankerite
- 51: ankerite
- 52: ankerite
- 53: ankerite

Figure 59: Venture B-52-5047.51



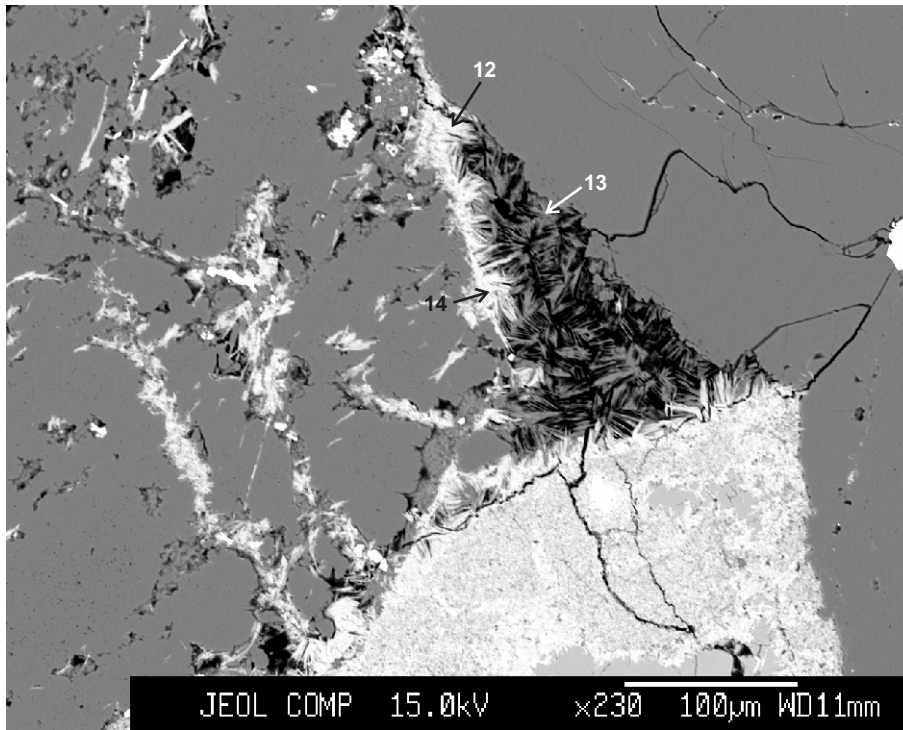
- 5: ankerite
- 6: ankerite
- 7: ankerite
- 8: ankerite
- 9: ankerite
- 10: ankerite
- 11: illite
- 12: chlorite
- 13: illite
- 14: chlorite

Figure 60: Venture B-52-5113.77



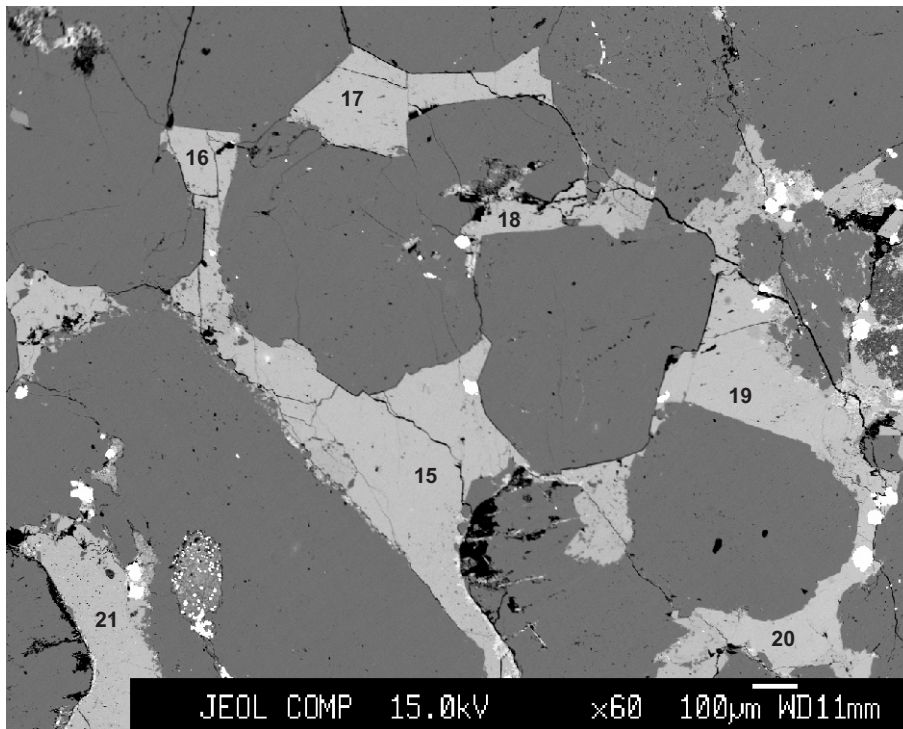
- 11: illite

Figure 61: Venture B-52-5113.77



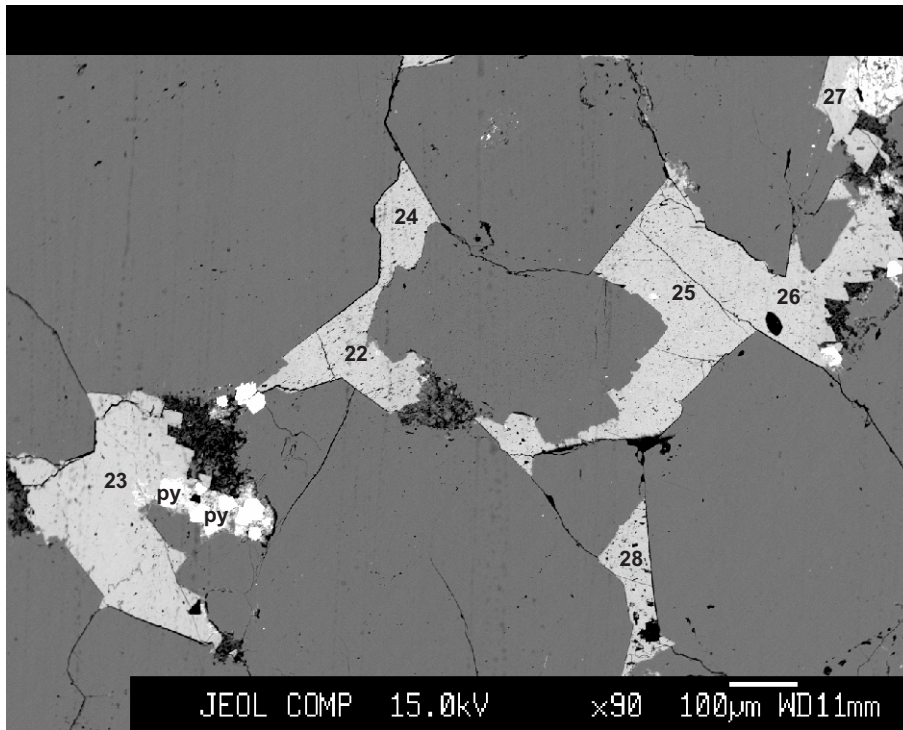
- 12: chlorite
- 13: illite
- 14: chlorite

Figure 62: Venture B-52-5113.77



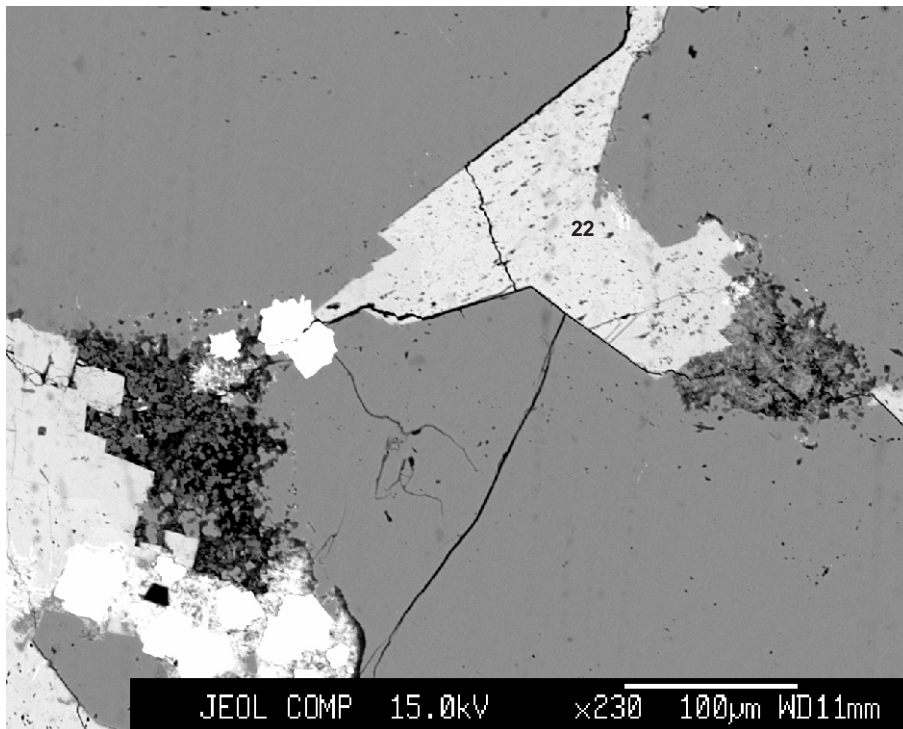
- 15: Fe-calcite
- 16: Fe-calcite
- 17: Fe-calcite
- 18: Fe-calcite
- 19: ankerite
- 20: ankerite
- 21: Fe-calcite

Figure 63: Venture B-52-5113.77



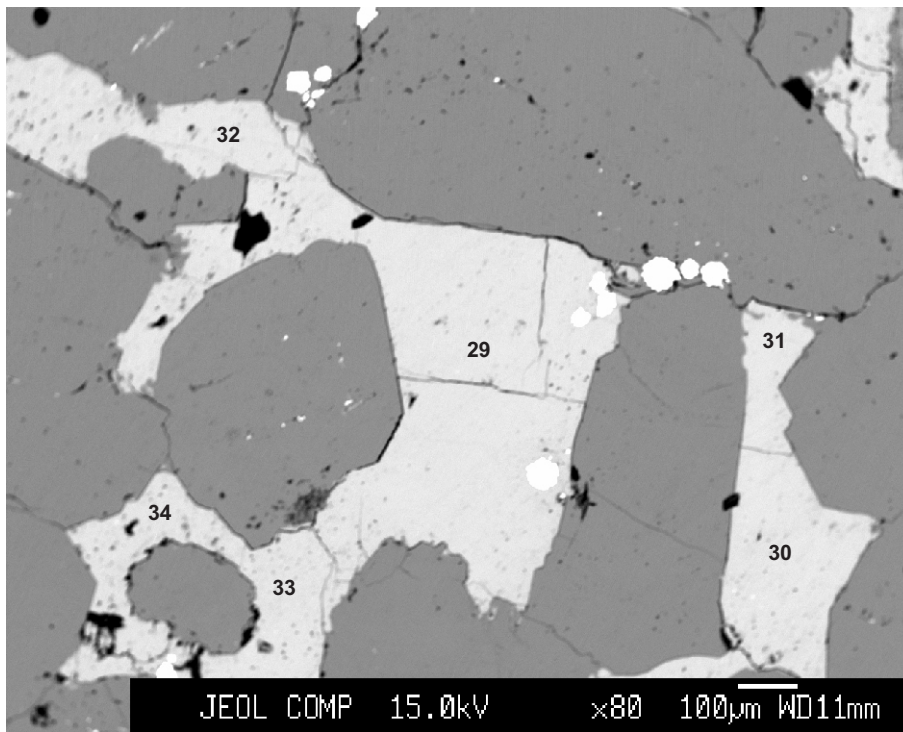
- 22: ankerite
- 23: ankerite
- 24: ankerite
- 25: ankerite
- 26: ankerite
- 27: ankerite
- 28: ankerite

Figure 64: Venture B-52-5113.77



- 22: ankerite

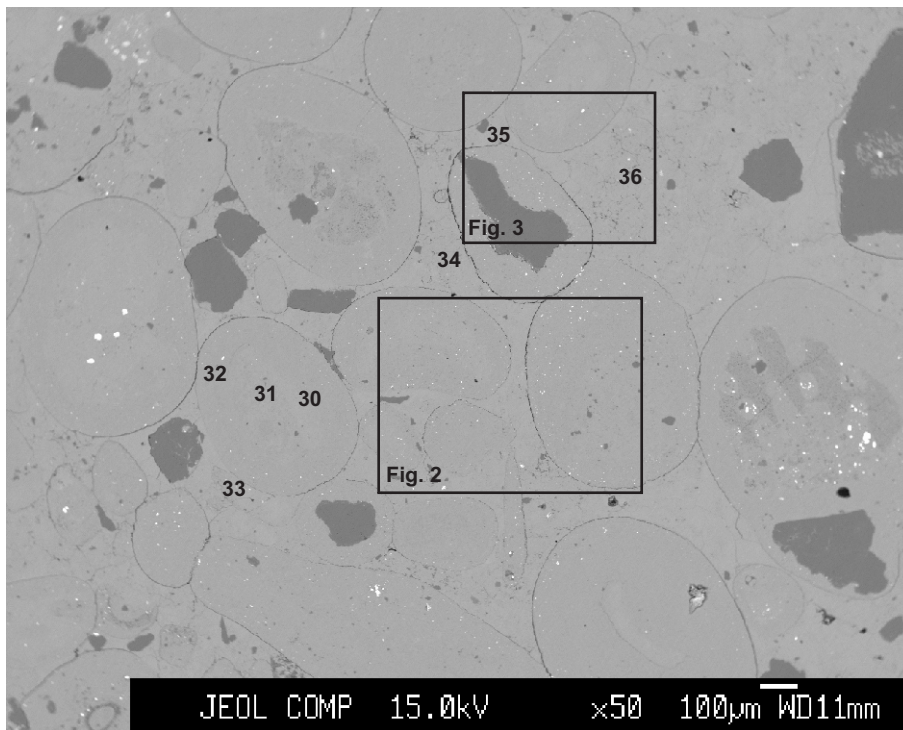
Figure 65: Venture B-52-5113.77



- 29: Fe-calcite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: Fe-calcite
- 33: Fe-calcite
- 34: Fe-calcite

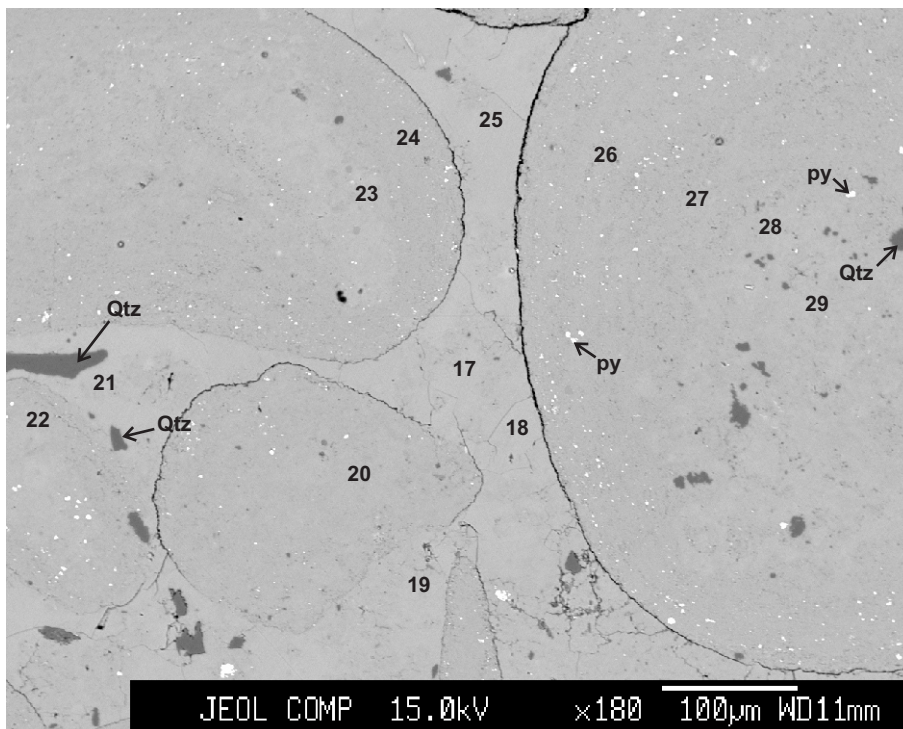
Figure 66: Venture B-52-5113.77

Appendix 2B : Back-scattered electron images for Venture B-13



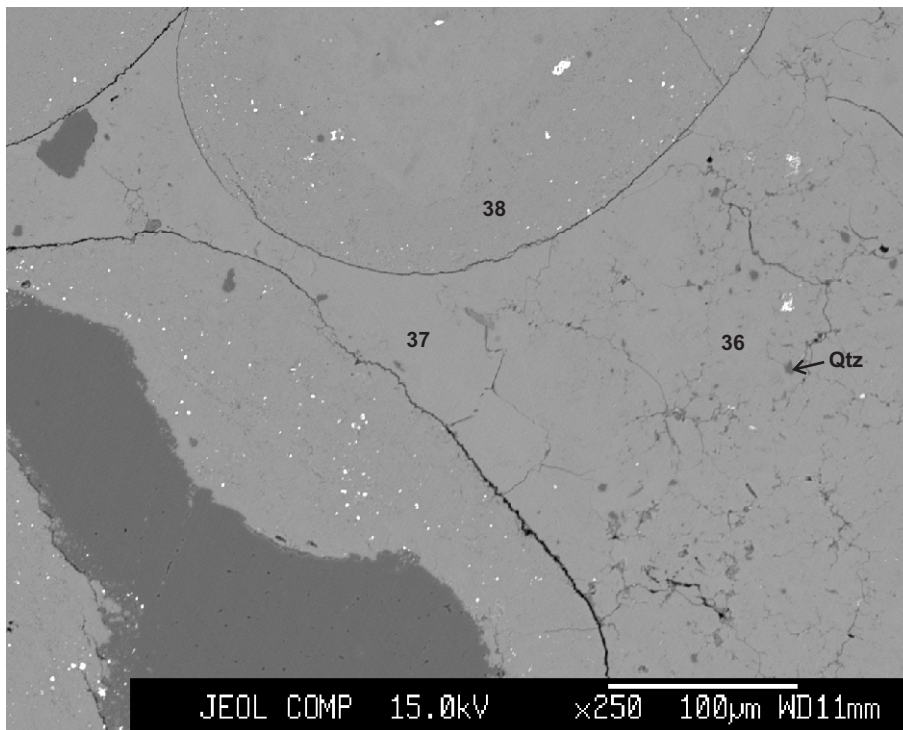
- 30: calcite
- 31: Fe-calcite
- 32: calcite
- 33: Fe-calcite
- 34: Fe-calcite
- 35: Fe-calcite
- 36: Fe-calcite

Figure 1: Venture B-13-4701.2



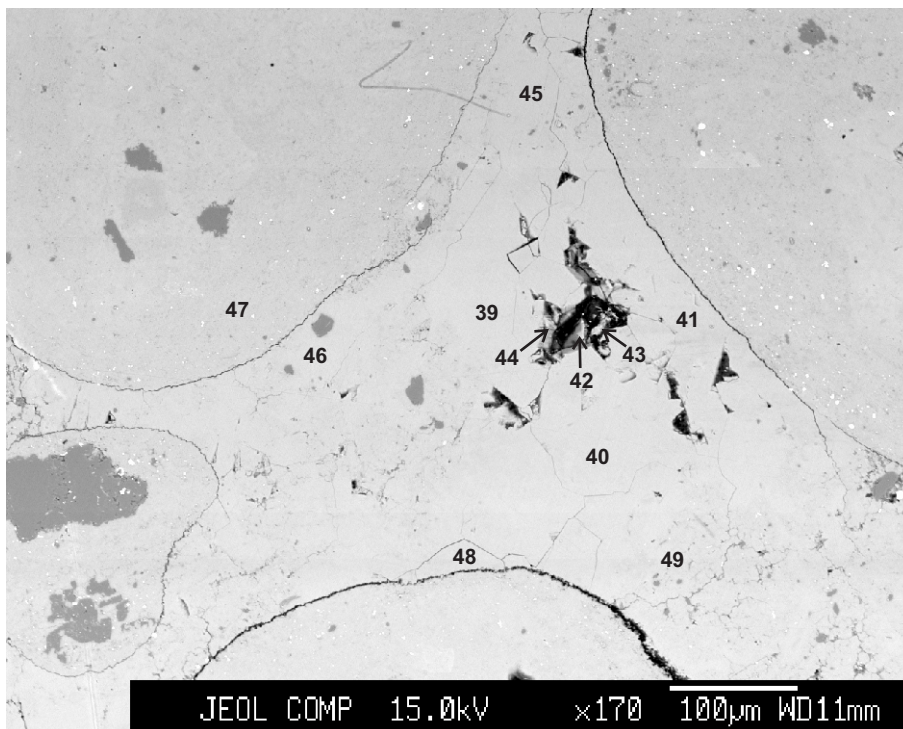
- 17: Fe-calcite
- 18: Fe-calcite
- 19: Fe-calcite
- 20: calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: calcite
- 25: Fe-calcite
- 26: calcite
- 27: calcite
- 28: calcite
- 29: calcite

Figure 2: Venture B-13-4701.2



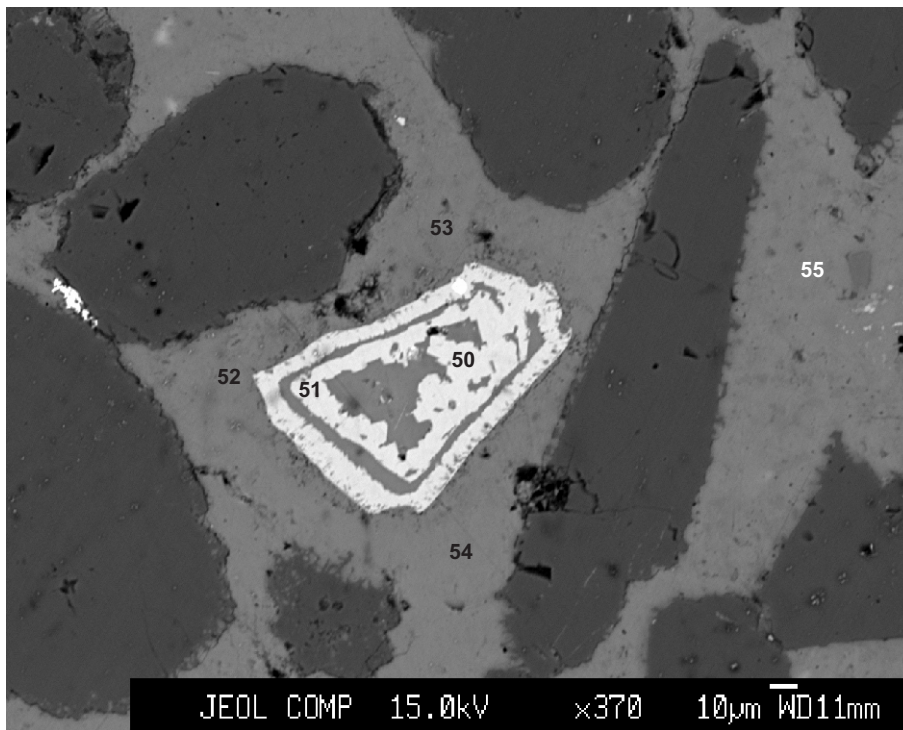
- 36: Fe-calcite
- 37: Fe-calcite
- 38: calcite

Figure 3: Venture B-13-4701.2



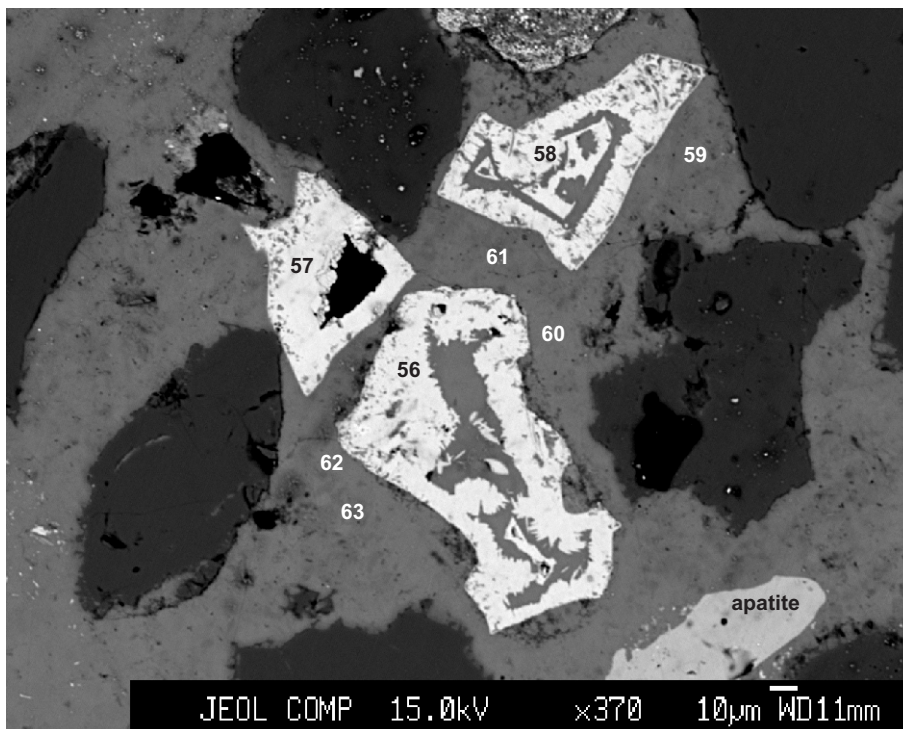
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite
- 42: Fe-calcite
- 43: Fe-calcite
- 44: Fe-calcite
- 45: Fe-calcite
- 46: Fe-calcite
- 47: calcite
- 48: Fe-calcite
- 49: Fe-calcite

Figure 4: Venture B-13-4701.2



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

Figure 5: Venture B-13-4701.2



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

Figure 6: Venture B-13-4701.2

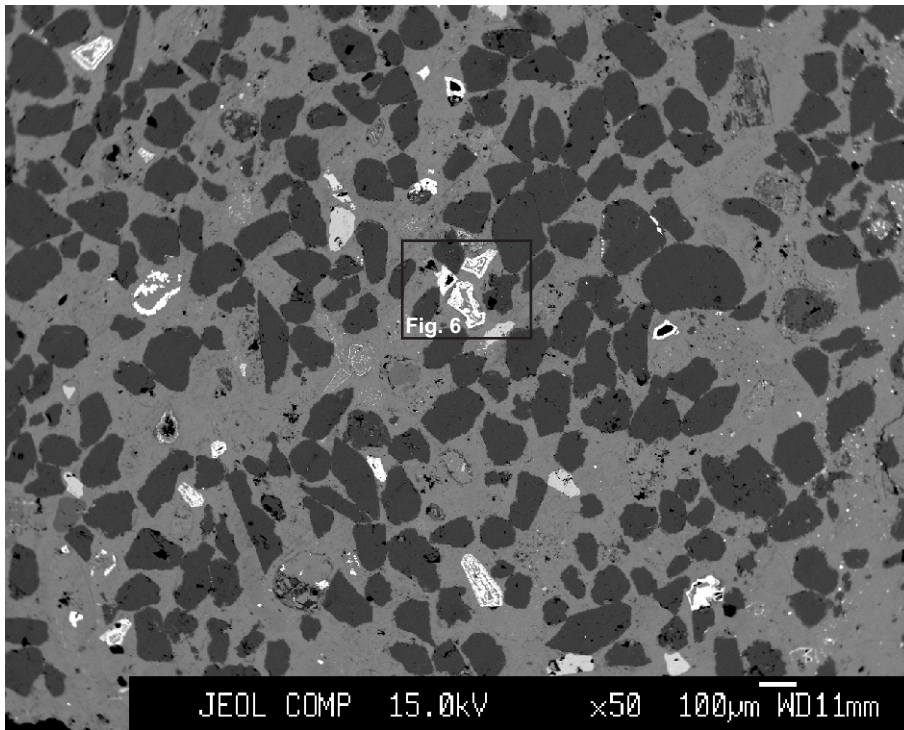


Figure 7: Venture B-13-4701.2

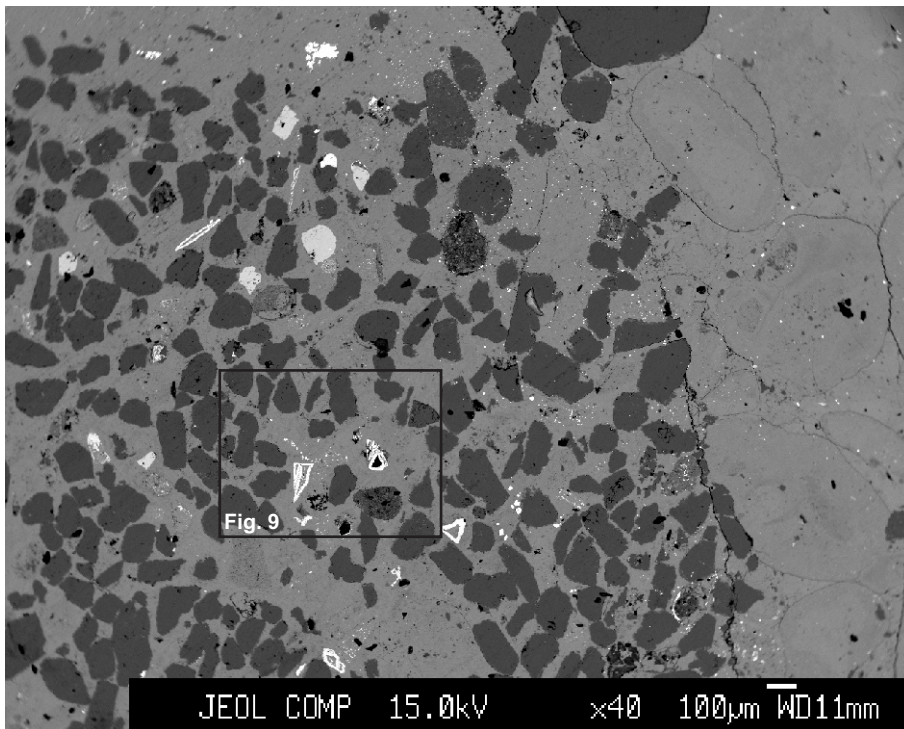
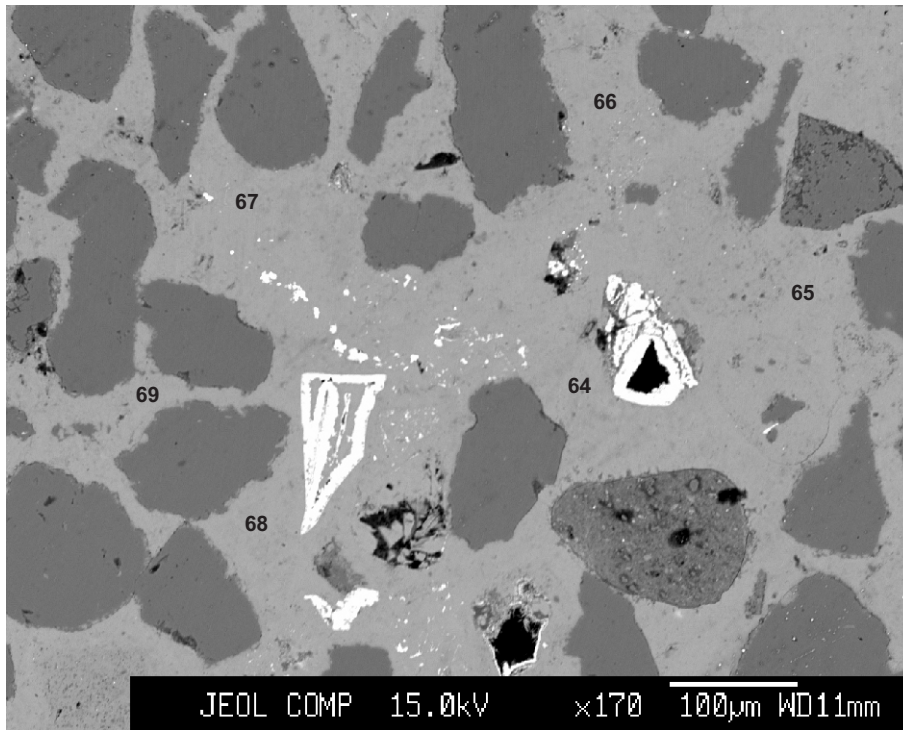
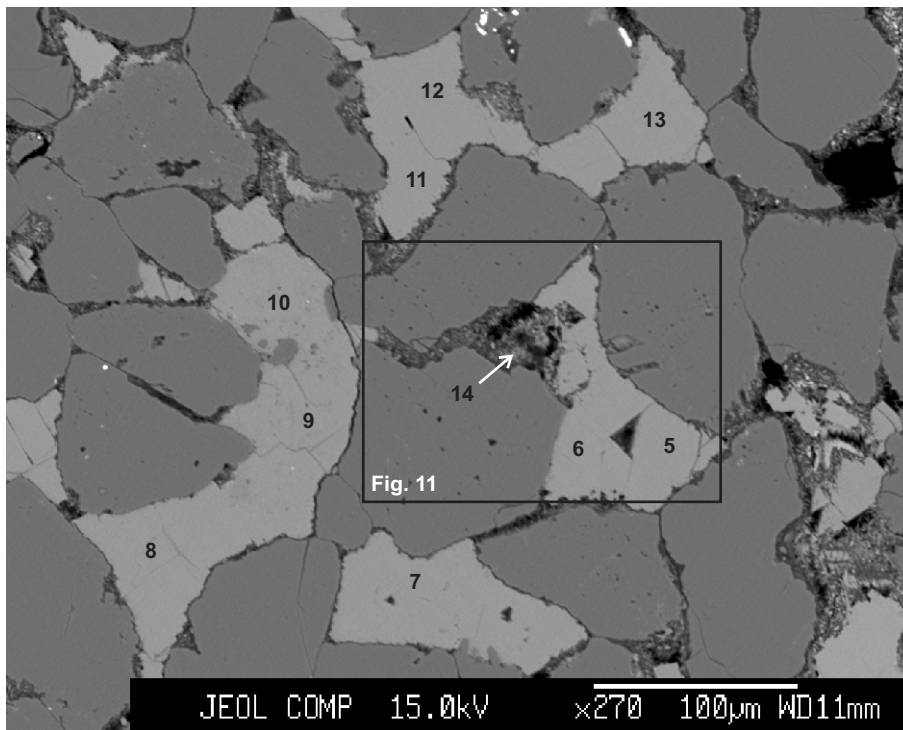


Figure 8: Venture B-13-4701.2



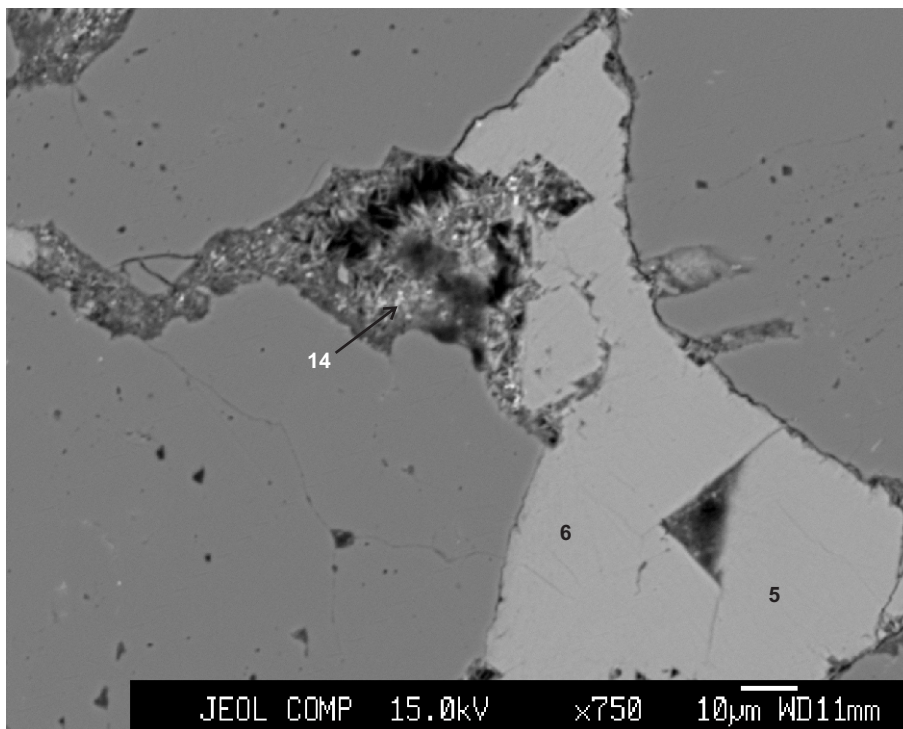
- 64: Fe-calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: Fe-calcite
- 68: calcite
- 69: Fe-calcite

Figure 9: Venture B-13-4701.2



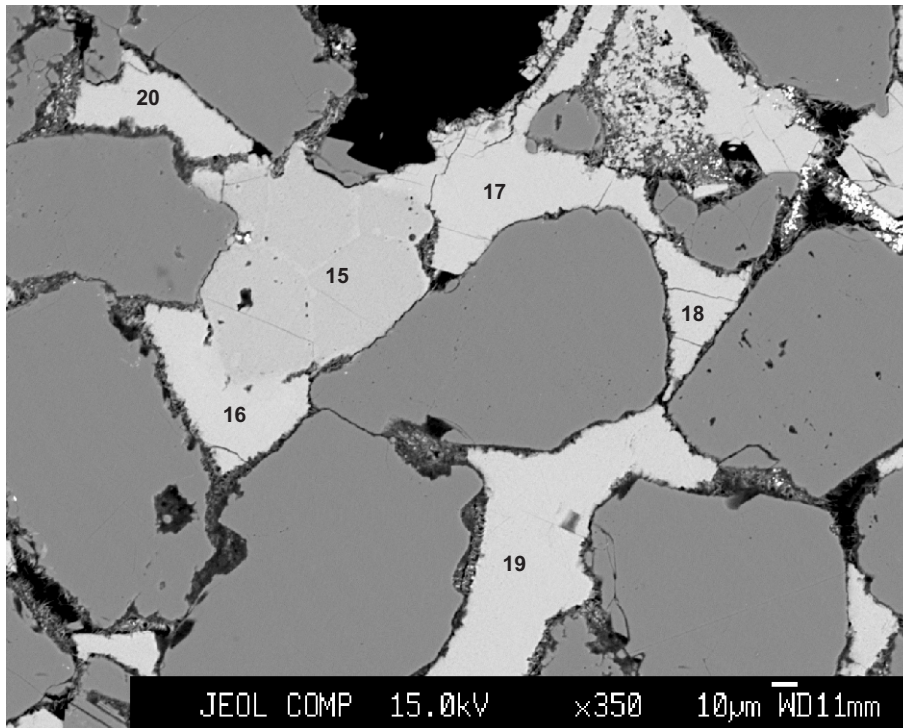
- 5: ankerite
- 6: ankerite
- 7: ankerite
- 8: ankerite
- 9: ankerite
- 10: ankerite
- 11: ankerite
- 12: ankerite
- 13: ankerite
- 14: chlorite

Figure 10: Venture B-13-4708.57



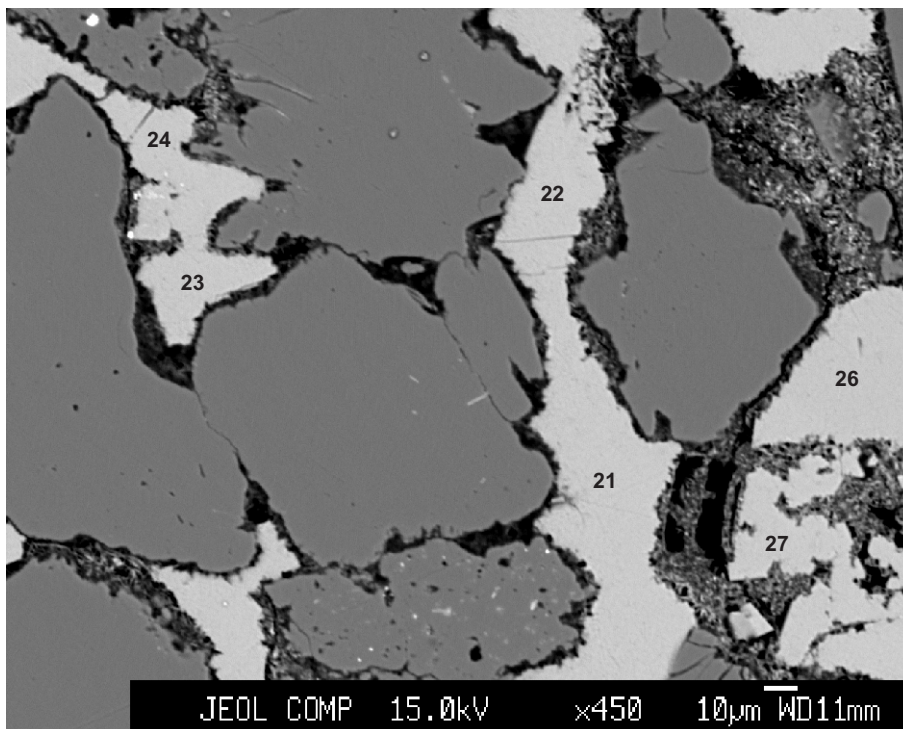
- 5: ankerite
- 6: ankerite
- 14: chlorite

Figure 11: Venture B-13-4708.57



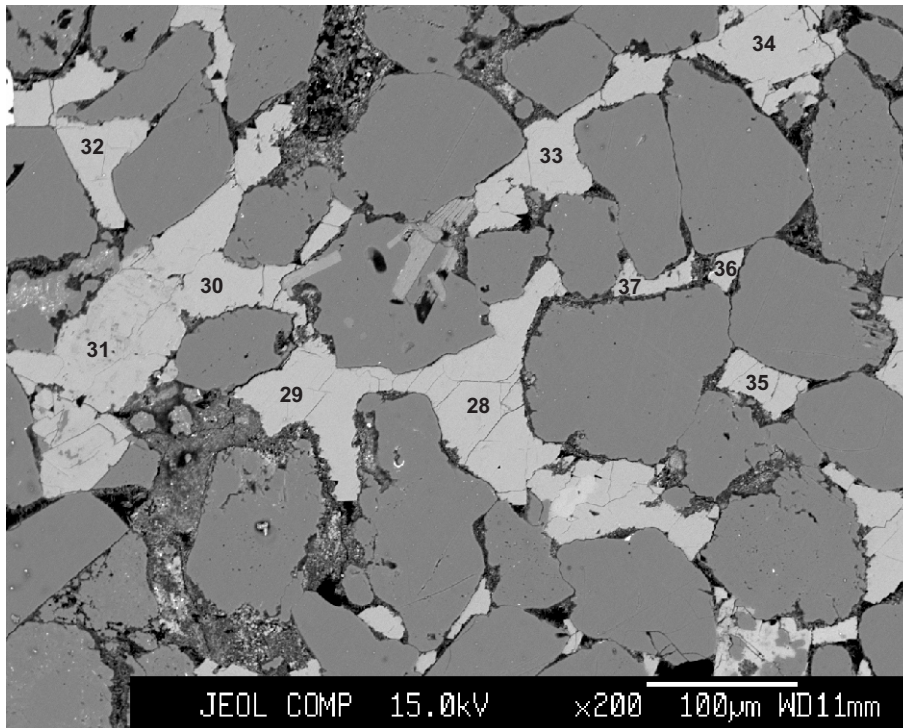
- 15: calcite
- 16: Fe-calcite
- 17: Fe-calcite
- 18: Fe-calcite
- 19: Fe-calcite
- 20: Fe-calcite

Figure 12: Venture B-13-4708.57



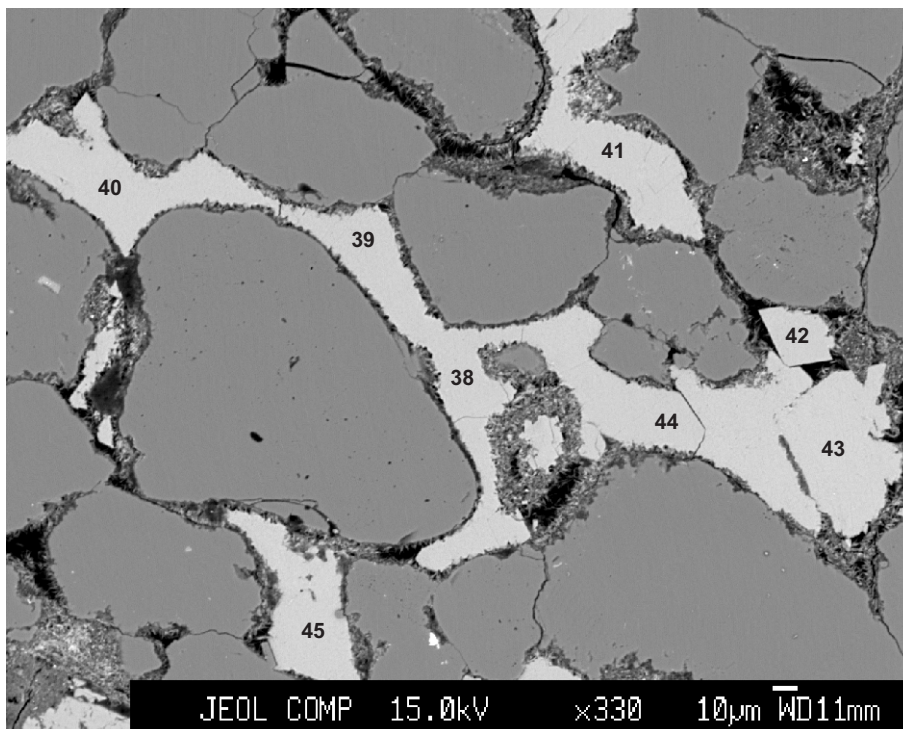
- 21: calcite
- 22: calcite
- 23: Fe-calcite
- 24: calcite
- 25: Fe-calcite
- 26: Fe-calcite
- 27: Fe-calcite

Figure 13: Venture B-13-4708.57



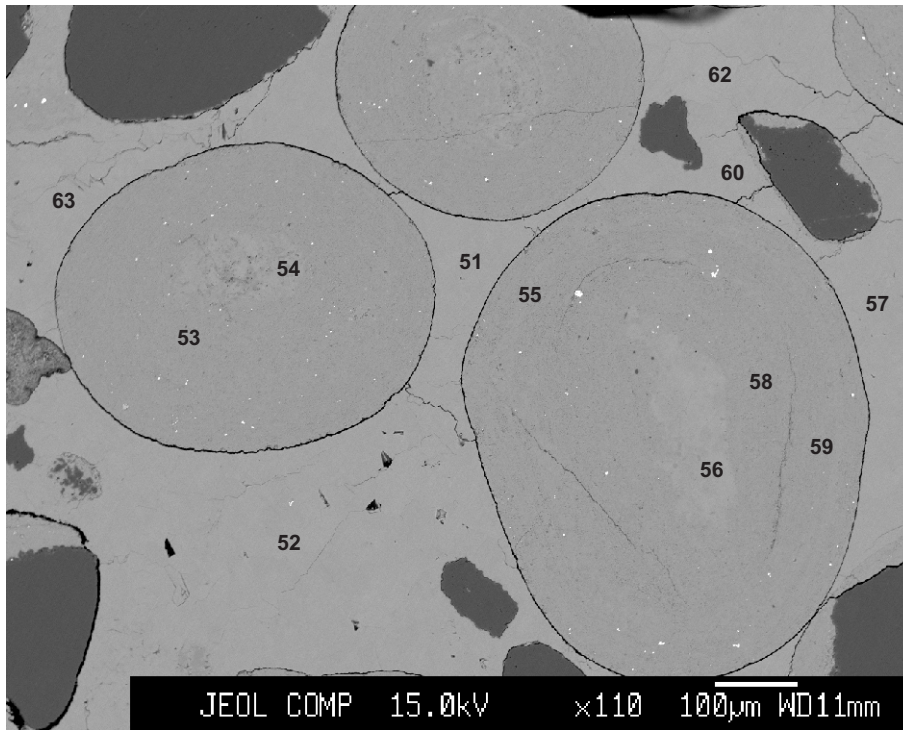
- 28: ankerite
- 29: ankerite
- 30: ankerite
- 31: ankerite
- 32: ankerite
- 33: ankerite
- 34: ankerite
- 35: ankerite
- 36: ankerite
- 37: ankerite

Figure 14: Venture B-13-4708.57



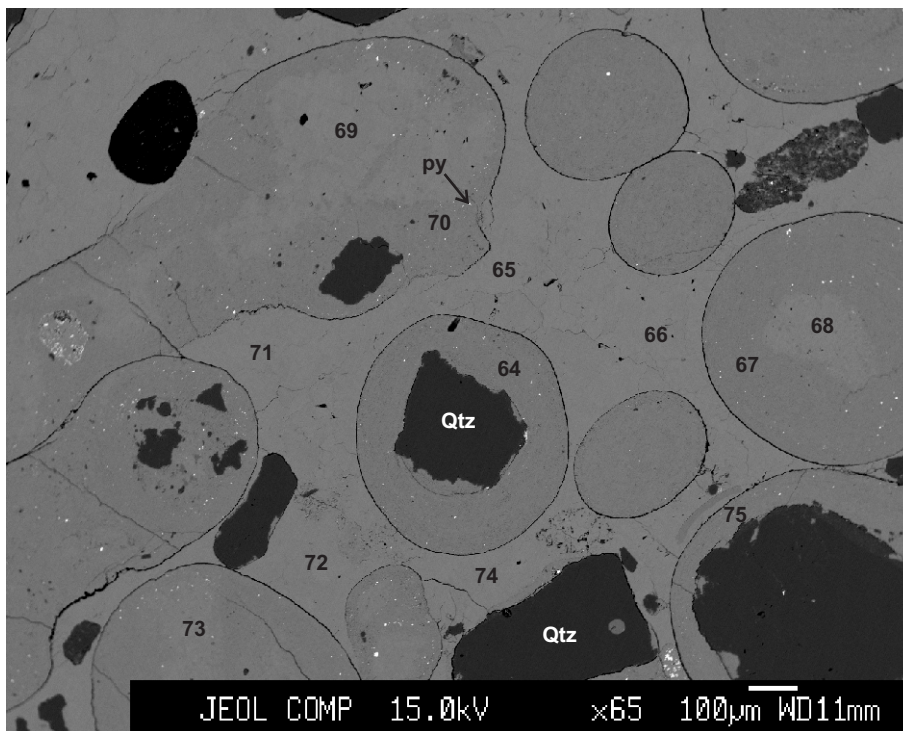
- 38: Fe-calcite
- 39: Fe-calcite
- 40: calcite
- 41: calcite
- 42: calcite
- 43: Fe-calcite
- 44: Fe-calcite
- 45: Fe-calcite
- 46: Fe-calcite

Figure 15: Venture B-13-4708.57



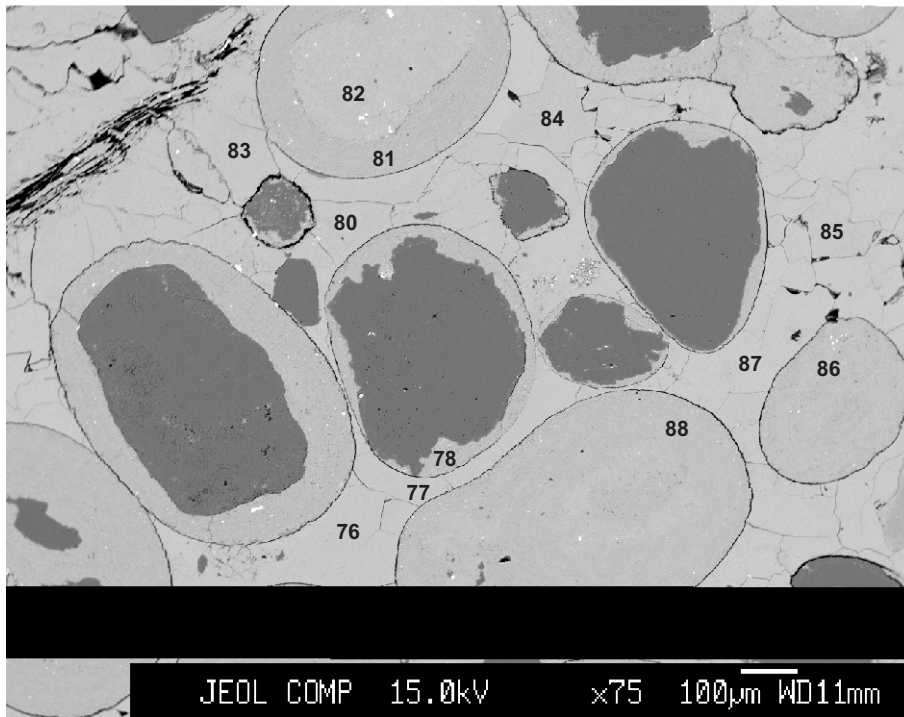
- 51: Fe-calcite
- 52: Fe-calcite
- 53: Fe-calcite + clay
- 54: calcite
- 55: calcite
- 56: Fe-calcite
- 57: Fe-calcite
- 58: calcite
- 59: Fe-calcite + clay
- 60: Fe-calcite
- 61: Fe-calcite
- 62: Fe-calcite
- 63: Fe-calcite

Figure 16: Venture B-13-4711.09



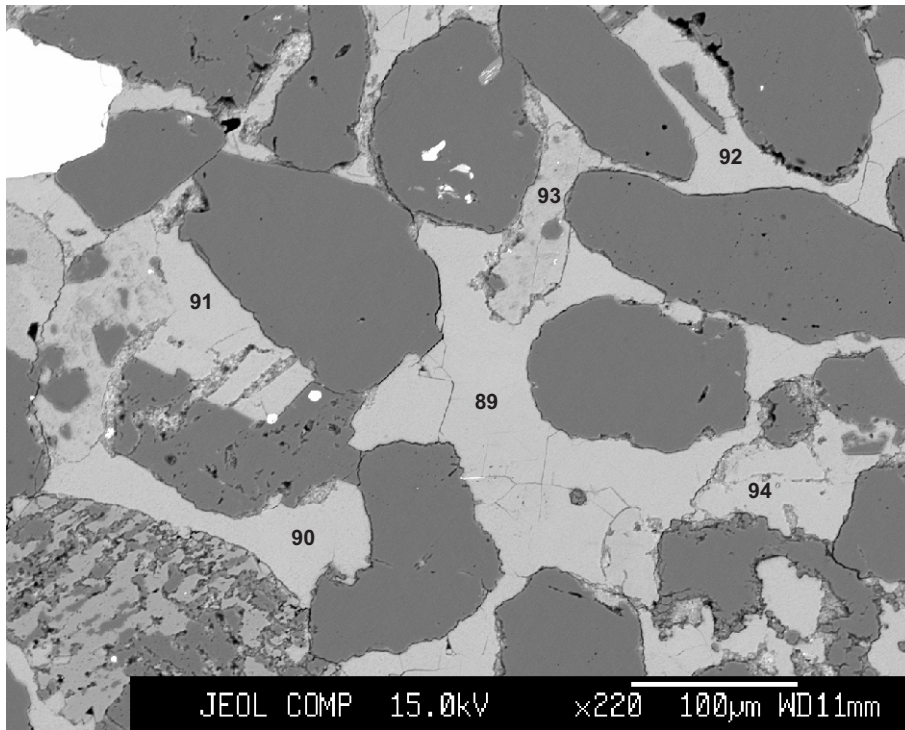
- 64: calcite
- 65: Fe-calcite
- 66: Fe-calcite
- 67: Fe-calcite
- 68: Fe-calcite
- 69: Fe-calcite
- 70: calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: calcite

Figure 17: Venture B-13-4711.09



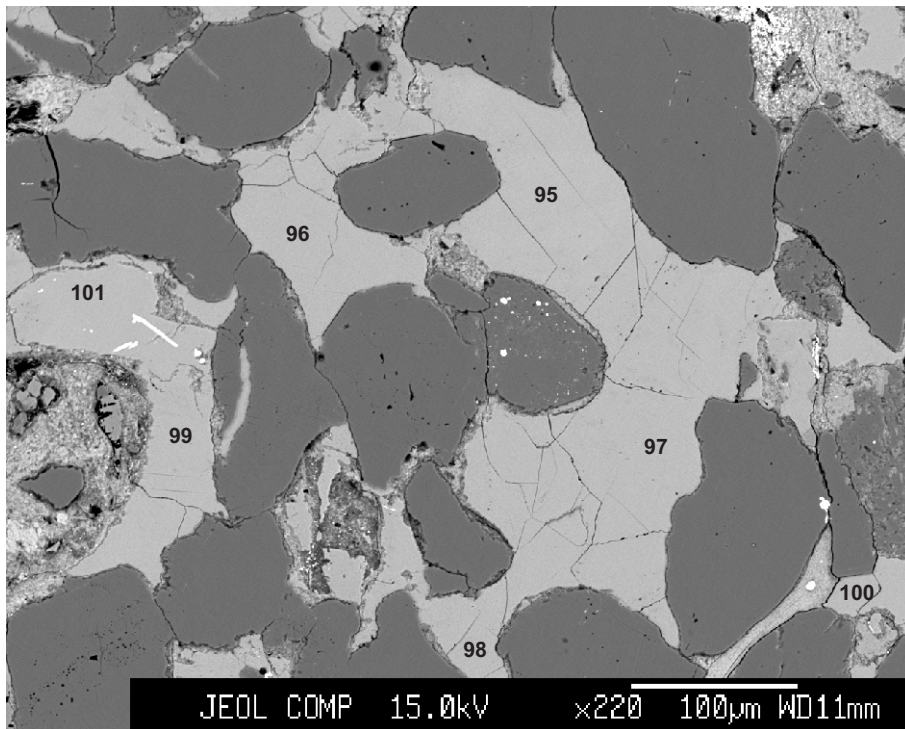
- 76: Fe-calcite
- 77: Fe-calcite
- 78: calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: calcite

Figure 18: Venture B-13-4711.09



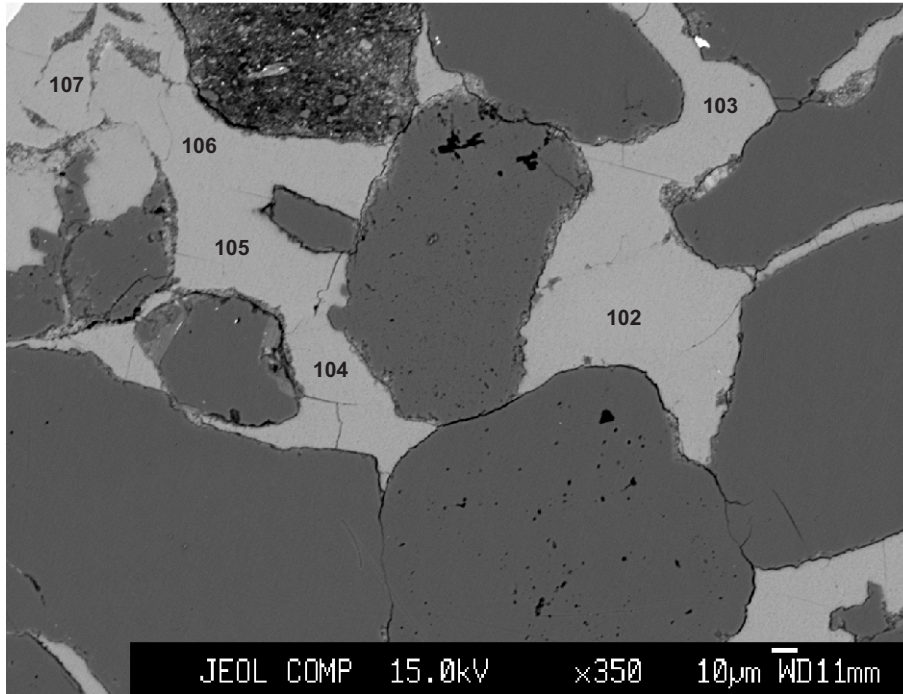
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite

Figure 19: Venture B-13-4712.6



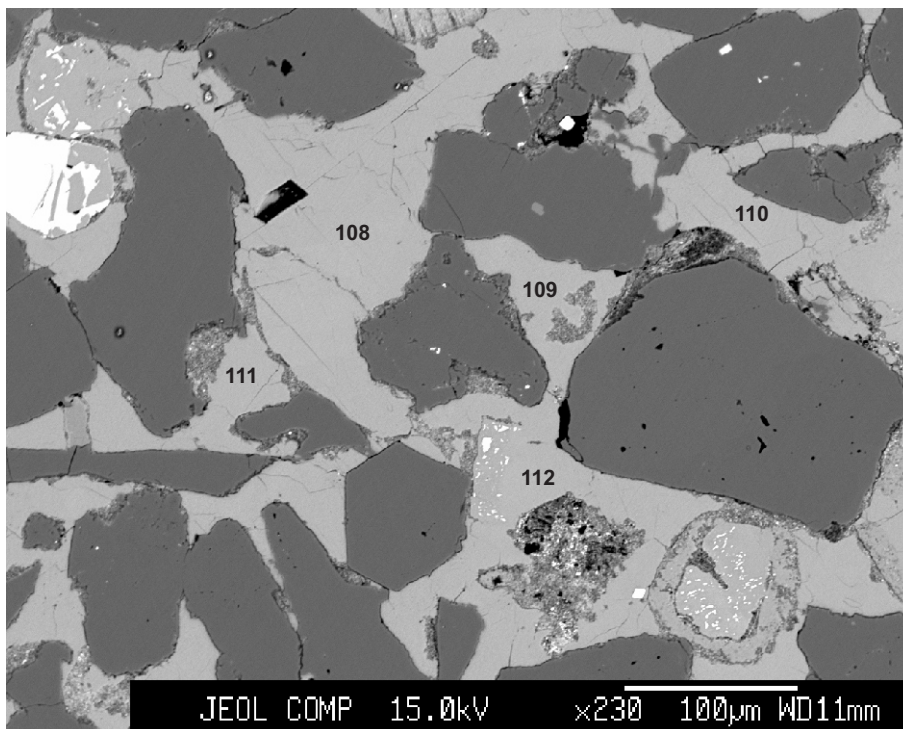
- 95: Fe-calcite
- 96: Fe-calcite
- 97: Fe-calcite
- 98: Fe-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: Fe-calcite

Figure 20: Venture B-13-4712.6



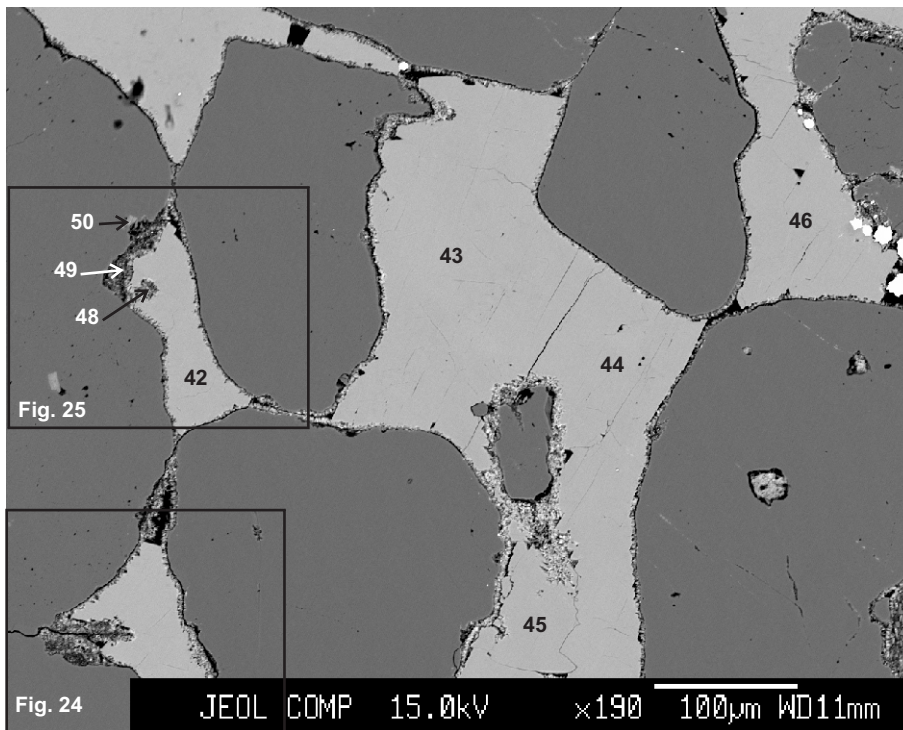
- 102: Fe-calcite
- 103: Fe-calcite
- 104: calcite
- 105: calcite
- 106: calcite
- 107: Fe-calcite

Figure 21: Venture B-13-4712.6



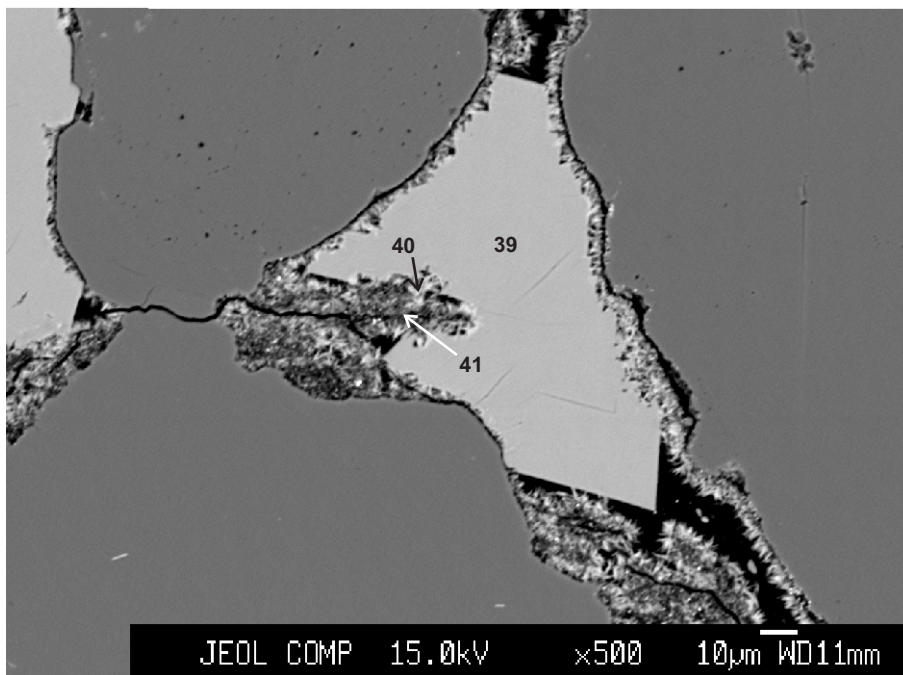
- 108: calcite
- 109: Fe-calcite
- 110: calcite
- 111: calcite
- 112: calcite

Figure 22: Venture B-13-4712.6



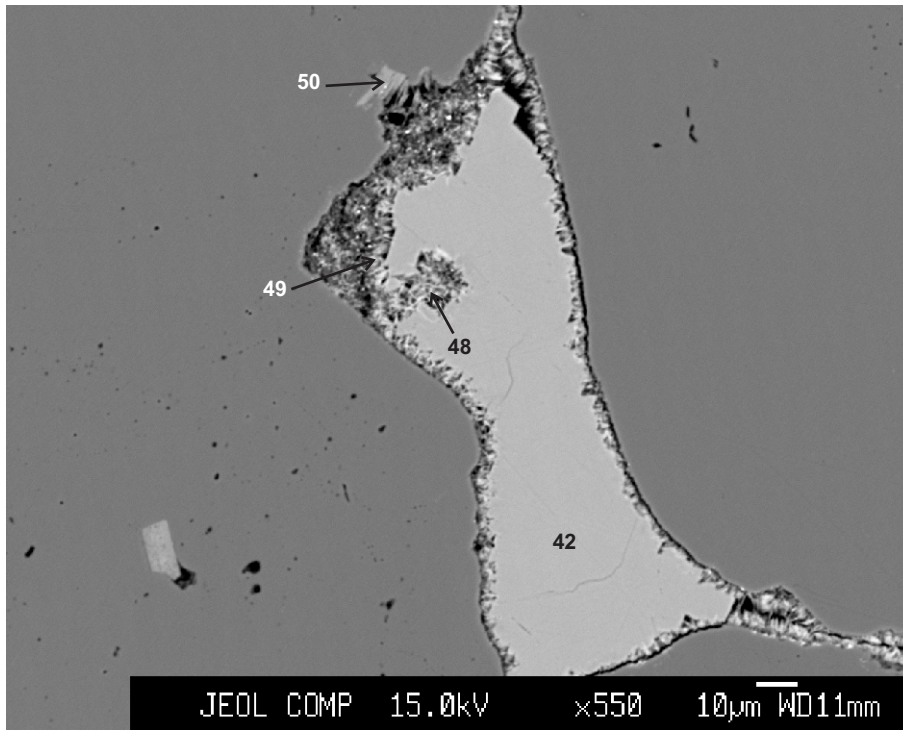
- 42: ankerite
- 43: ankerite
- 44: ankerite
- 45: ankerite
- 46: ankerite
- 47: ankerite
- 48: chlorite
- 49: chlorite
- 50: biotite

Figure 23: Venture B-13-4720.44



- 39: ankerite
- 40: chlorite
- 41: chlorite

Figure 24: Venture B-13-4720.44



42: ankerite
48: chlorite
49: chlorite
50: biotite

Figure 25: Venture B-13-4720.44

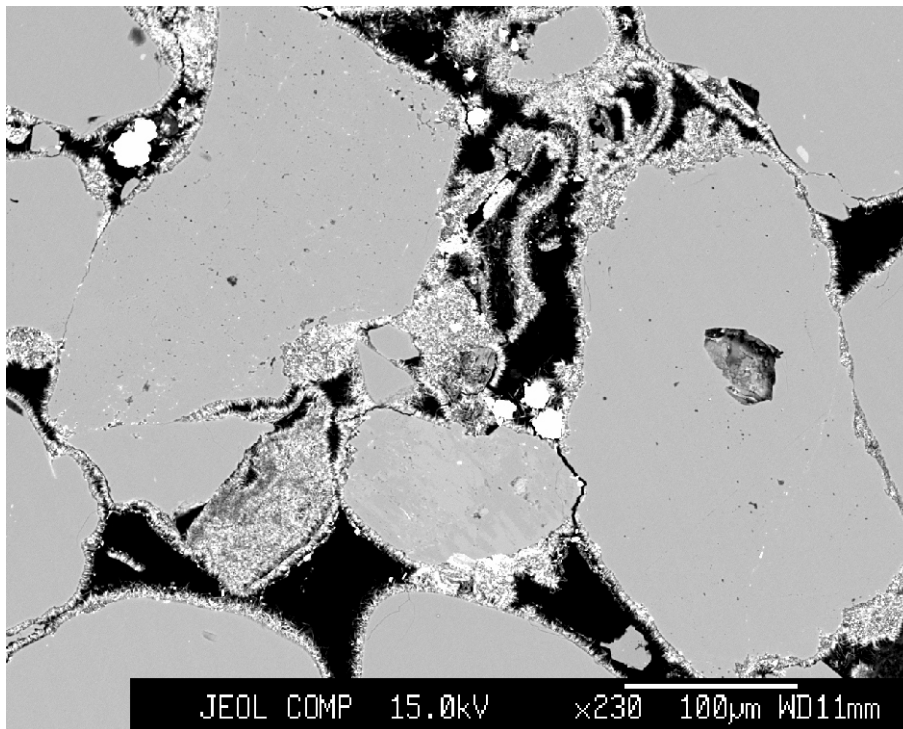
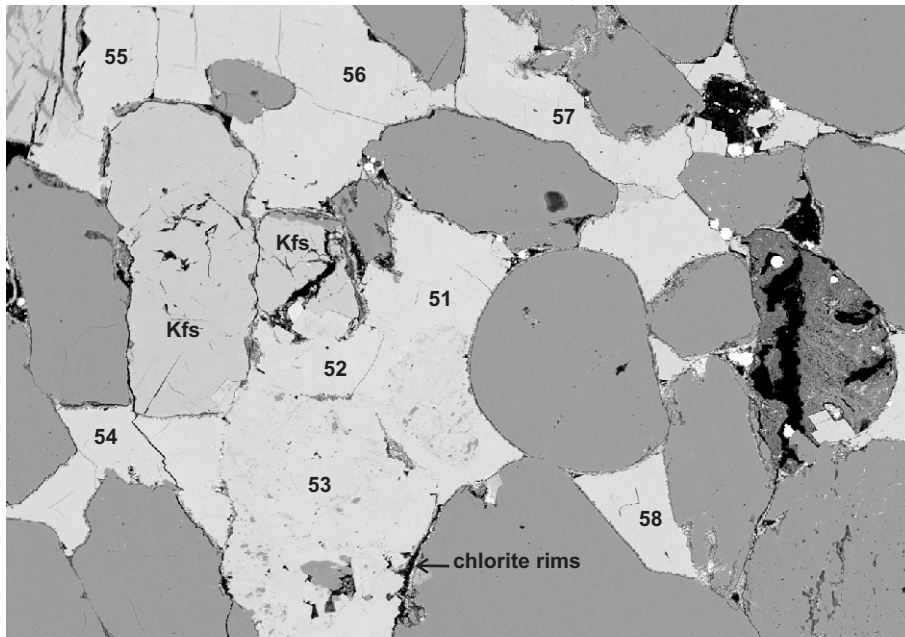


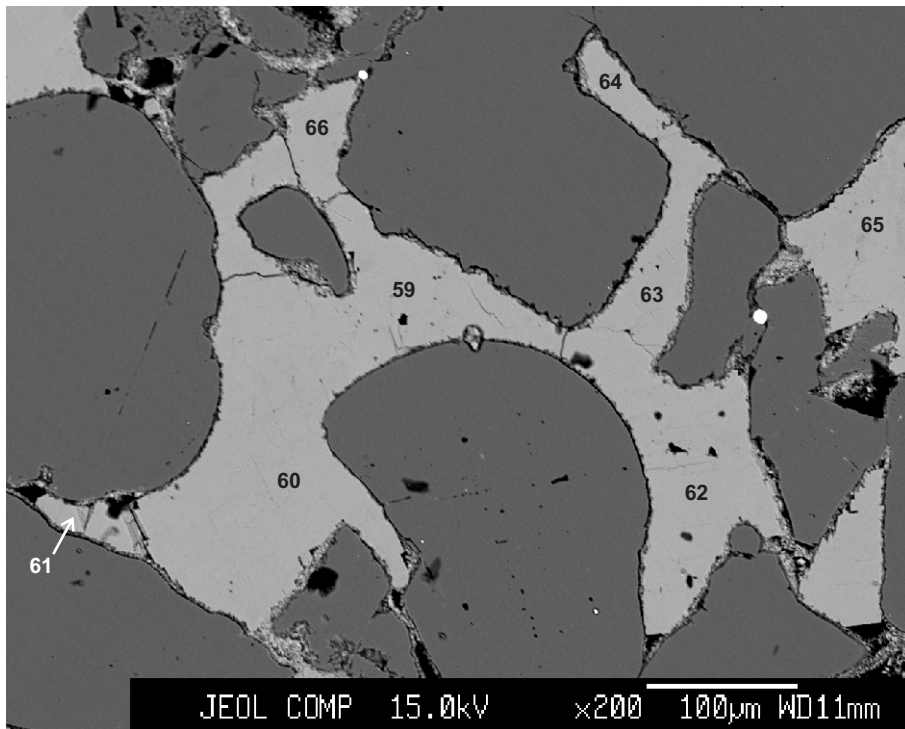
Figure 26: Venture B-13-4720.44



- 51: ankerite
- 52: ankerite
- 53: ankerite
- 54: ankerite
- 55: ankerite
- 56: ankerite
- 57: ankerite
- 58: ankerite

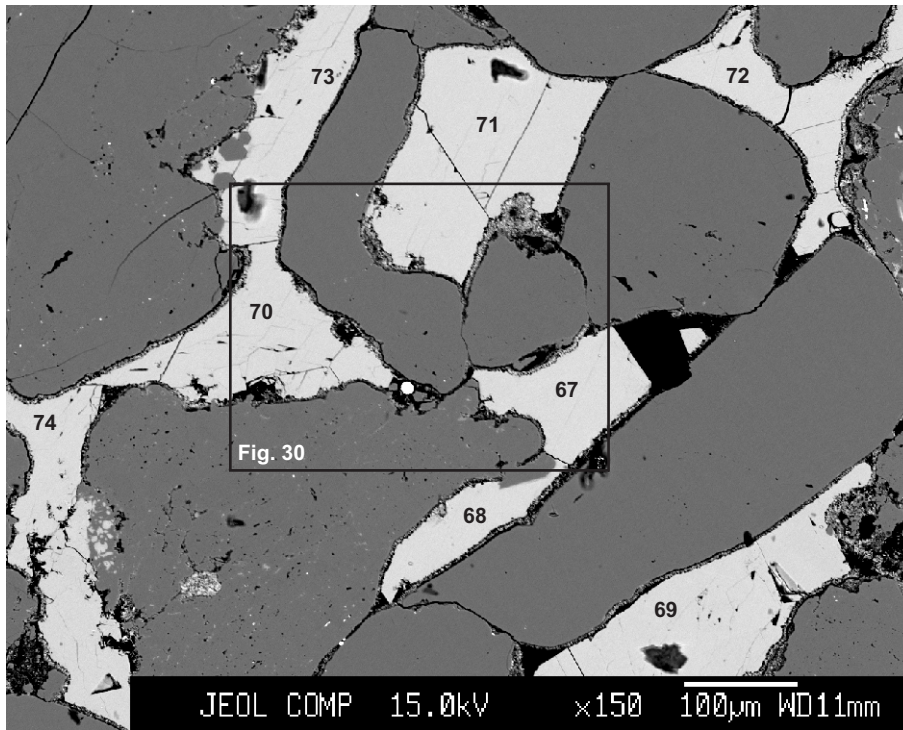
SEI 15.0kV X110 100µm WD1.1mm

Figure 27: Venture B-13-4720.44



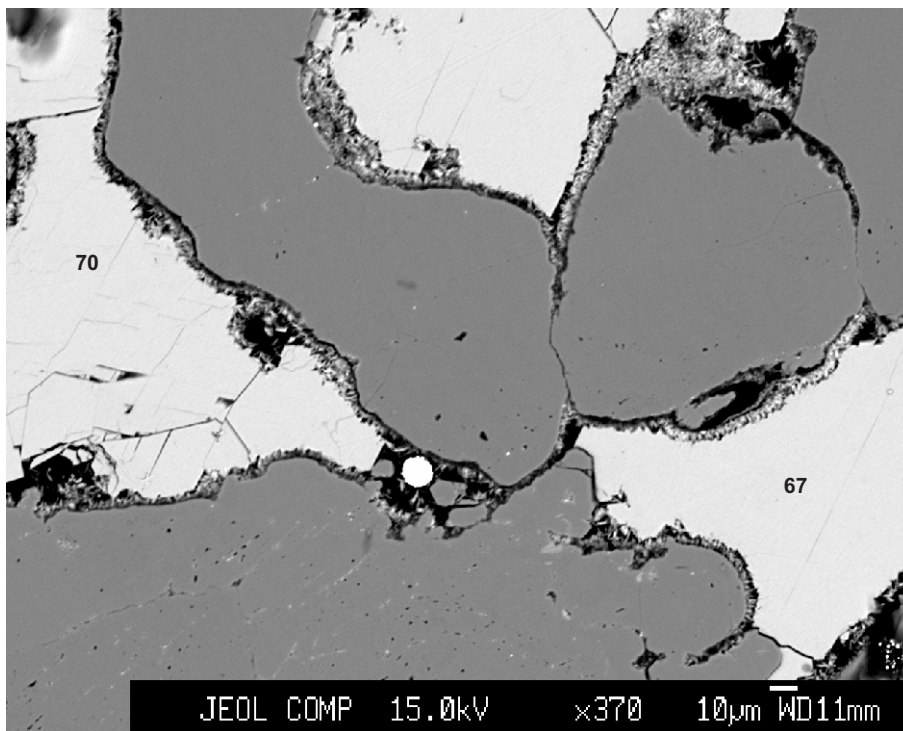
- 59: ankerite
- 60: ankerite
- 61: ankerite
- 62: ankerite
- 63: ankerite
- 64: ankerite
- 65: ankerite
- 66: ankerite

Figure 28: Venture B-13-4720.44



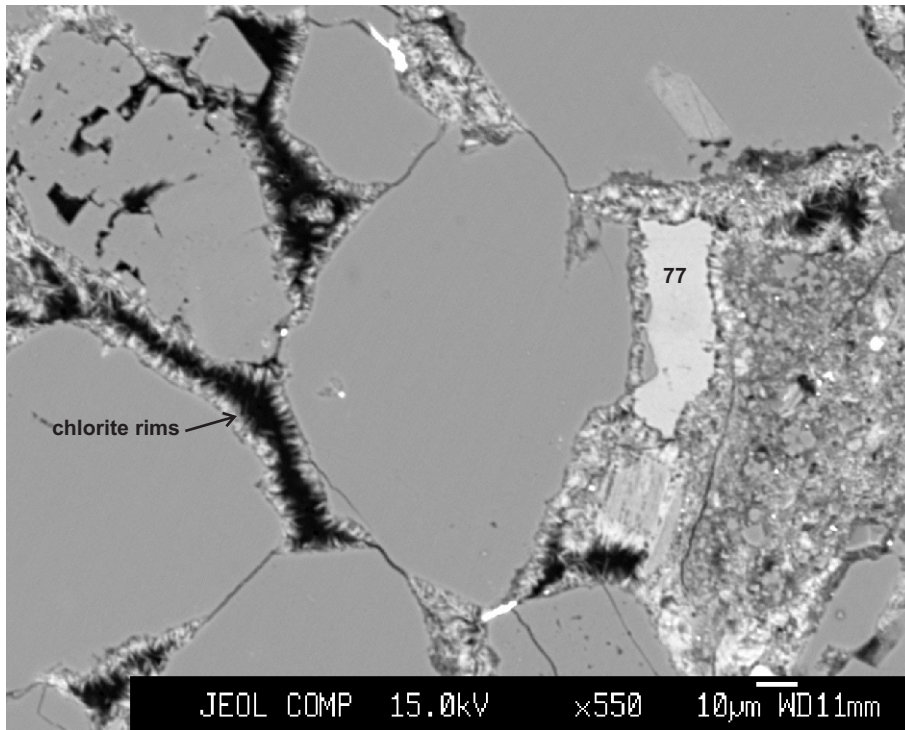
67: calcite
 68: calcite
 69: calcite
 70: calcite
 71: calcite
 72: calcite
 73: calcite
 74: calcite

Figure 29: Venture B-13-4720.44



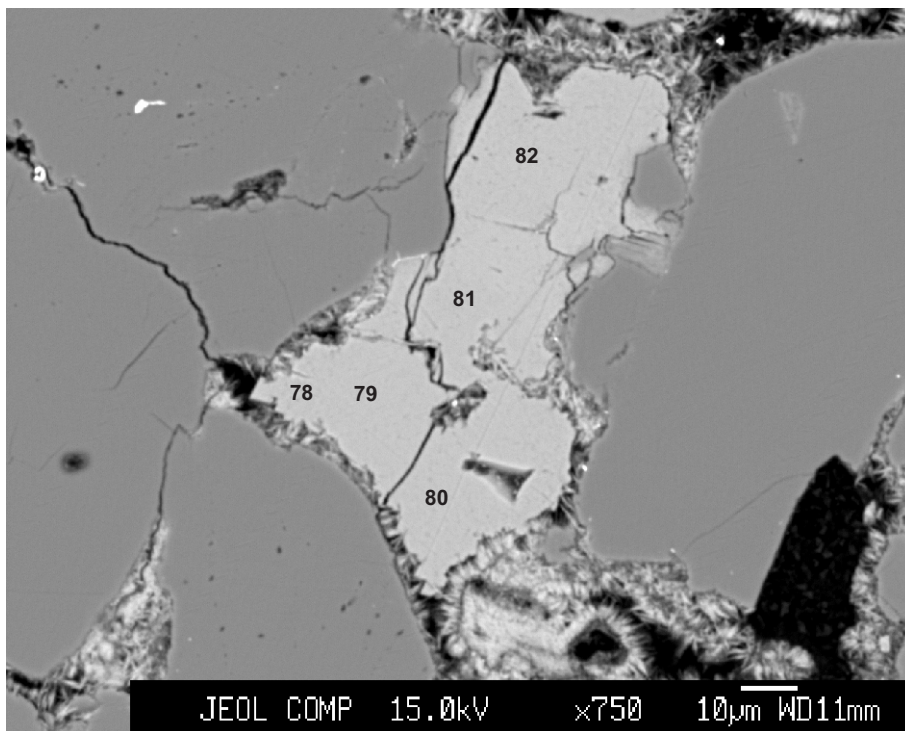
67: calcite
 70: calcite

Figure 30: Venture B-13-4720.44



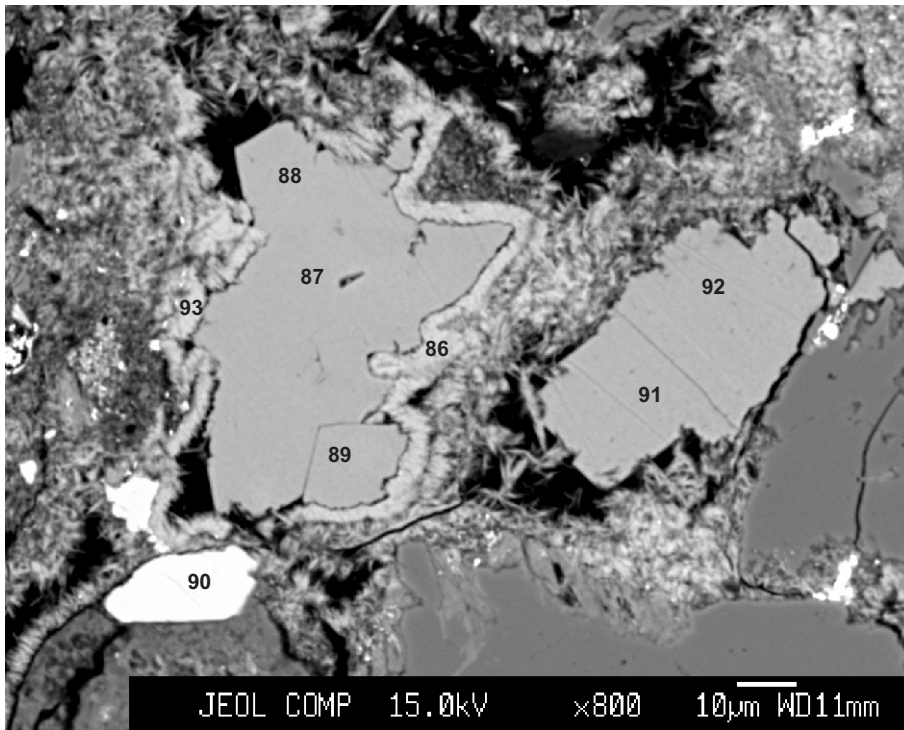
77: calcite

Figure 31: Venture B-13-4727.71



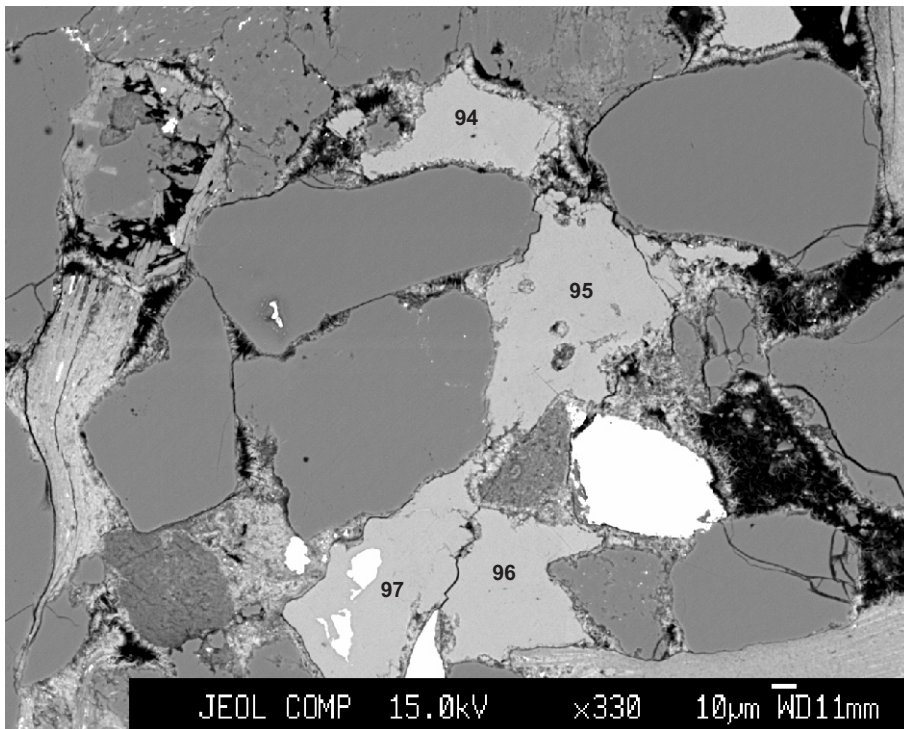
78: Fe-calcite
79: Fe-calcite
80: calcite
81: calcite
82: Fe-calcite

Figure 32: Venture B-13-4727.71



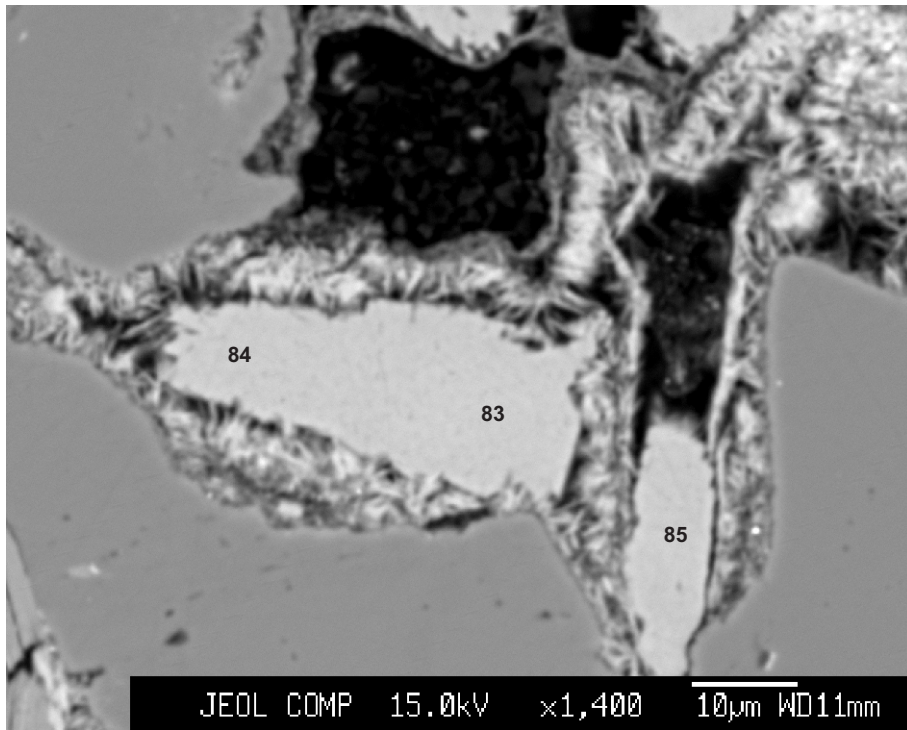
- 88: Fe-calcite
- 89: Fe-calcite
- 90: apatite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: chlorite

Figure 33: Venture B-13-4727.71



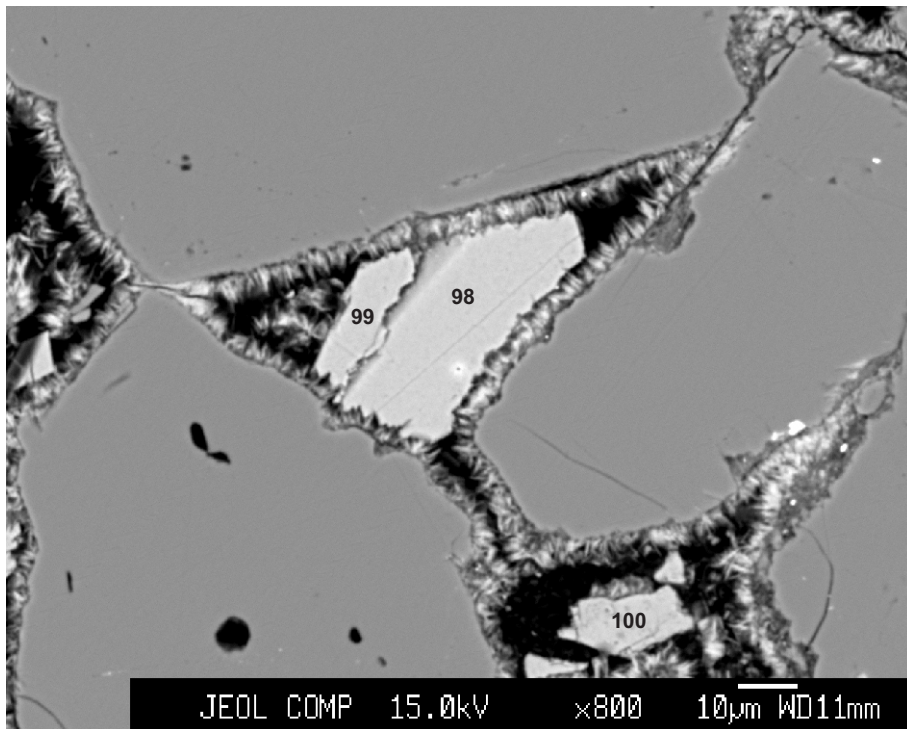
- 94: calcite
- 95: calcite
- 96: calcite
- 97: calcite

Figure 34: Venture B-13-4727.71



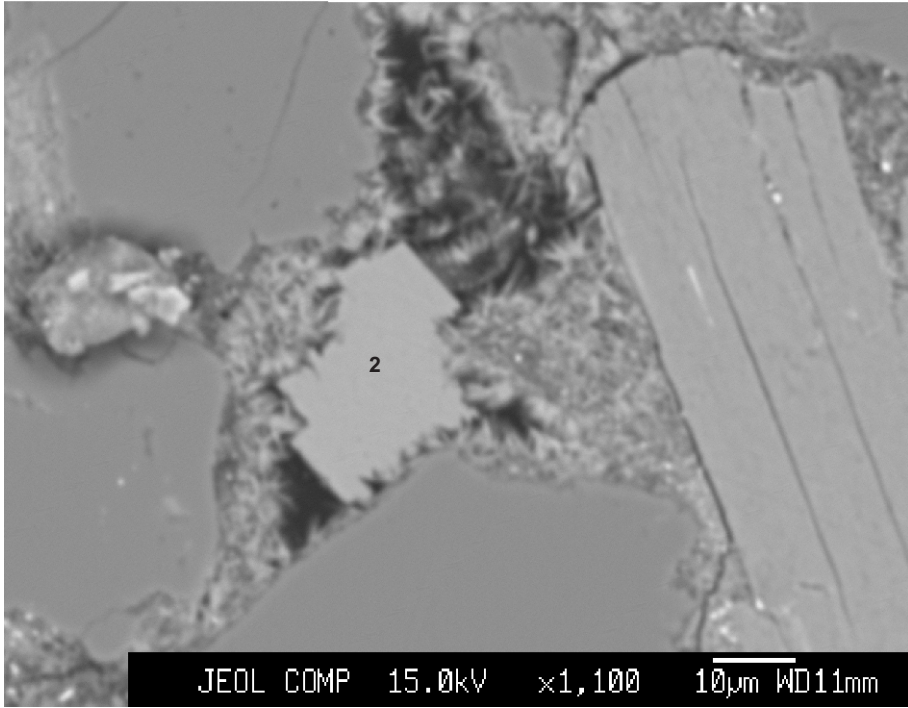
83: calcite
84: Fe-calcite
85: Fe-calcite

Figure 35: Venture B-13-4727.71



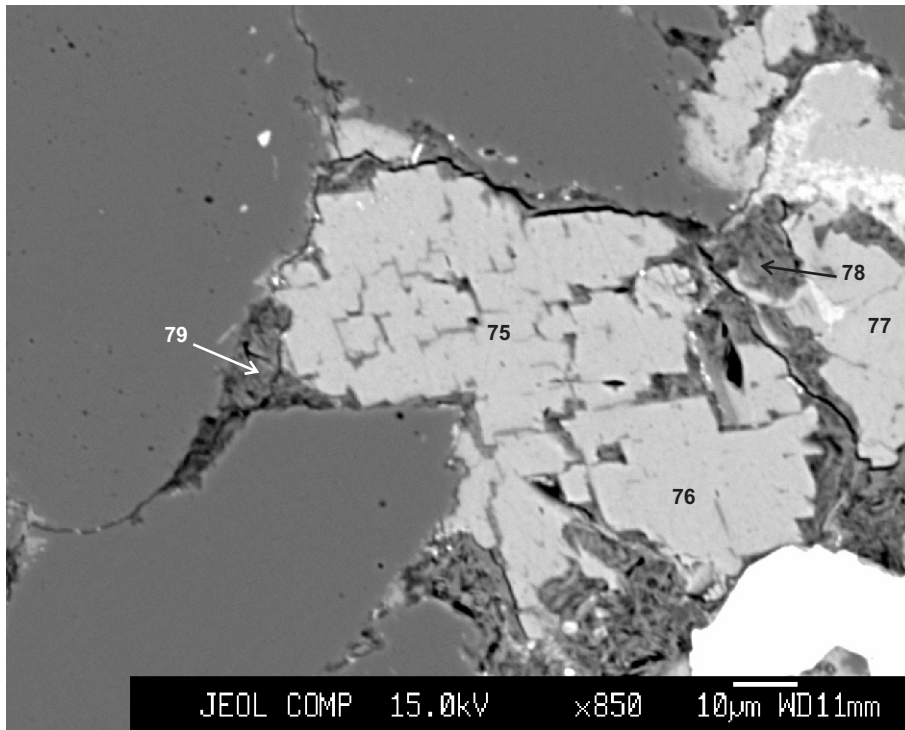
98: calcite
99: calcite
100: calcite

Figure 36: Venture B-13-4727.71



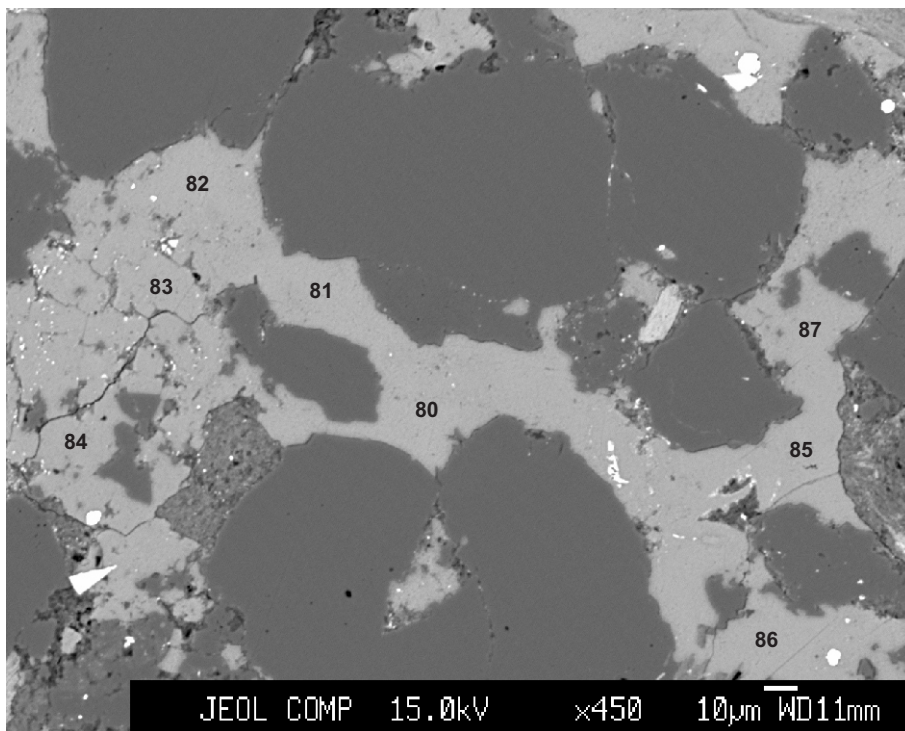
2: Fe-calcite

Figure 37: Venture B-13-4727.71



- 75: calcite
- 76: calcite
- 77: calcite
- 78: chlorite + illite
- 79: illite

Figure 38: Venture B-13-4730.61



- 80: calcite
- 81: calcite
- 82: calcite
- 83: calcite
- 84: calcite
- 85: calcite
- 86: calcite
- 87: calcite

Figure 39: Venture B-13-4730.61

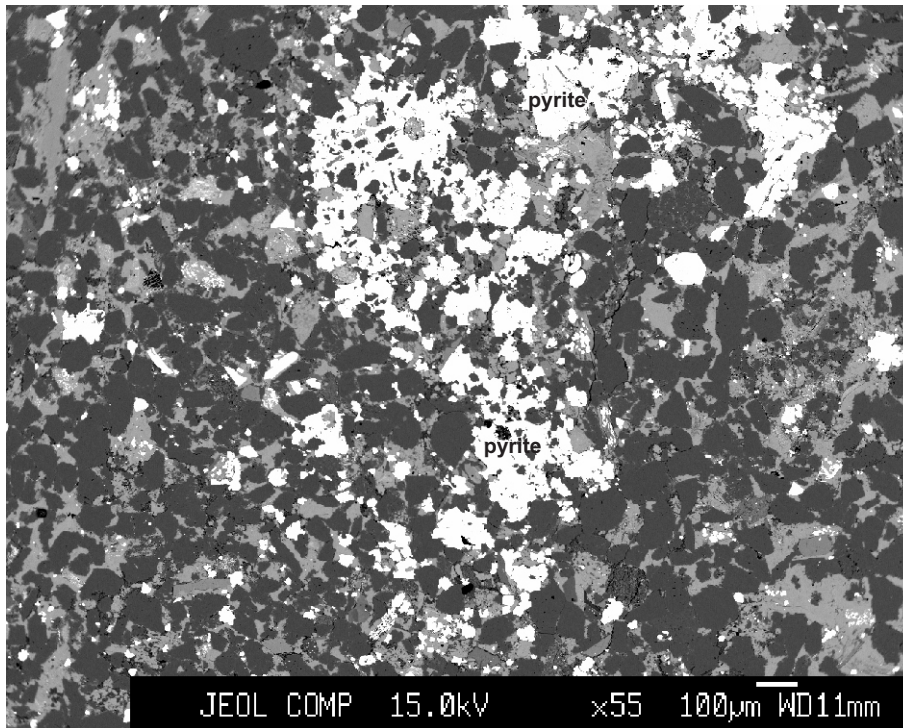
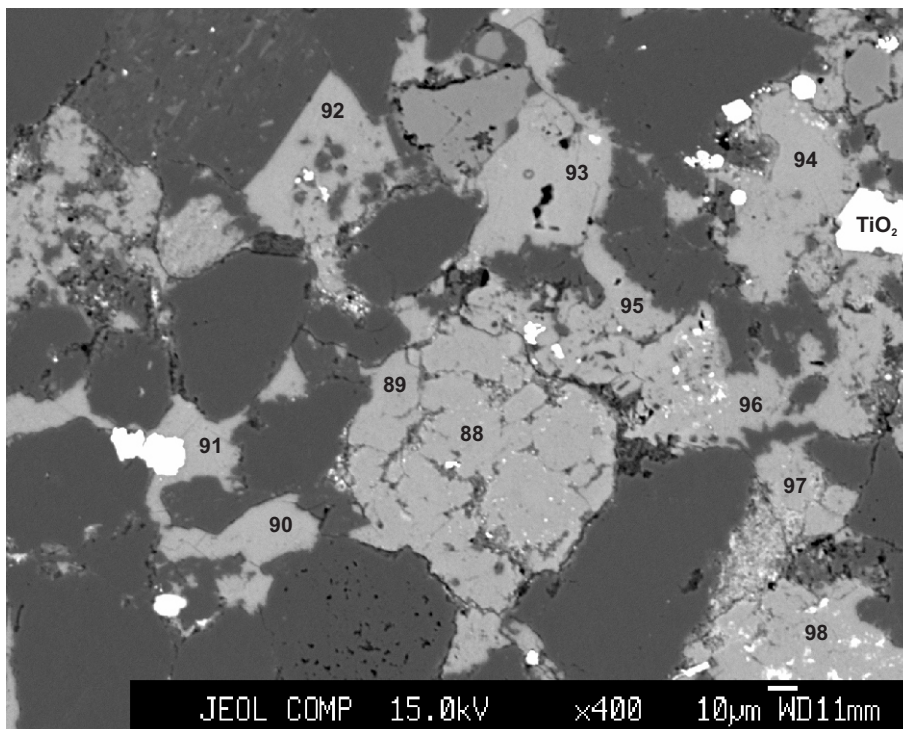
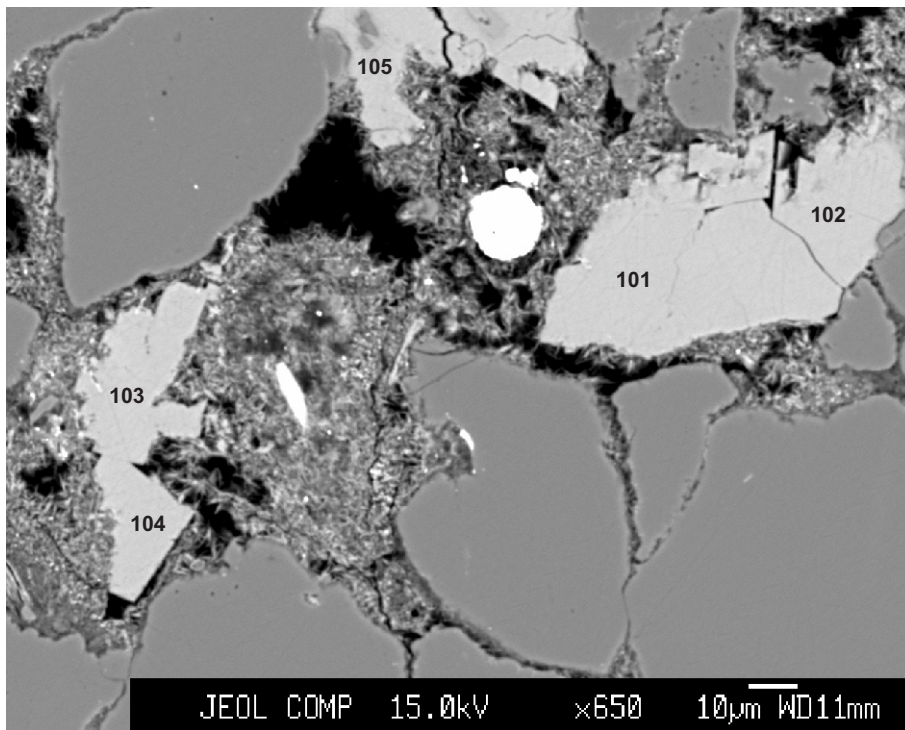


Figure 40: Venture B-13-4730.61



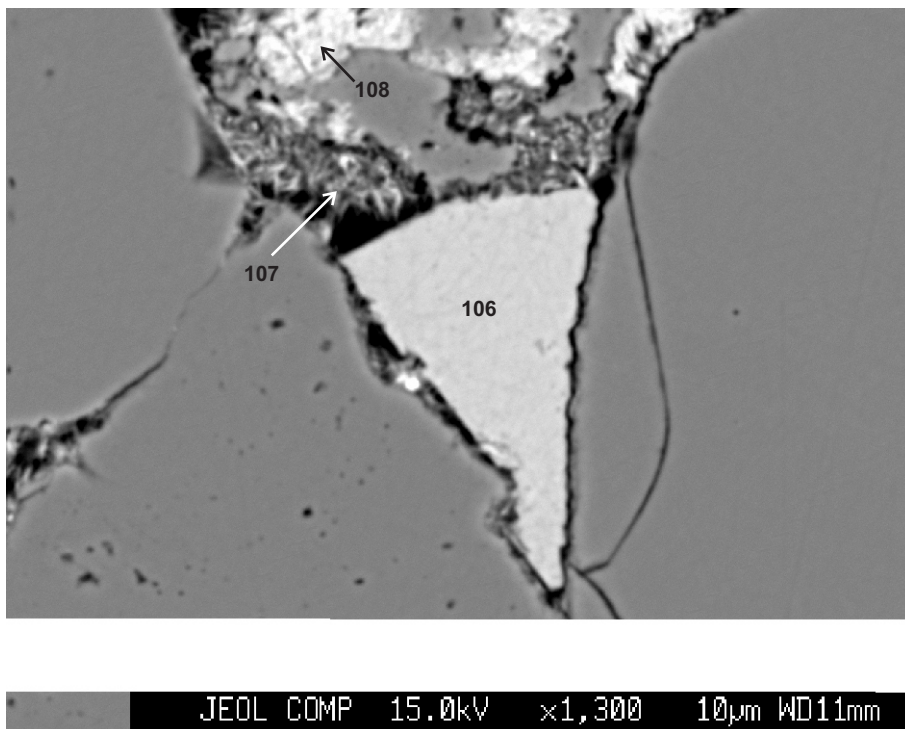
- 88: calcite
- 89: calcite
- 90: calcite
- 91: calcite
- 92: calcite
- 93: calcite
- 94: calcite
- 95: calcite
- 96: Fe-calcite
- 97: calcite
- 98: calcite
- 99: calcite

Figure 41: Venture B-13-4730.61



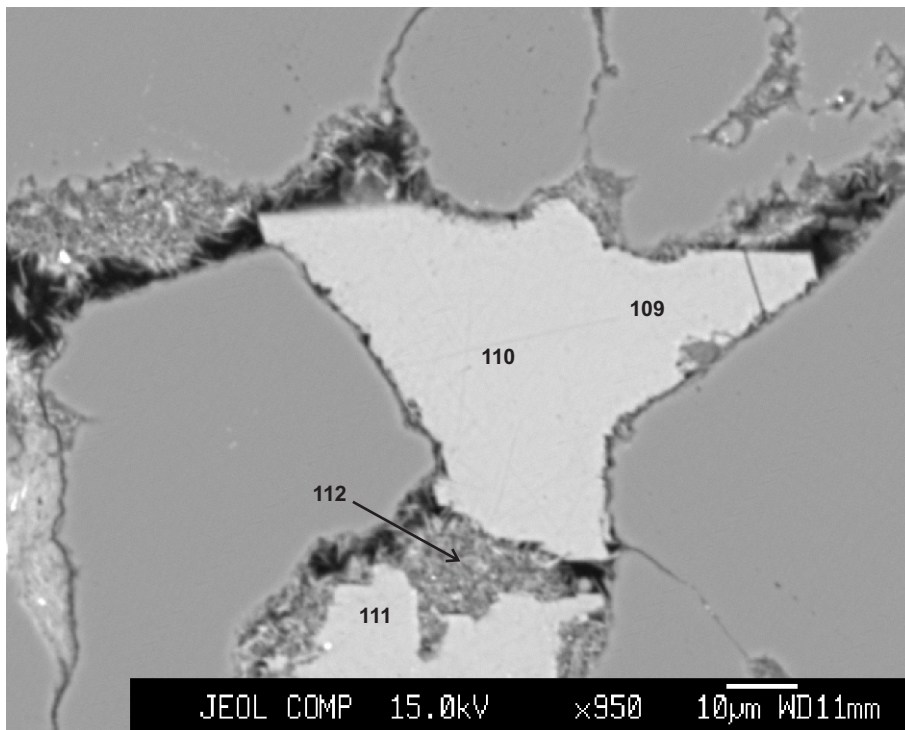
- 101: Fe-calcite
- 102: calcite
- 103: Fe-calcite
- 104: Fe-calcite
- 105: Fe-calcite

Figure 42: Venture B-13-4733.33



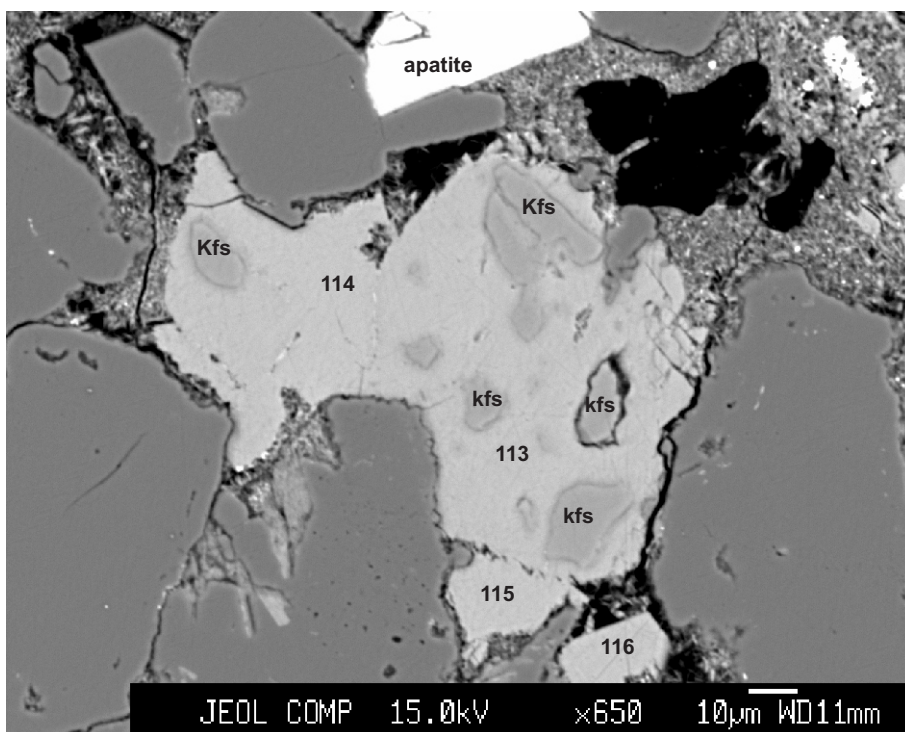
- 106: calcite
- 107: chlorite
- 108: chlorite

Figure 43: Venture B-13-4733.33



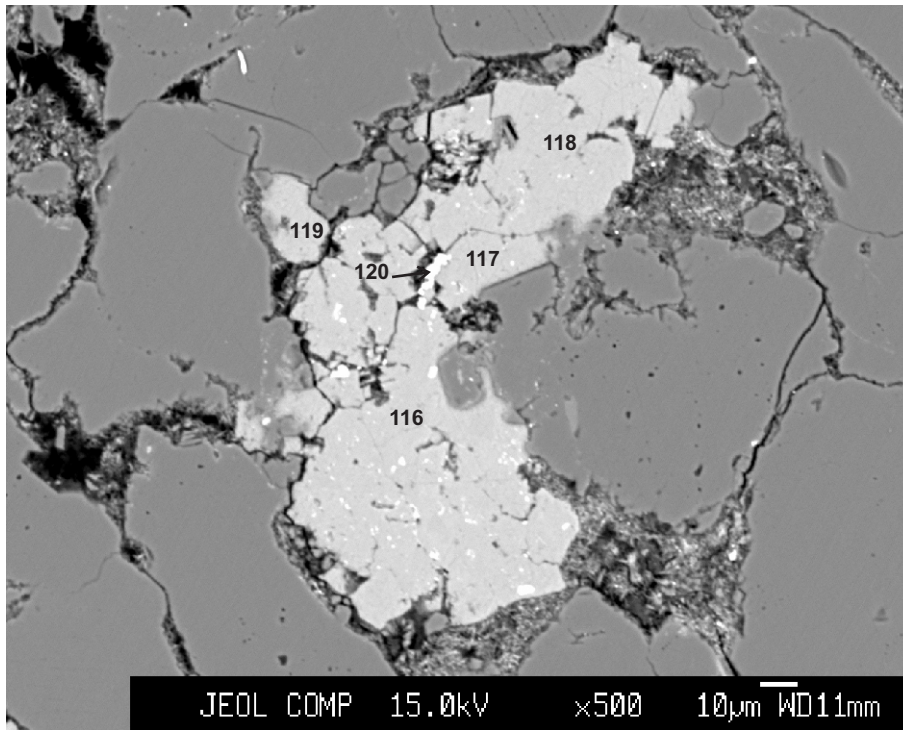
109: Fe-calcite
 110: Fe-calcite
 111: Fe-calcite
 112: chlorite

Figure 44: Venture B-13-4733.33



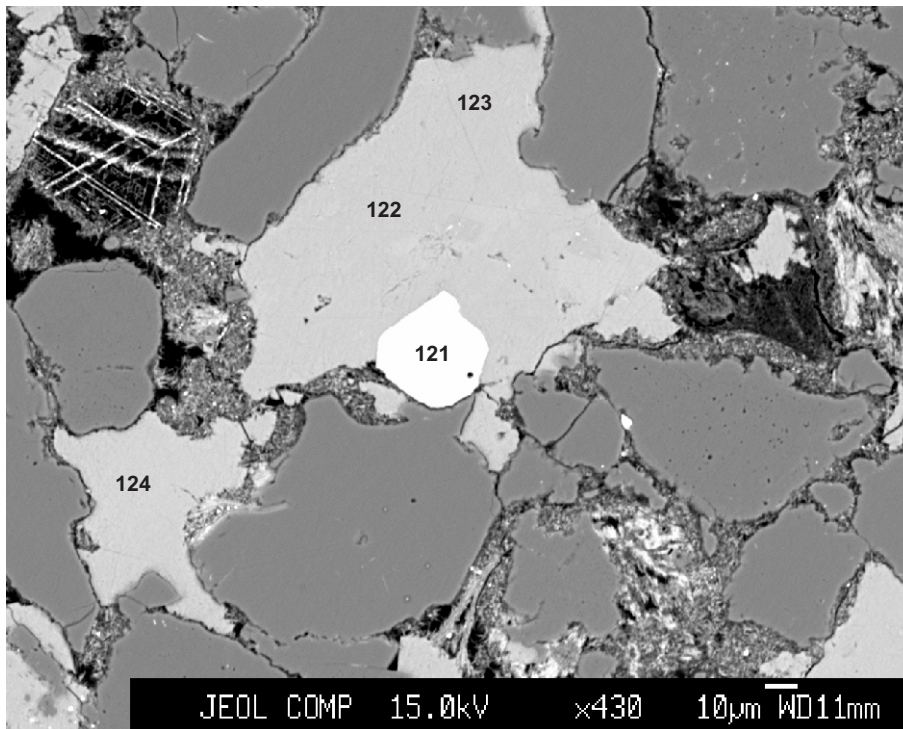
113: calcite
 114: Fe-calcite
 115: calcite
 116: Fe-calcite

Figure 45: Venture B-13-4733.33



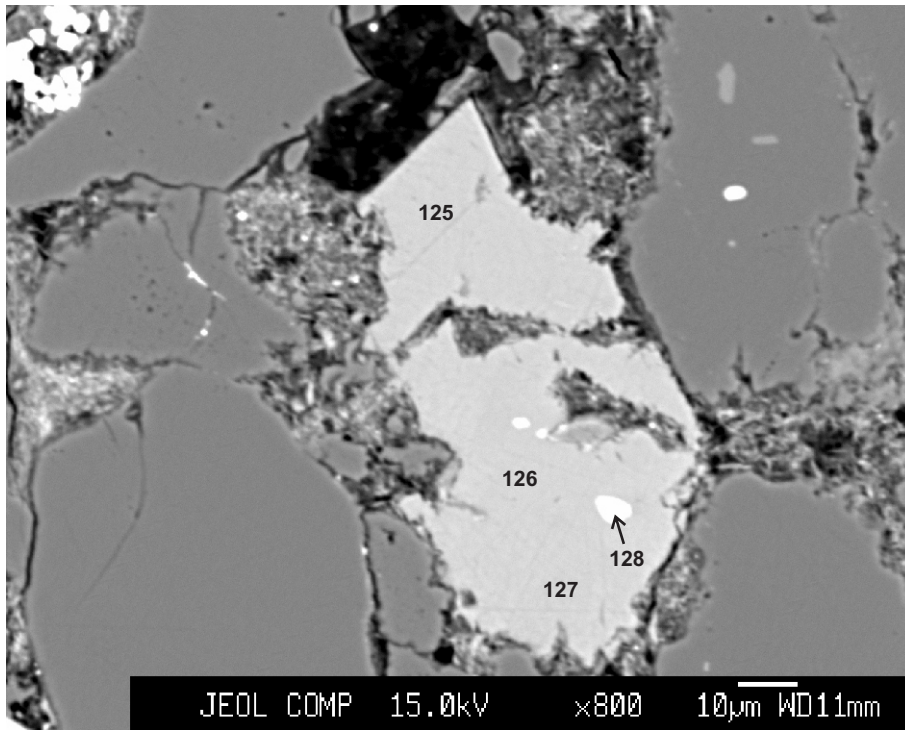
117: Fe-calcite
118: Fe-calcite
119: calcite
120: francolite

Figure 46: Venture B-13-4733.33



121: francolite
122: Fe-calcite
123: Fe-calcite
124: calcite

Figure 47: Venture B-13-4733.33



125: calcite
126: Fe-calcite
127: calcite
128: francolite

Figure 48: Venture B-13-4733.33

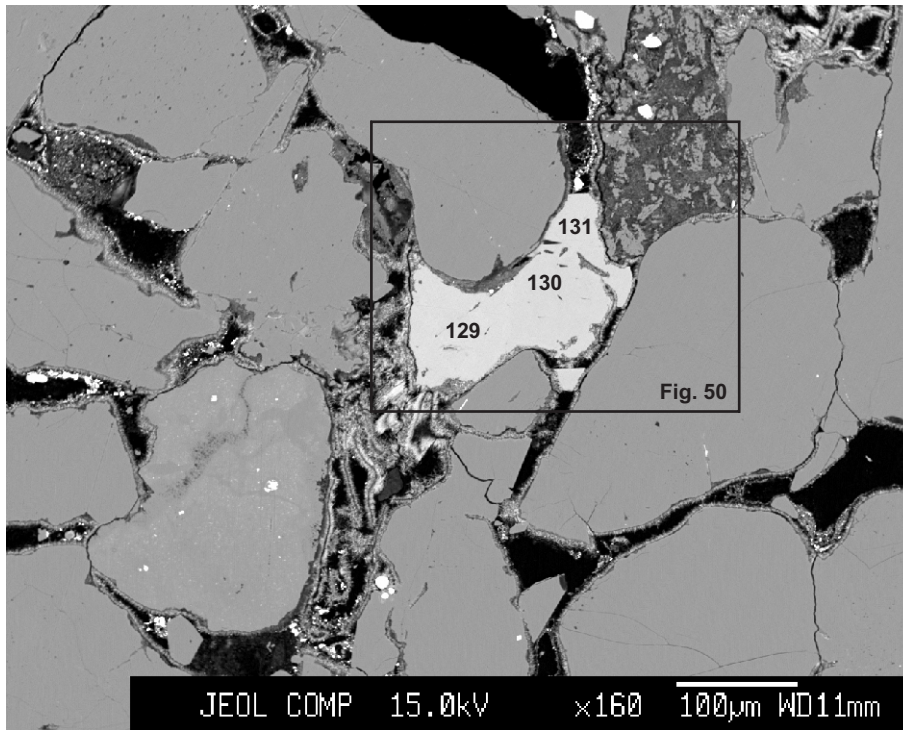
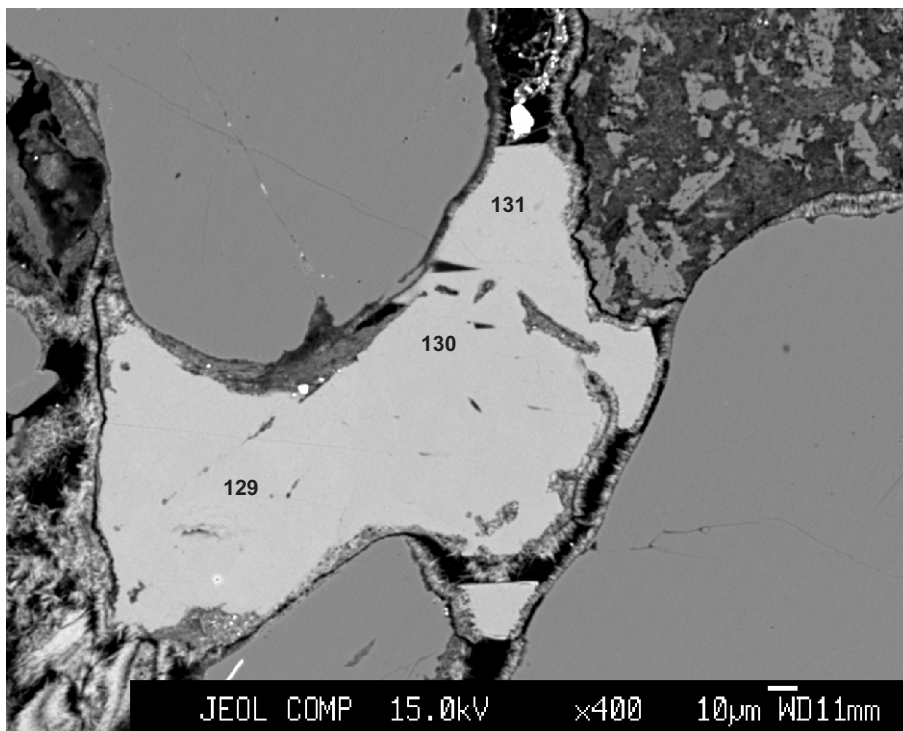


Figure 49: Venture B-13-4953.03



129: calcite
130: calcite
131: Fe-calcite

Figure 50: Venture B-13-4953.03

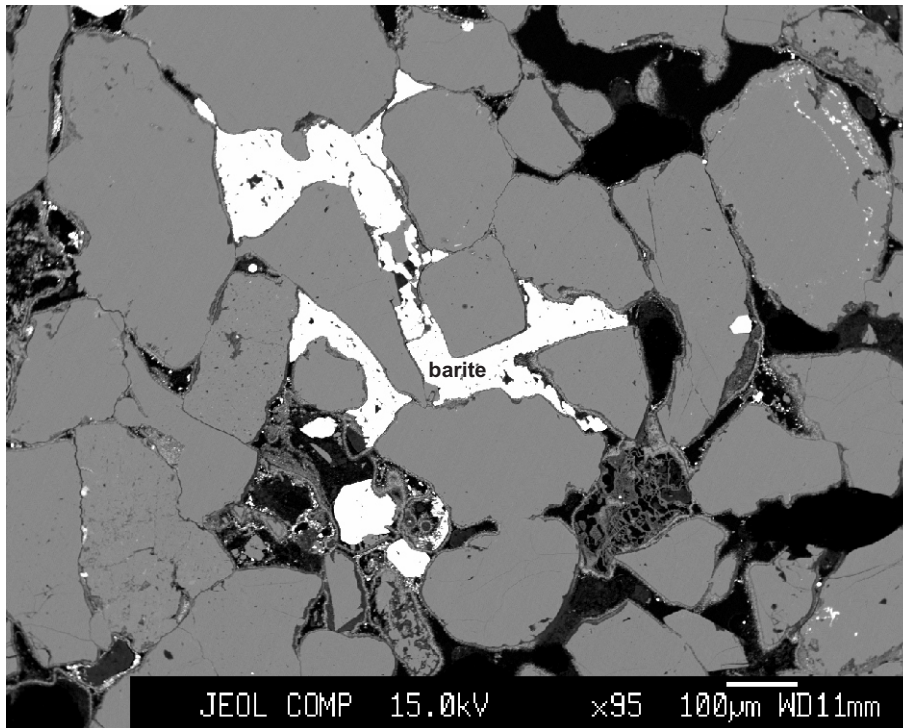


Figure 51: Venture B-13-4953.03

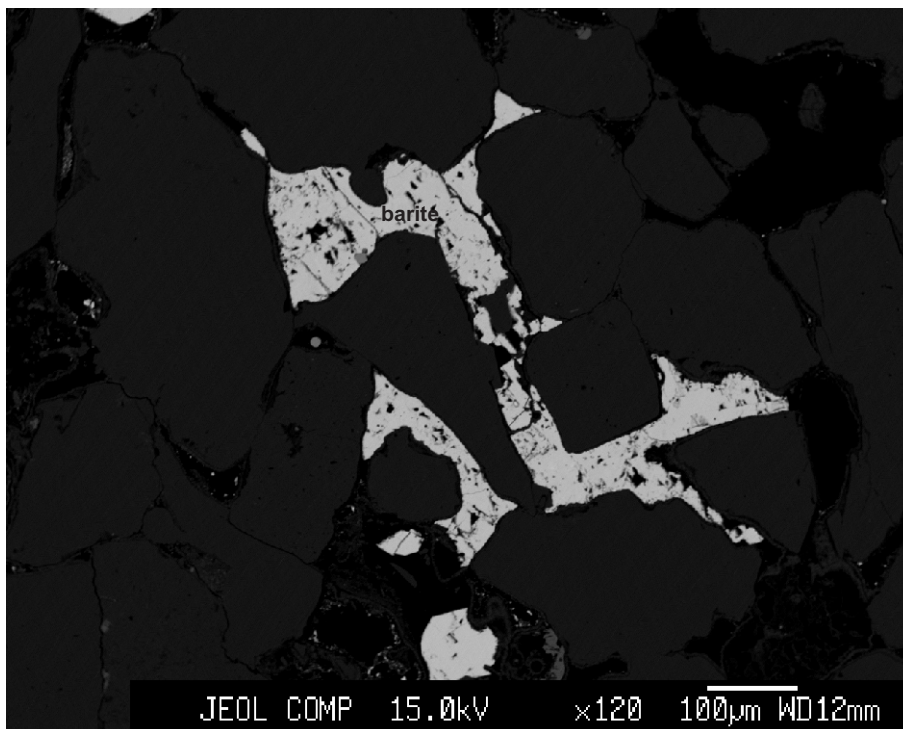
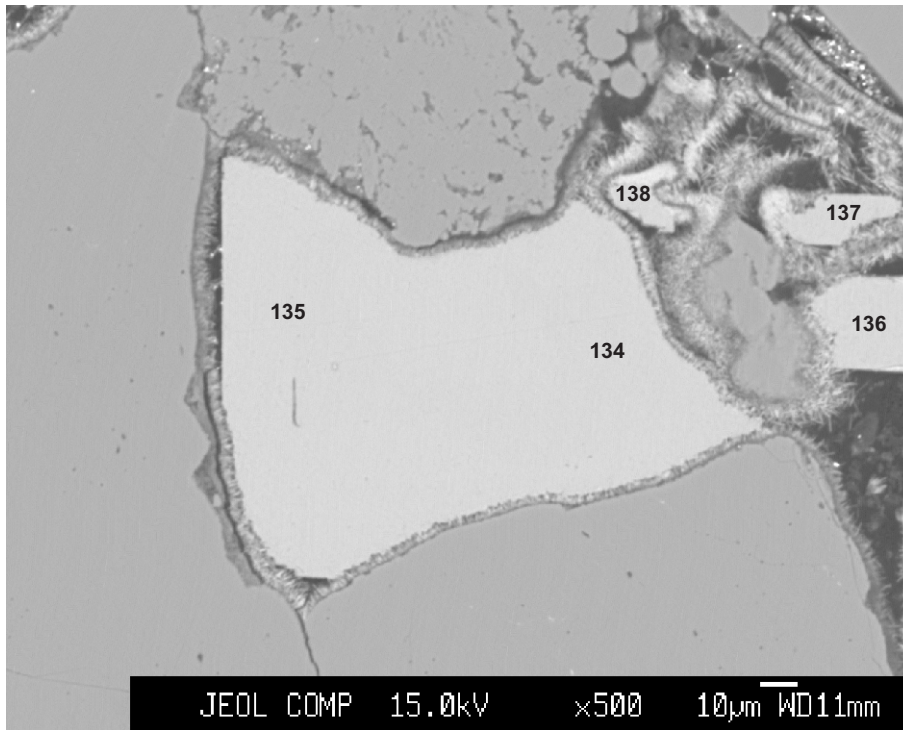
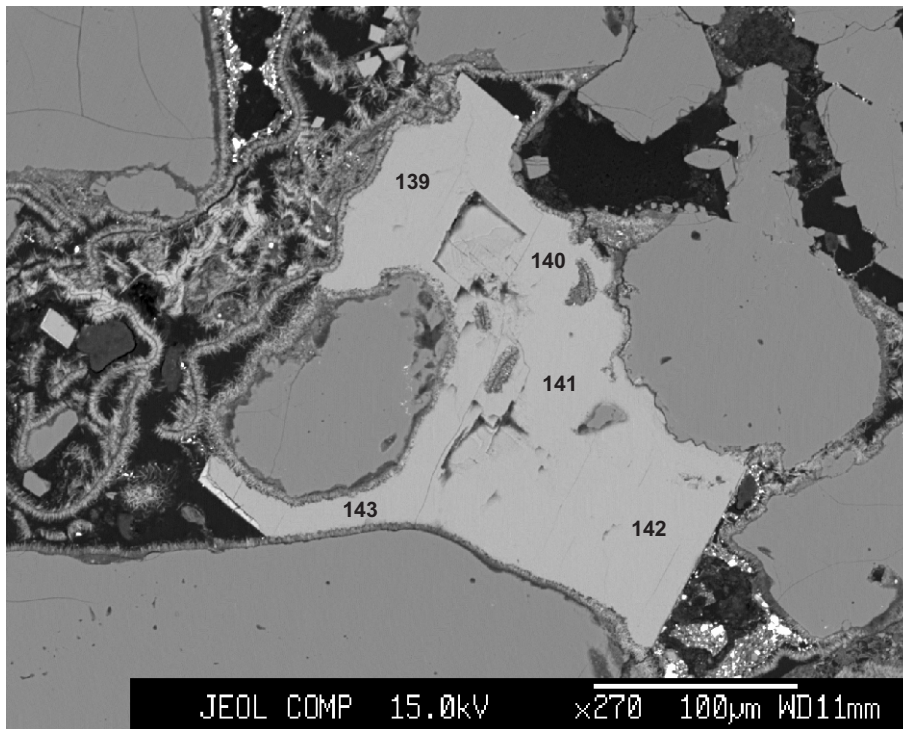


Figure 52: Venture B-13-4953.03



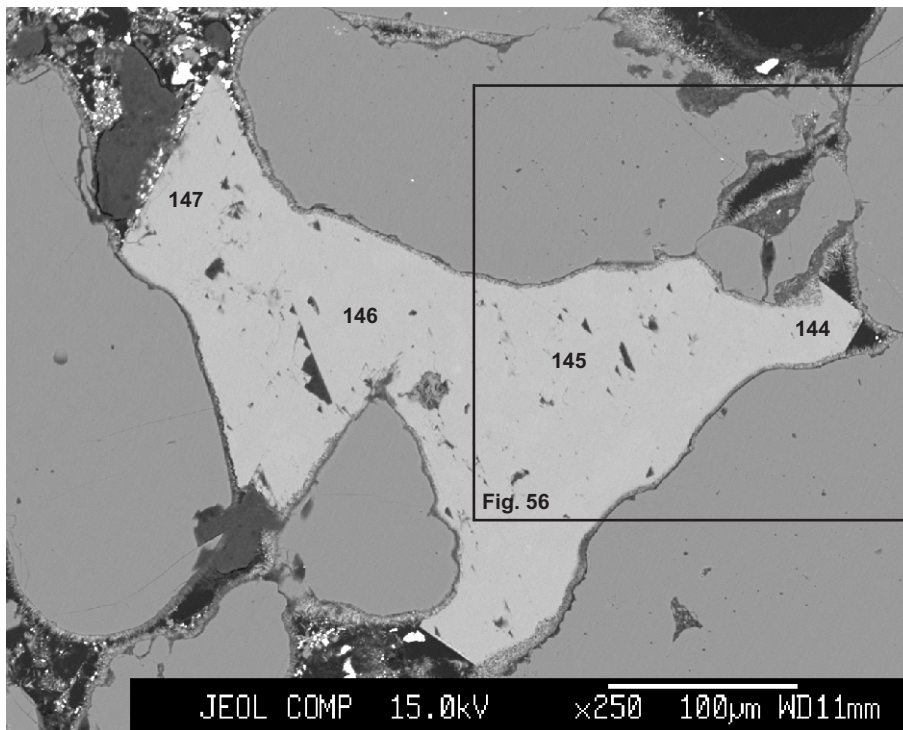
134: Fe-calcite
135: calcite
136: Fe-calcite
137: Fe-calcite
138: Fe-calcite

Figure 53: Venture B-13-4953.03



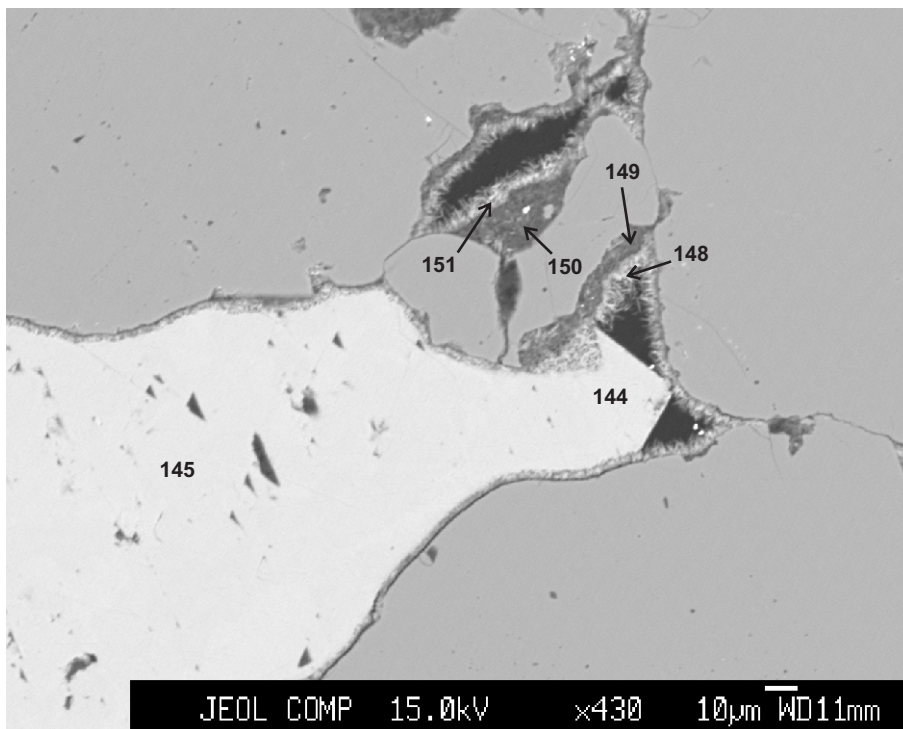
139: Fe-calcite
140: Fe-calcite
141: calcite
142: Fe-calcite
143: calcite

Figure 54: Venture B-13-4953.03



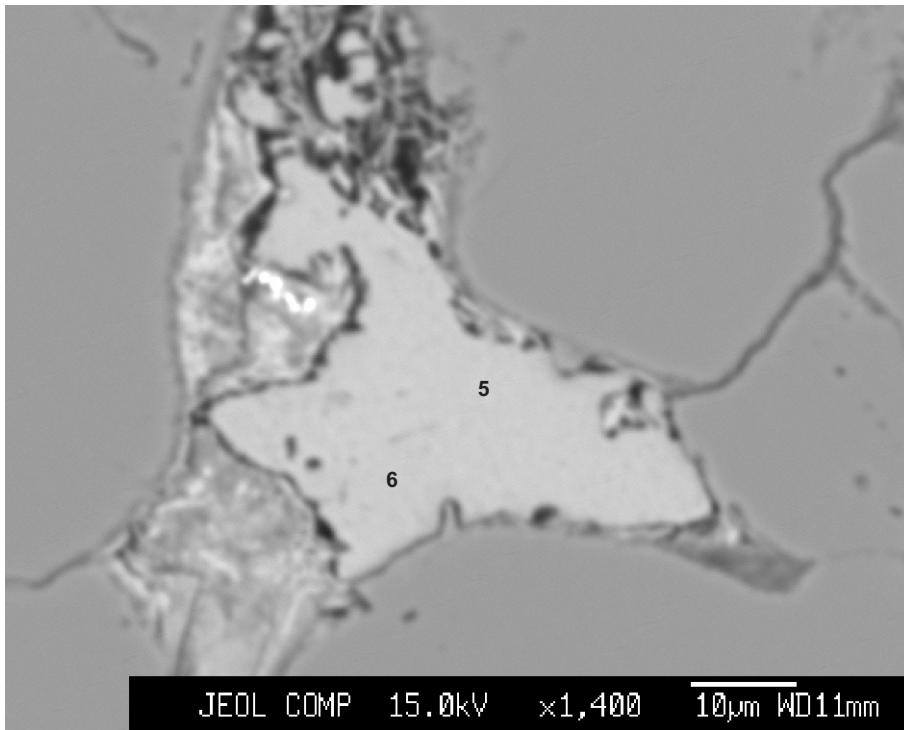
- 144: calcite
- 145: calcite
- 146: Fe-calcite
- 147: Fe-calcite

Figure 55: Venture B-13-4953.03



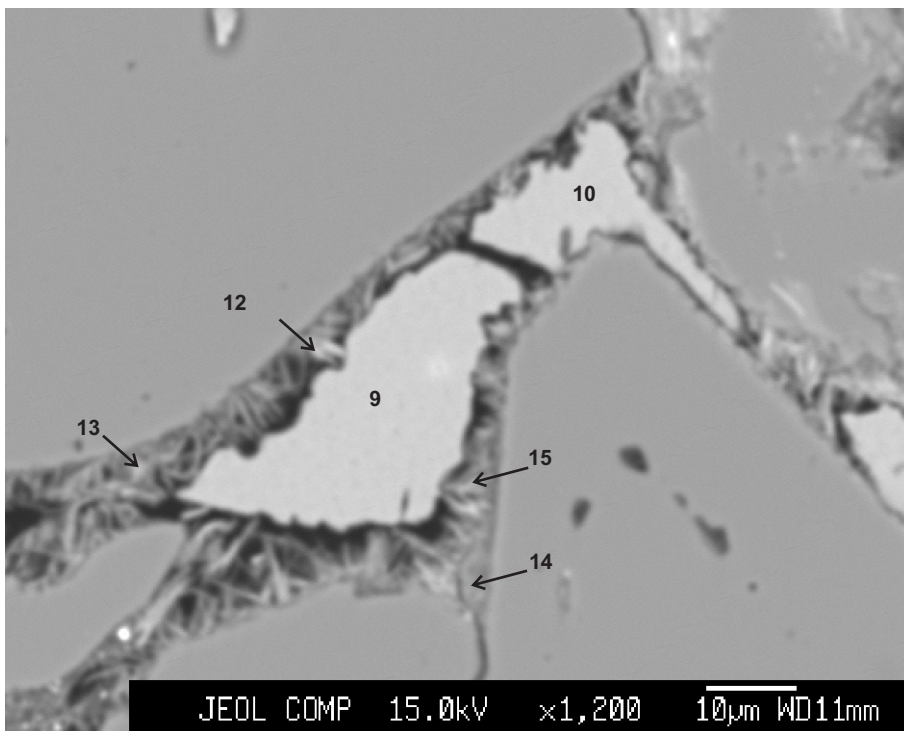
- 144: calcite
- 145: calcite
- 148: chlorite
- 149: illite
- 150: illite
- 151: chlorite

Figure 56: Venture B-13-4953.03



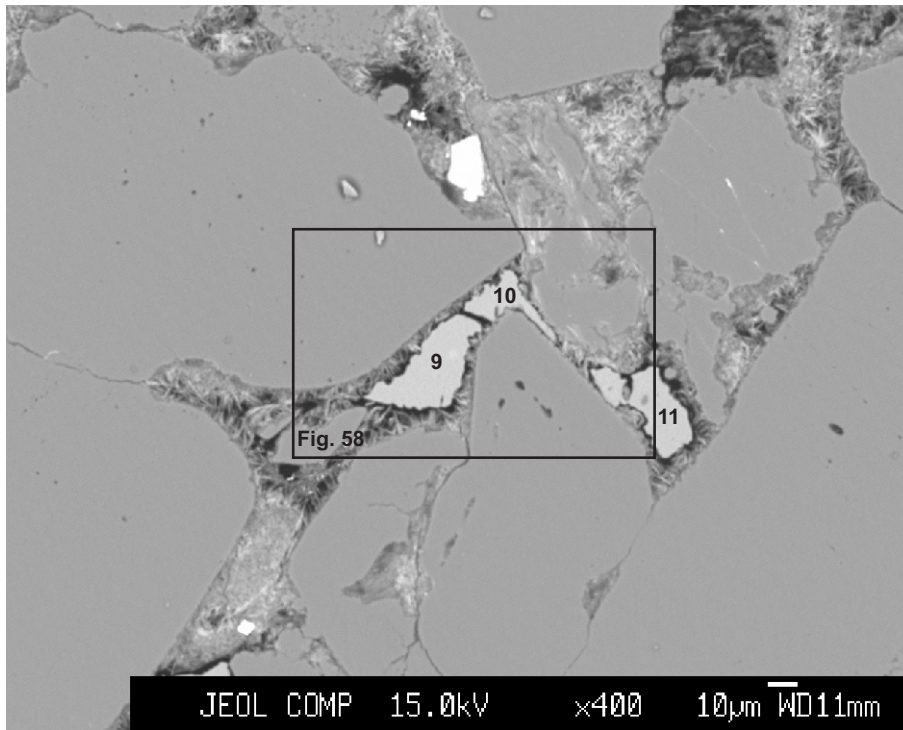
5: Fe-calcite
6: calcite

Figure 57: Venture B-13-4956.56



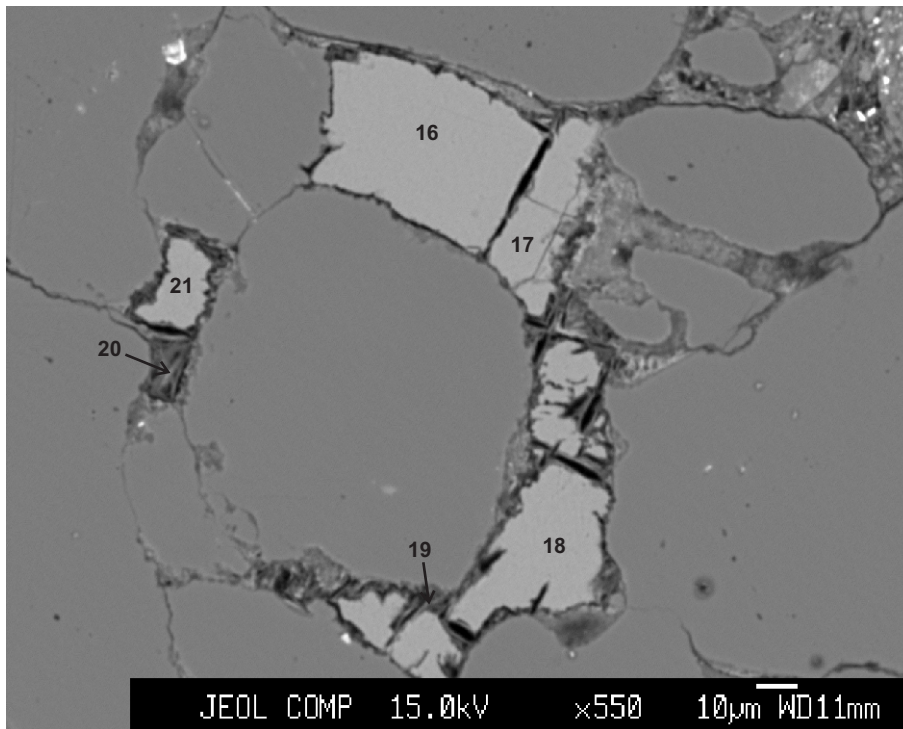
9: Fe-calcite
10: Fe-calcite
12: chlorite
13: chlorite
14: clay
15: chorite

Figure 58: Venture B-13-4956.56



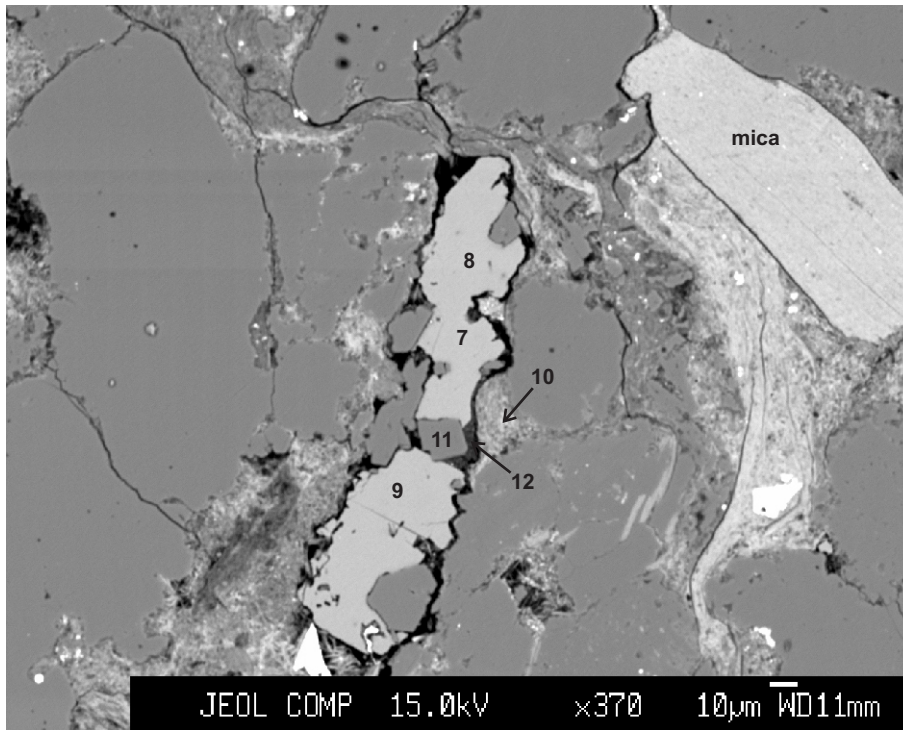
- 9: Fe-calcite
- 10: Fe-calcite
- 11: Fe-calcite

Figure 59: Venture B-13-4956.56



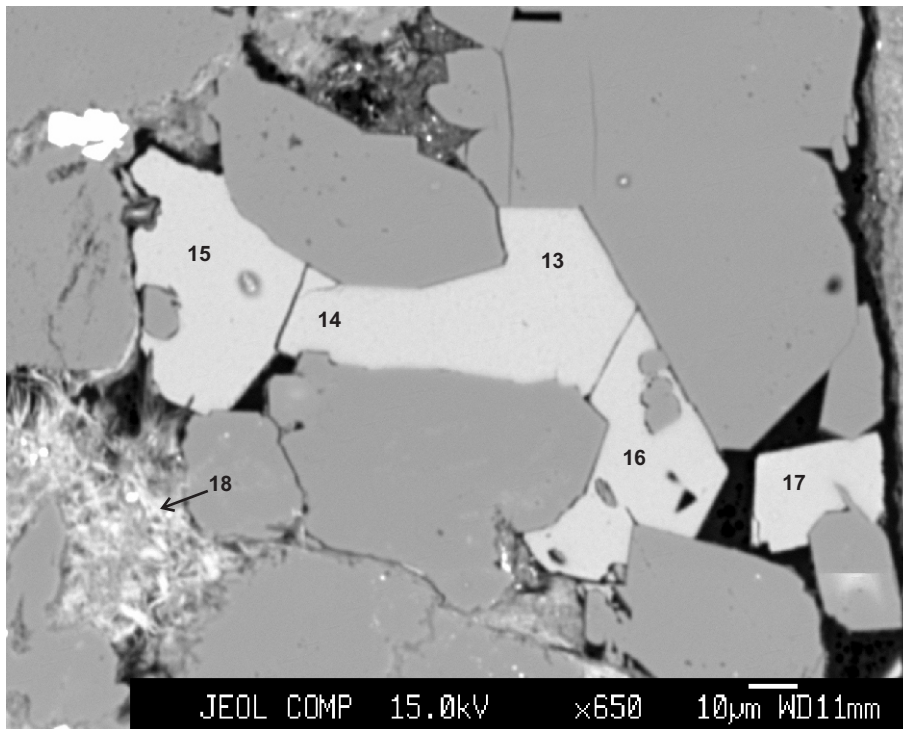
- 16: ankerite
- 17: ankerite
- 18: ankerite
- 19: clay
- 20: clay
- 21: ankerite

Figure 60: Venture B-13-4956.56



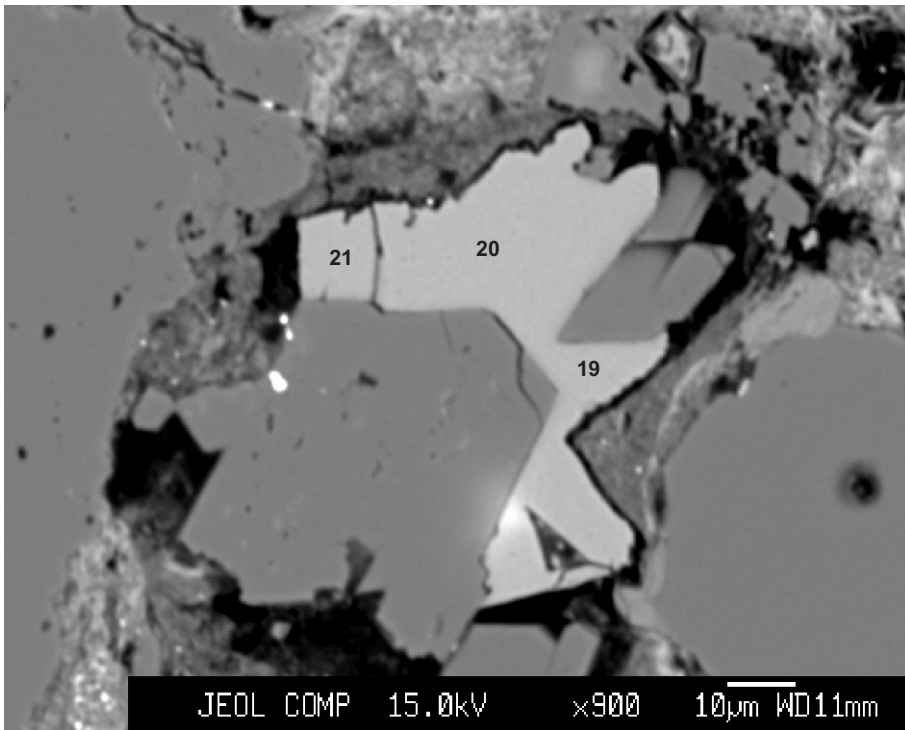
- 7: Fe-calcite
- 8: Fe-calcite
- 9: Fe-calcite
- 10: chlorite
- 11: albite
- 12: chlorite

Figure 61: Venture B-13-4959.54



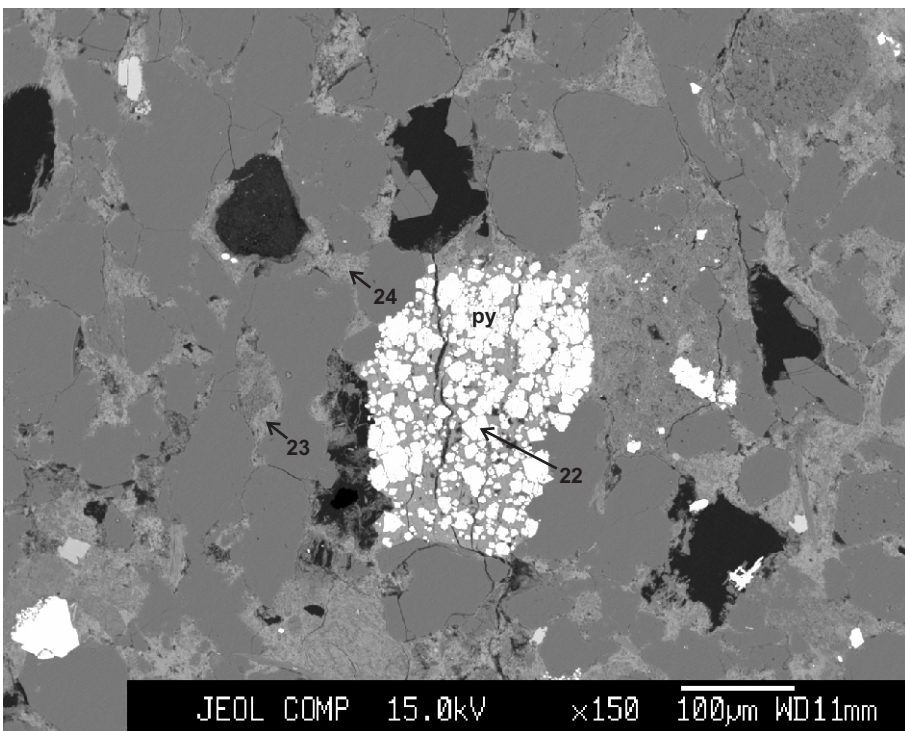
- 13: Fe-calcite
- 14: Fe-calcite
- 15: Fe-calcite
- 16: Fe-calcite
- 17: Fe-calcite
- 18: chlorite

Figure 62: Venture B-13-4959.54



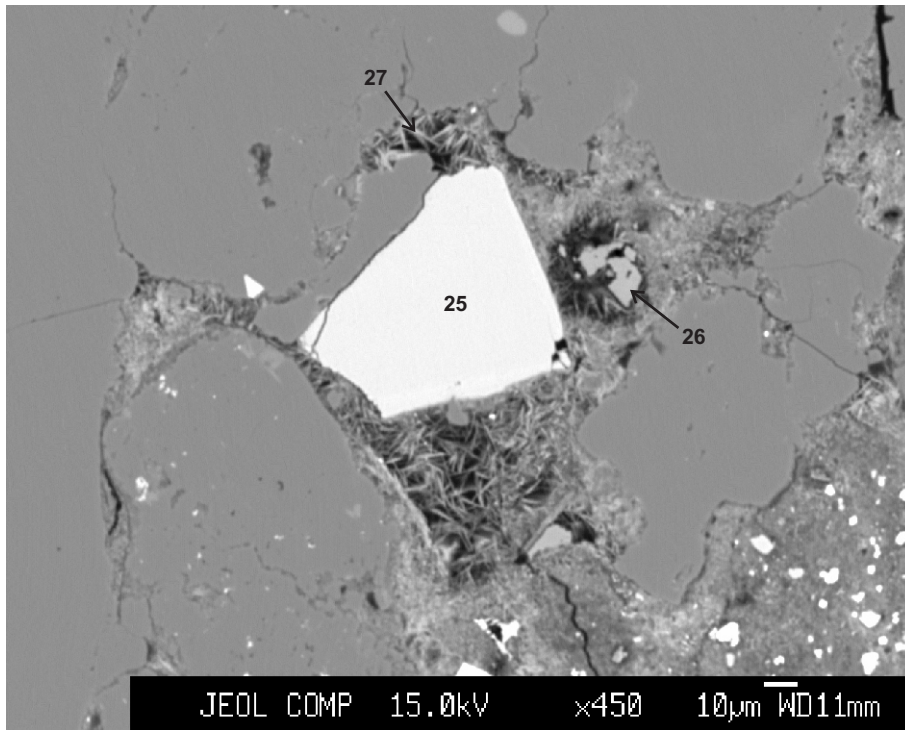
19: Fe-calcite
20: Fe-calcite
21: Fe-calcite

Figure 63: Venture B-13-4959.54



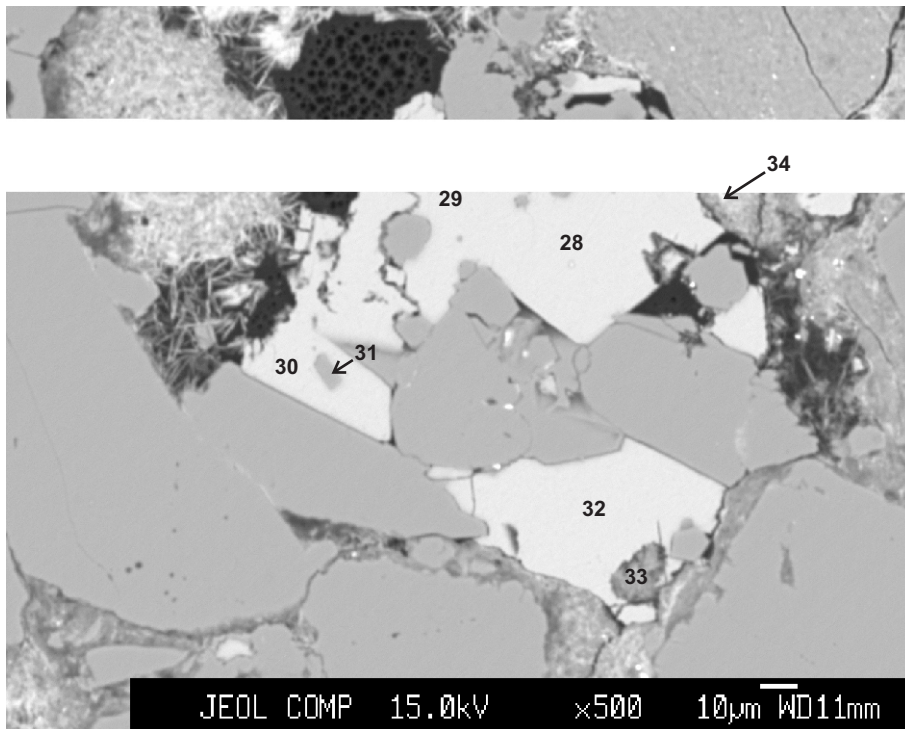
22: pyrite
23: chlorite
24: chlorite

Figure 64: Venture B-13-4959.54



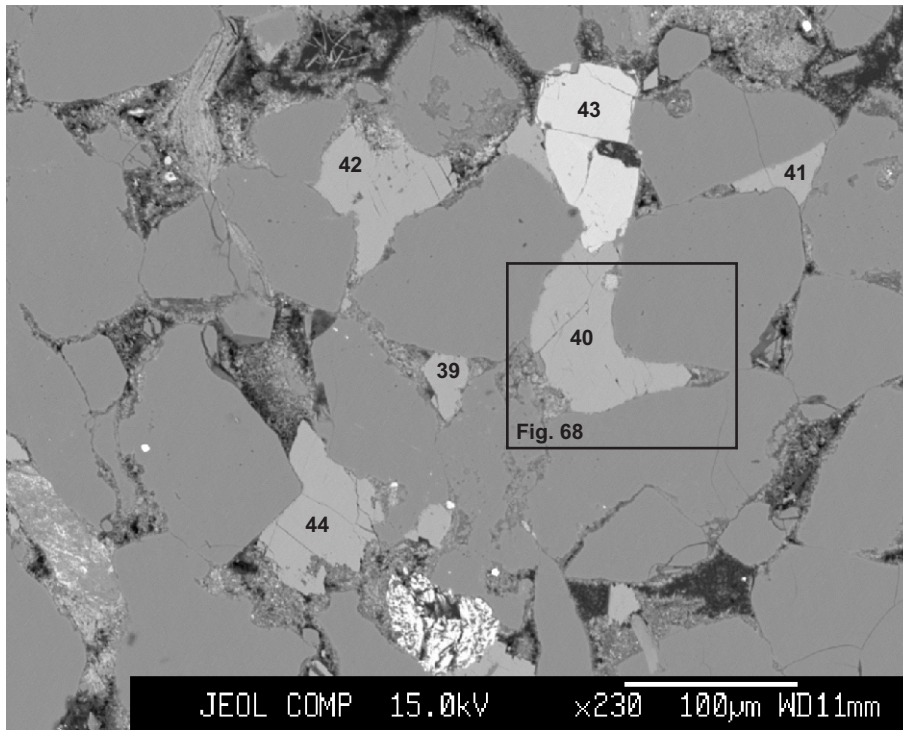
25: apatite
 26: Fe-calcite
 27: chlorite

Figure 65: Venture B-13-4959.54



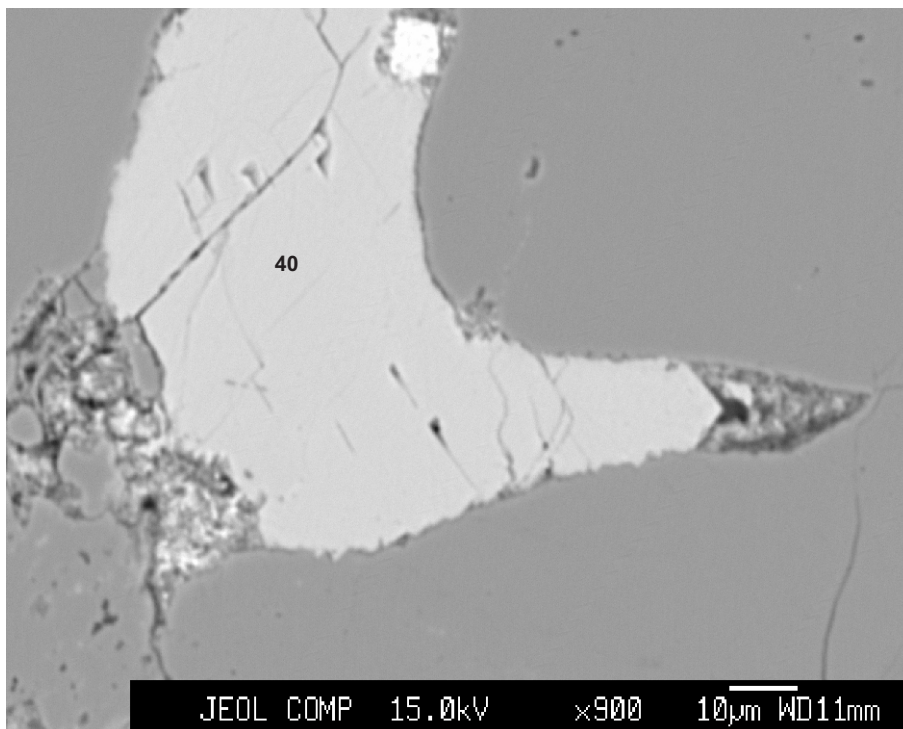
28: Fe-calcite
 29: Fe-calcite
 30: Fe-calcite
 31: albite
 32: Fe-calcite
 33: illite
 34: chlorite

Figure 66: Venture B-13-4959.54



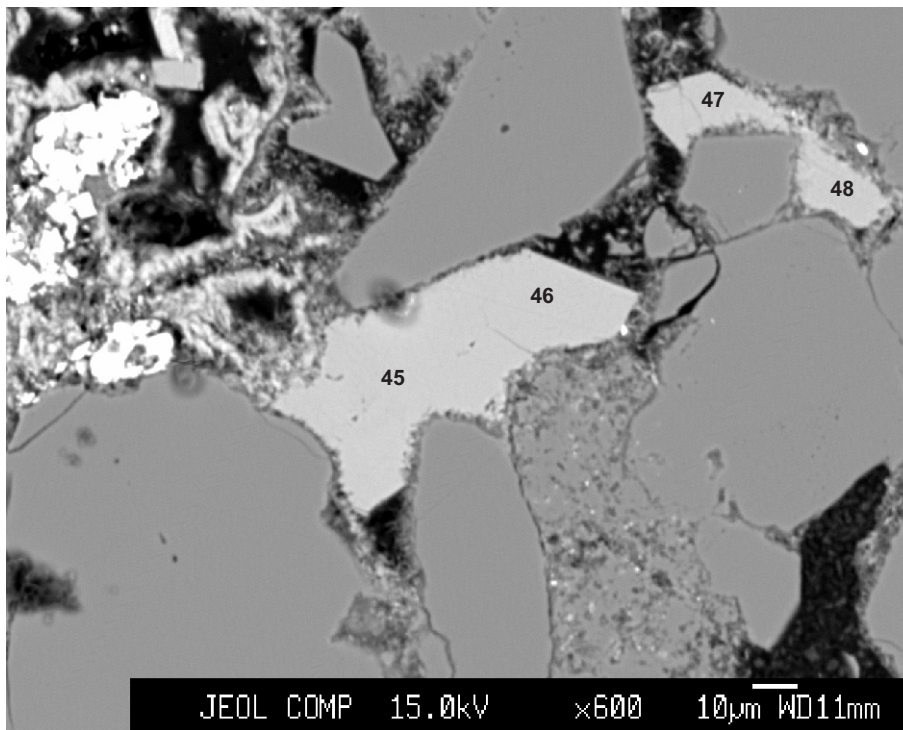
39: ankerite
40: ankerite
41: ankerite
42: ankerite
43: apatite
44: ankerite

Figure 67: Venture B-13-4965.29



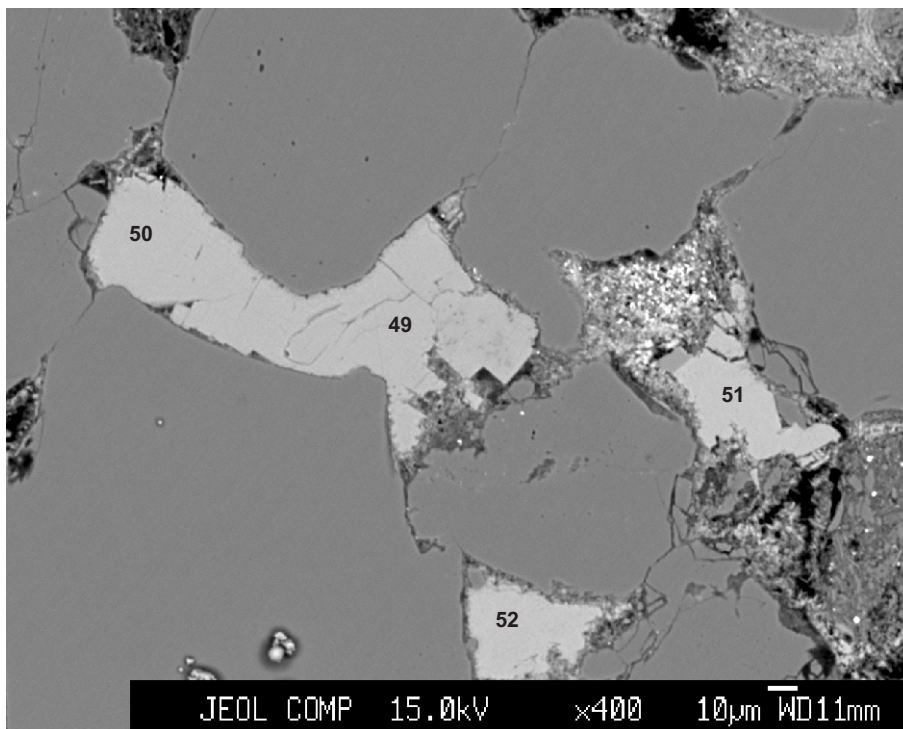
40: ankerite

Figure 68: Venture B-13-4965.29



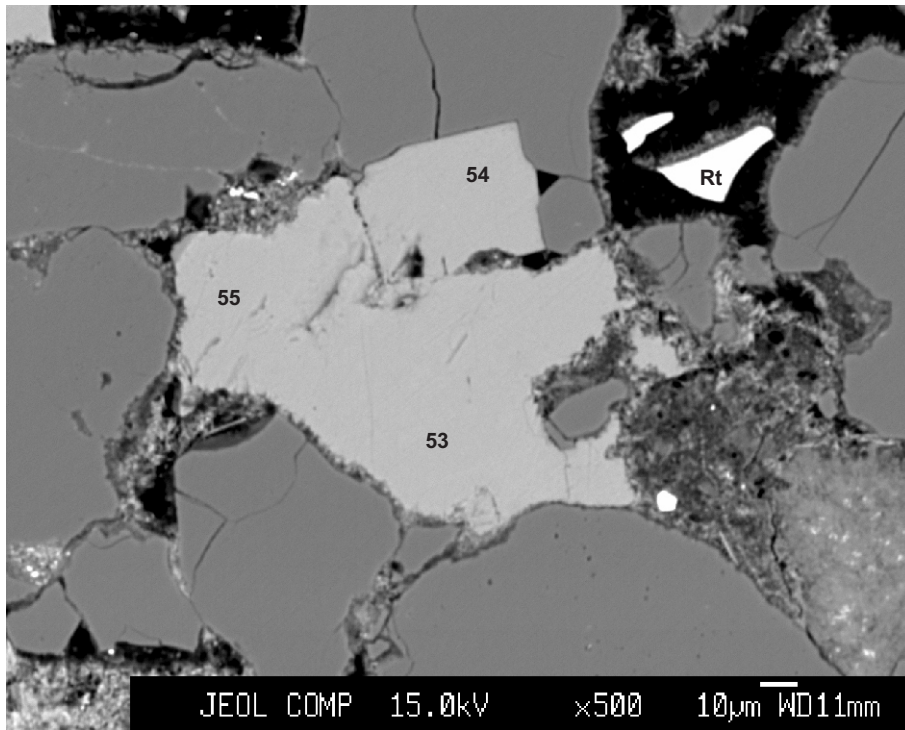
- 45: Fe-calcite
- 46: calcite
- 47: Fe-calcite
- 48: Fe-calcite

Figure 69: Venture B-13-4965.29



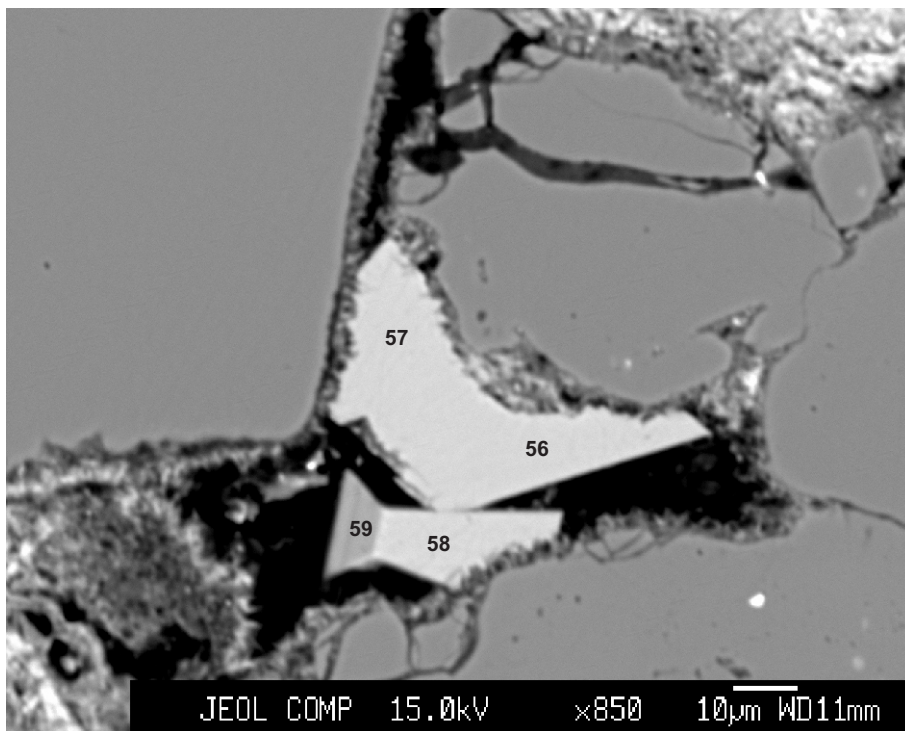
- 49: ankerite
- 50: ankerite
- 51: Fe-calcite
- 52: Fe-calcite

Figure 70: Venture B-13-4965.29



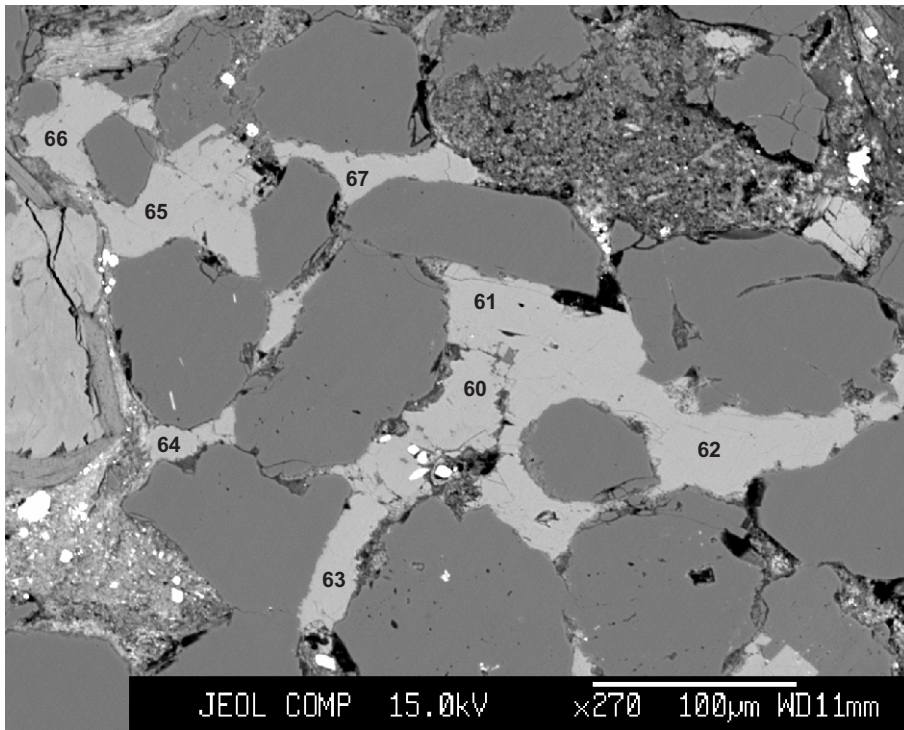
- 53: Fe-calcite
- 54: Fe-calcite
- 55: Fe-calcite

Figure 71: Venture B-13-4965.29



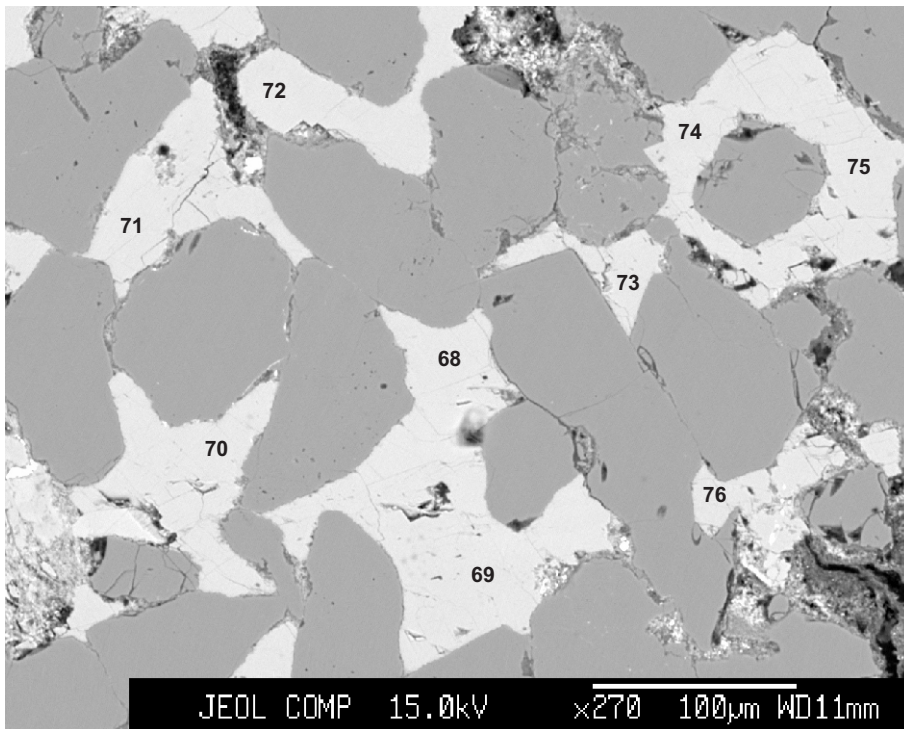
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite

Figure 72: Venture B-13-4965.29



- 60: ankerite
- 61: ankerite
- 62: ankerite
- 63: ankerite
- 64: ankerite
- 65: ankerite
- 66: ankerite
- 67: ankerite

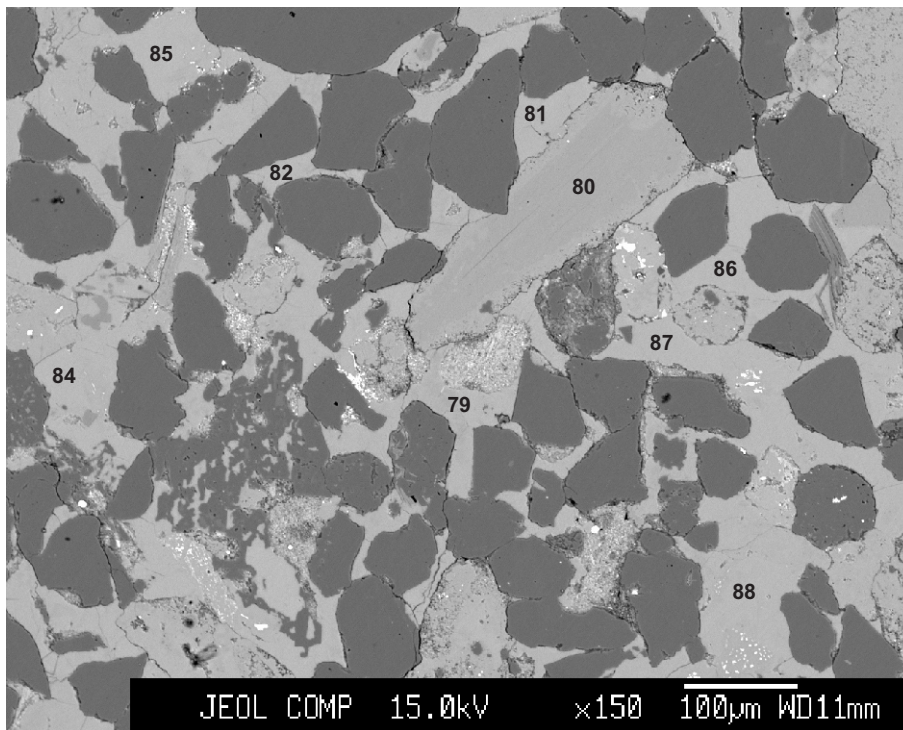
Figure 73: Venture B-13-4965.29



- 68: ankerite
- 69: ankerite
- 70: ankerite
- 71: ankerite
- 72: ankerite
- 73: ankerite
- 74: ankerite
- 75: ankerite
- 76: ankerite

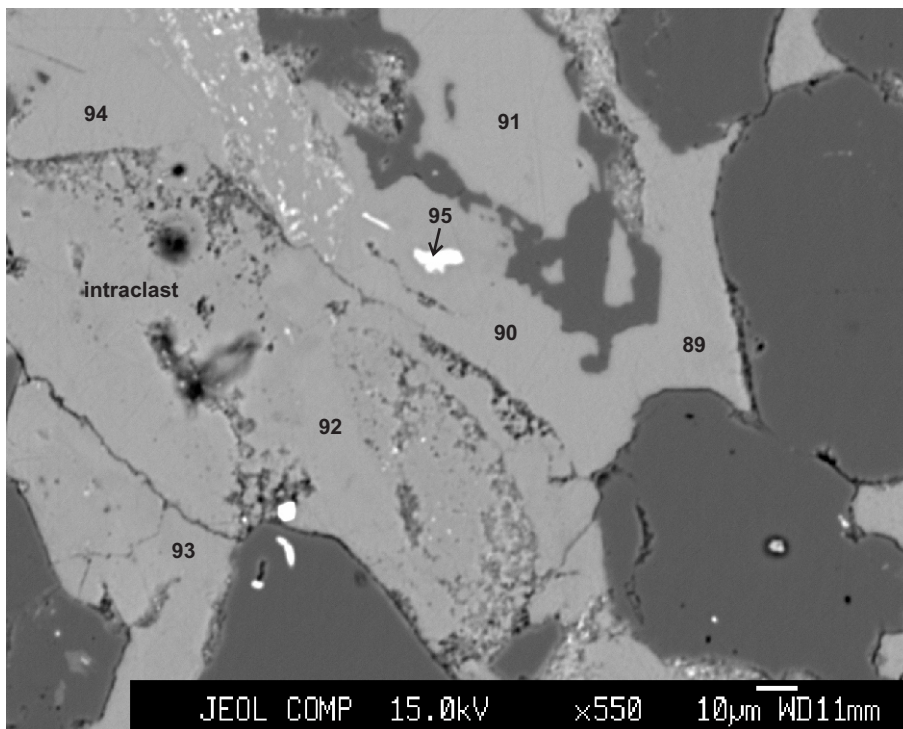
Figure 74: Venture B-13-4965.29

Appendix 2C : Back-scattered electron images for Venture H-22



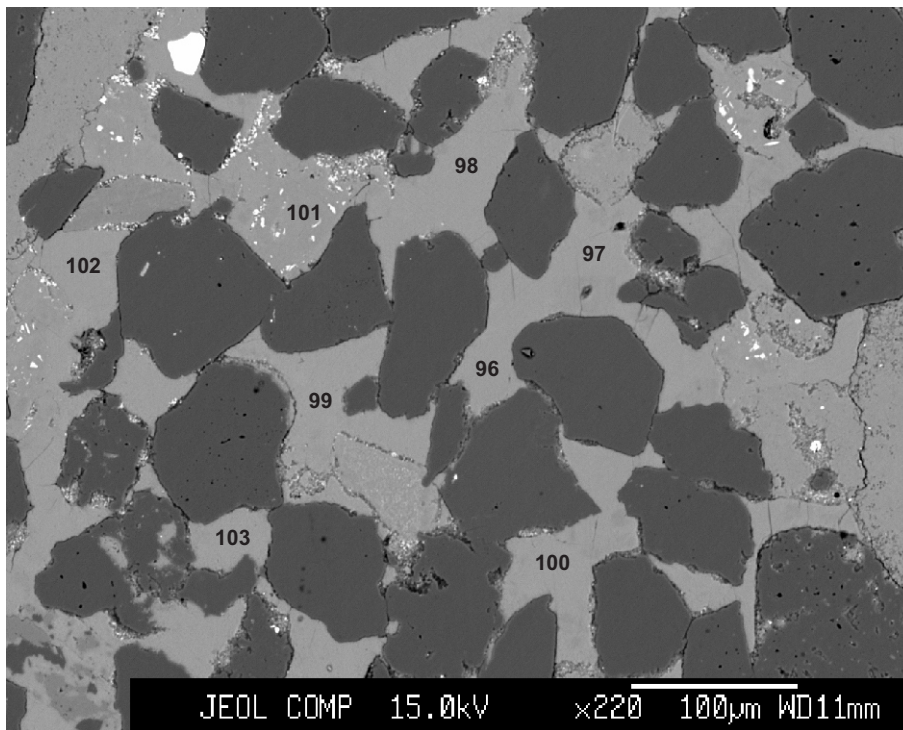
- 79: calcite
- 80: calcite
- 81: Fe-calcite
- 82: Fe-calcite
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite

Figure 1: Venture H-22-4710.03



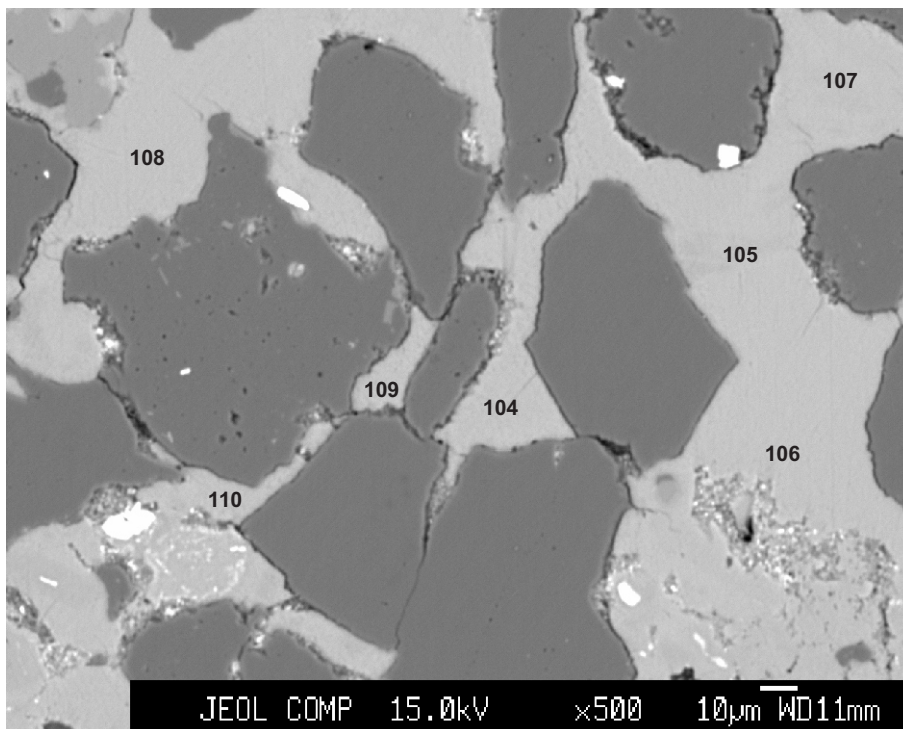
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite
- 95: ??

Figure 2: Venture H-22-4710.03



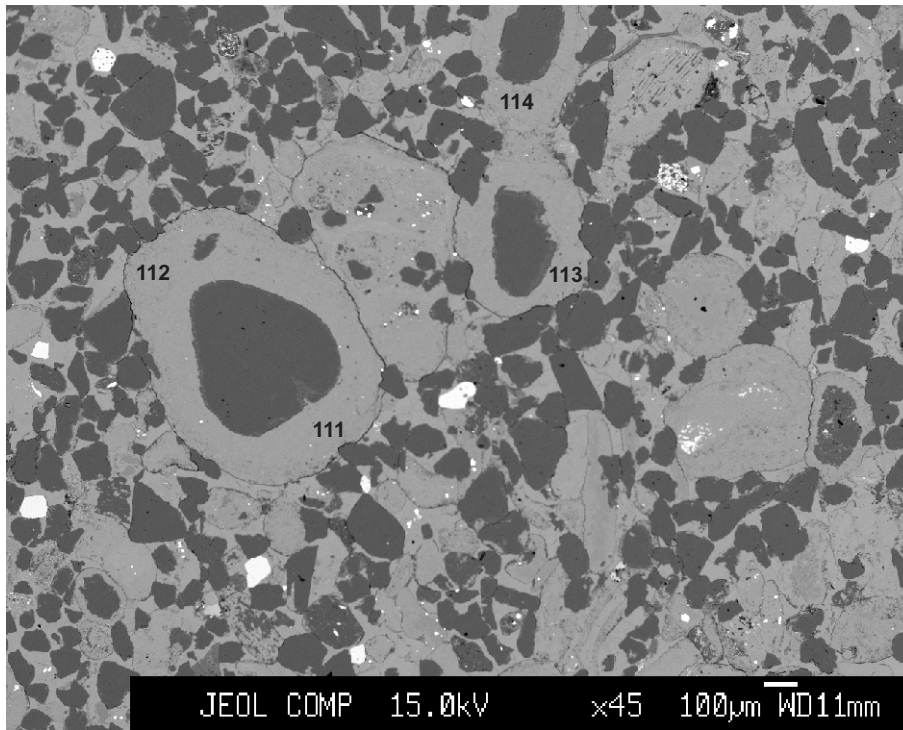
- 96: Fe-calcite
- 97: Fe-calcite
- 98: Fe-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: calcite
- 102: Fe-calcite
- 103: Fe-calcite

Figure 3: Venture H-22-4710.03



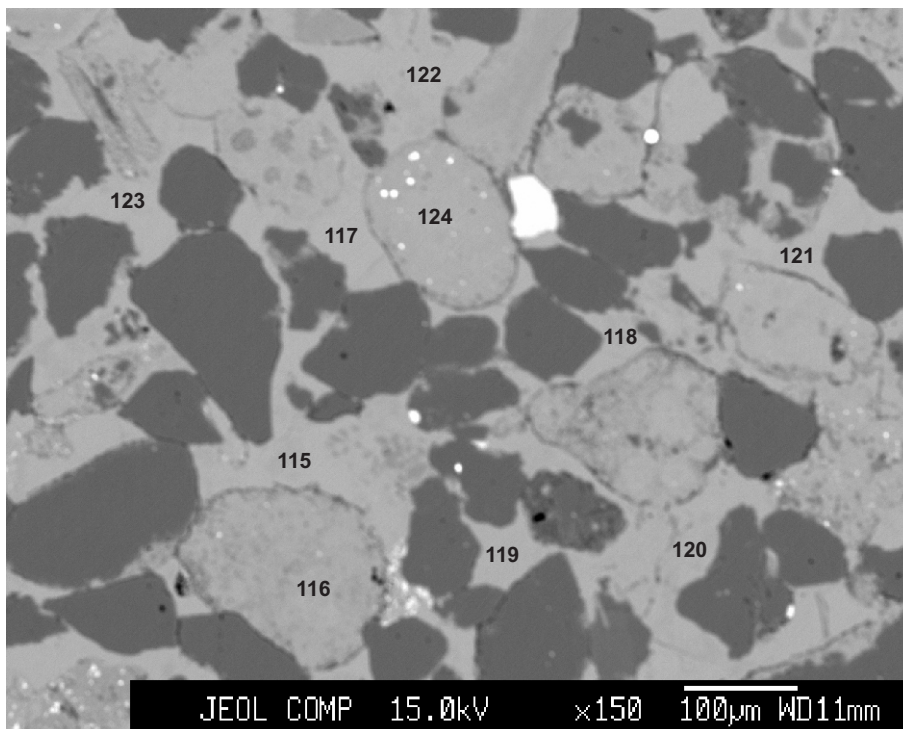
- 104: Fe-calcite
- 105: Fe-calcite
- 106: Fe-calcite
- 107: Fe-calcite
- 108: Fe-calcite
- 109: Fe-calcite
- 110: Fe-calcite

Figure 4: Venture H-22-4710.03



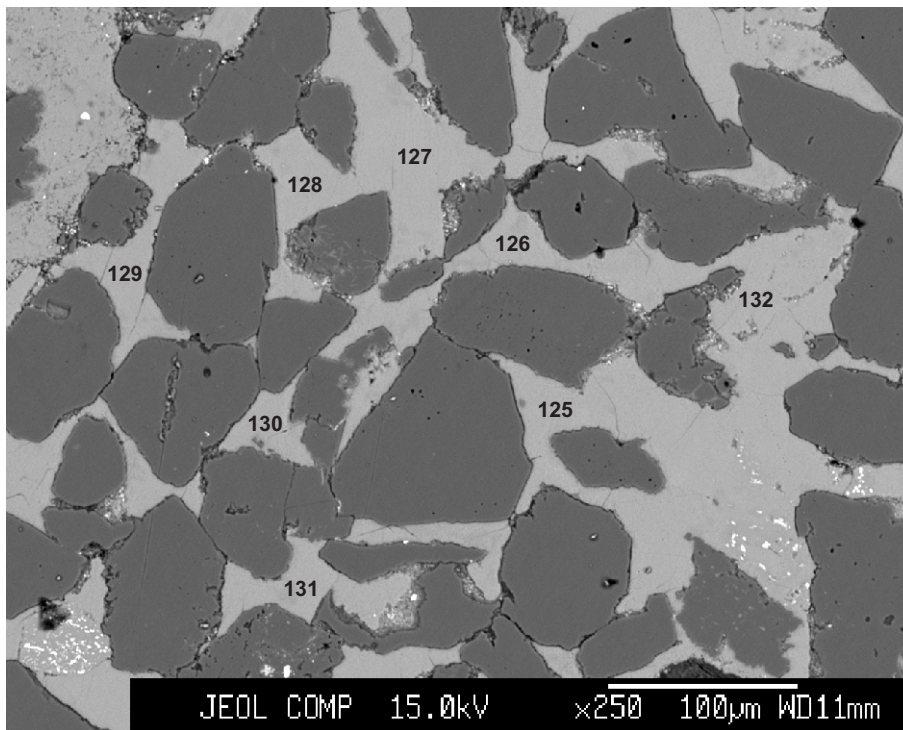
- 111: Fe-calcite
- 112: calcite
- 113: calcite
- 114: calcite

Figure 5: Venture H-22-4710.03



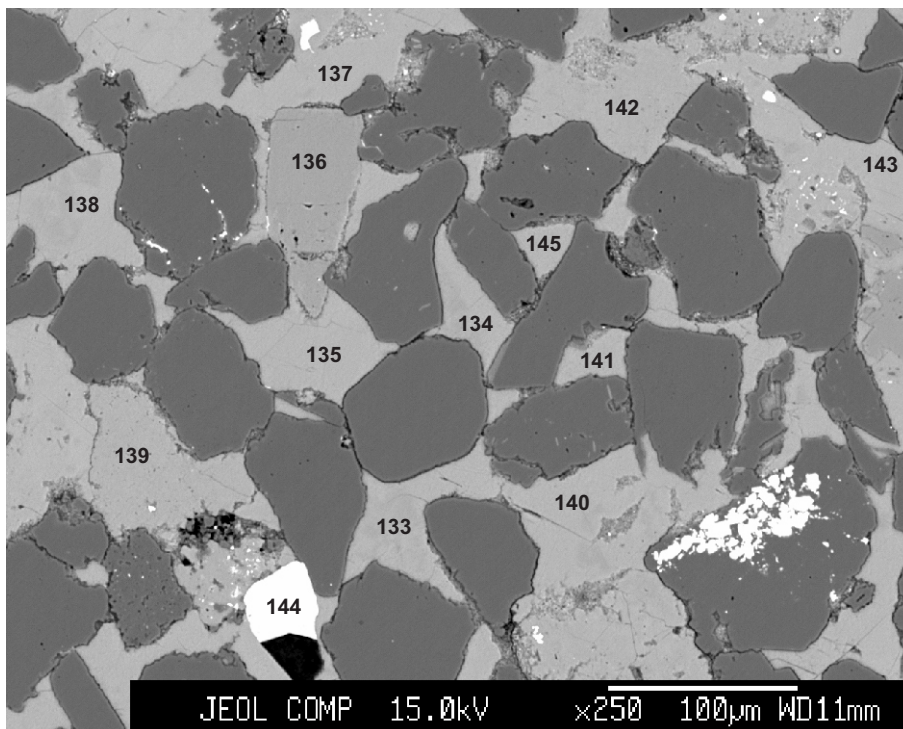
- 115: Fe-calcite
- 116: calcite
- 117: Fe-calcite
- 118: calcite
- 119: Fe-calcite
- 120: calcite
- 121: Fe-calcite
- 122: Fe-calcite
- 123: Fe-calcite

Figure 6: Venture H-22-4710.03



- 125: Fe-calcite
- 126: Fe-calcite
- 127: Fe-calcite
- 128: Fe-calcite
- 129: Fe-calcite
- 130: Fe-calcite
- 131: Fe-calcite

Figure 7: Venture H-22-4710.03



- 133: calcite
- 134: Fe-calcite
- 135: Fe-calcite
- 136: calcite
- 137: Fe-calcite
- 138: Fe-calcite
- 139: Fe-calcite
- 140: Fe-calcite
- 141: Fe-calcite
- 142: Fe-calcite
- 143: Fe-calcite
- 144: apatite
- 145: Fe-calcite

Figure 8: Venture H-22-4710.03

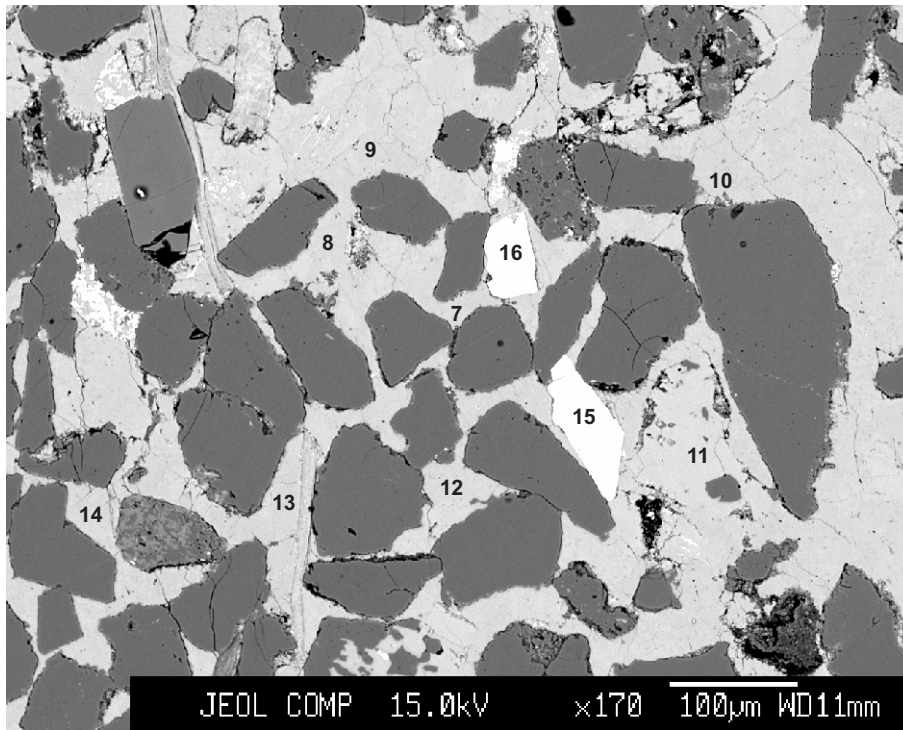


Figure 9: Venture H-22-4715.4

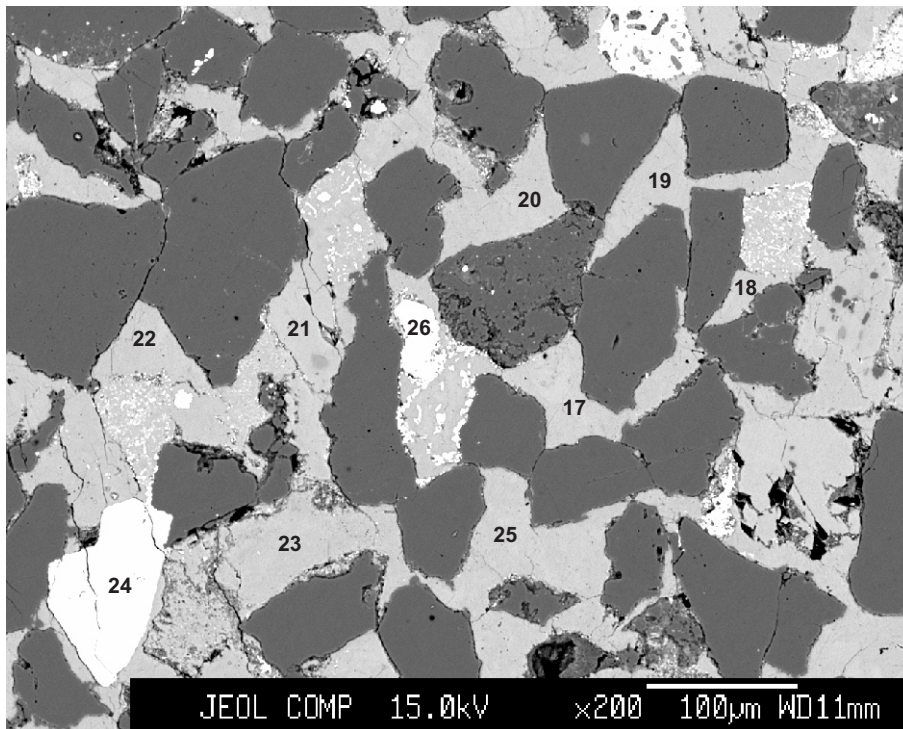
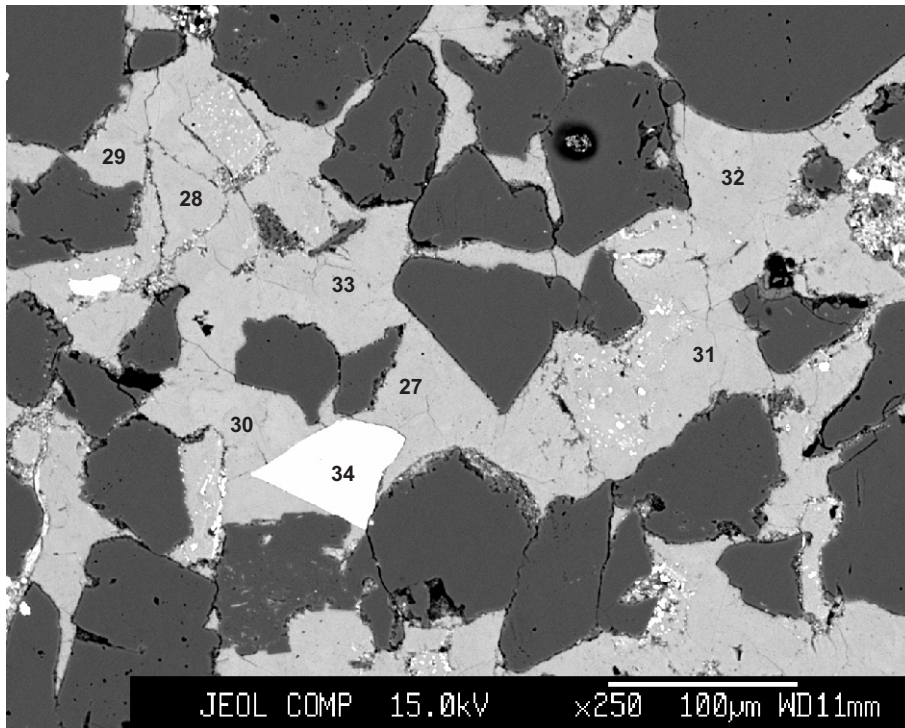
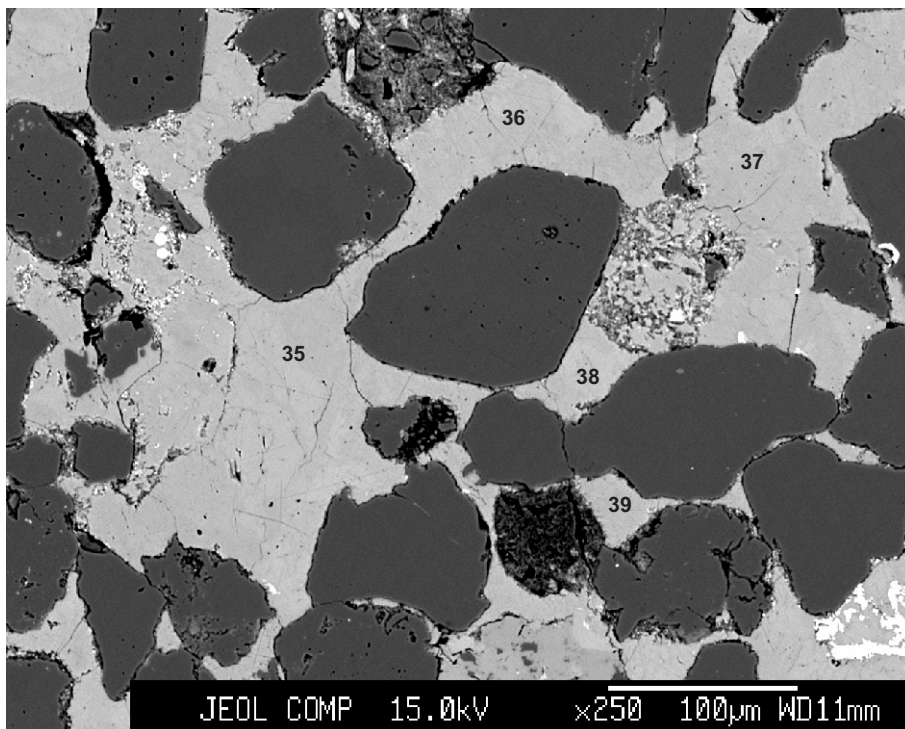


Figure 10: Venture H-22-4715.4



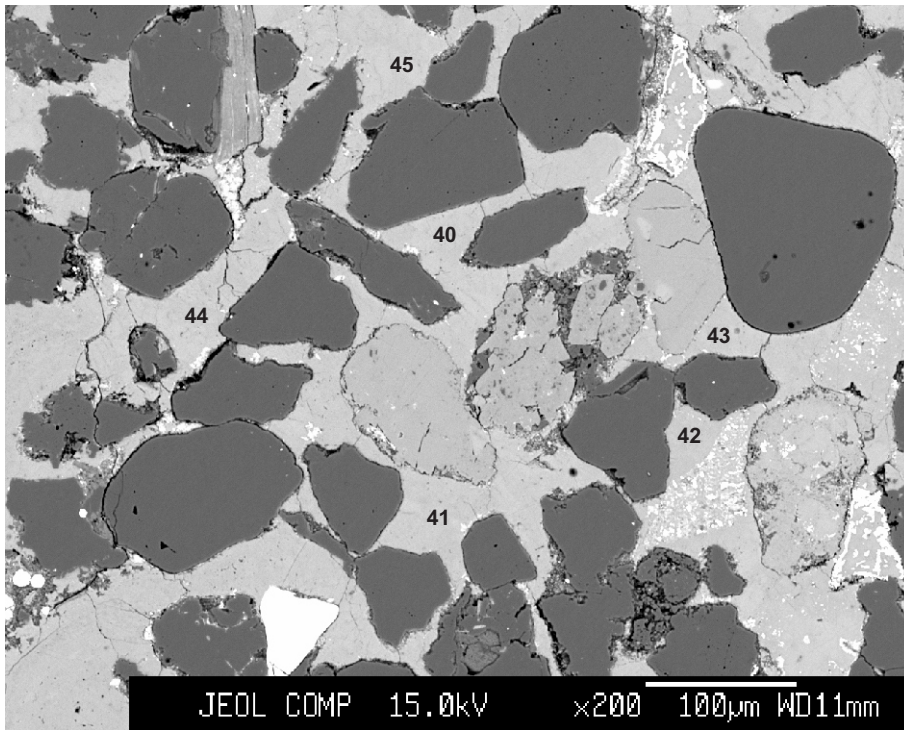
- 27: calcite
- 28: calcite
- 29: Fe-calcite
- 30: calcite
- 31: calcite
- 32: Fe-calcite
- 33: calcite
- 34: apatite

Figure 11: Venture H-22-4715.4



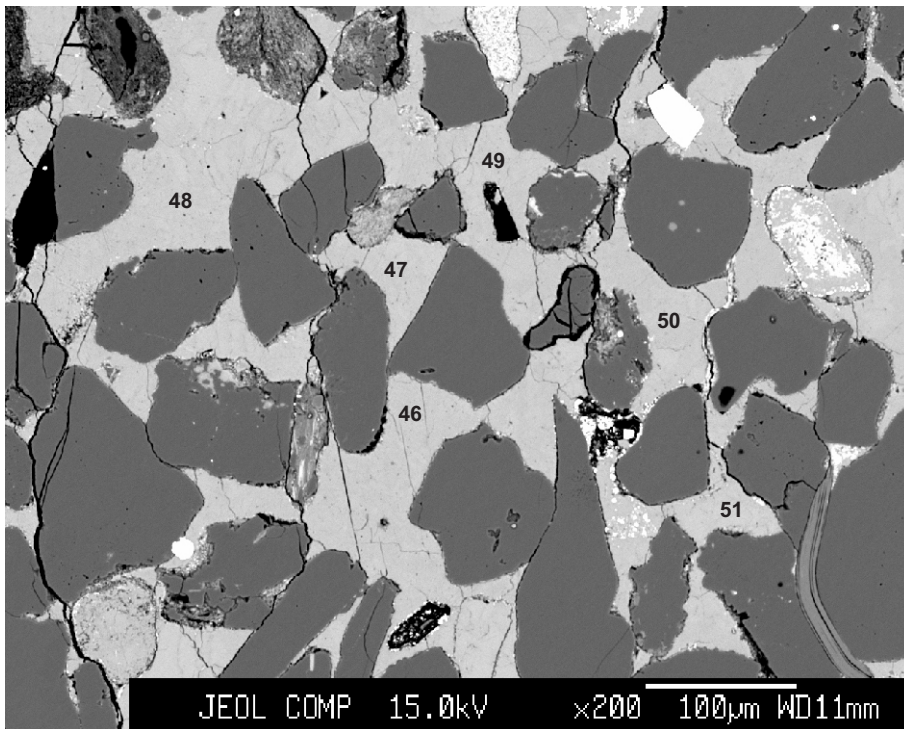
- 35: Fe-calcite
- 36: calcite
- 37: calcite
- 38: Fe-calcite
- 39: calcite

Figure 12: Venture H-22-4715.4



- 40: Fe-calcite
- 41: Fe-calcite
- 42: calcite
- 43: calcite
- 44: Fe-calcite

Figure 13: Venture H-22-4715.4



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

Figure 14: Venture H-22-4715.4

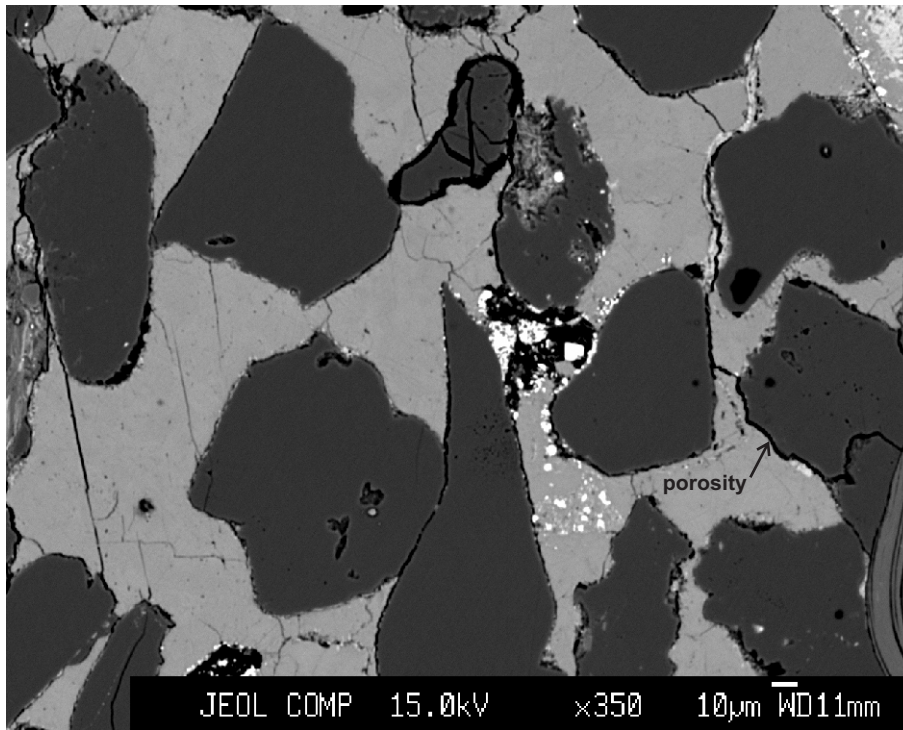
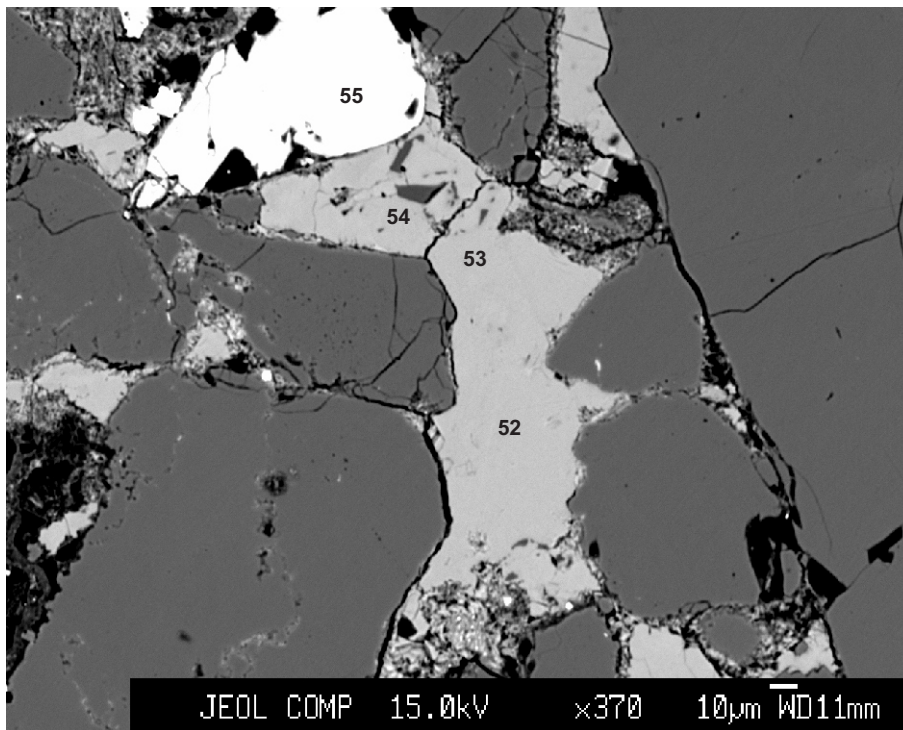
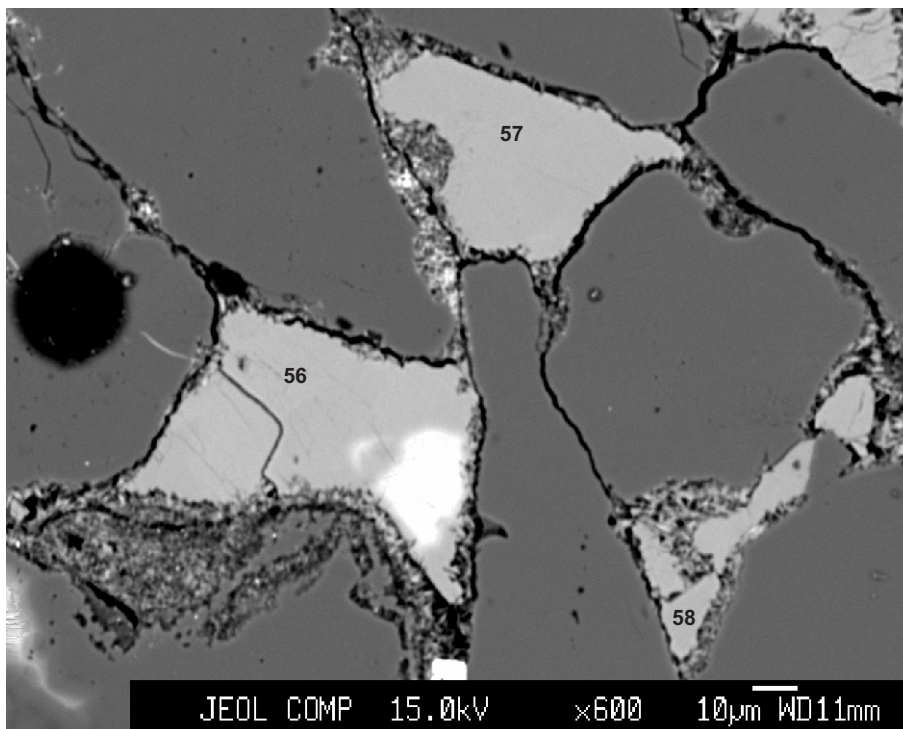


Figure 15: Venture H-22-4715.4



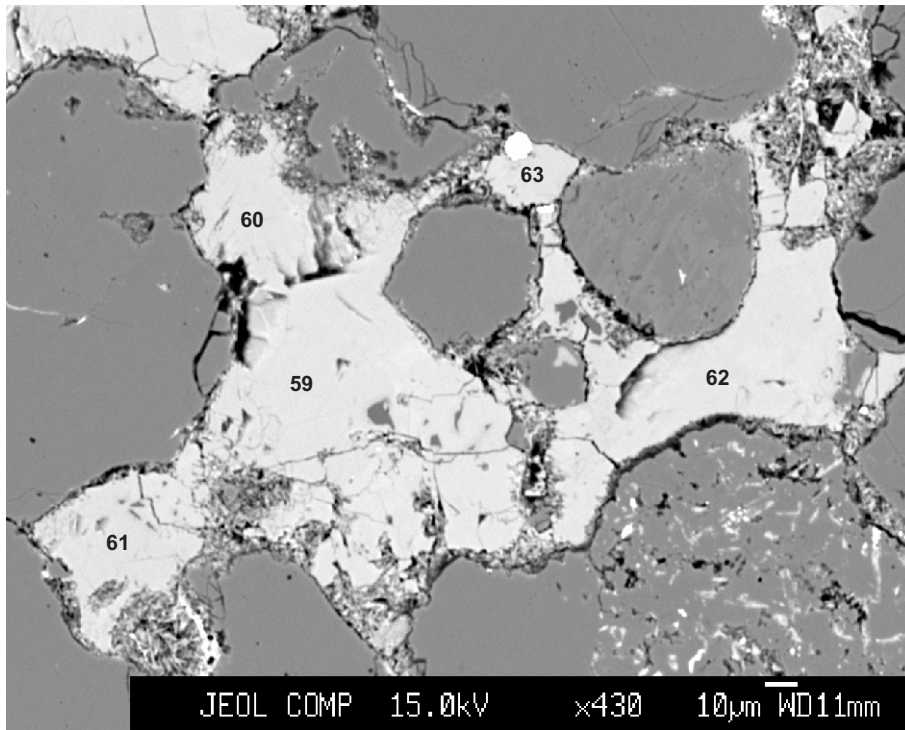
52: calcite
53: calcite
54: calcite
55: apatite

Figure 16: Venture H-22-4724.94



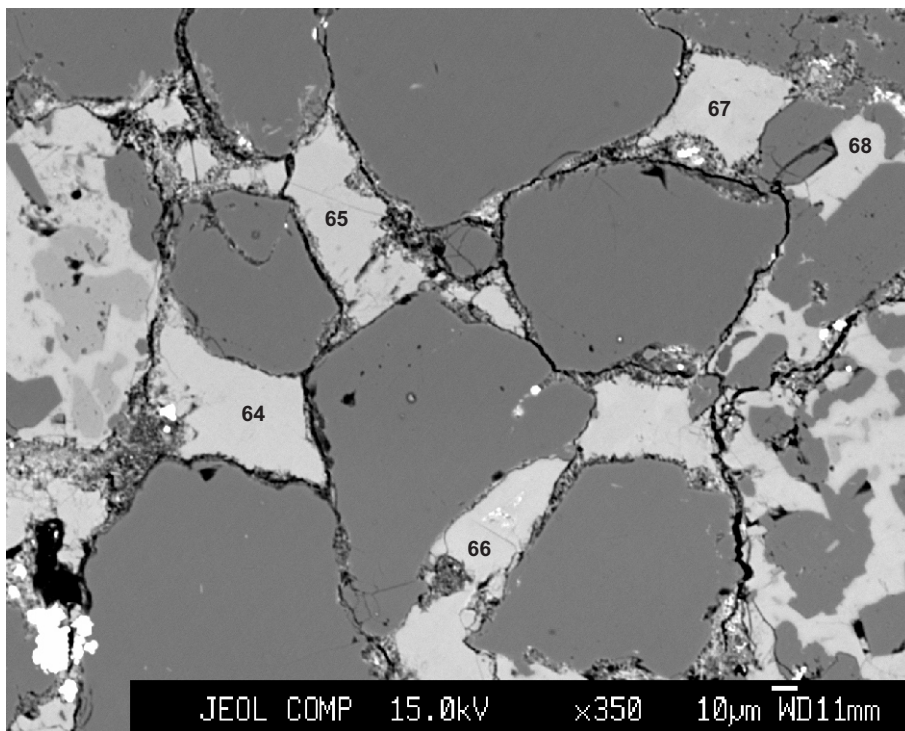
56: calcite
57: calcite
58: calcite

Figure 17: Venture H-22-4724.94



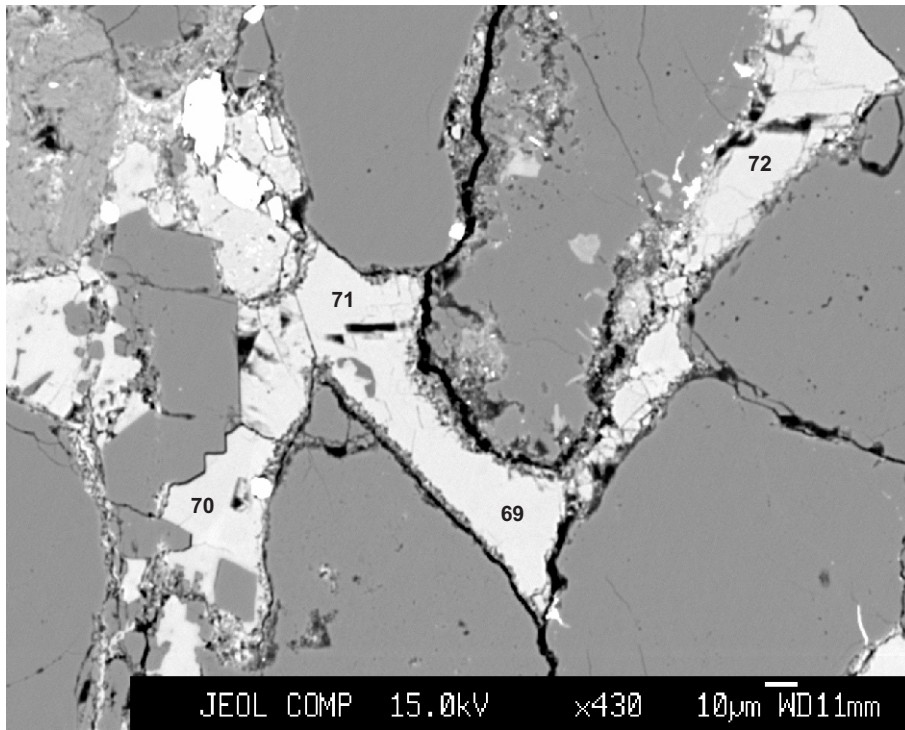
59: calcite
60: calcite
61: calcite
62: calcite
63: calcite

Figure 18: Venture H-22-4724.94



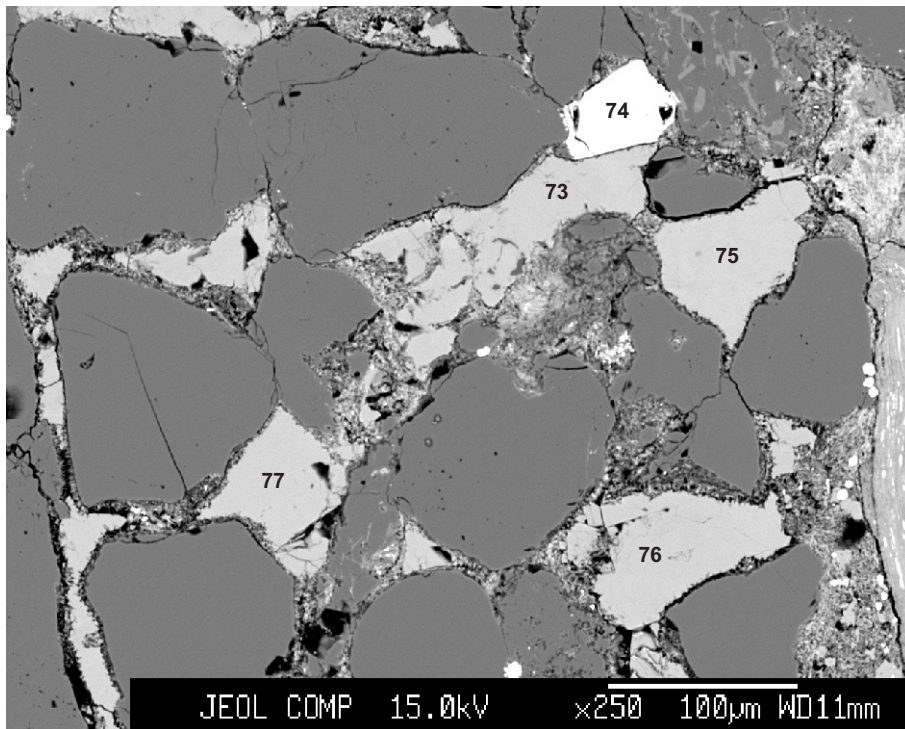
64: calcite
65: calcite
66: calcite
67: calcite
68: Fe-calcite

Figure 19: Venture H-22-4724.94



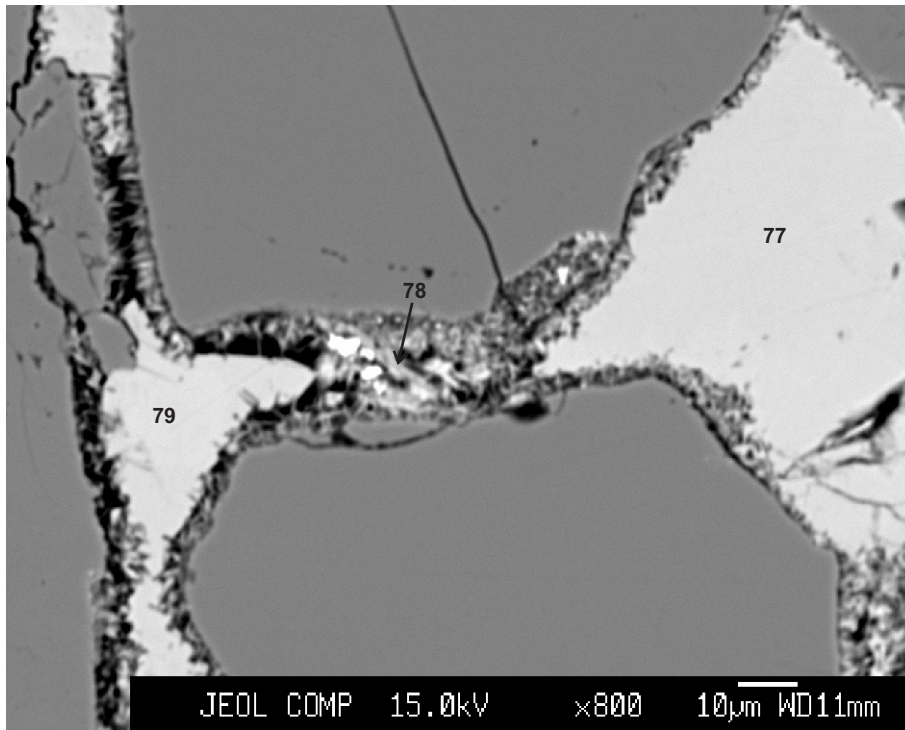
69: calcite
70: calcite
71: calcite
72: calcite

Figure 20: Venture H-22-4724.94



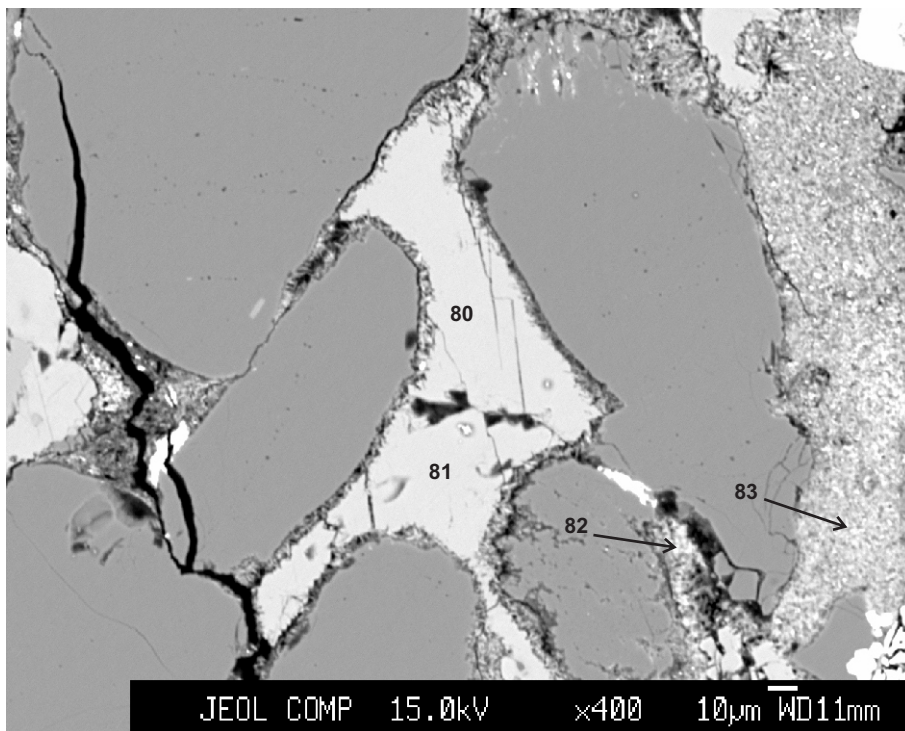
73: calcite
74: apatite
75: calcite
76: calcite
77: calcite

Figure 21: Venture H-22-4724.94



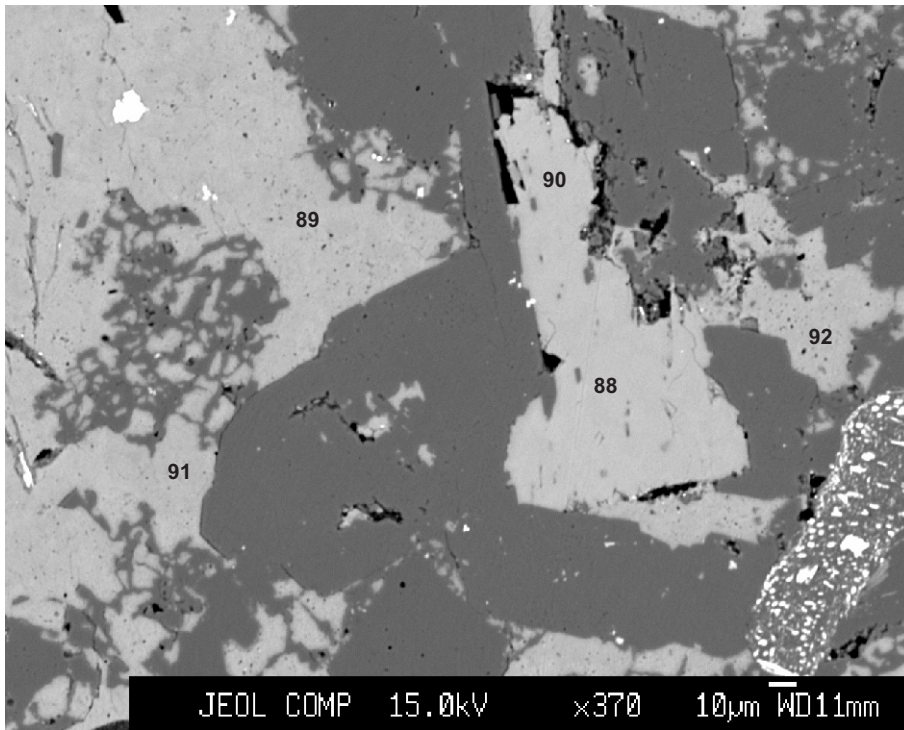
77: calcite
78: chlorite
79: calcite

Figure 22: Venture H-22-4724.94



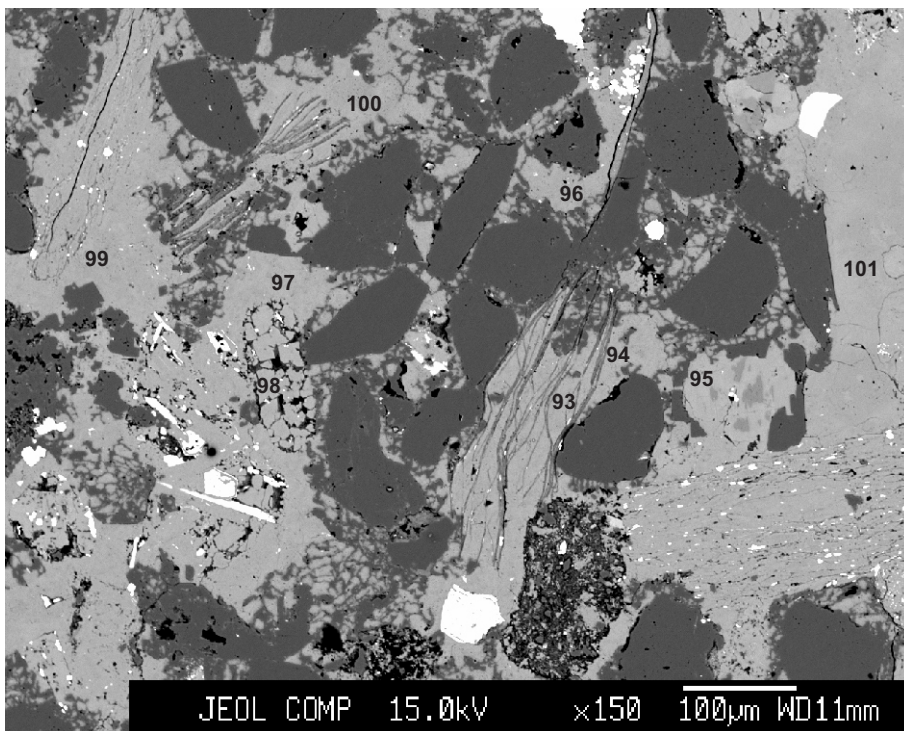
80: calcite
81: calcite
82: chlorite
83: chlorite

Figure 23: Venture H-22-4724.94



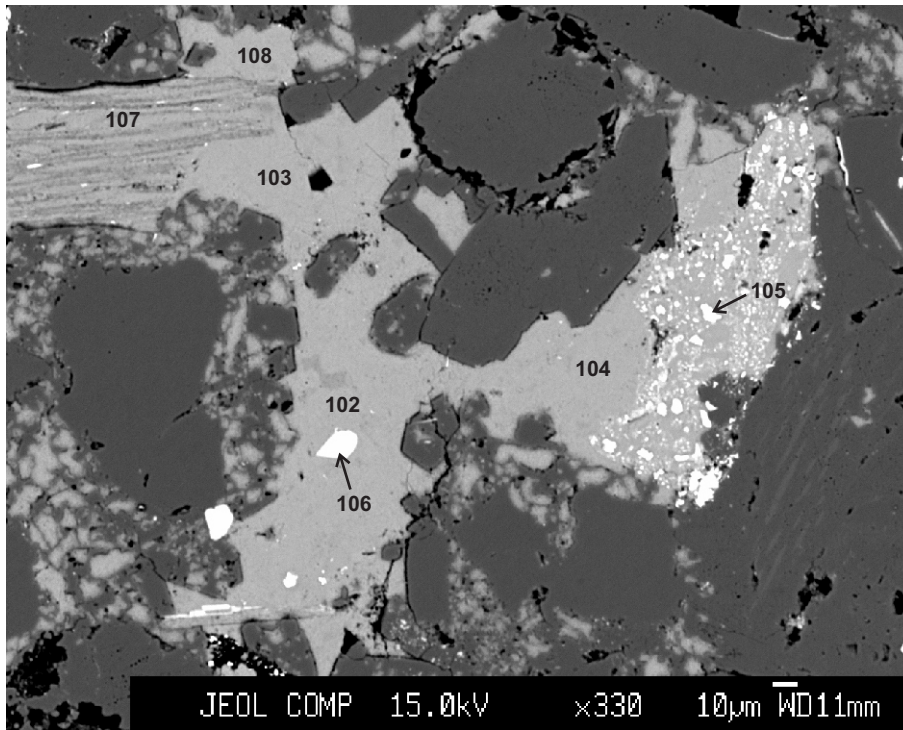
- 88: calcite
- 89: calcite
- 90: calcite
- 91: calcite
- 92: calcite

Figure 24: Venture H-22-4727.85



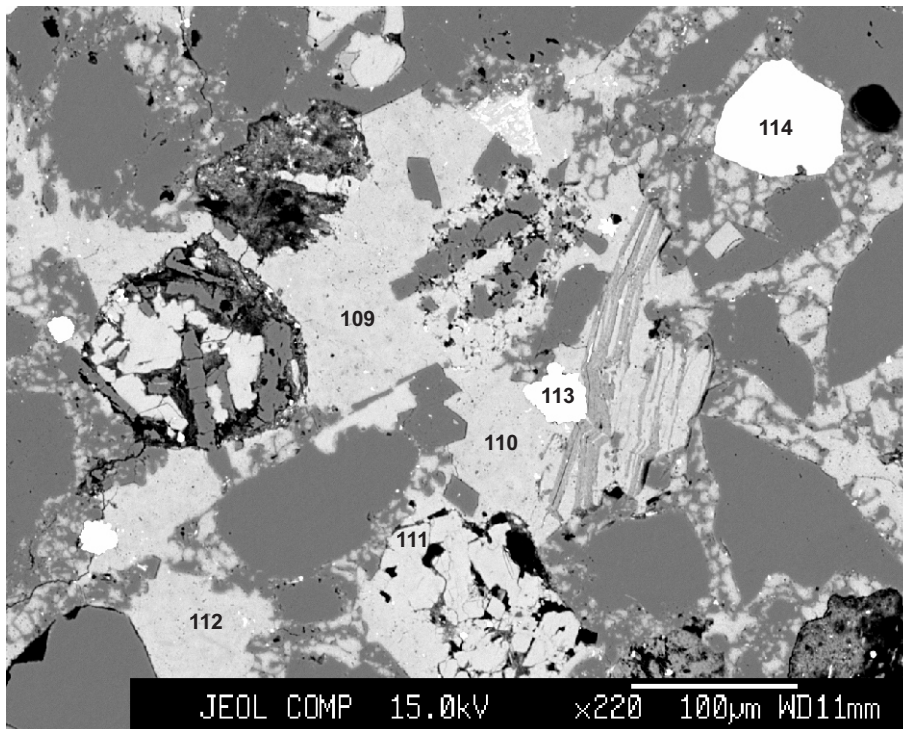
- 93: calcite
- 94: calcite
- 95: calcite
- 96: calcite
- 97: calcite
- 98: calcite
- 99: calcite
- 100: calcite
- 101: calcite

Figure 25: Venture H-22-4727.85



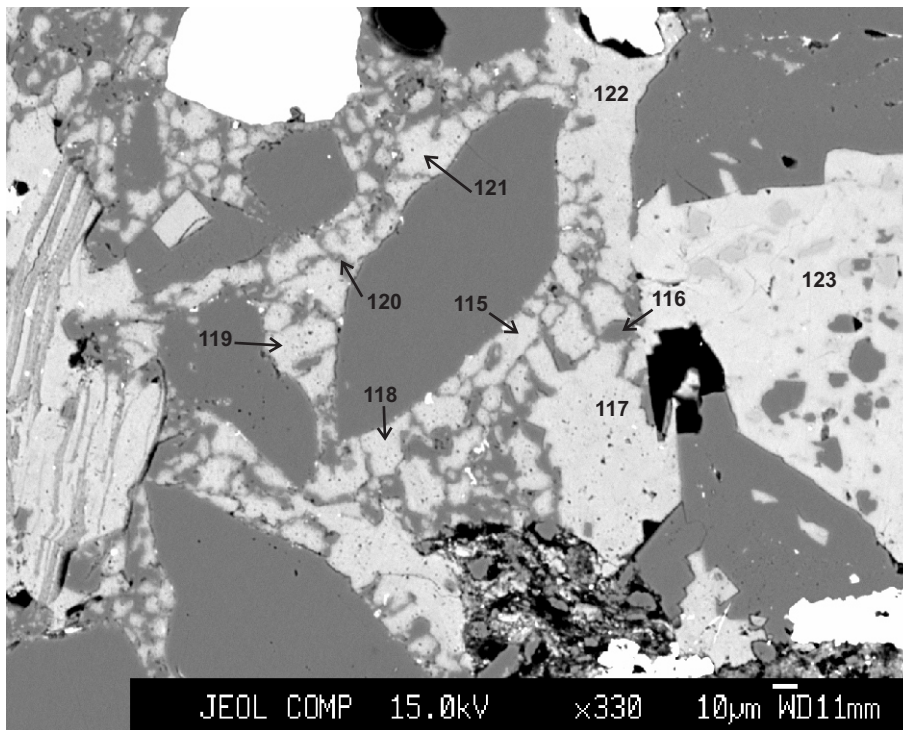
- 102: calcite
- 103: calcite
- 104: calcite
- 105: rutile
- 106: apatite
- 107: Fe-calcite
- 108: calcite

Figure 26: Venture H-22-4727.85



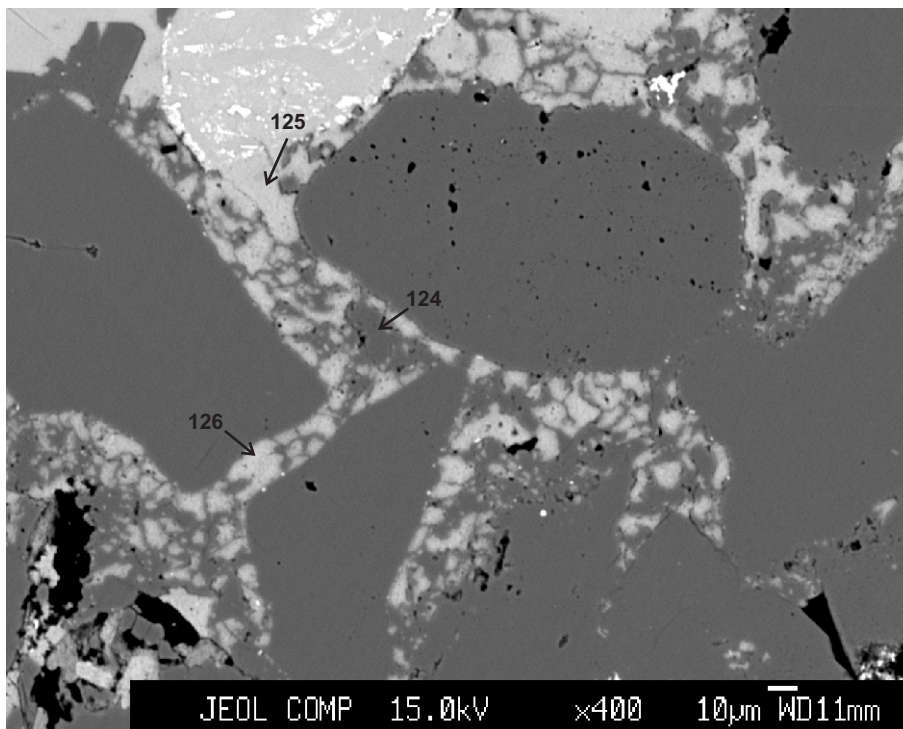
- 109: calcite
- 110: calcite
- 111: Fe-calcite
- 112: calcite
- 113: pyrite
- 114: apatite

Figure 27: Venture H-22-4727.85



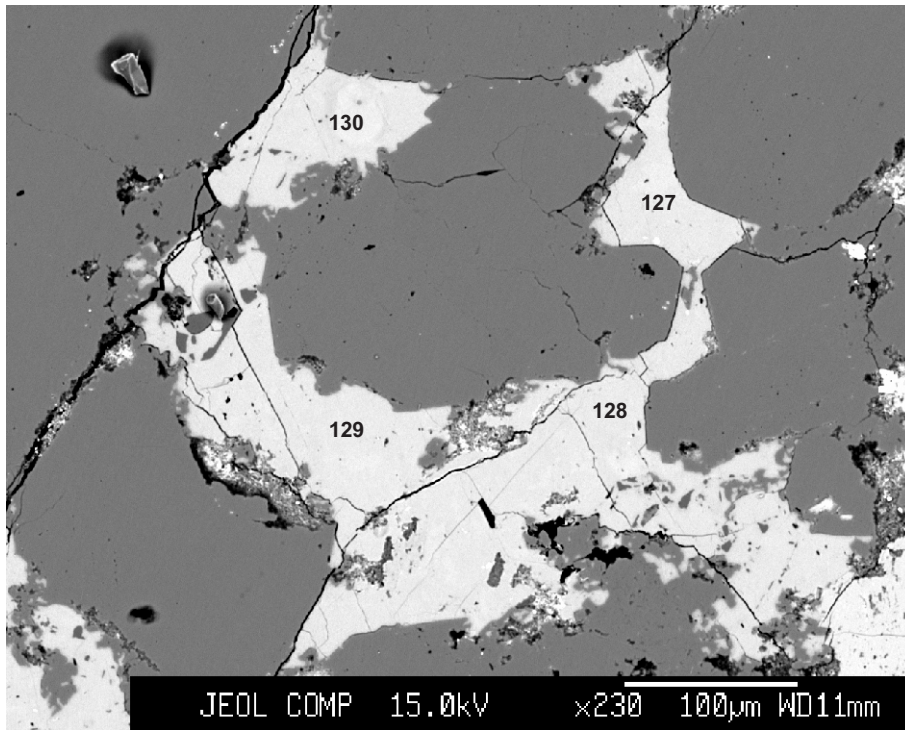
- 115: calcite
- 116: quartz
- 117: Fe-calcite
- 118: Fe-calcite
- 119: Fe-calcite
- 120: quartz + calcite
- 121: calcite
- 122: calcite
- 123: calcite

Figure 28: Venture H-22-4727.85



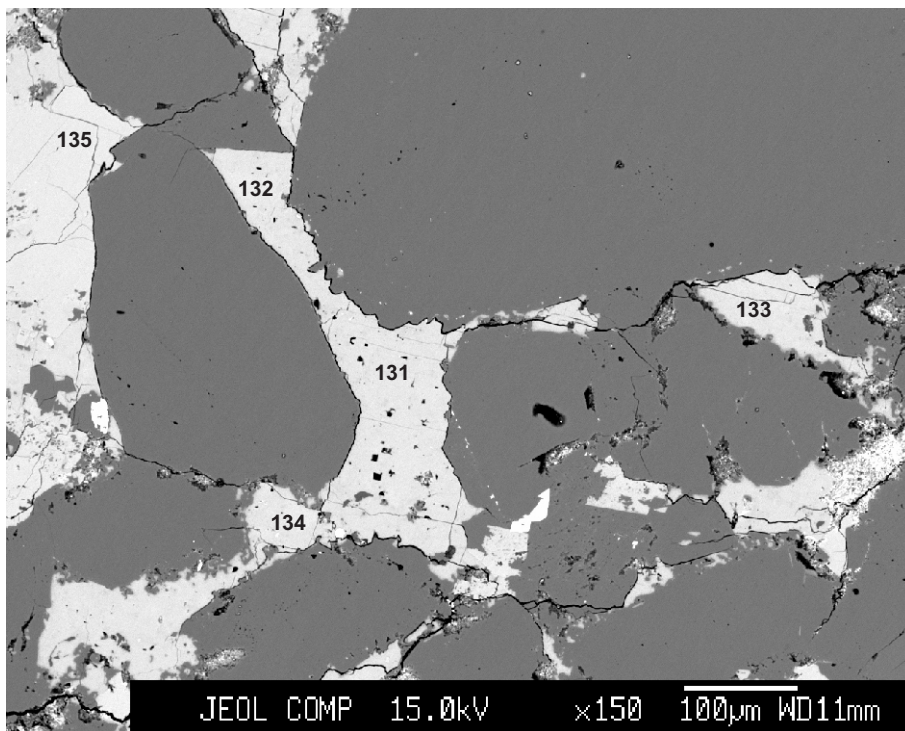
- 124: quartz + calcite
- 125: calcite
- 126: calcite

Figure 29: Venture H-22-4727.85



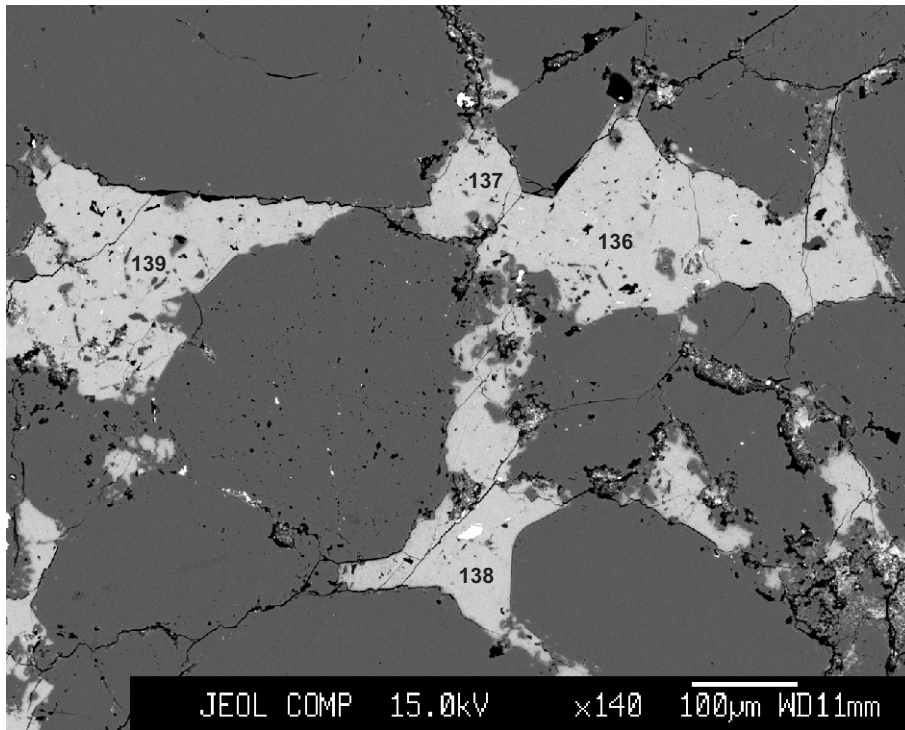
127: Fe-calcite
128: Fe-calcite
129: Fe-calcite
130: Fe-calcite

Figure 30: Venture H-22-4895.77



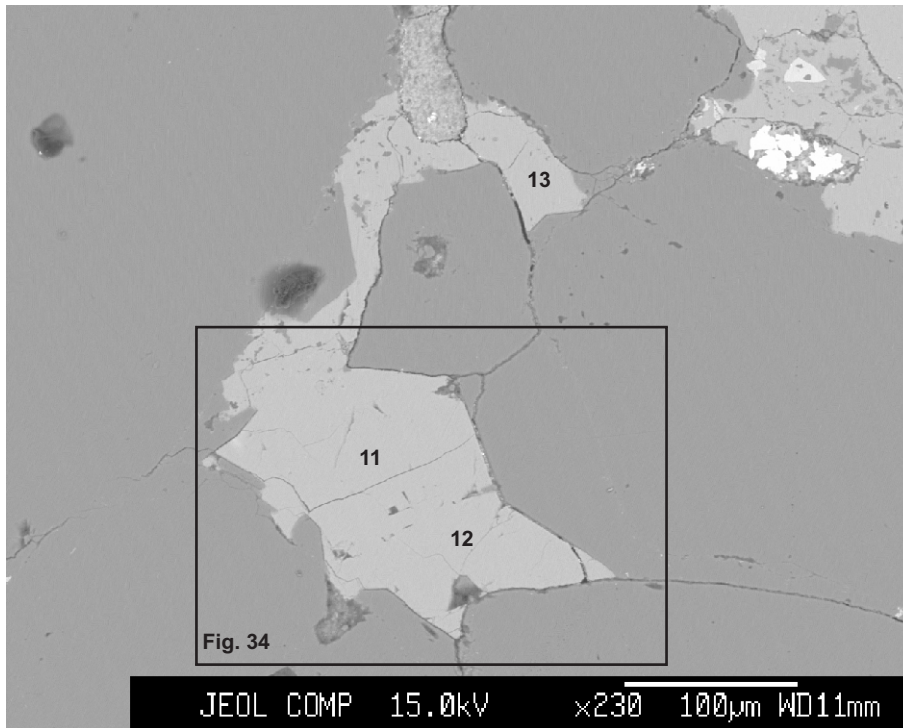
131: Fe-calcite
132: Fe-calcite
133: Fe-calcite
134: Fe-calcite
135: ankerite

Figure 31: Venture H-22-4895.77



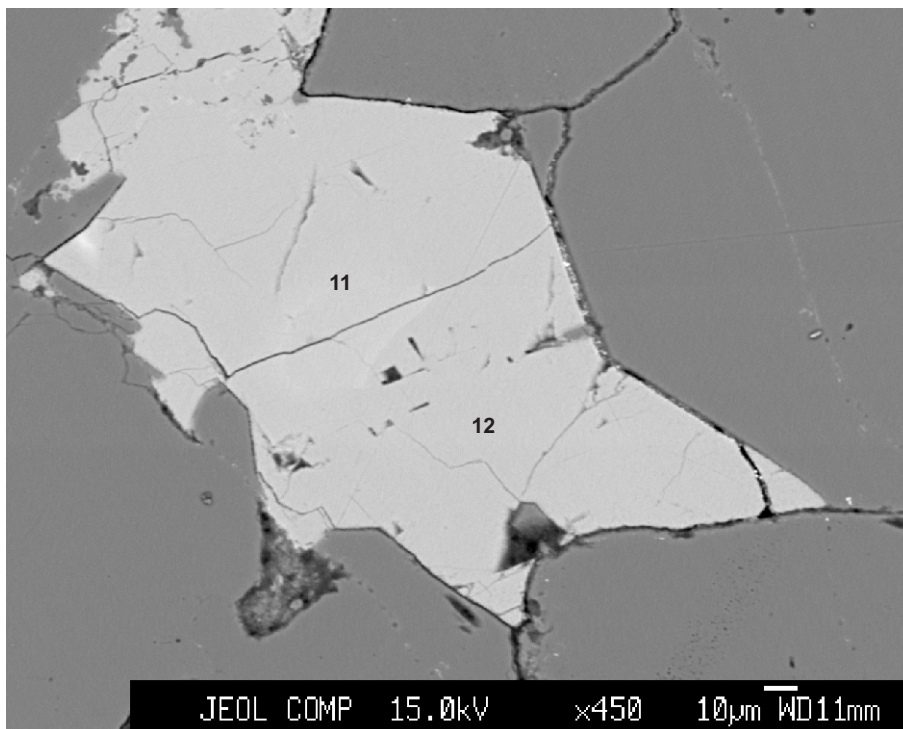
136: Fe-calcite
137: Fe-calcite
138: Fe-calcite
139: Fe-calcite

Figure 32: Venture H-22-4895.77



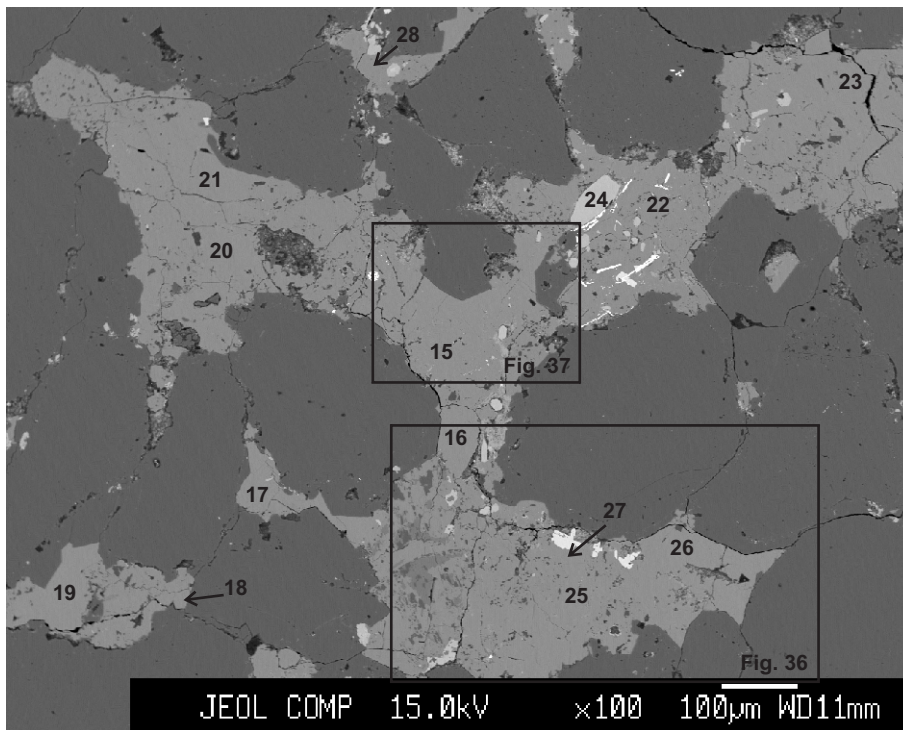
11: anakerite
12: anakerite
13: anakerite
14: anakerite

Figure 33: Venture H-22-4909.12



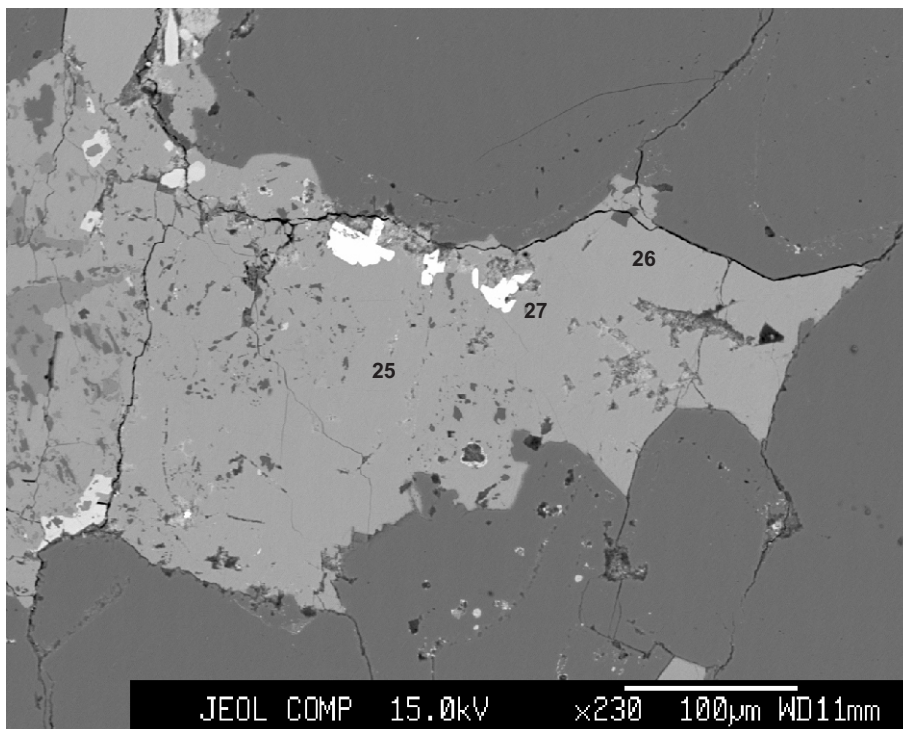
11: anakerite
12: anakerite

Figure 34: Venture H-22-4909.12



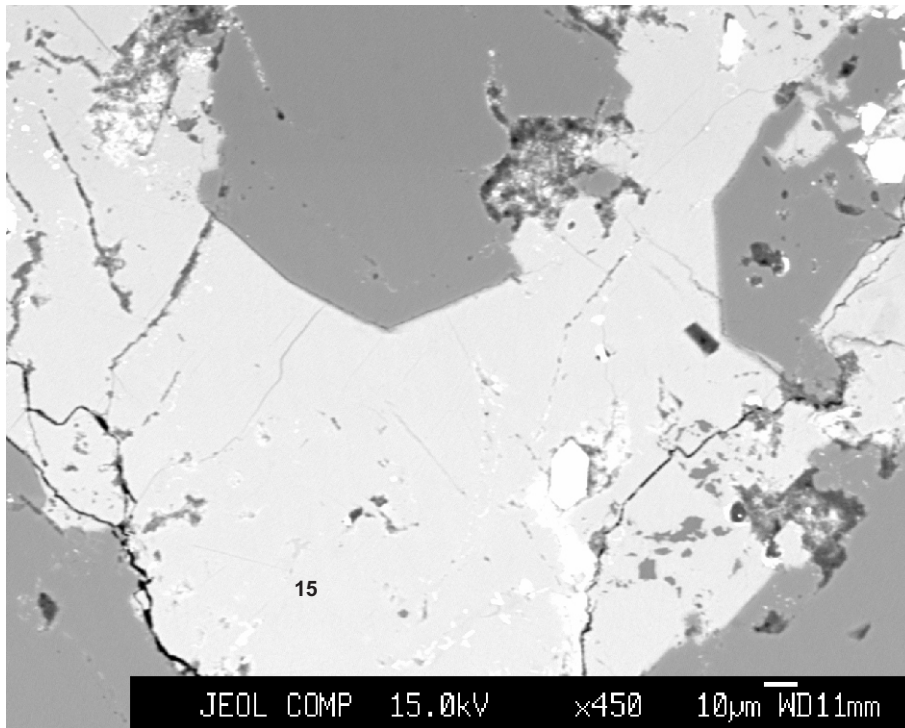
- 15: ankerite
- 16: ankerite
- 17: ankerite
- 18: ankerite
- 19: ankerite
- 20: ankerite
- 21: ankerite
- 22: ankerite
- 23: ankerite
- 24: apatite
- 25: ankerite
- 26: ankerite
- 27: ankerite

Figure 35: Venture H-22-4909.12



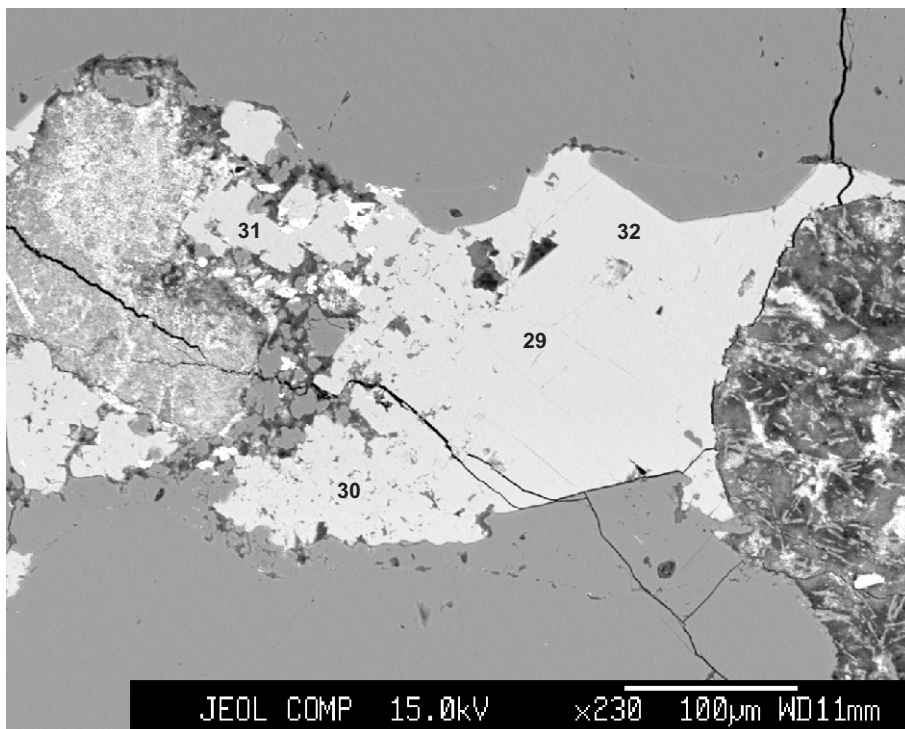
- 25: ankerite
- 26: ankerite
- 27: ankerite

Figure 36: Venture H-22-4909.12



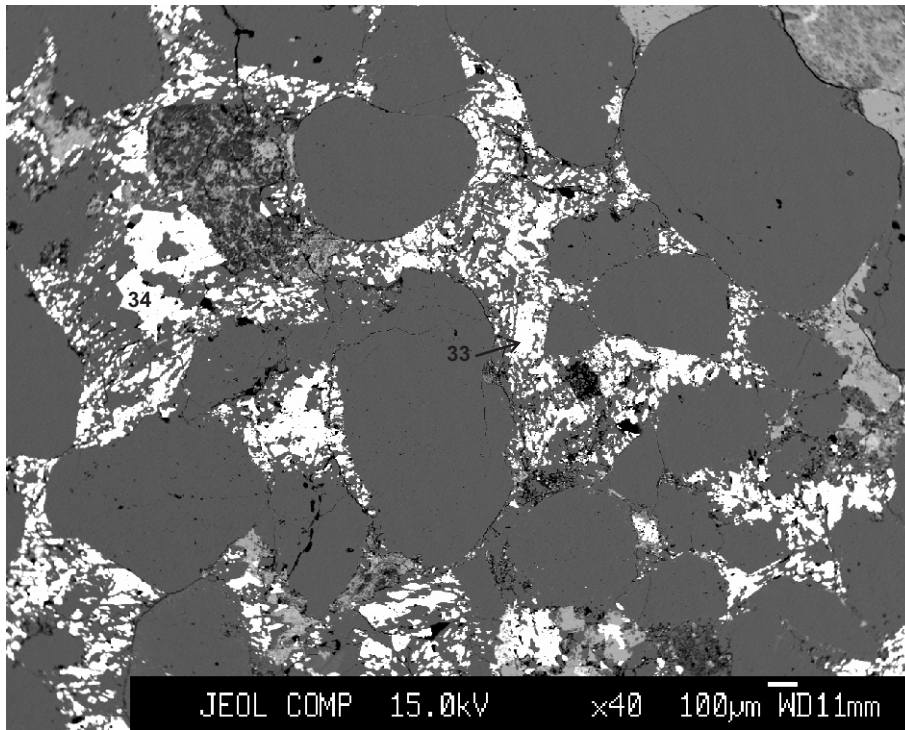
15: ankerite

Figure 37: Venture H-22-4909.12



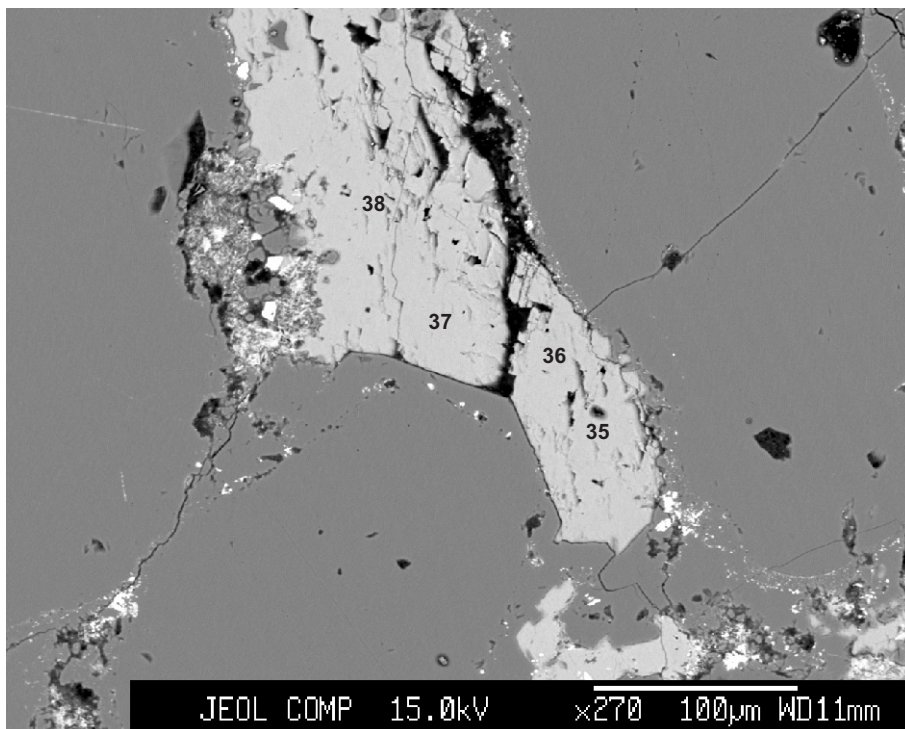
29: ankerite
30: ankerite
31: ankerite
32: ankerite

Figure 38: Venture H-22-4909.12



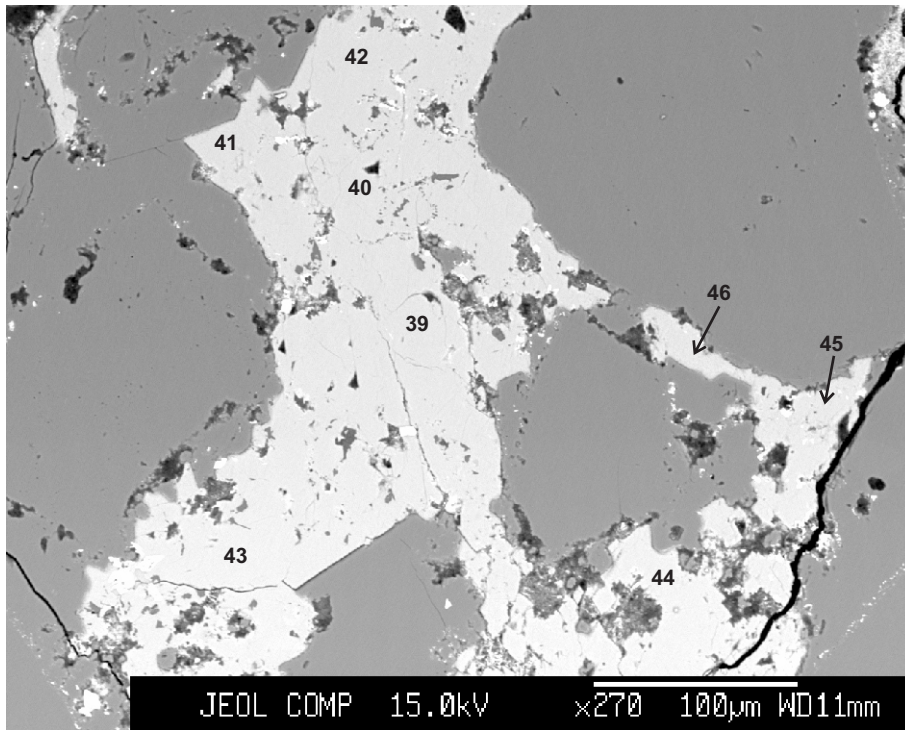
33: barite
34: barite

Figure 39: Venture H-22-4909.12



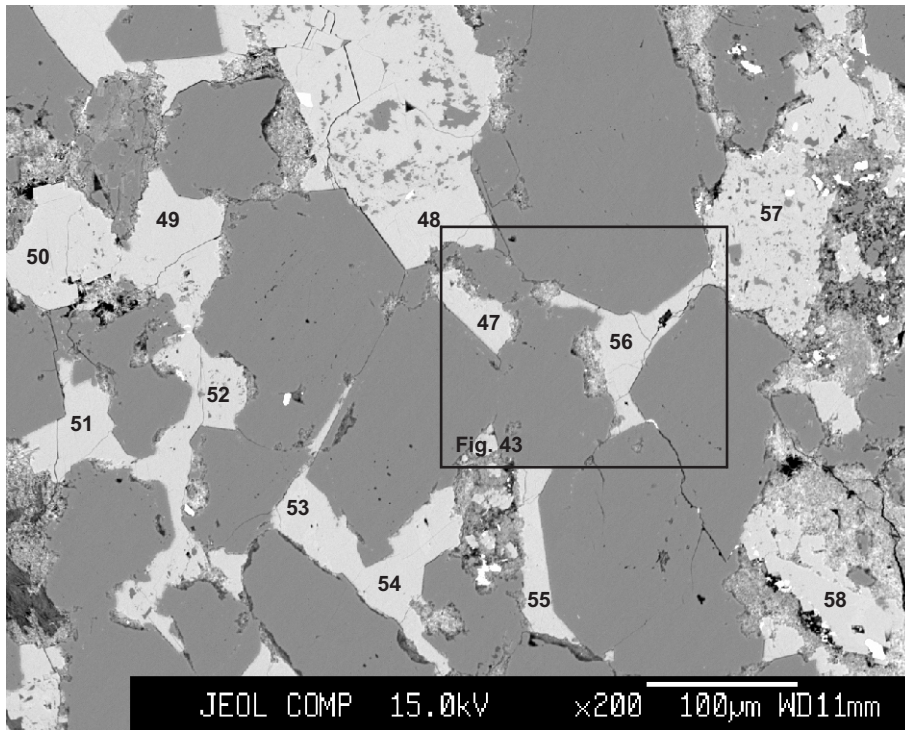
35: Fe-calcite
36: Fe-calcite
37: calcite
38: Fe-calcite

Figure 40: Venture H-22-4909.12



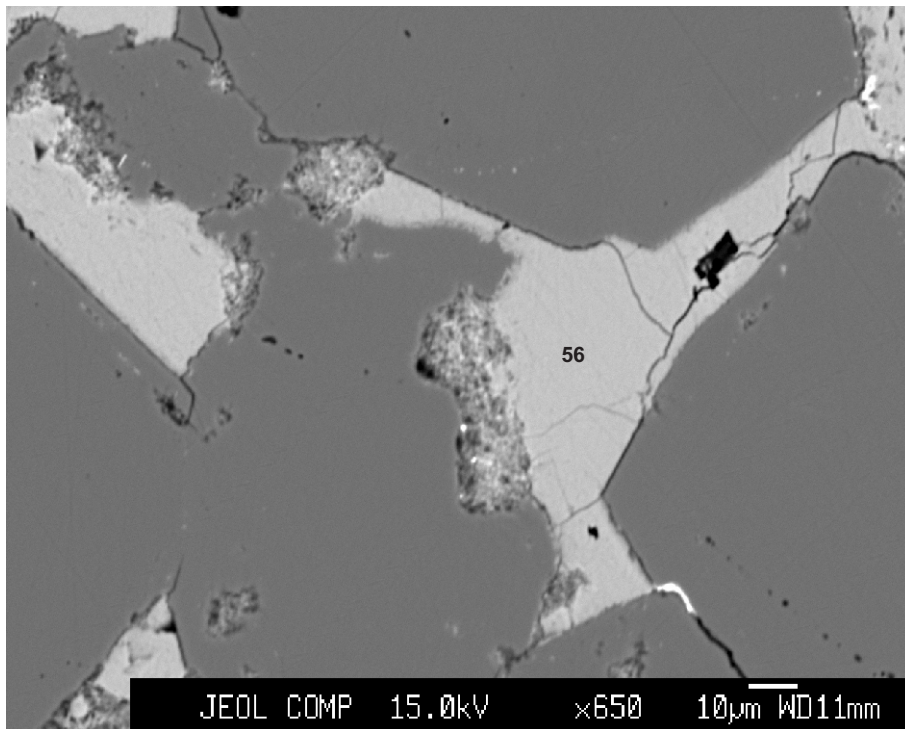
- 39: ankerite
- 40: ankerite
- 41: ankerite
- 42: ankerite
- 43: ankerite
- 44: ankerite
- 45: ankerite
- 46: ankerite

Figure 41: Venture H-22-4909.12



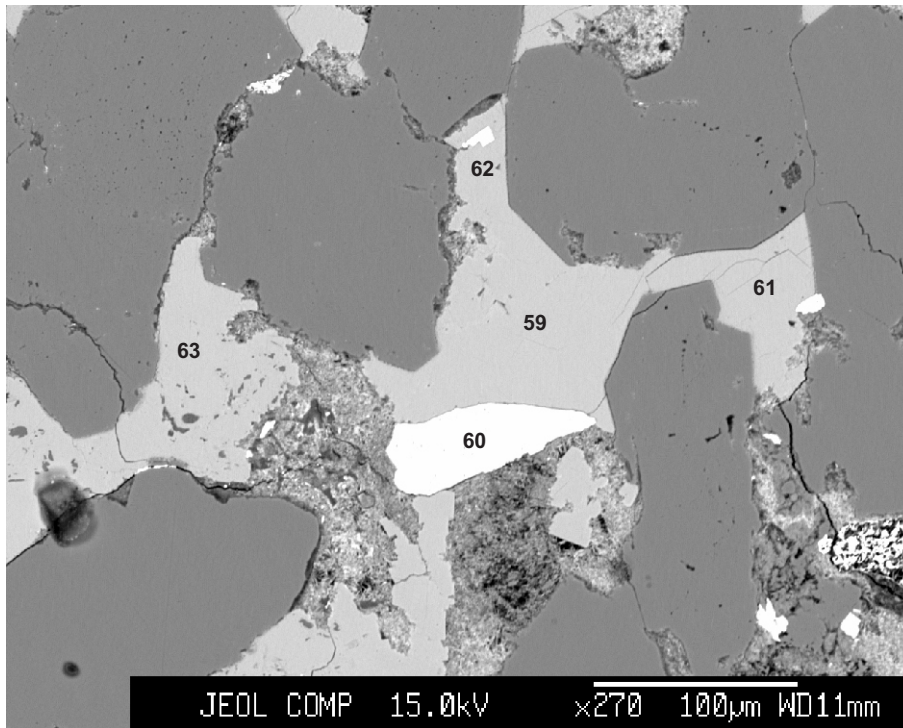
- 47: ankerite
- 48: ankerite
- 49: ankerite
- 50: ankerite
- 51: ankerite
- 52: ankerite
- 53: ankerite
- 54: ankerite
- 55: ankerite
- 56: ankerite
- 57: ankerite
- 58: ankerite

Figure 42: Venture H-22-4912.3



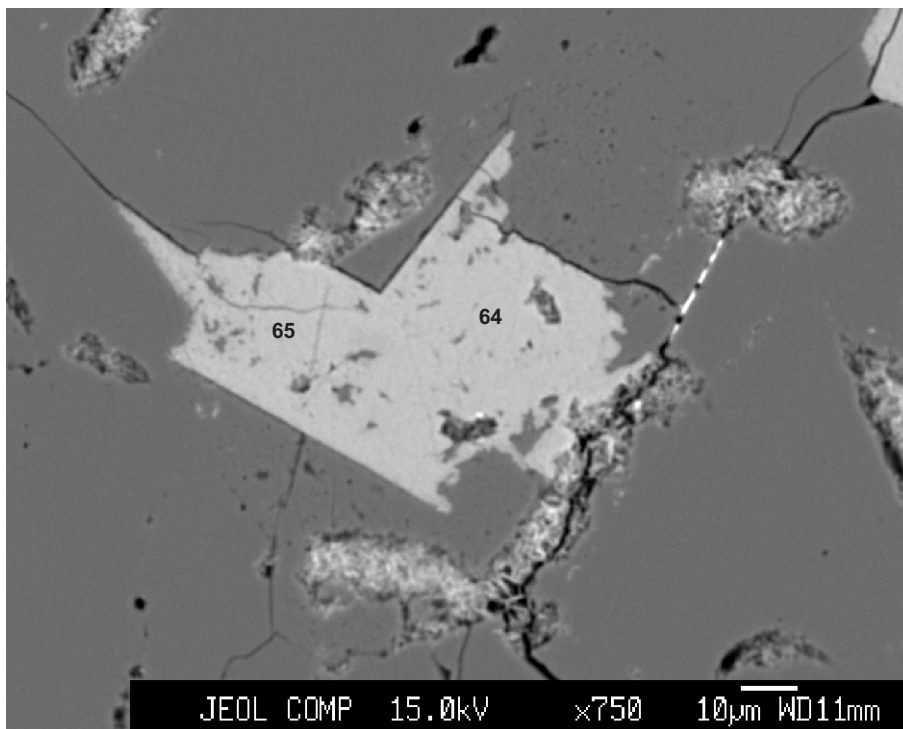
- 56: ankerite

Figure 43: Venture H-22-4912.3



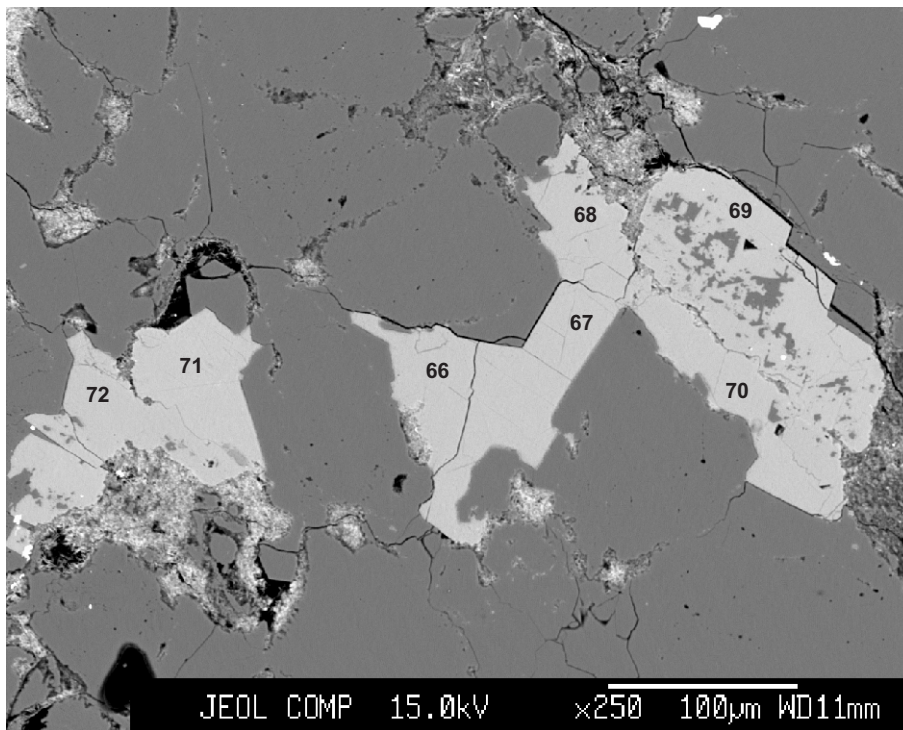
59: ankerite
60: apatite
61: ankerite
62: ankerite
63: ankerite

Figure 44: Venture H-22-4912.3



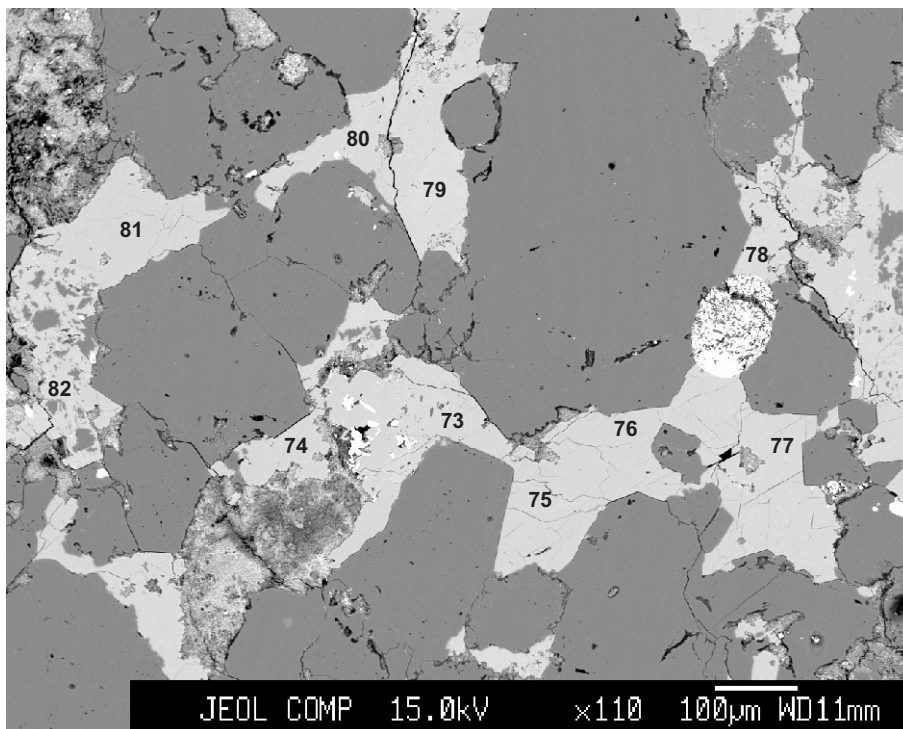
64: ankerite
65: ankerite

Figure 45: Venture H-22-4912.3



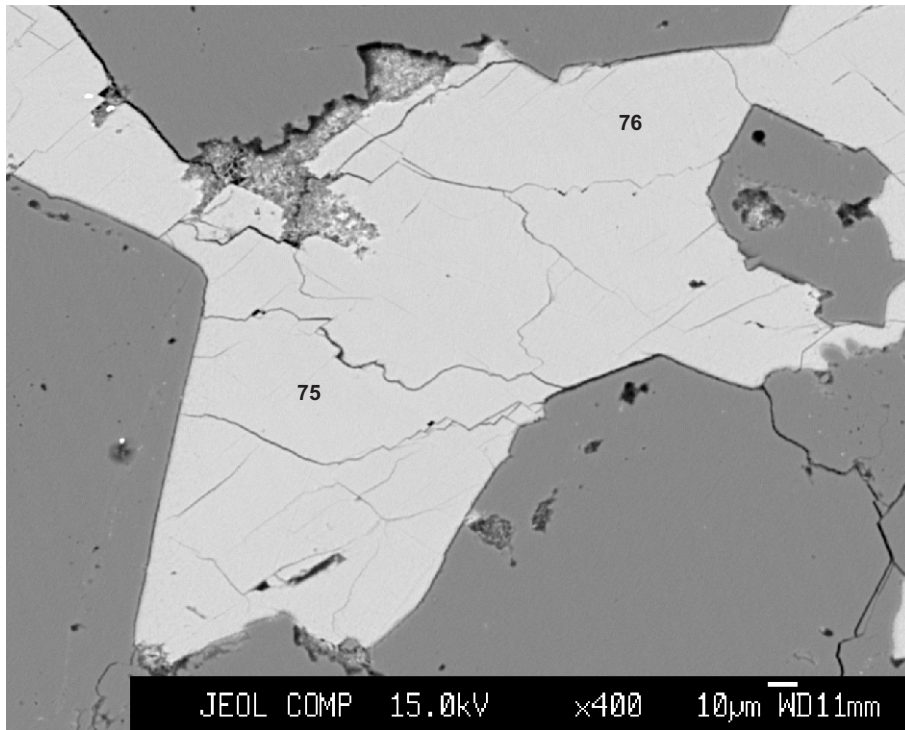
- 66: ankerite
- 67: ankerite
- 68: ankerite
- 69: ankerite
- 70: ankerite
- 71: ankerite
- 72: ankerite

Figure 46: Venture H-22-4912.3



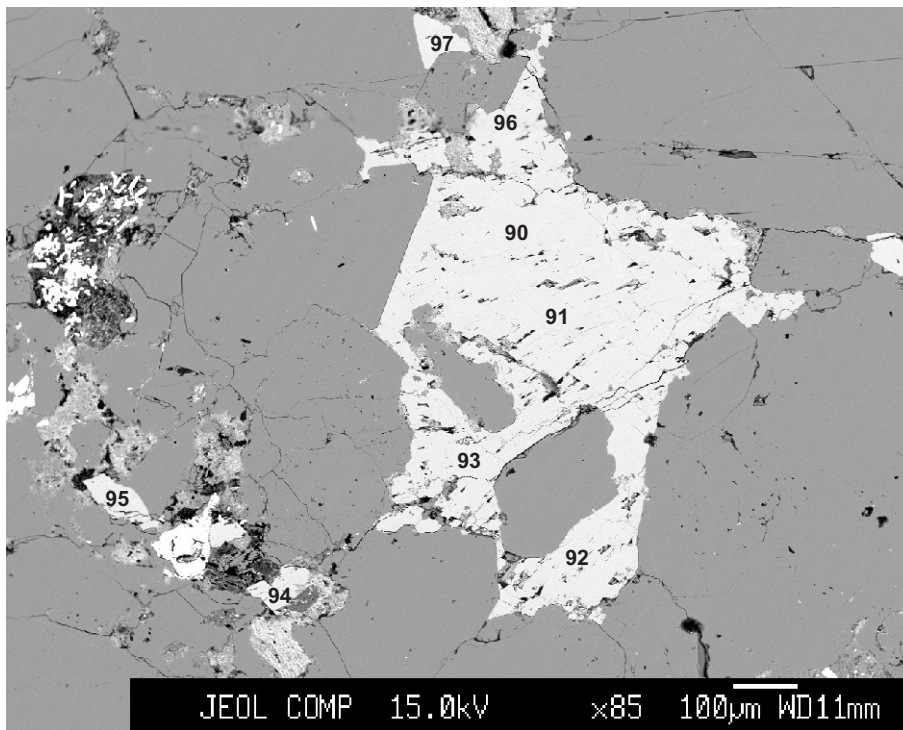
- 73: ankerite
- 74: ankerite
- 75: ankerite
- 76: ankerite
- 77: ankerite
- 78: ankerite
- 79: ankerite
- 80: ankerite
- 81: ankerite
- 82: ankerite
- 83: ankerite

Figure 47: Venture H-22-4912.3



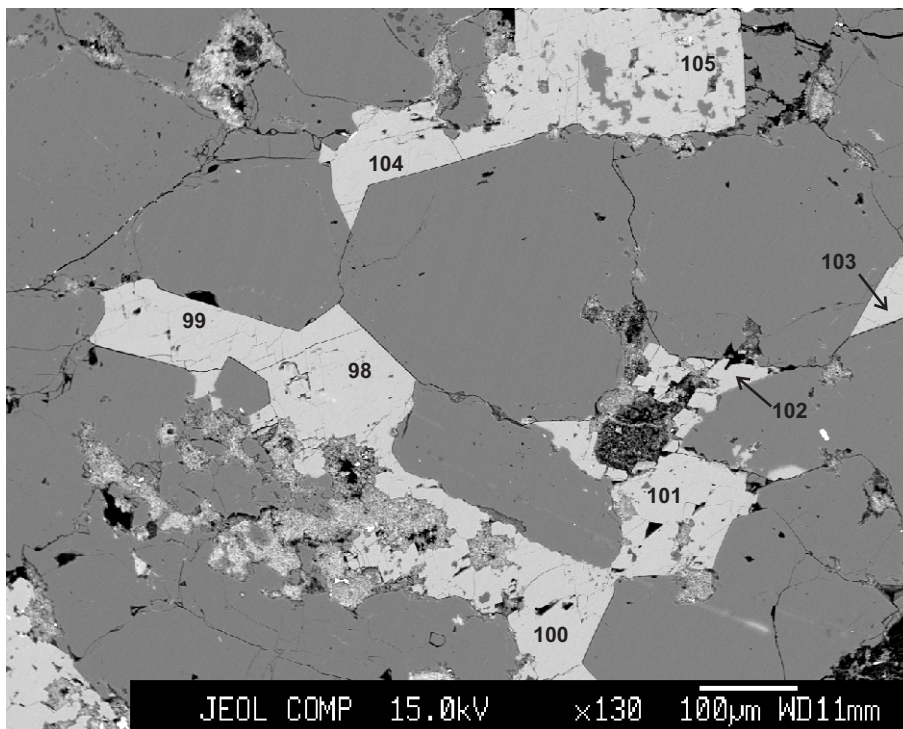
75: ankerite
76: ankerite

Figure 48: Venture H-22-4912.3



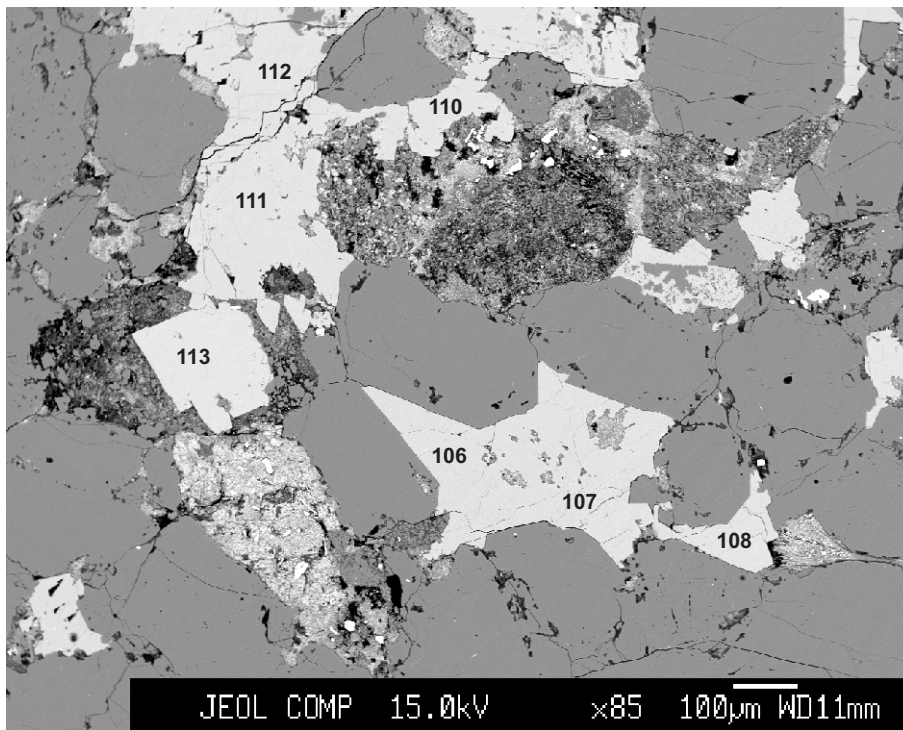
- 90: ankerite
- 91: ankerite
- 92: ankerite
- 93: ankerite
- 94: ankerite
- 95: ankerite
- 96: ankerite
- 97: ankerite

Figure 49: Venture H-22-4914.42



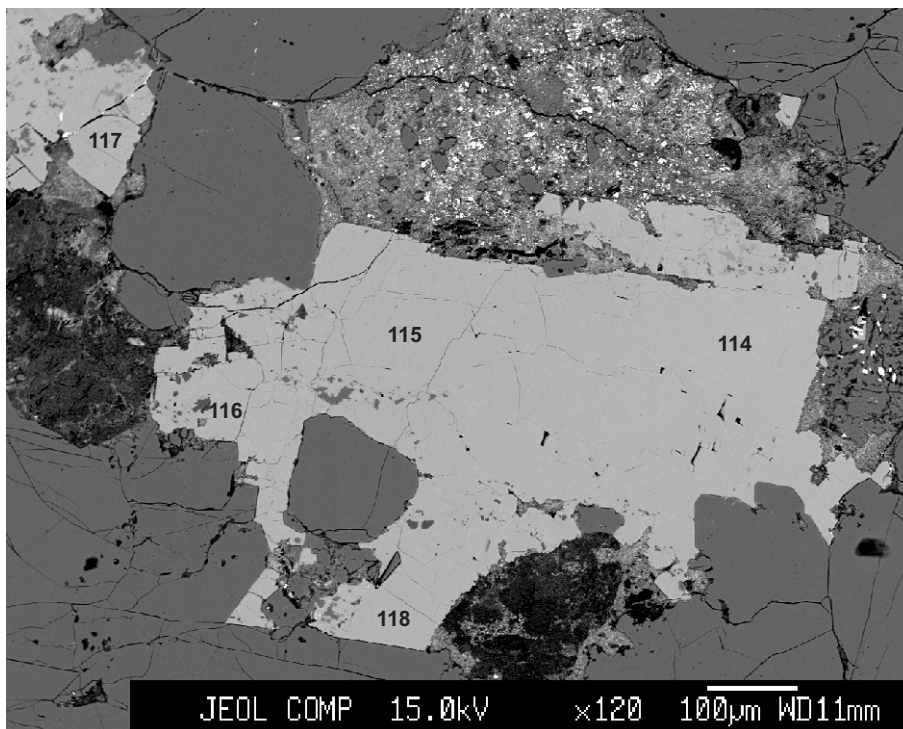
- 98: ankerite
- 99: ankerite
- 100: ankerite
- 101: ankerite
- 102: ankerite
- 103: ankerite
- 104: ankerite
- 105: ankerite

Figure 50: Venture H-22-4914.42



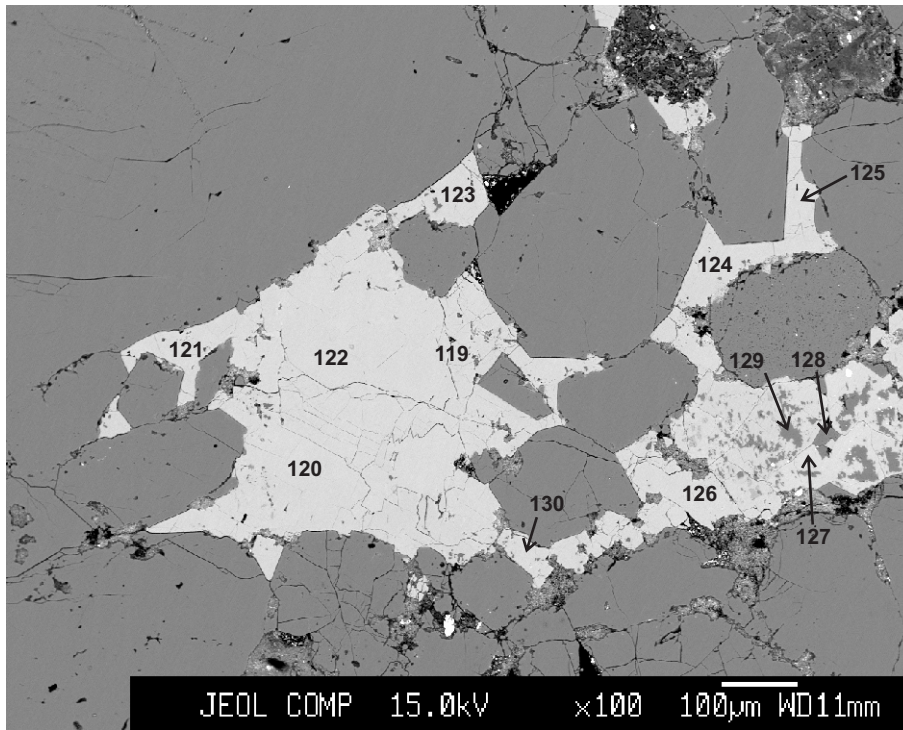
- 106: ankerite
- 107: ankerite
- 108: ankerite
- 109: ankerite
- 110: ankerite
- 111: ankerite
- 112: ankerite
- 113: ankerite

Figure 51: Venture H-22-4914.42



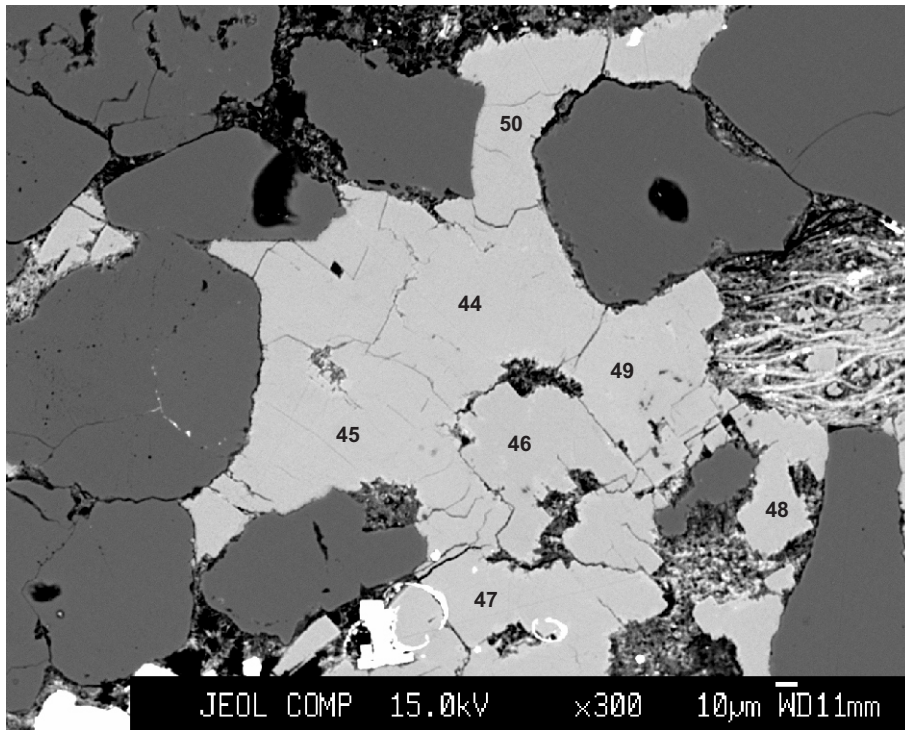
- 114: ankerite
- 115: ankerite
- 116: ankerite
- 117: ankerite
- 118: ankerite

Figure 52: Venture H-22-4914.42



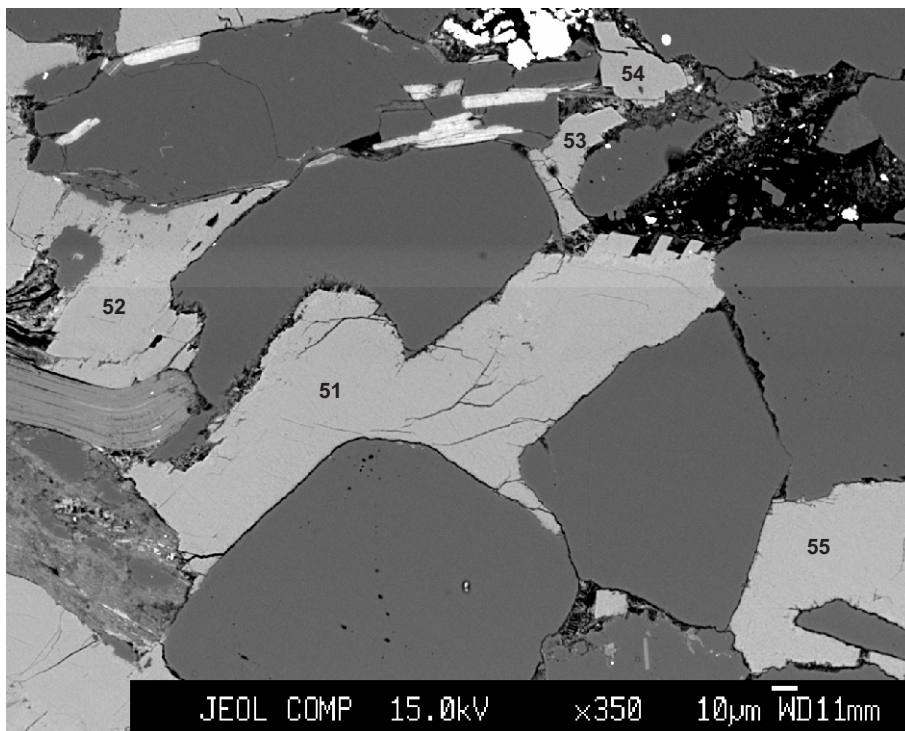
- 119: ankerite
- 120: ankerite
- 121: ankerite
- 122: ankerite
- 123: ankerite
- 124: ankerite
- 125: ankerite
- 126: ankerite
- 127: ankerite
- 128: albite
- 129: albite
- 103: ankerite

Figure 53: Venture H-22-4914.42



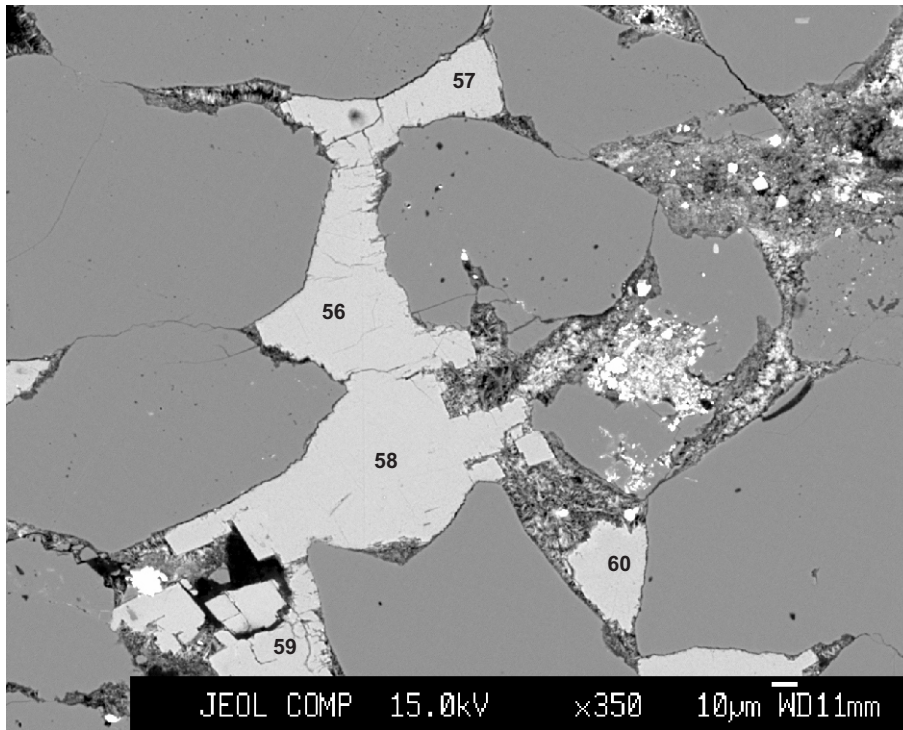
- 44: ankerite
- 45: ankerite
- 46: ankerite
- 47: ankerite
- 48: ankerite
- 49: ankerite
- 50: ankerite

Figure 54: Venture H-22-4957.21



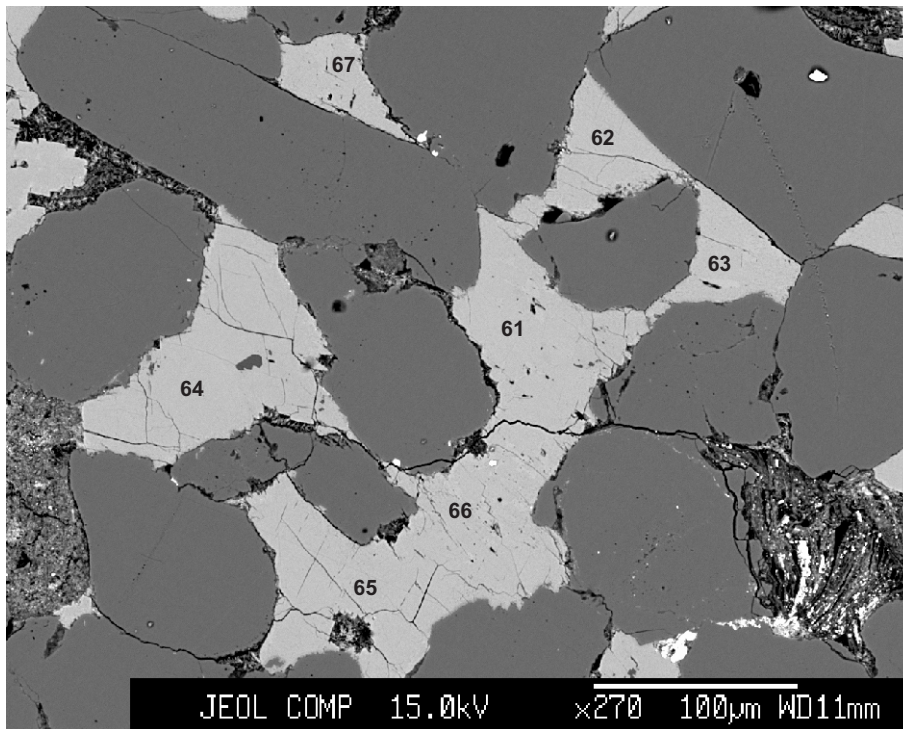
- 51: ankerite
- 52: ankerite
- 53: ankerite
- 54: ankerite
- 55: ankerite

Figure 55: Venture H-22-4957.21



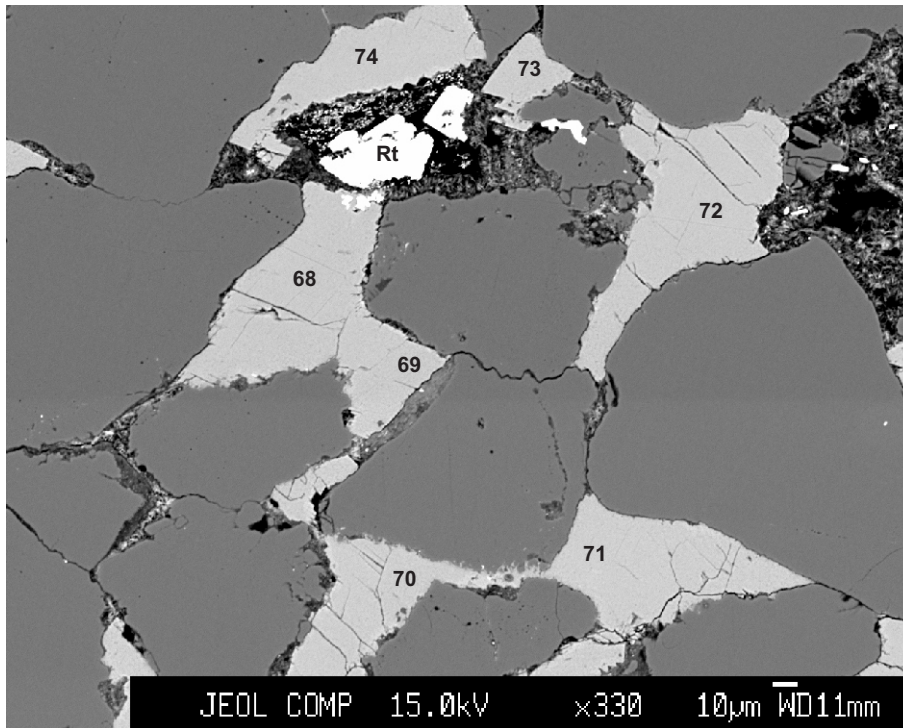
- 56: ankerite
- 57: ankerite
- 58: ankerite
- 59: ankerite
- 60: ankerite

Figure 56: Venture H-22-4957.21



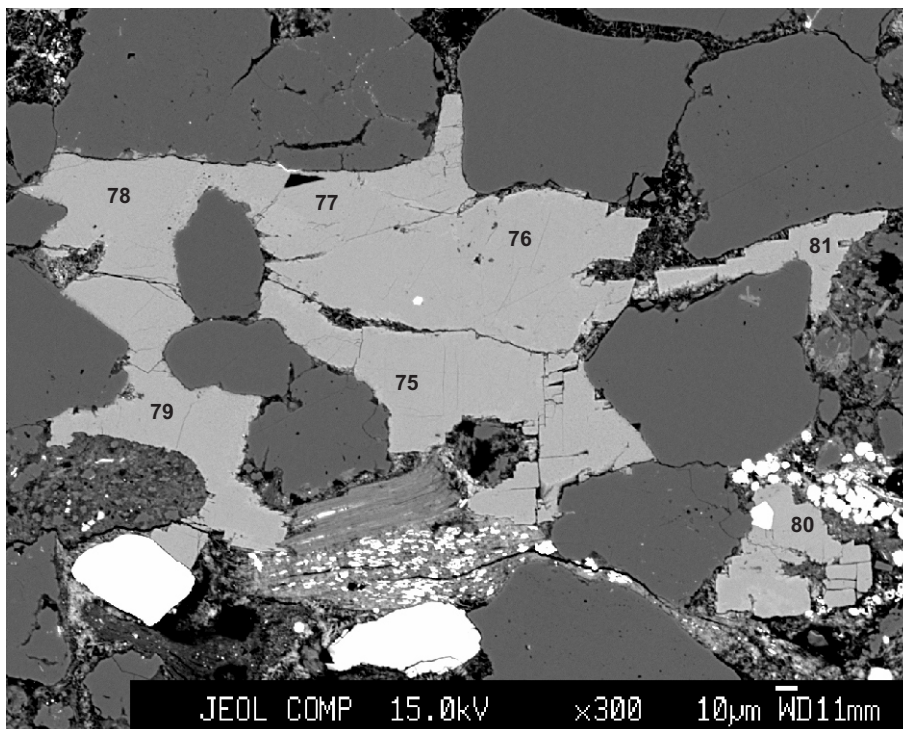
- 61: ankerite
- 62: ankerite
- 63: ankerite
- 64: ankerite
- 65: ankerite
- 66: ankerite
- 67: ankerite

Figure 57: Venture H-22-4957.21



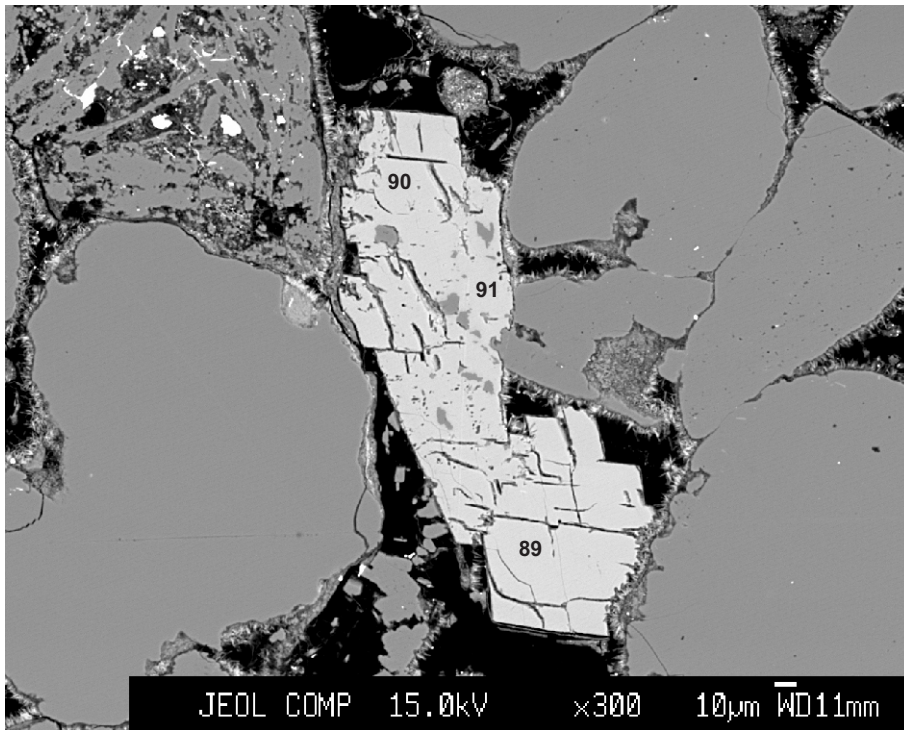
- 68: ankerite
- 69: ankerite
- 70: ankerite
- 71: ankerite
- 72: ankerite
- 73: ankerite
- 74: ankerite

Figure 58: Venture H-22-4957.21



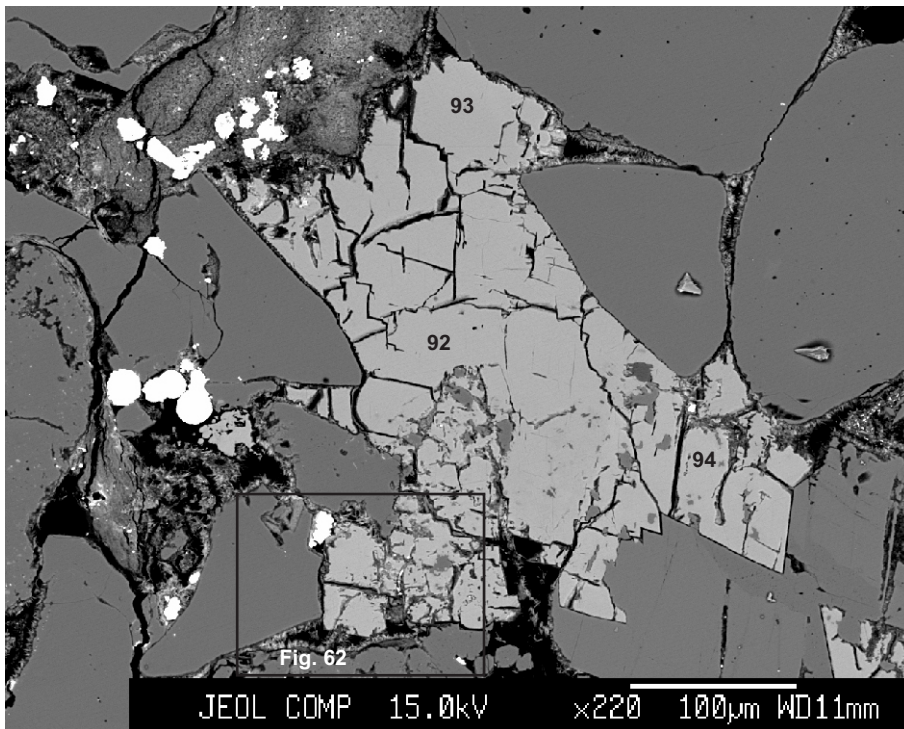
- 75: ankerite
- 76: ankerite
- 77: ankerite
- 78: ankerite
- 79: ankerite
- 80: ankerite
- 81: ankerite

Figure 59: Venture H-22-4957.21



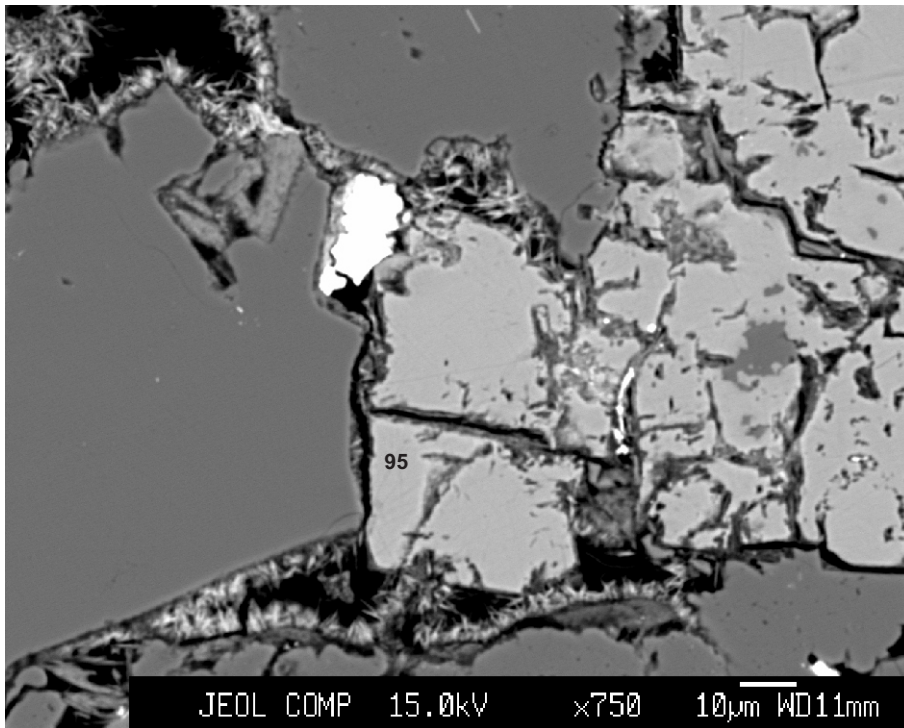
89: ankerite
90: ankerite
91: ankerite

Figure 60: Venture H-22-4960.22



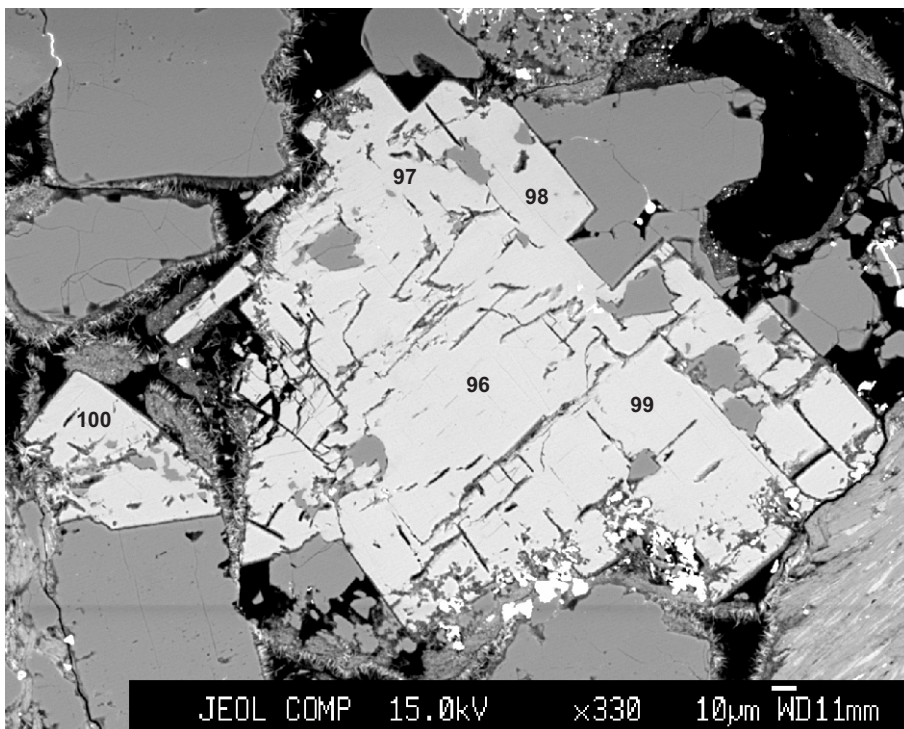
92: ankerite
93: ankerite
94: ankerite

Figure 61: Venture H-22-4960.22



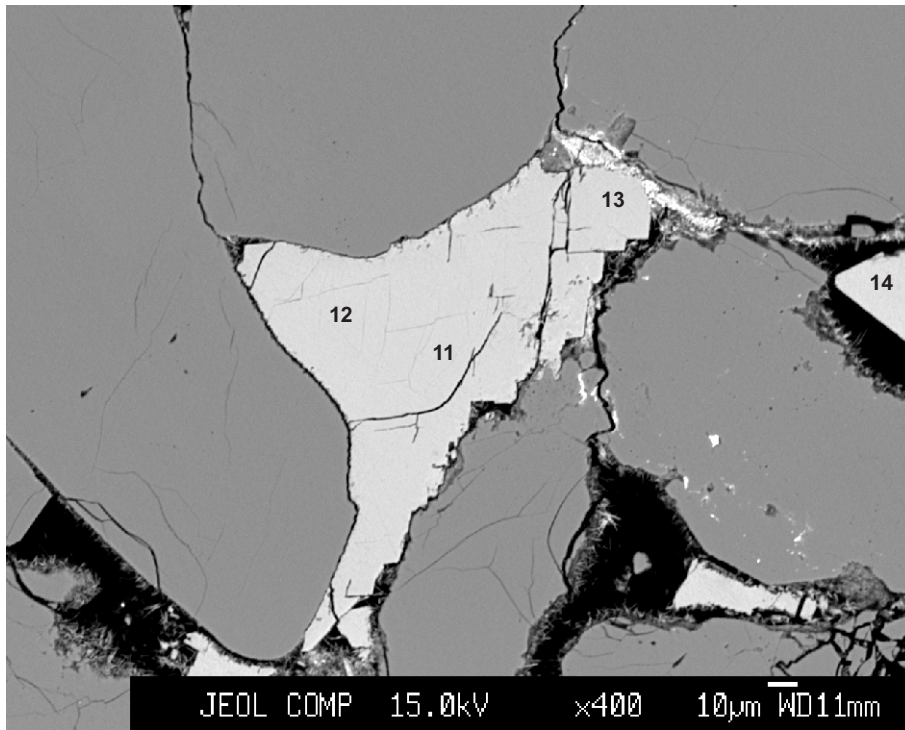
95: ankerite

Figure 62: Venture H-22-4960.22



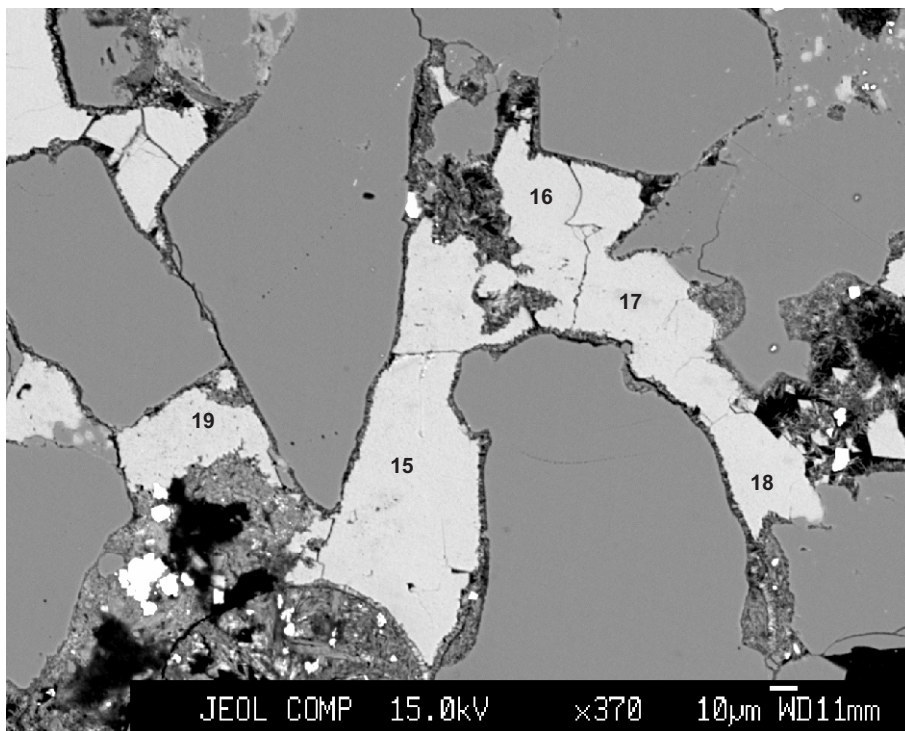
96: ankerite
97: ankerite
98: ankerite
99: ankerite
100: ankerite

Figure 63: Venture H-22-4960.22



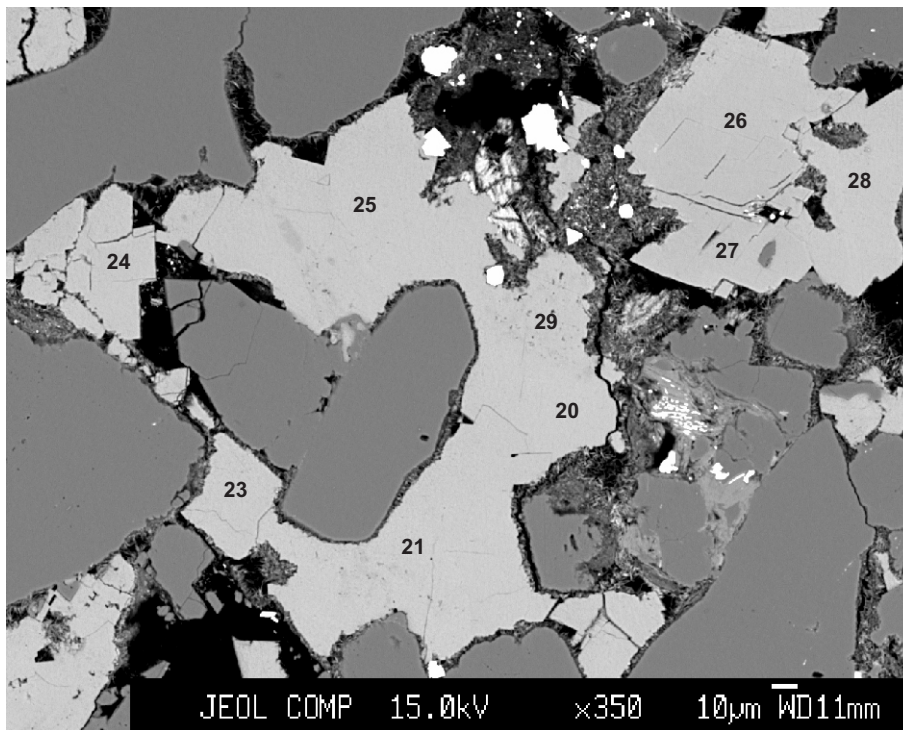
- 11: ankerite
- 12: ankerite
- 13: ankerite
- 14: calcite

Figure 64: Venture H-22-4960.74



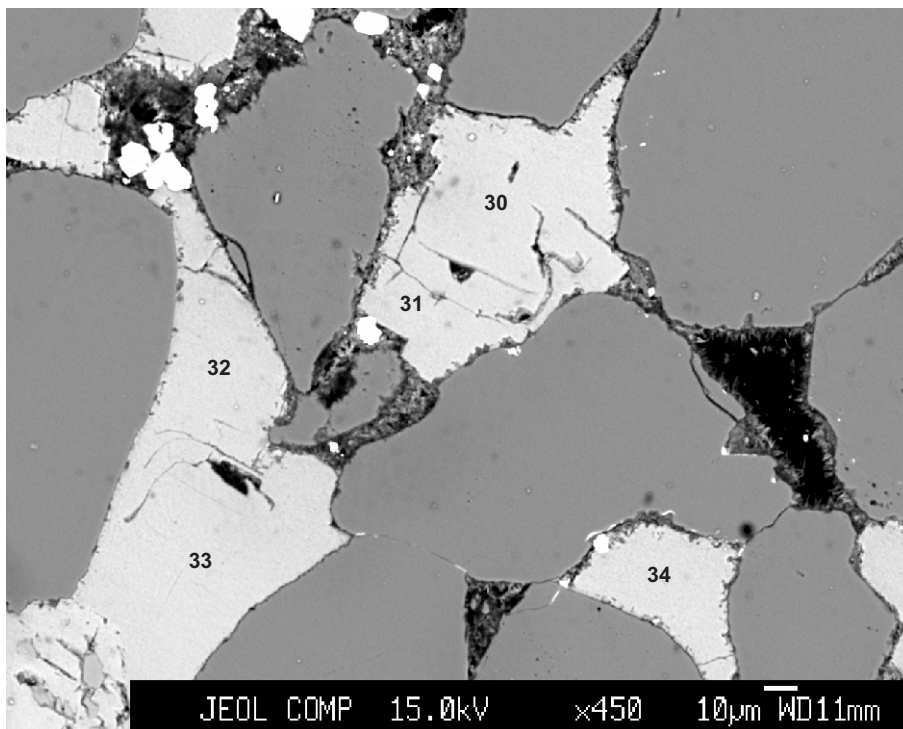
- 15: Fe-calcite
- 16: calcite
- 17: calcite
- 18: Fe-calcite
- 19: Fe-calcite

Figure 65: Venture H-22-4960.74



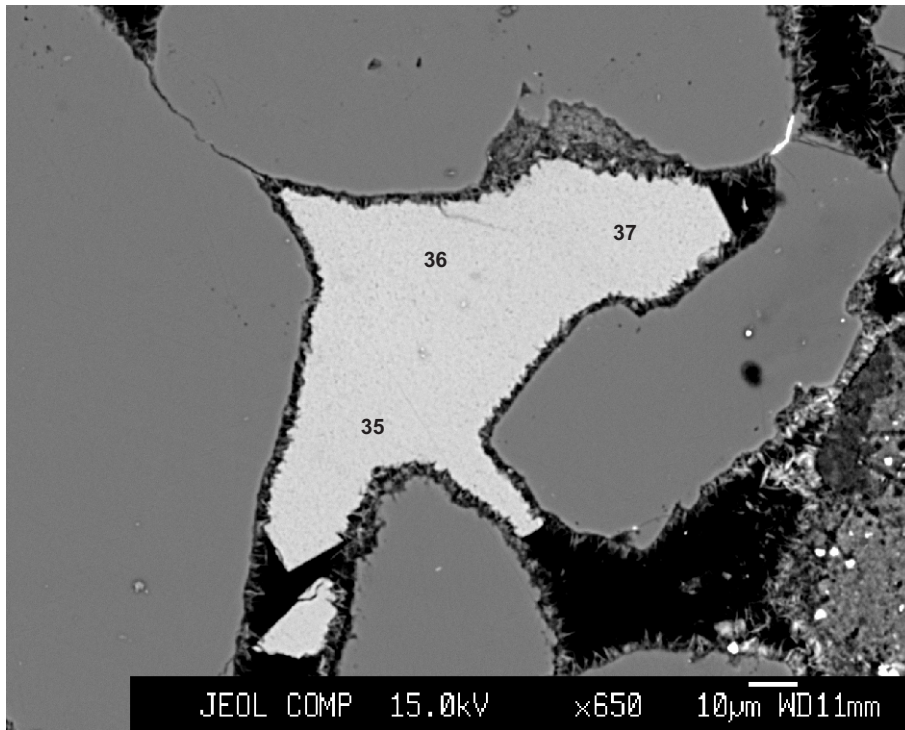
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite
- 24: ankerite
- 25: Fe-calcite
- 26: ankerite
- 27: ankerite
- 28: Fe-calcite
- 29: Fe-calcite

Figure 66: Venture H-22-4960.74



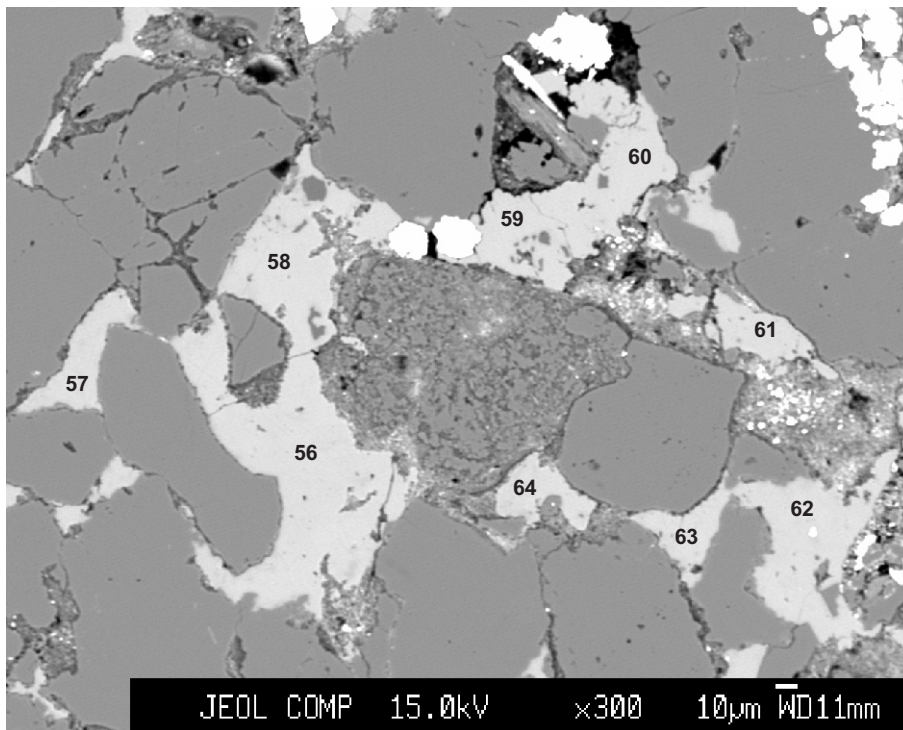
- 30: ankerite
- 31: ankerite
- 32: ankerite
- 33: ankerite
- 34: ankerite

Figure 67: Venture H-22-4960.74



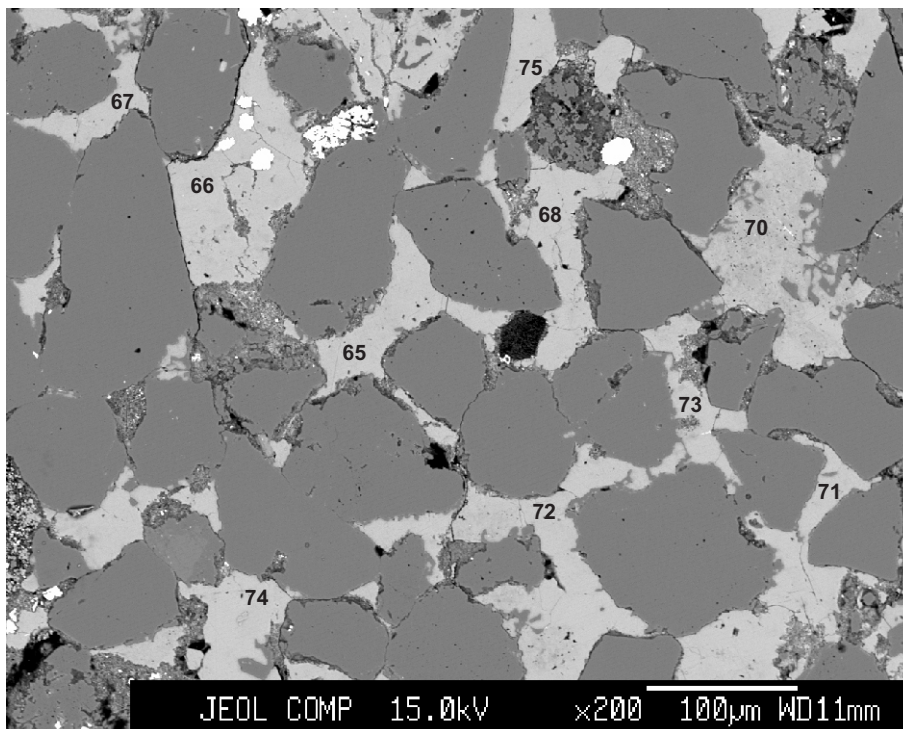
35: Fe-calcite
36: Fe-calcite
37: Fe-calcite

Figure 68: Venture H-22-4960.74



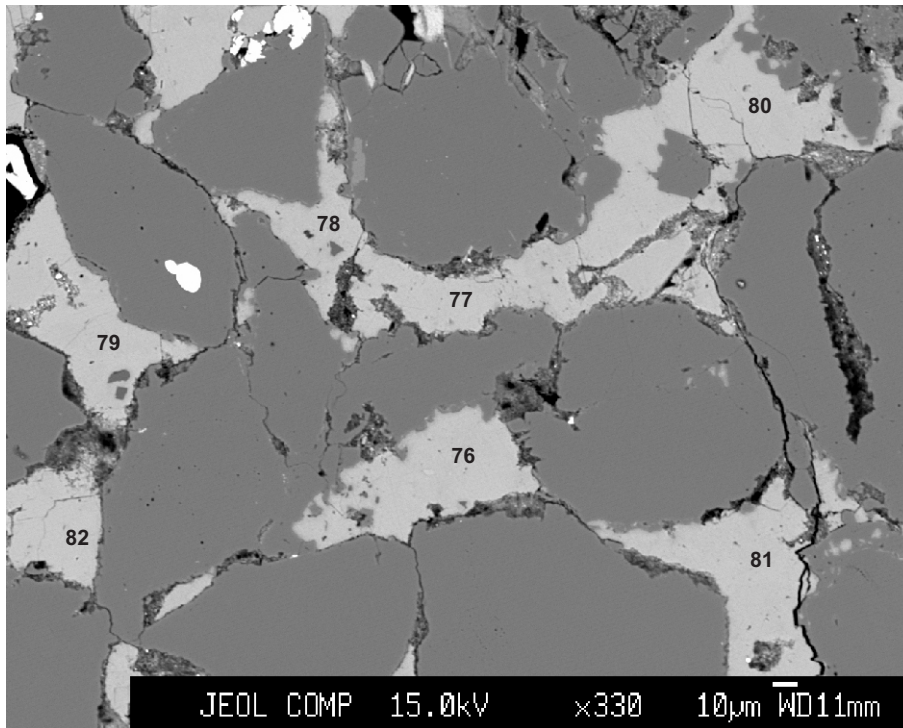
- 56: Fe-calcite
- 57: Fe-calcite
- 58: Fe-calcite
- 59: Fe-calcite
- 60: Fe-calcite
- 61: Fe-calcite
- 62: Fe-calcite
- 63: Fe-calcite
- 64: Fe-calcite

Figure 69: Venture H-22-4966.21



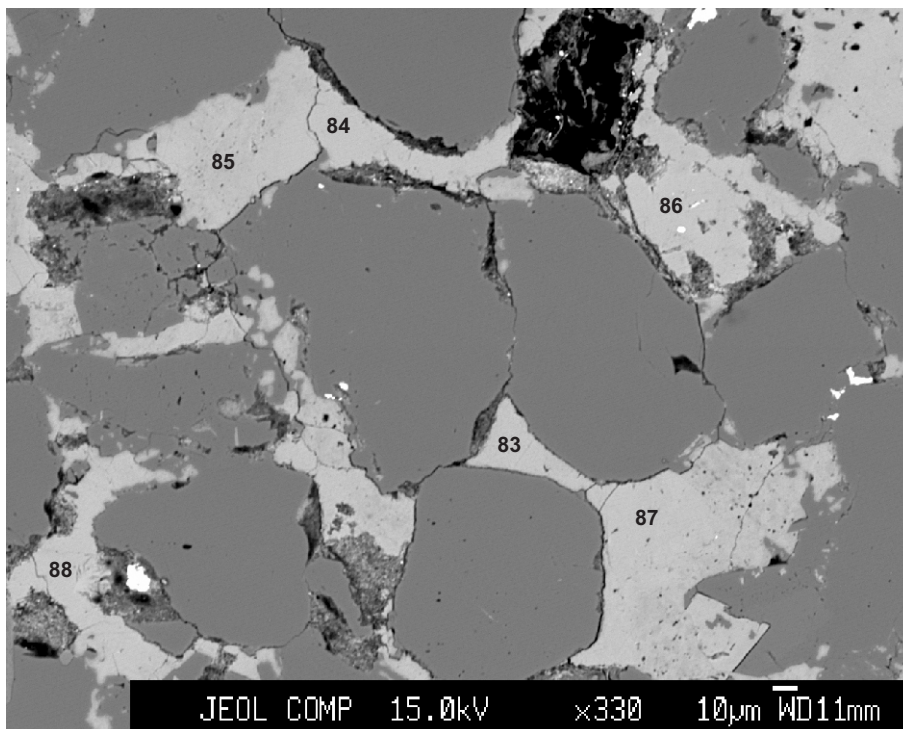
- 65: Fe-calcite
- 66: Fe-calcite
- 67: Fe-calcite
- 68: Fe-calcite
- 69: Fe-calcite
- 70: Fe-calcite
- 71: Fe-calcite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite
- 75: Fe-calcite

Figure 70: Venture H-22-4966.21



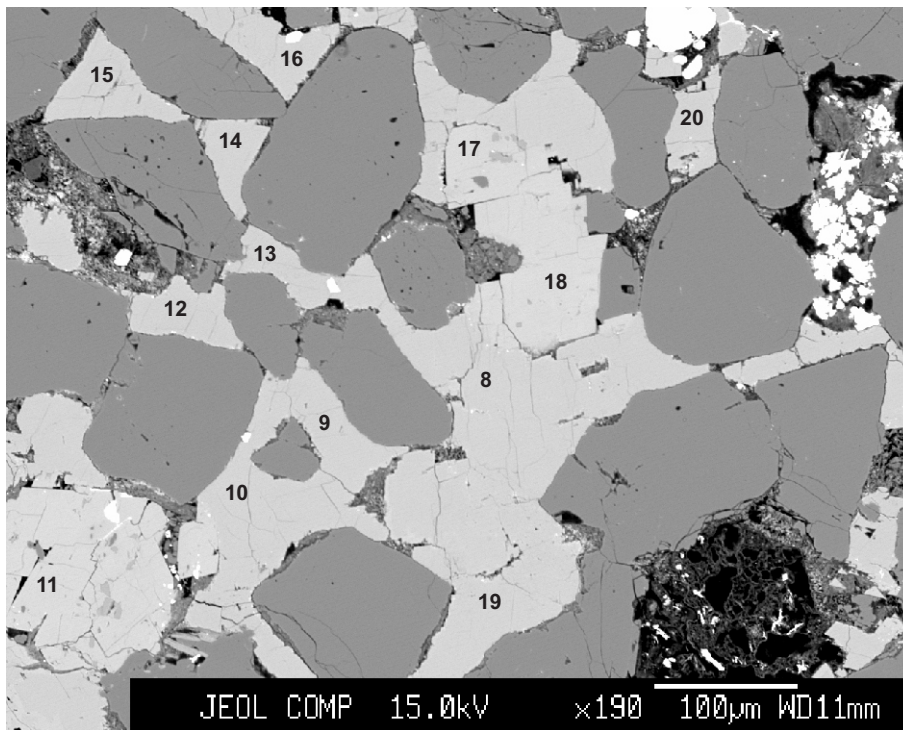
- 76: Fe-calcite
- 77: Fe-calcite
- 78: Fe-calcite
- 79: Fe-calcite
- 80: Fe-calcite
- 81: calcite
- 82: Fe-calcite

Figure 71: Venture H-22-4966.21



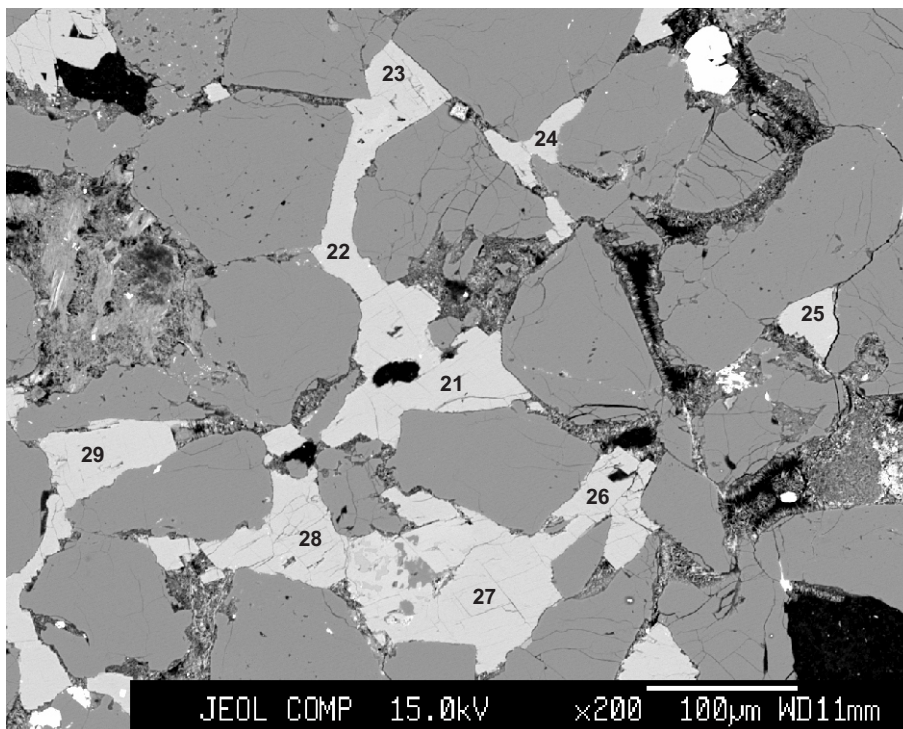
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite

Figure 72: Venture H-22-4966.21



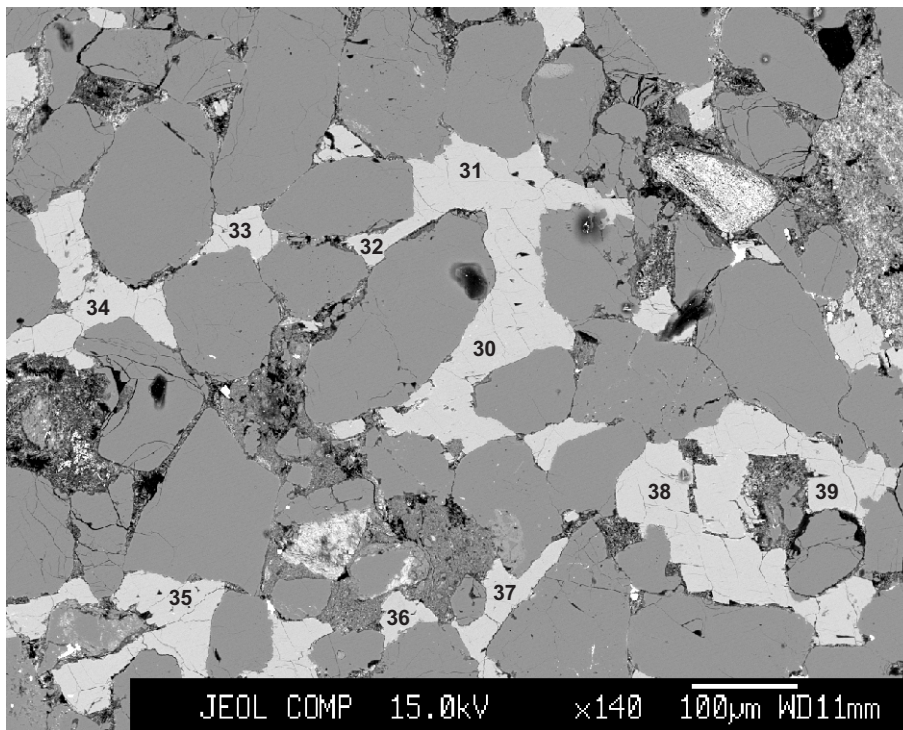
- 8: ankerite
- 9: ankerite
- 10: ankerite
- 11: ankerite
- 12: ankerite
- 13: ankerite
- 14: ankerite
- 15: ankerite
- 16: ankerite
- 17: ankerite
- 18: ankerite
- 19: ankerite
- 20: ankerite

Figure 73: Venture H-22-4972.18



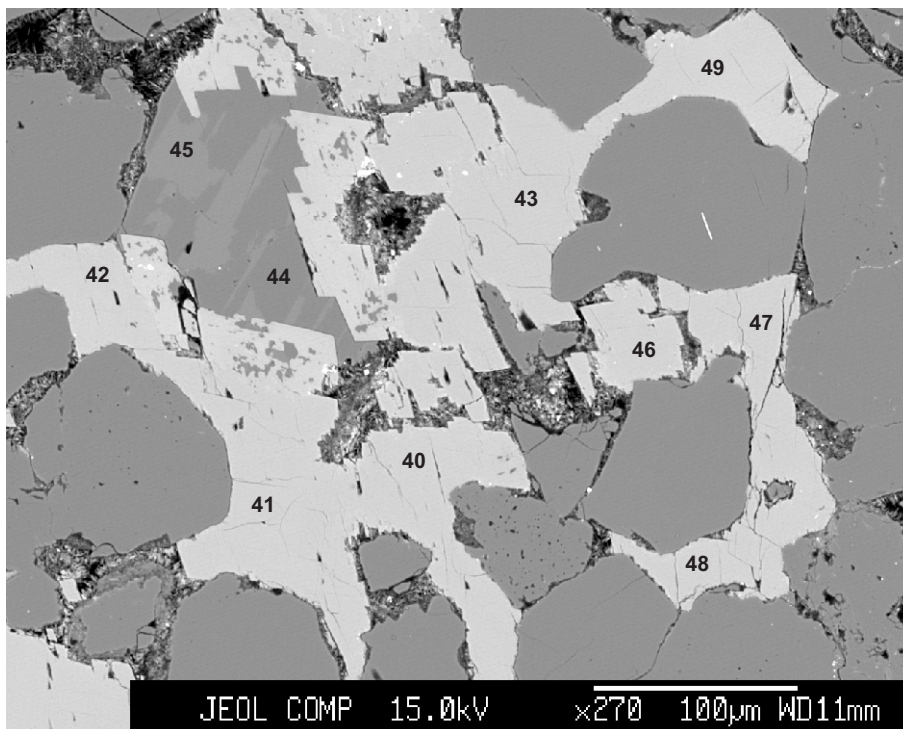
- 21: ankerite
- 22: ankerite
- 23: ankerite
- 24: ankerite
- 25: ankerite
- 26: ankerite
- 27: ankerite
- 28: ankerite
- 29: ankerite

Figure 74: Venture H-22-4972.18



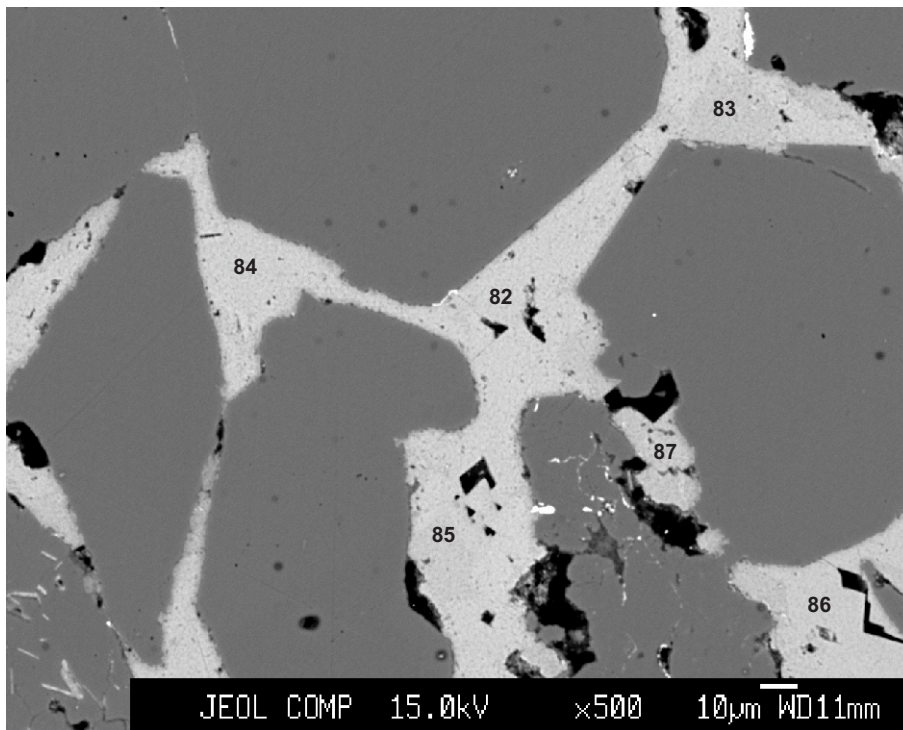
- 30: ankerite
- 31: ankerite
- 32: ankerite
- 33: ankerite
- 34: ankerite
- 35: ankerite
- 36: ankerite
- 37: ankerite
- 38: ankerite
- 39: ankerite

Figure 75: Venture H-22-4972.18



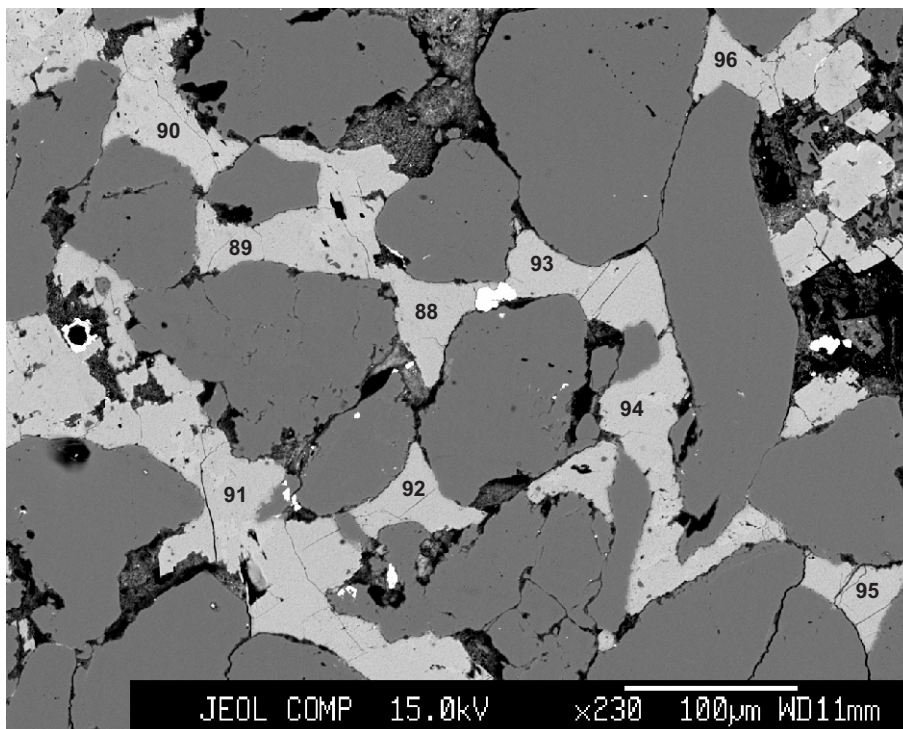
- 40: ankerite
- 41: ankerite
- 42: ankerite
- 43: ankerite
- 44: albite
- 45: albite
- 46: ankerite
- 47: ankerite
- 48: ankerite
- 49: ankerite

Figure 76: Venture H-22-4972.18



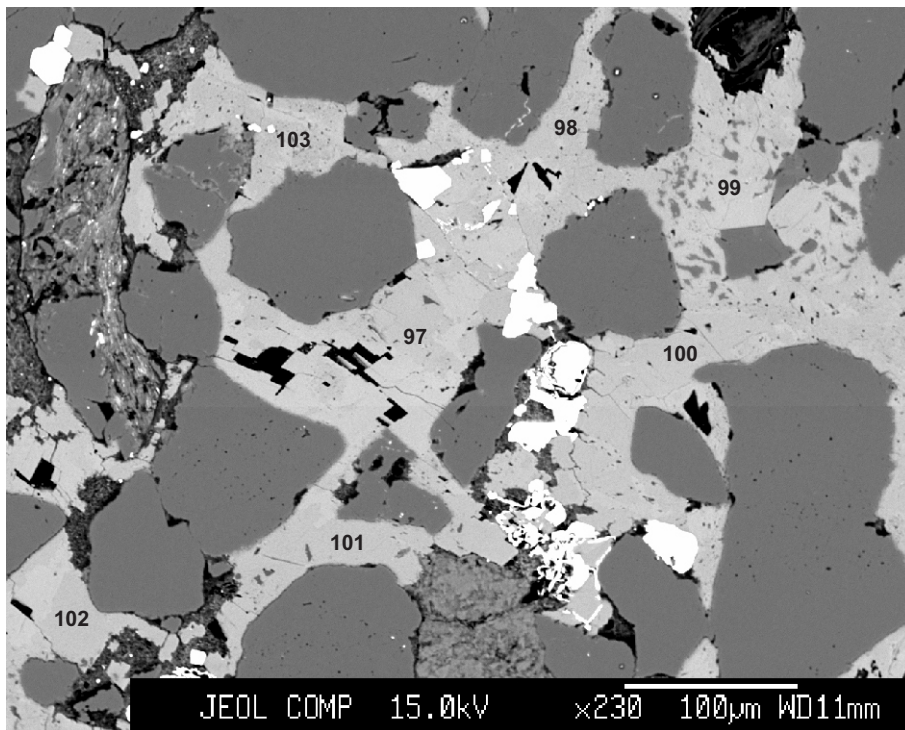
- 82: ankerite
- 83: ankerite
- 84: ankerite
- 85: ankerite
- 86: ankerite
- 87: ankerite

Figure 77: Venture H-22-4976.26



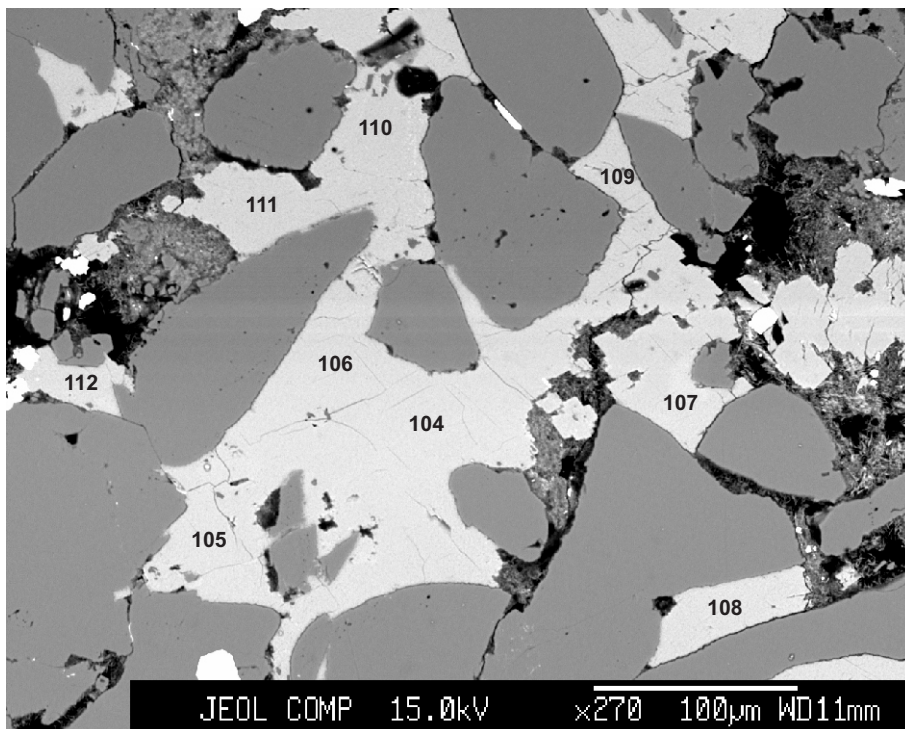
- 88: ankerite
- 89: ankerite
- 90: ankerite
- 91: ankerite
- 92: ankerite
- 93: ankerite
- 94: ankerite
- 95: ankerite
- 96: ankerite

Figure 78: Venture H-22-4976.26



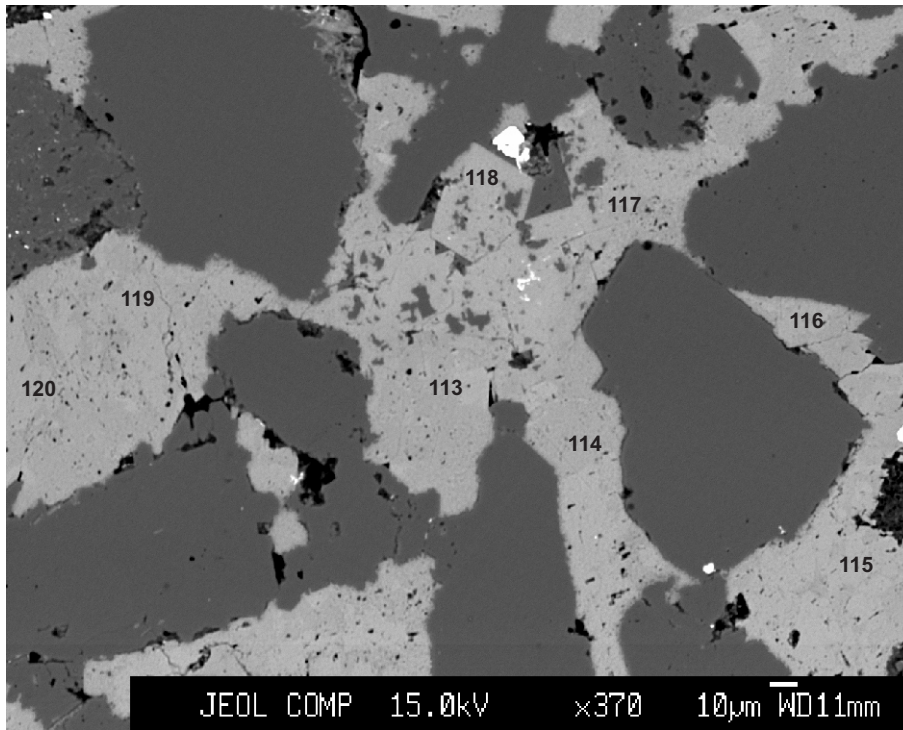
- 98: ankerite
- 99: ankerite
- 100: ankerite
- 101: ankerite
- 102: ankerite
- 103: ankerite

Figure 79: Venture H-22-4976.26



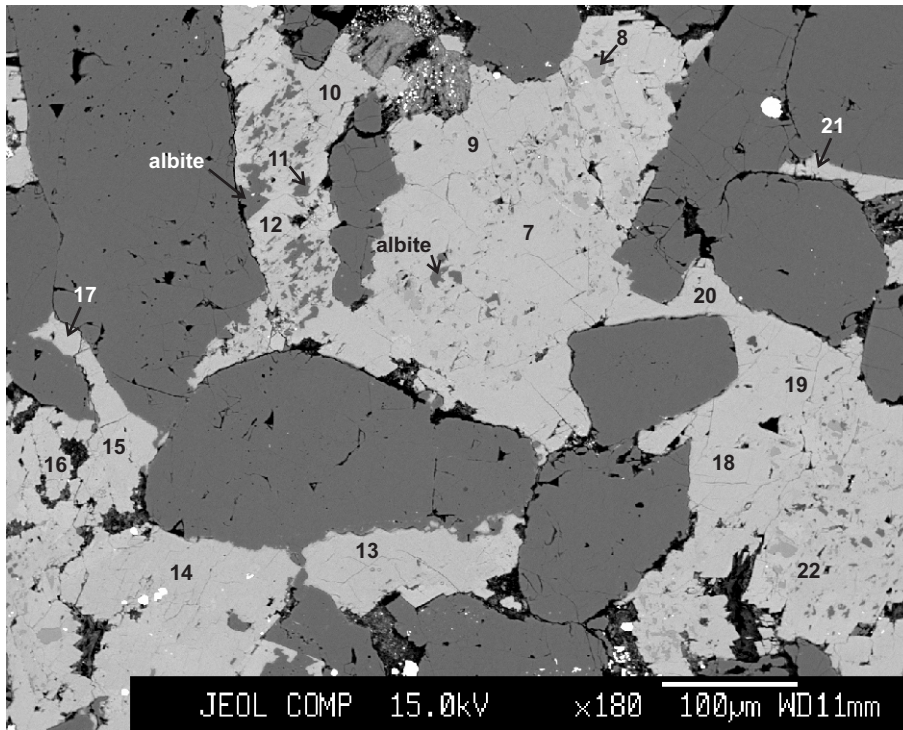
- 104: ankerite
- 105: ankerite
- 106: ankerite
- 107: ankerite
- 108: ankerite
- 109: ankerite
- 110: ankerite
- 111: ankerite
- 112: ankerite

Figure 80: Venture H-22-4976.26



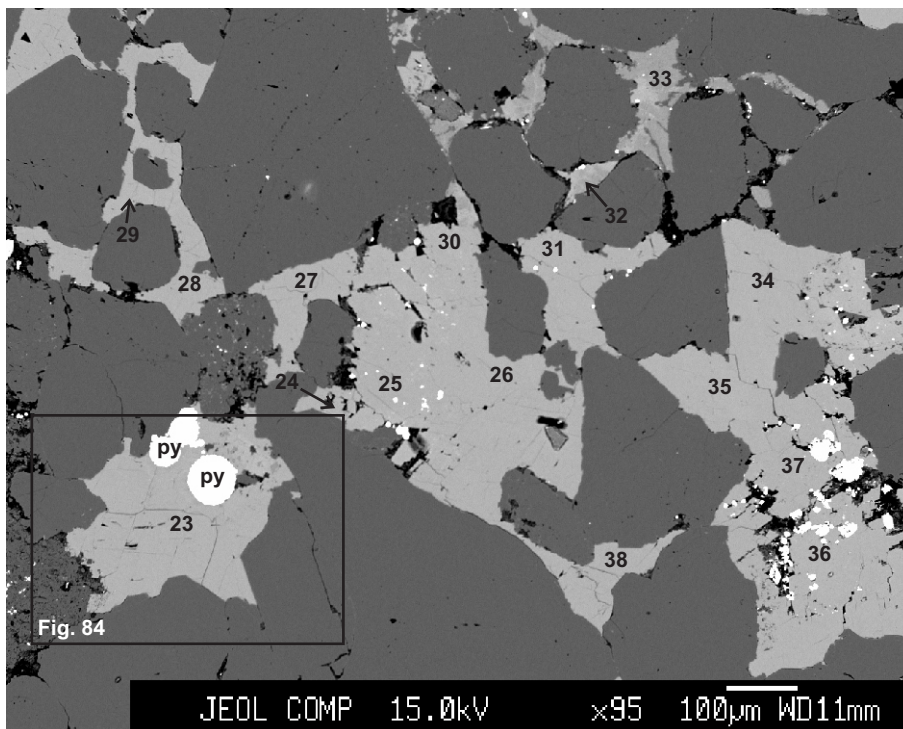
113: ankerite
114: ankerite
115: ankerite
116: ankerite
117: ankerite
118: ankerite
119: ankerite
120: ankerite

Figure 81: Venture H-22-4976.26



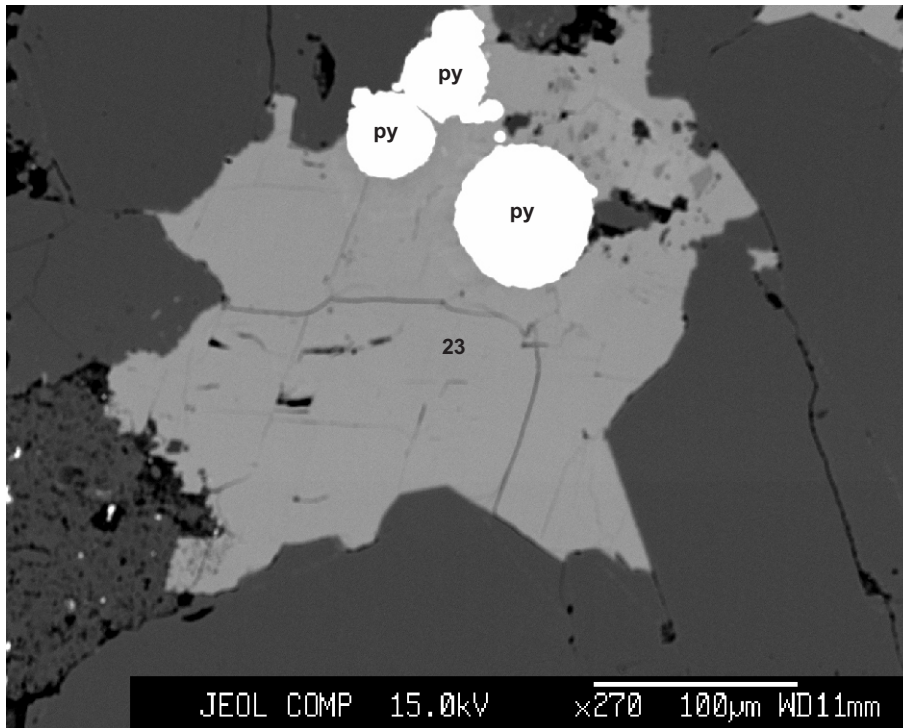
- 7: ankerite
- 8: K-feldspar
- 9: ankerite
- 10: ankerite
- 11: albite
- 12: ankerite
- 13: ankerite
- 14: ankerite
- 15: ankerite
- 16: ankerite
- 17: ankerite
- 18: ankerite
- 19: ankerite
- 20: ankerite
- 21: ankerite
- 22: ankerite

Figure 82: Venture H-22-4985.73



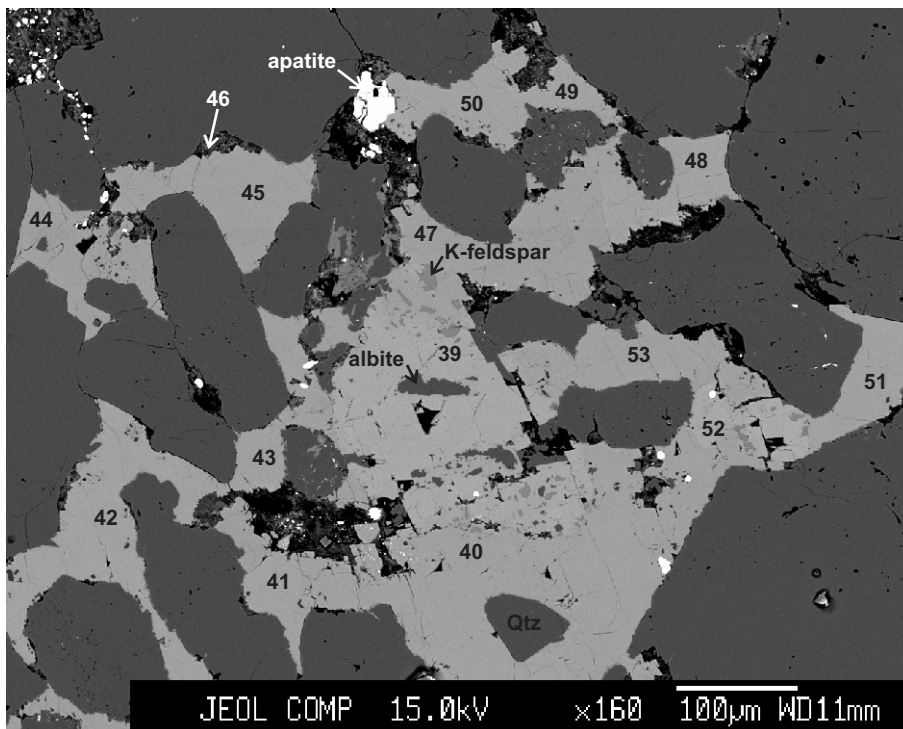
- 23: ankerite
- 24: ankerite
- 25: ankerite
- 26: ankerite
- 27: ankerite
- 28: ankerite
- 29: ankerite
- 30: ankerite
- 31: ankerite
- 32: Mg-calcite
- 33: Mh-calcite
- 34: ankerite
- 35: ankerite
- 36: ankerite
- 37: ankerite
- 38: ankerite

Figure 83: Venture H-22-4985.73



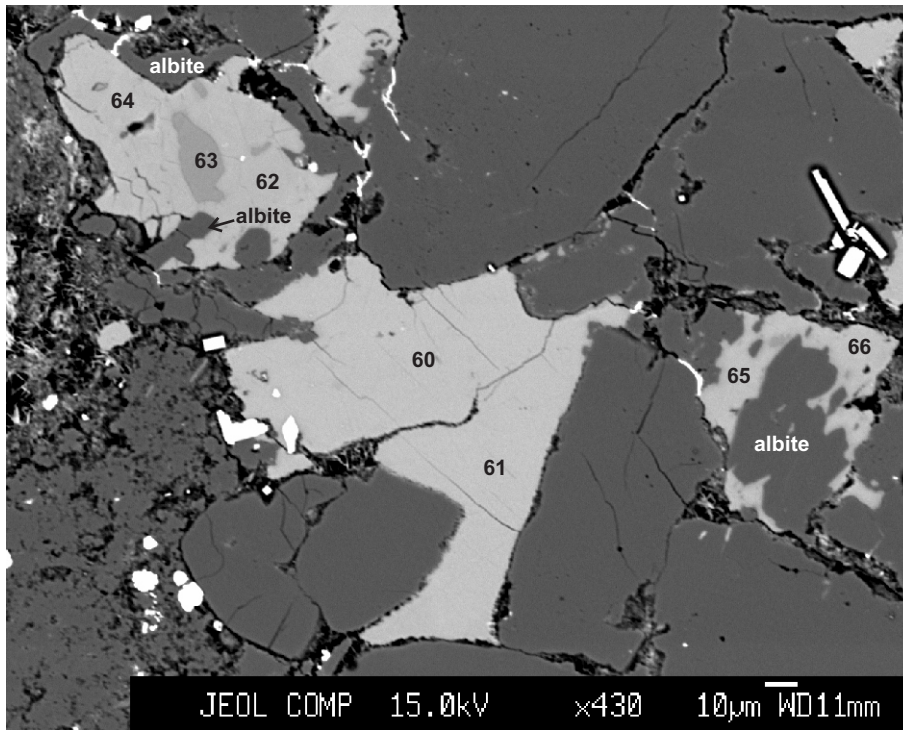
23: ankerite

Figure 84: Venture H-22-4985.73



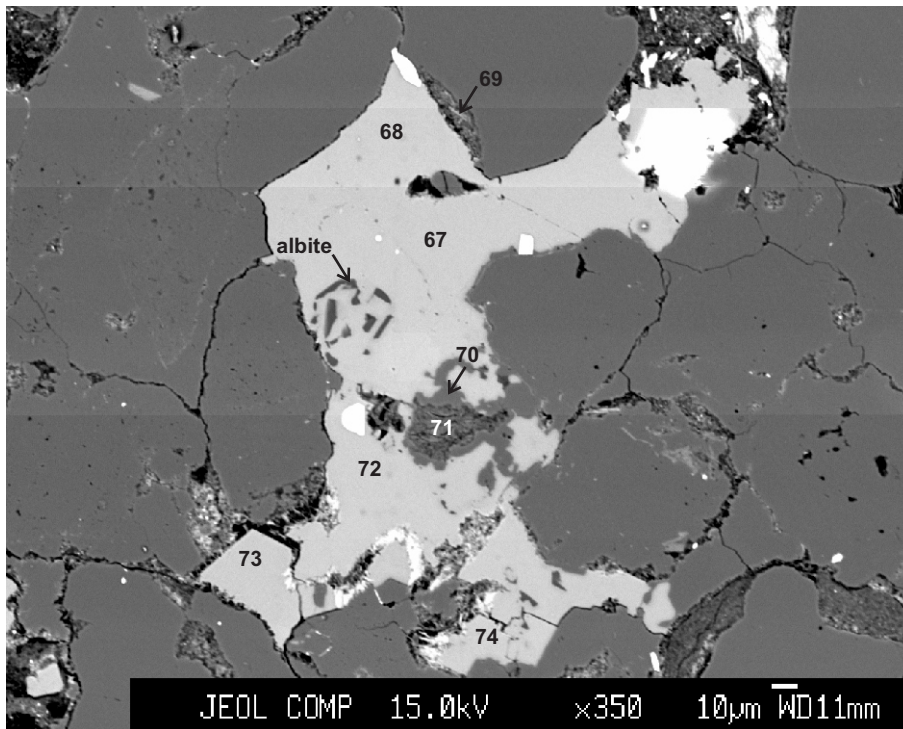
40: ankerite
 41: ankerite
 42: ankerite
 43: ankerite
 44: ankerite
 45: ankerite
 46: chlorite
 47: ankerite
 48: ankerite
 49: ankerite
 50: ankerite
 51: ankerite
 52: Fe-calcite
 53: ankerite

Figure 85: Venture H-22-4985.73



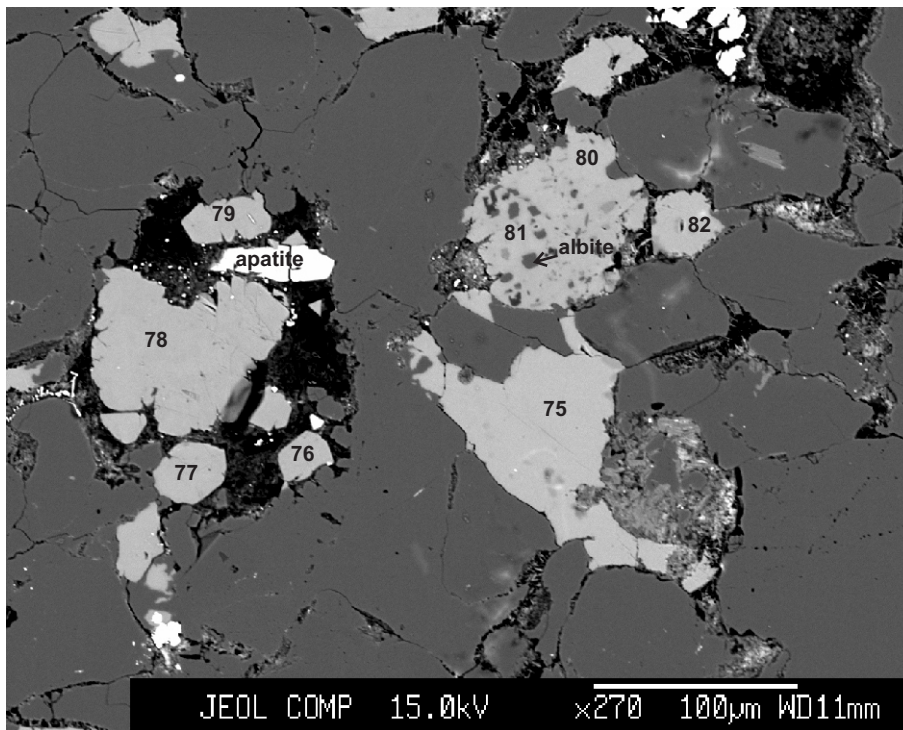
- 60: Fe-calcite
- 61: Fe-calcite
- 62: calcite
- 63: K-feldspar
- 64: calcite
- 65: calcite
- 66: Fe-calcite

Figure 86: Venture H-22-5012.19



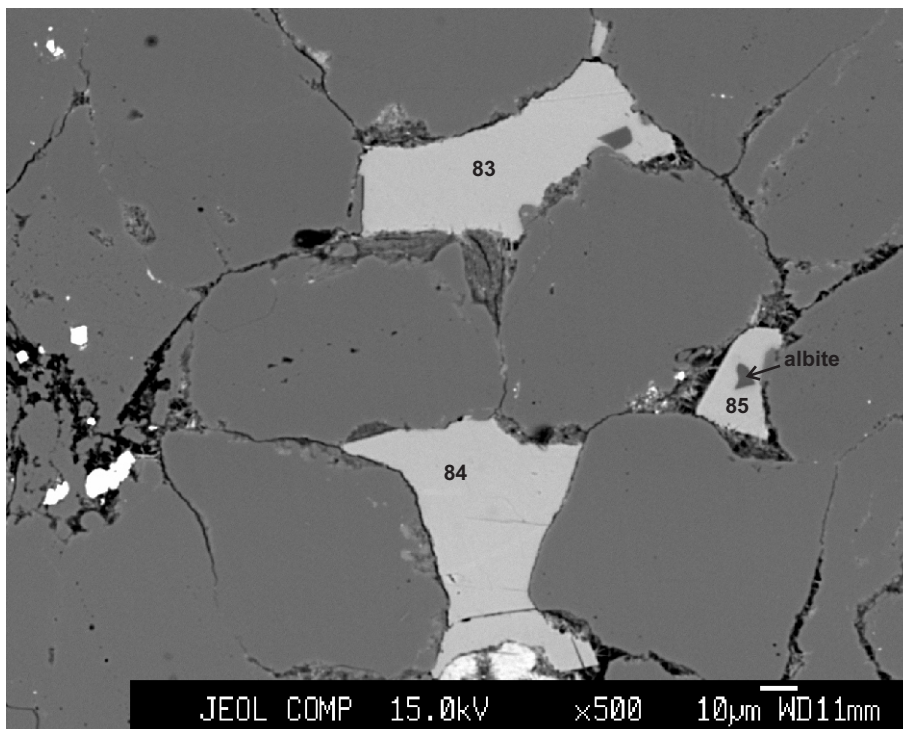
- 67: Fe-calcite
- 68: Fe-calcite
- 69: illite
- 70: quartz
- 71: illite
- 72: Fe-calcite
- 73: Fe-calcite
- 74: Fe-calcite

Figure 87: Venture H-22-5012.19



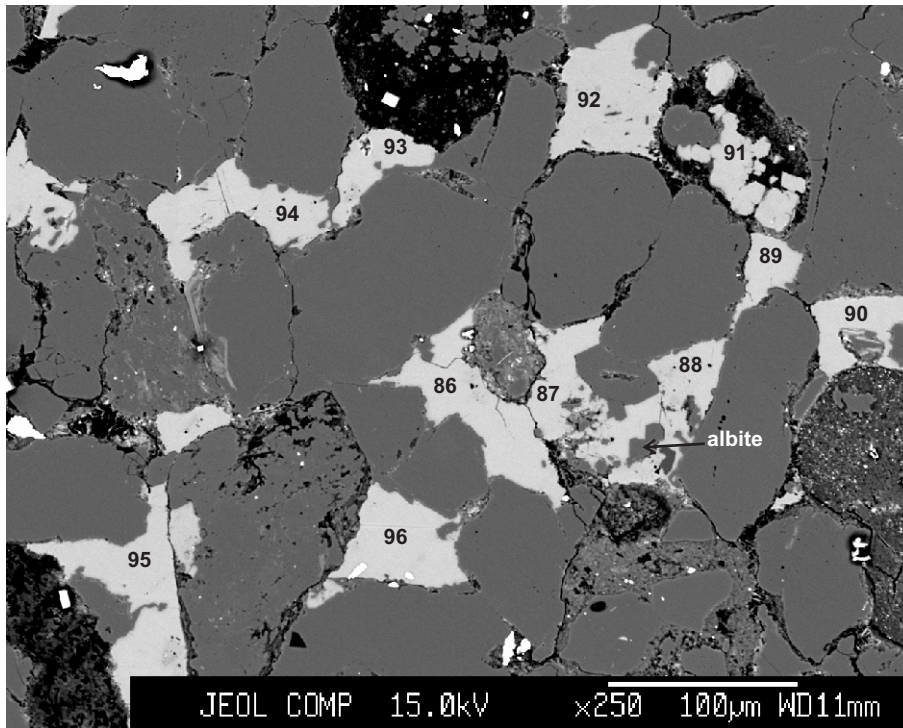
- 75: Fe-calcite
- 76: Fe-calcite
- 77: Fe-calcite
- 78: calcite
- 79: calcite
- 80: Fe-calcite
- 81: Fe-calcite
- 82: Fe-calcite

Figure 88: Venture H-22-5012.19



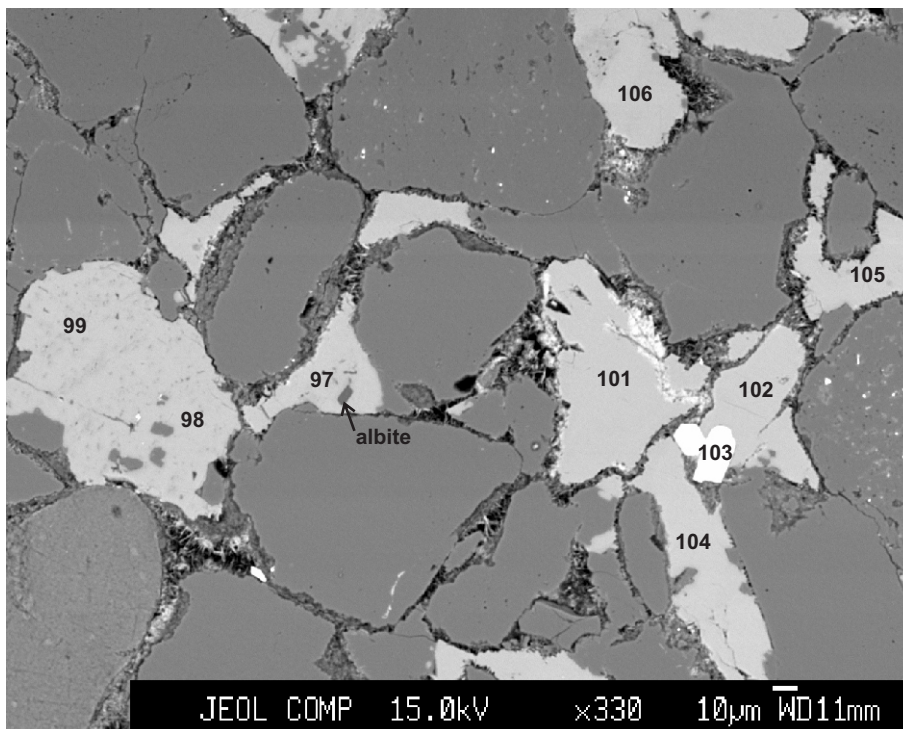
- 83: Fe-calcite
- 84: Fe-calcite
- 85: Fe-calcite

Figure 89: Venture H-22-5012.19



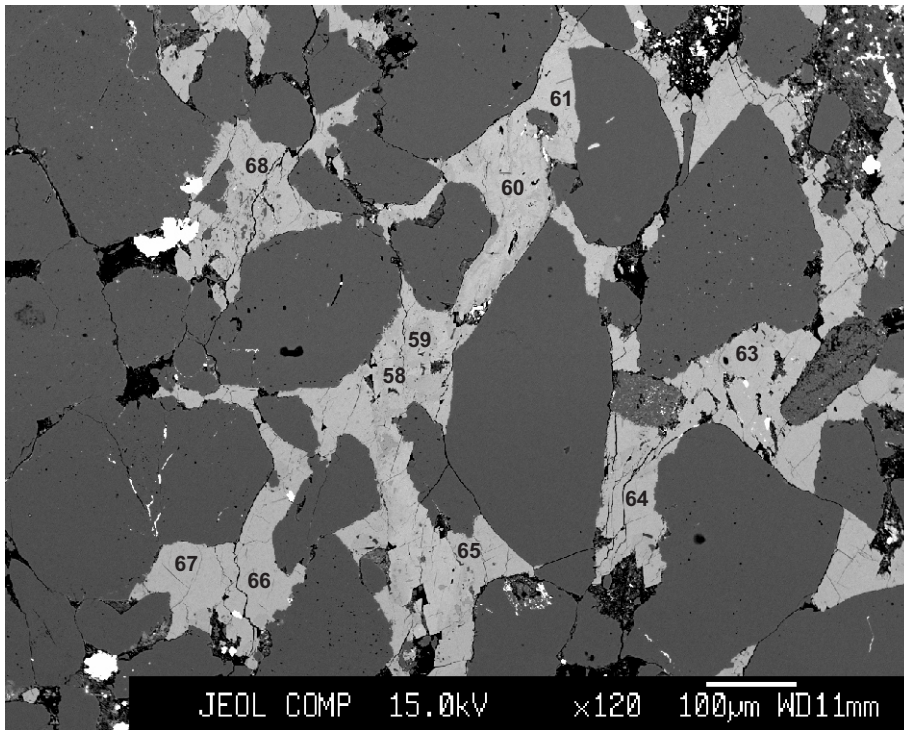
- 86: Fe-calcite
- 87: Fe-calcite
- 88: Fe-calcite
- 89: Fe-calcite
- 90: Fe-calcite
- 91: Fe-calcite
- 92: Fe-calcite
- 93: Fe-calcite
- 94: Fe-calcite
- 95: Fe-calcite
- 96: Fe-calcite

Figure 90: Venture H-22-5012.19



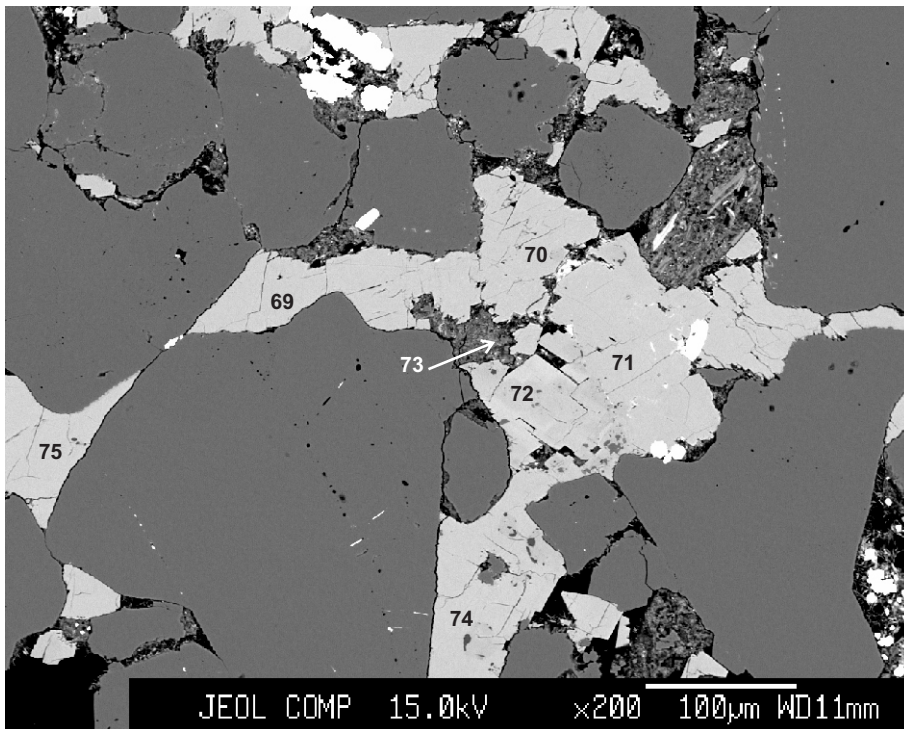
- 97: Fe-calcite
- 98: Fe-calcite
- 99: Fe-calcite
- 100: Fe-calcite
- 101: Fe-calcite
- 102: Fe-calcite
- 103: francolite
- 104: Fe-calcite
- 105: Fe-calcite
- 106: Fe-calcite

Figure 91: Venture H-22-5012.19



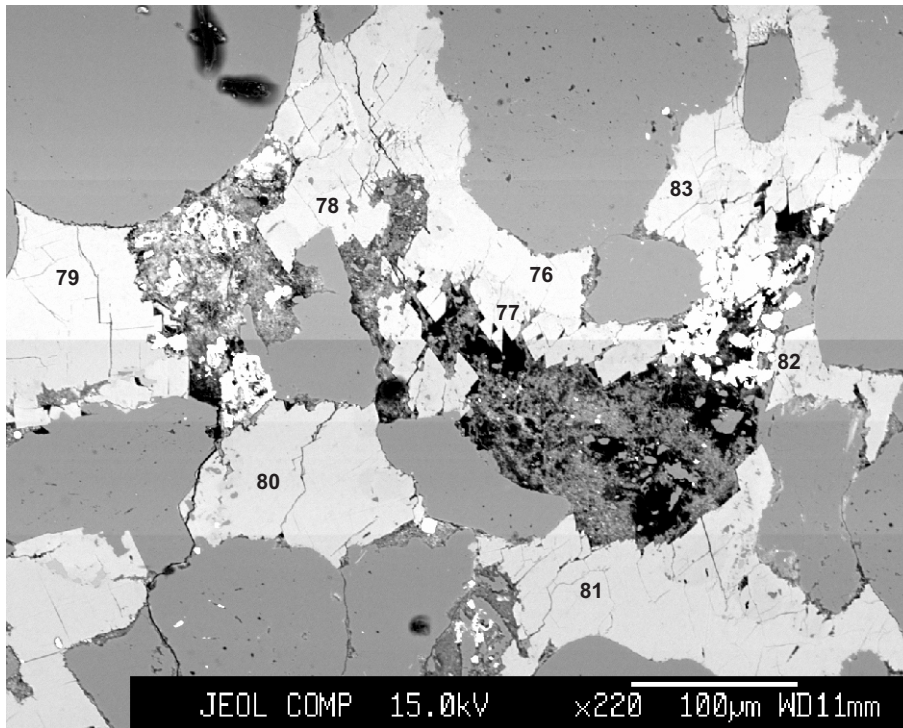
- 58: ankerite
- 59: ankerite
- 60: ankerite
- 61: ankerite
- 62: ankerite
- 63: ankerite
- 64: ankerite
- 65: ankerite
- 66: ankerite
- 67: ankerite
- 68: ankerite

Figure 92: Venture H-22-5018.98



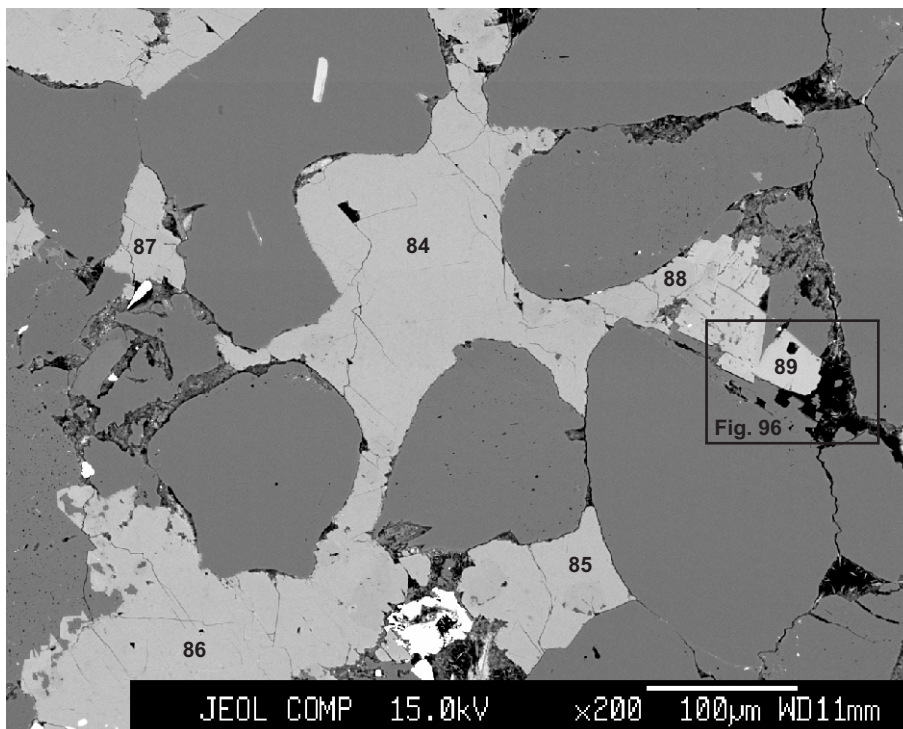
- 69: ankerite
- 70: ankerite
- 71: ankerite
- 72: ankerite
- 73: illite + chlorite
- 74: ankerite
- 75: ankerite

Figure 93: Venture H-22-5018.98



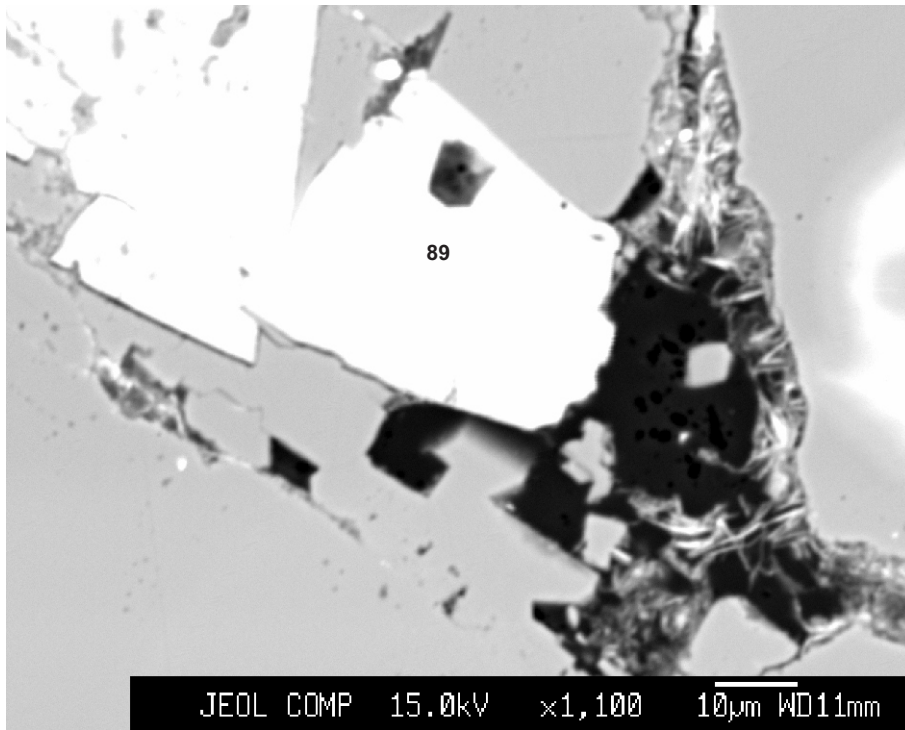
- 76: ankerite
- 77: ankerite
- 78: ankerite
- 79: ankerite
- 80: ankerite
- 81: ankerite
- 82: ankerite
- 83: ankerite

Figure 94: Venture H-22-5018.98



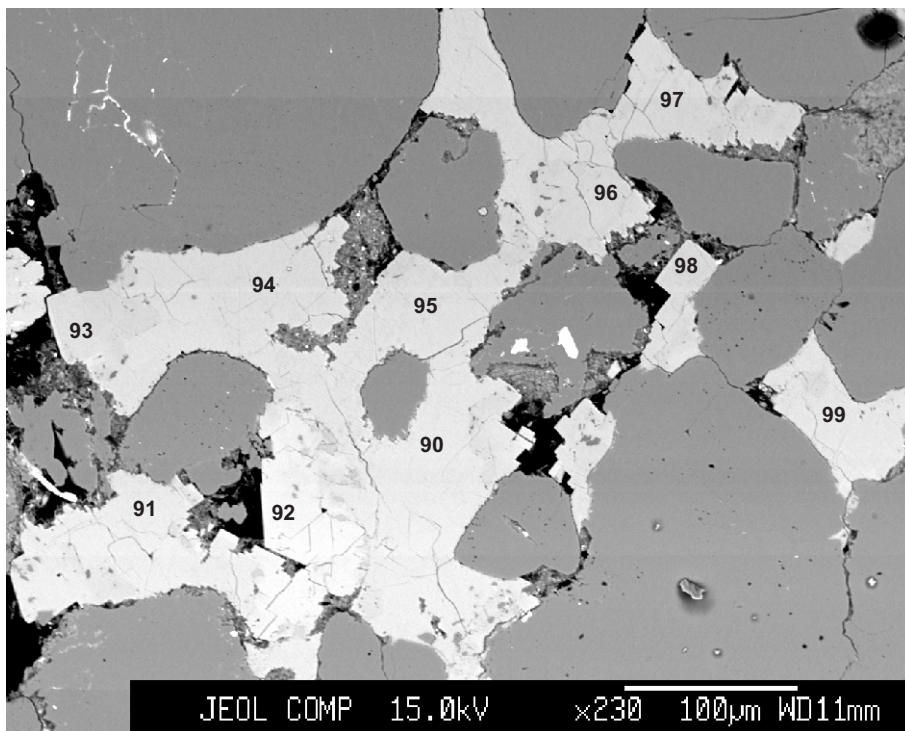
- 84: ankerite
- 85: ankerite
- 86: ankerite
- 87: ankerite
- 88: ankerite
- 89: ??

Figure 95: Venture H-22-5018.98



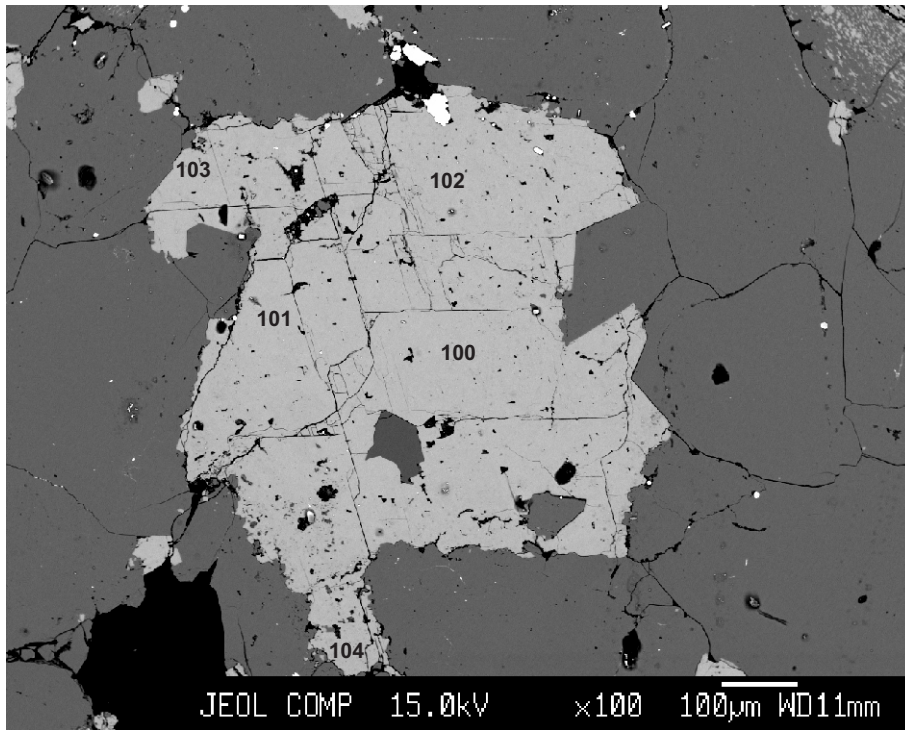
89: ??

Figure 96: Venture H-22-5018.98



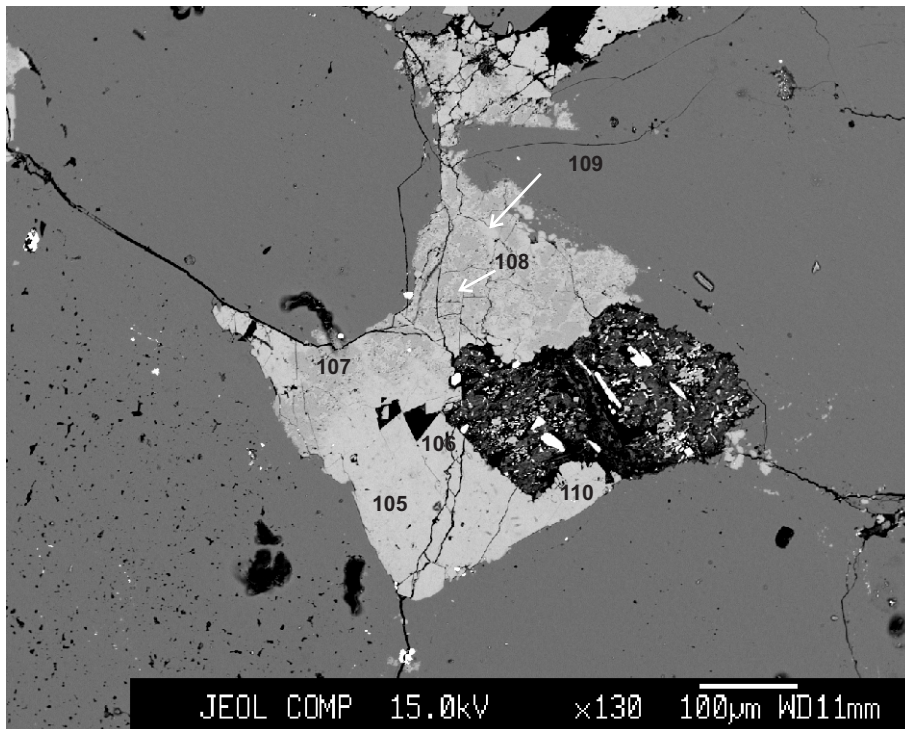
90: ankerite
 91: ankerite
 92: ankerite
 93: ankerite
 94: ankerite
 95: ankerite
 96: ankerite
 97: ankerite
 98: ankerite
 99: ankerite

Figure 97: Venture H-22-5018.98



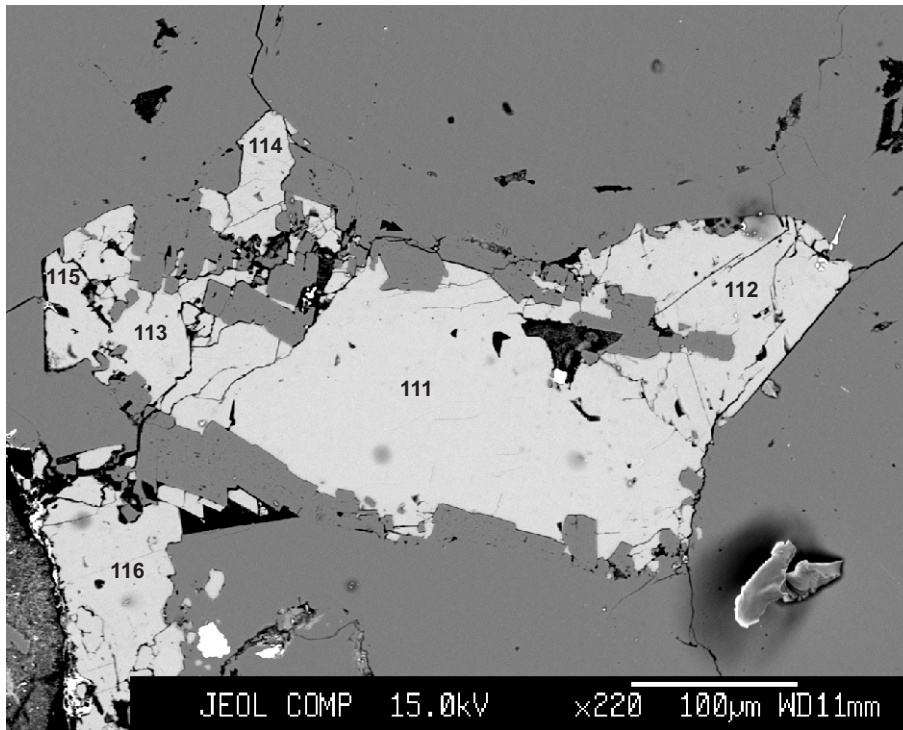
- 100: calcite
- 101: calcite
- 102: Fe-calcite
- 103: Fe-calcite
- 104: Fe-calcite

Figure 98: Venture H-22-5021.58



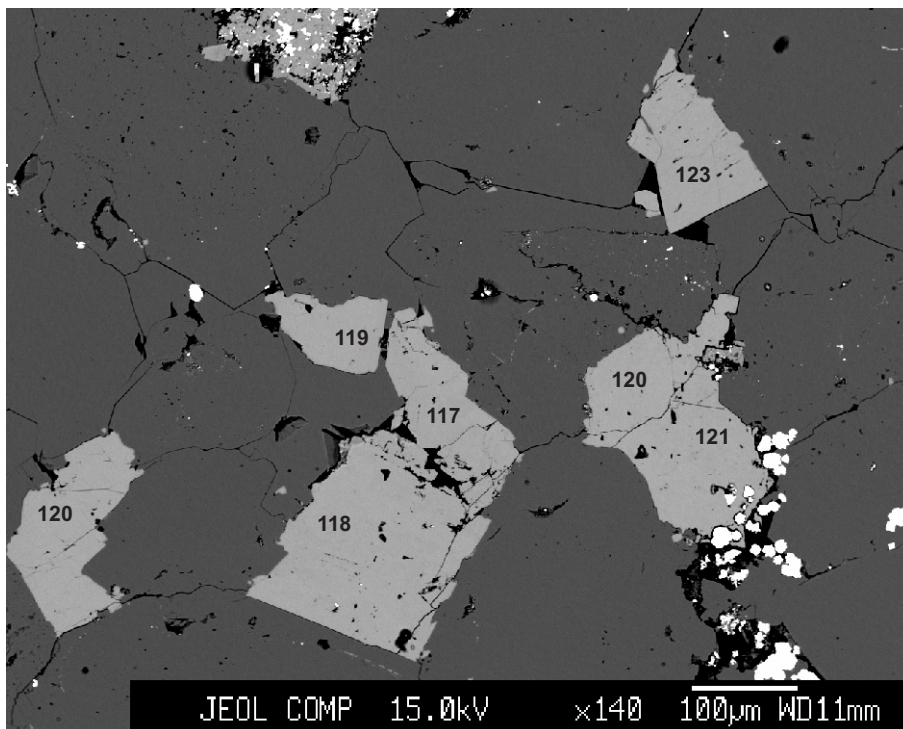
- 105: Fe-calcite
- 106: Fe-calcite
- 107: Mg-calcite
- 108: Mg-calcite
- 109: Fe-calcite
- 110: Fe-calcite

Figure 99: Venture H-22-5021.58



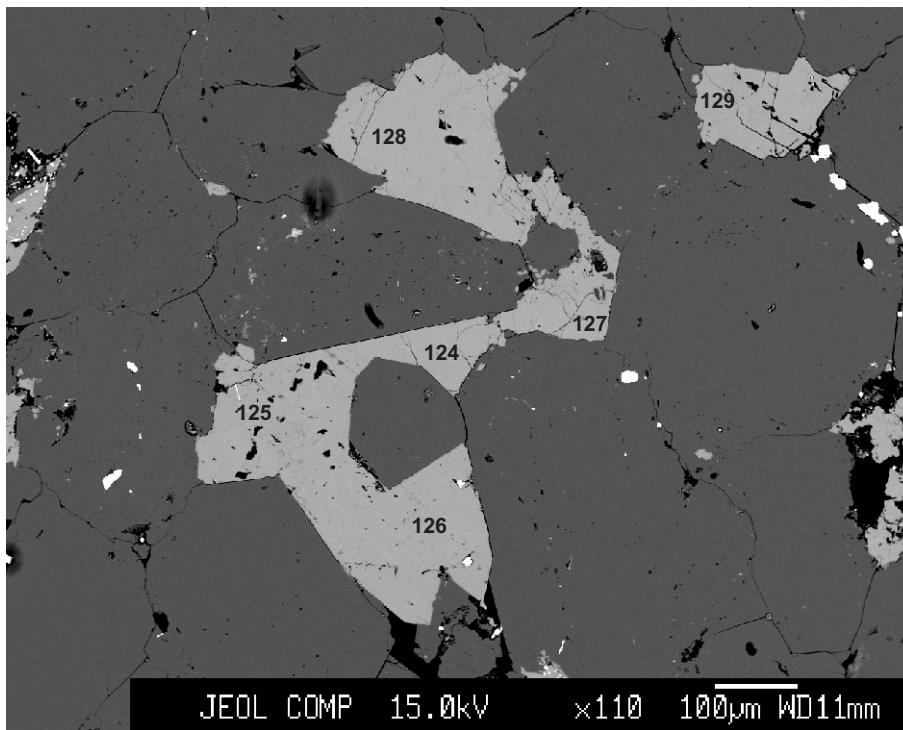
- 111: Fe-calcite
- 112: Fe-calcite
- 113: calcite
- 114: Fe-calcite
- 115: calcite
- 116: Fe-calcite

Figure 100: Venture H-22-5021.58



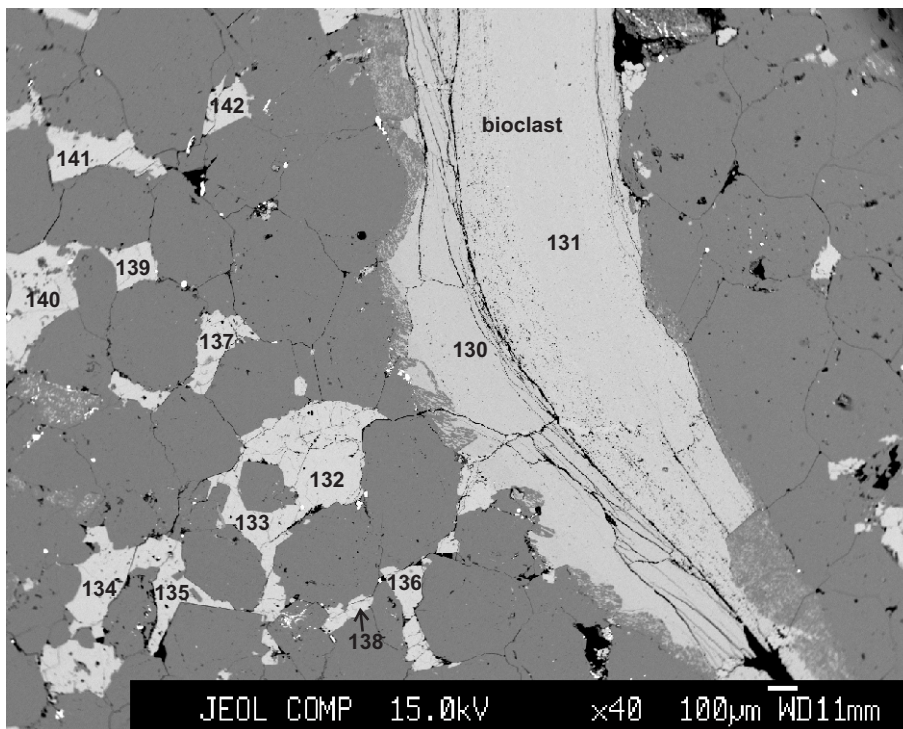
- 117: Fe-calcite
- 118: Fe-calcite
- 119: calcite
- 120: Fe-calcite
- 121: Fe-calcite
- 122: Fe-calcite
- 123: Fe-calcite

Figure 101: Venture H-22-5021.58



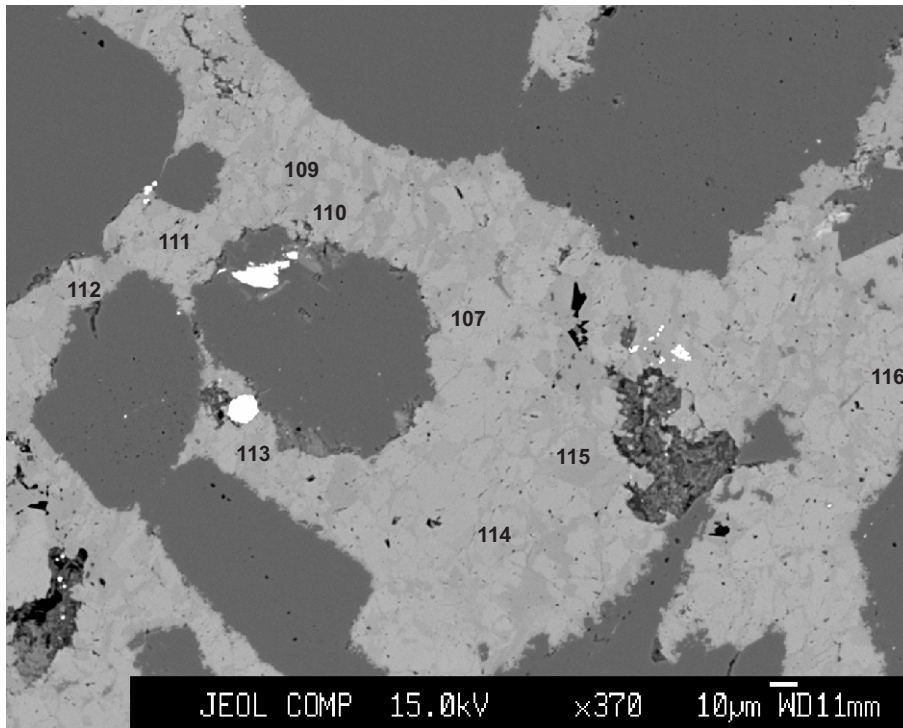
- 124: calcite
- 125: Fe-calcite
- 126: calcite
- 127: Fe-calcite
- 128: Fe-calcite
- 129: calcite

Figure 102: Venture H-22-5021.58



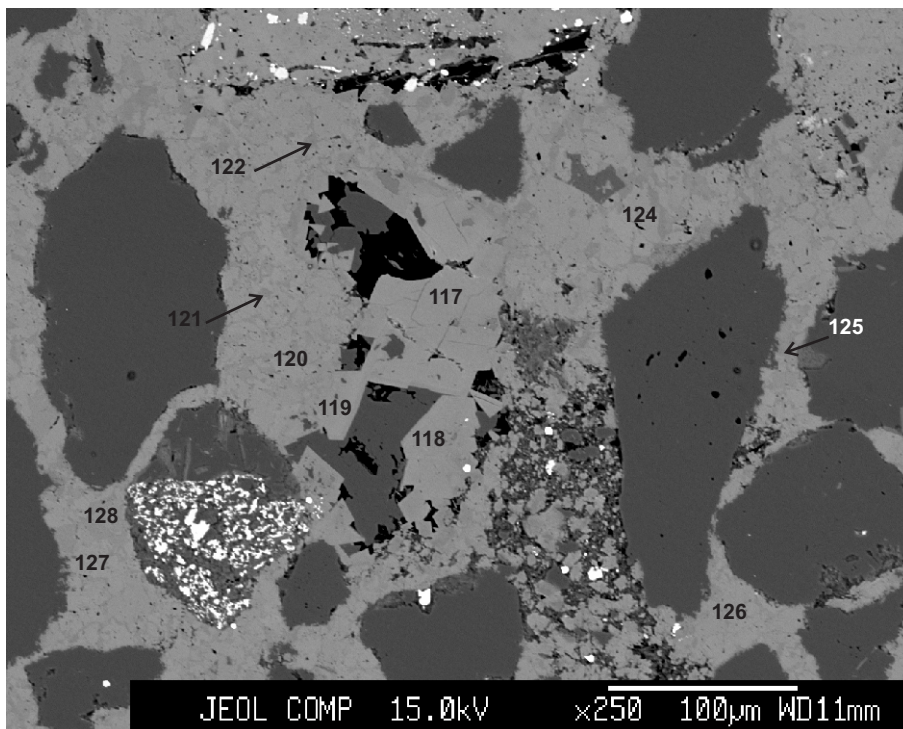
- 130: calcite
- 131: calcite
- 132: Fe-calcite
- 133: calcite
- 134: calcite
- 135: Fe-calcite
- 136: calcite
- 137: calcite
- 138: calcite
- 139: Fe-calcite
- 140: Fe-calcite
- 141: Fe-calcite
- 142: calcite

Figure 103: Venture H-22-5021.58



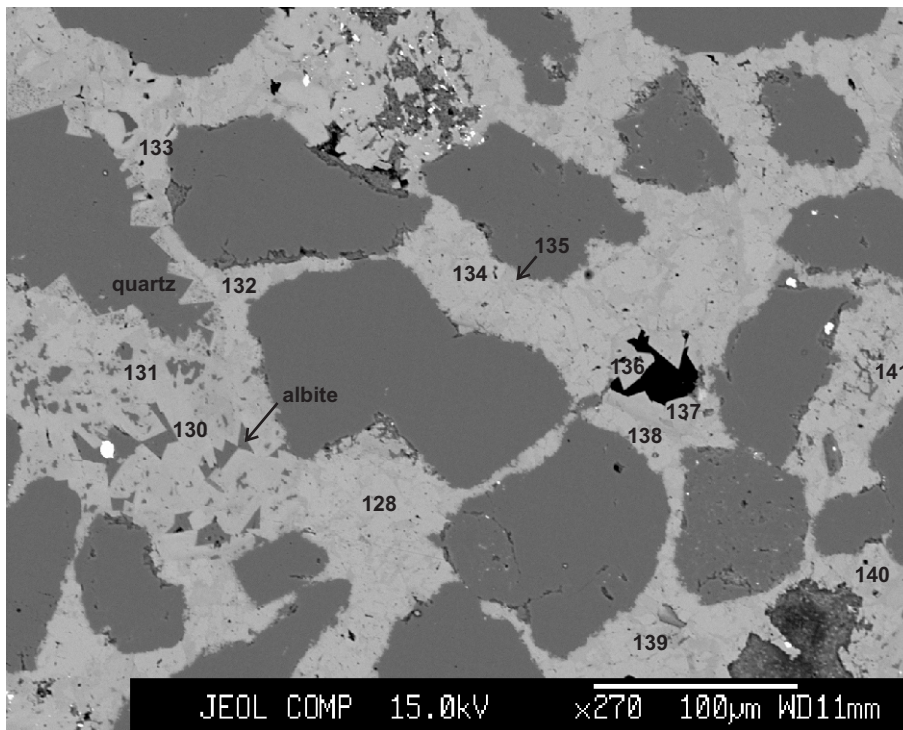
- 107: ankerite
- 108: ankerite
- 109: ankerite
- 110: ankerite
- 111: ankerite
- 112: ankerite
- 113: ankerite
- 114: ankerite
- 115: ankerite
- 116: ankerite

Figure 104: Venture H-22-5028.32



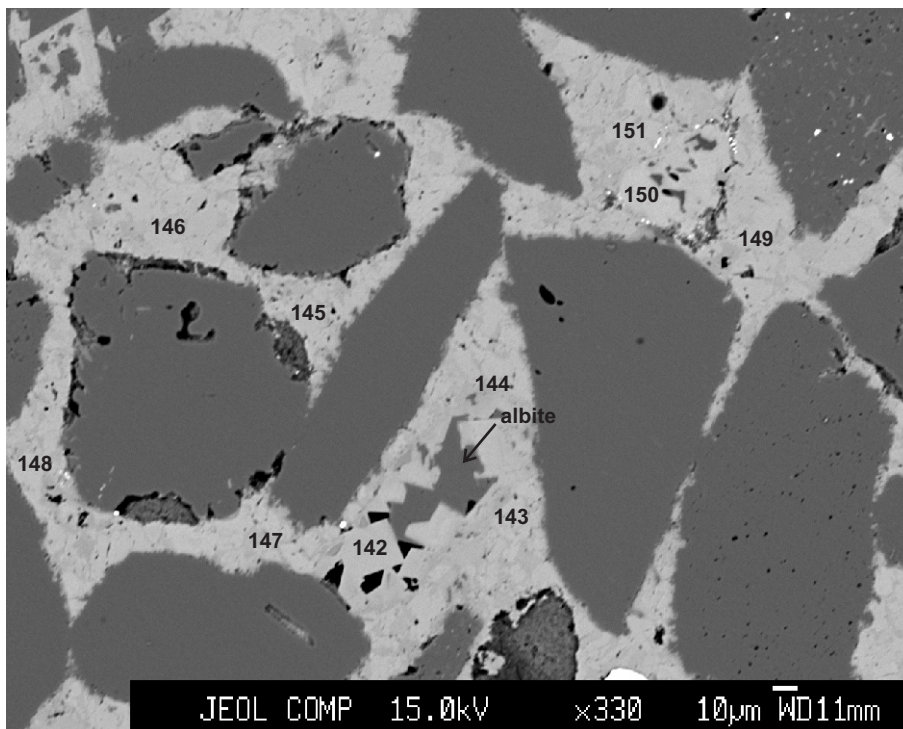
- 117: ankerite
- 118: ankerite
- 119: ankerite
- 120: ankerite
- 121: ankerite
- 122: ankerite
- 123: ankerite
- 124: ankerite
- 125: ankerite
- 126: ankerite
- 127: ankerite
- 128: ankerite

Figure 105: Venture H-22-5028.32



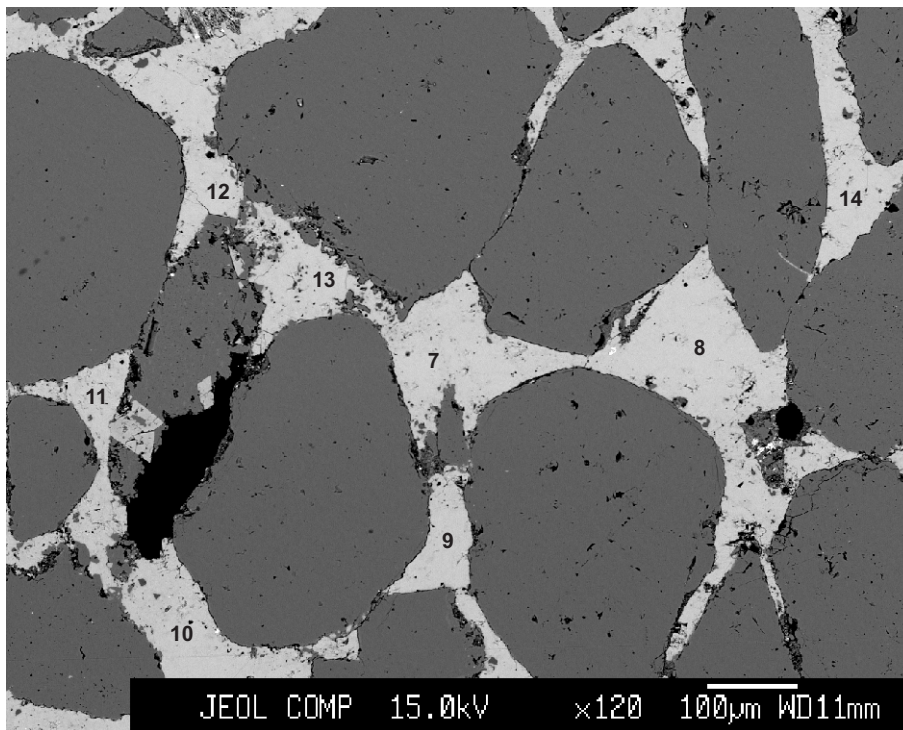
- 128: ankerite
- 129: ankerite
- 130: ankerite
- 131: ankerite
- 132: ankerite
- 133: ankerite
- 135: ankerite
- 136: ankerite
- 137: ankerite
- 138: ankerite
- 139: ankerite
- 140: ankerite

Figure 106: Venture H-22-5028.32



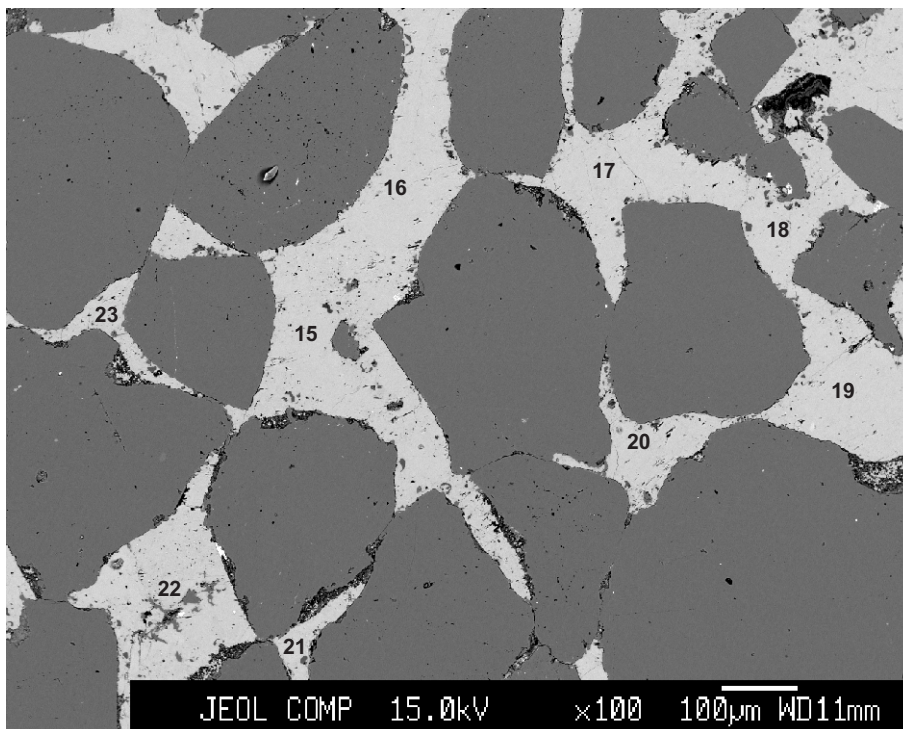
- 141: ankerite
- 142: ankerite
- 143: ankerite
- 144: ankerite
- 145: ankerite
- 146: ankerite
- 147: ankerite
- 148: ankerite
- 149: ankerite
- 150: calcite
- 151: ankerite

Figure 107: Venture H-22-5028.32



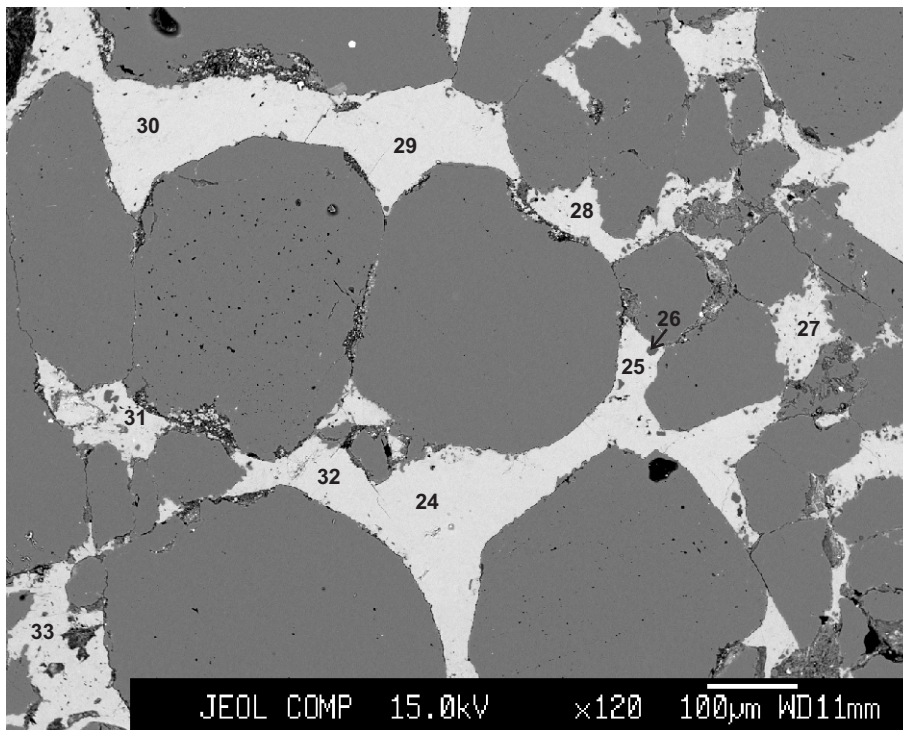
- 7: Fe-calcite
- 8: Fe-calcite
- 9: Fe-calcite
- 10: Fe-calcite
- 11: Fe-calcite
- 12: Fe-calcite
- 13: Fe-calcite
- 14: Fe-calcite

Figure 108: Venture H-22-5050.55



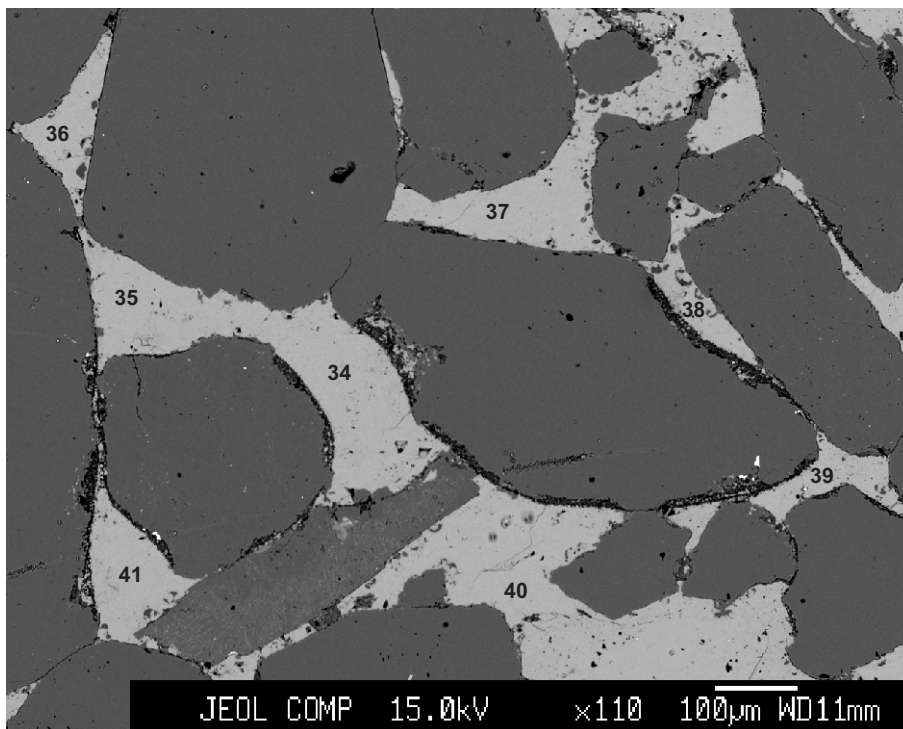
- 15: Fe-calcite
- 16: Fe-calcite
- 17: Fe-calcite
- 18: Fe-calcite
- 19: Fe-calcite
- 20: Fe-calcite
- 21: Fe-calcite
- 22: Fe-calcite
- 23: Fe-calcite

Figure 109: Venture H-22-5050.55



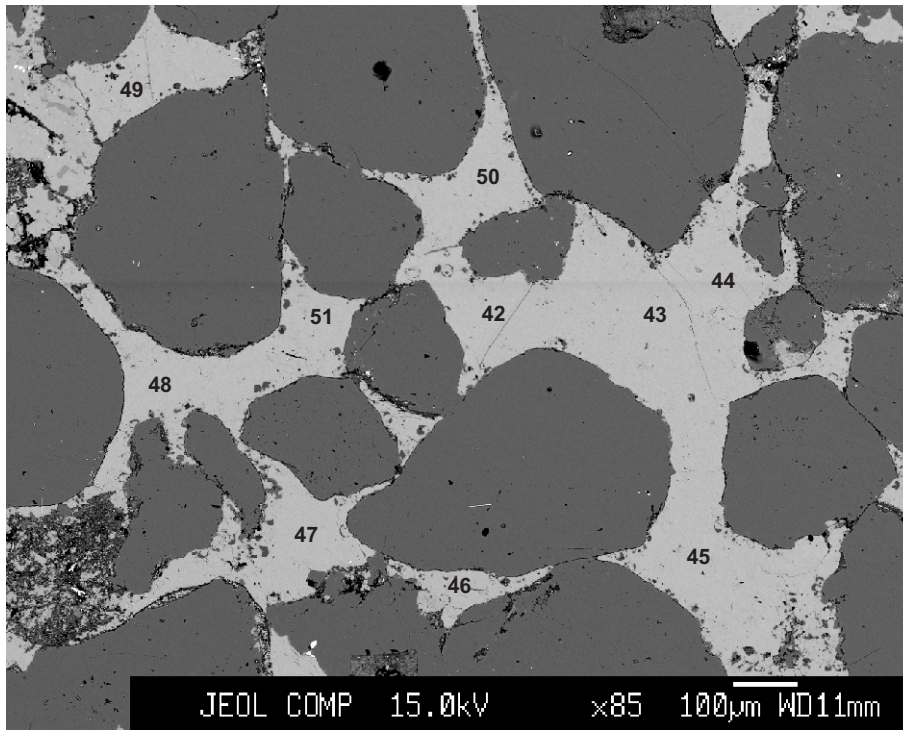
- 24: Fe-calcite
- 25: Fe-calcite
- 26: albite
- 27: Fe-calcite
- 28: Fe-calcite
- 29: Fe-calcite
- 30: Fe-calcite
- 31: Fe-calcite
- 32: Fe-calcite
- 33: Fe-calcite

Figure 110: Venture H-22-5050.55



- 34: Fe-calcite
- 35: Fe-calcite
- 36: Fe-calcite
- 37: Fe-calcite
- 38: Fe-calcite
- 39: Fe-calcite
- 40: Fe-calcite
- 41: Fe-calcite

Figure 111: Venture H-22-5050.55



- 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
- 51: Fe-calcite

Figure 112: Venture H-22-5050.55