

Commissioner's Decision #1501

Décision du commissaire #1501

TOPICS: J00 Meaning of Art  
J40 Mental Steps

SUJETS: J00 Signification de la technique  
J40 Processus psychologique

Application No: 2,831,251

Demande no: 2 831 251

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,831,251, having been rejected under subsection 30(3) of the *Patent Rules* as they read immediately before October 30, 2019, has been reviewed in accordance with paragraph 199(3)(c) of the *Patent Rules* (SOR/2019-251). The recommendation of the Board and the decision of the Commissioner are to refuse the application.

Agent for the Applicant

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## INTRODUCTION

- [1] This recommendation concerns the review of rejected Canadian patent application number 2,831,251 (“the instant application”), which is entitled “SYSTEMS AND METHODS FOR HYDRAULIC FRACTURE CHARACTERIZATION USING MICROSEISMIC EVENT DATA” and is owned by LANDMARK GRAPHICS CORPORATION (“the Applicant”). A review of the rejected application has been conducted by the Patent Appeal Board (“the Board”) pursuant to paragraph 199(3)(c) of the *Patent Rules*. As explained in more detail below, our recommendation is that the Commissioner of Patents refuse the application.

## BACKGROUND

### The Application

- [2] The instant application was filed under the provisions of the *Patent Cooperation Treaty* and has an effective filing date in Canada of April 15, 2011. It was laid open to public inspection on October 18, 2012.
- [3] The instant application relates to a method of characterizing hydraulic fractures using microseismic event data. The microseismic event data is acquired during hydraulic fracturing treatment of a well, the data being used to identify characteristics of the fractures, such as their orientation and spacing. The Applicant proposes a method of characterization that is intended to improve the quality of information related to the fracture patterns.

### Prosecution History

- [4] On April 15, 2016, a Final Action (“FA”) was written pursuant to subsection 30(4) of the *Patent Rules* as they read immediately before October 30, 2019. The FA stated that the instant application is defective on the grounds that all of the claims 1-18 on file at the time

of the FA (“claims on file”) encompass non-statutory subject-matter and therefore do not comply with section 2 of the *Patent Act*.

- [5] In an October 14, 2016 response to the FA (“R-FA”), the Applicant submitted proposed claims 1-18 (“proposed claim set-1”), which included modifications to independent claims 1 and 10. Arguments in favor of the patentability of the claims on file as well proposed claim set-1 were submitted.
- [6] As the Examiner considered the application not to comply with the *Patent Act*, the application was forwarded to the Board for review on February 1, 2017 along with an explanation outlined in a Summary of Reasons (“SOR”). The SOR set out the position that the claims on file were still considered to be defective due to non-statutory subject-matter. The SOR also indicated that proposed claim set-1 did not overcome the non-statutory subject-matter defect.
- [7] In a letter dated February 6, 2017, the Board forwarded to the Applicant a copy of the SOR and requested that the Applicant confirm its continued interest in having the application reviewed.
- [8] In a letter dated May 10, 2017, the Applicant confirmed its interest in having the review proceed.
- [9] The present panel (“the Panel”) was formed to review the instant application.
- [10] In a preliminary review letter (“PR letter”) dated April 4, 2019, the Panel set out its preliminary analysis of the statutory subject-matter issue with respect to the claims on file and proposed claim set-1. The Panel also provided the Applicant with an opportunity to make oral and/or written submissions.

[11] The Applicant provided written submissions in response to the PR letter (“R-PR”) on June 13, 2019. With the submissions, the Applicant included a proposed set of claims 1-12 (“proposed claim set-2”).

[12] An oral hearing was held on June 27, 2019 via teleconference.

## ISSUE

[13] The issue to be addressed by the present review is whether:

- claims 1-18 on file are directed to statutory subject-matter.

[14] If the claims on file are considered to be defective, we may turn to the proposed claims and consider whether they constitute amendments necessary for compliance with the *Patent Act* and *Patent Rules*. In the present case, since the Applicant has submitted proposed claim set-2, we consider this claim set to supersede proposed claim set-1. Therefore, only proposed claim set-2 will be considered, as necessary.

## LEGAL PRINCIPLES AND OFFICE PRACTICE

### Claim Construction

[15] In accordance with *Free World Trust v Électro Santé Inc*, 2000 SCC 66 [*FreeWorldTrust*], essential elements are identified through a purposive construction of the claims done by considering the whole of the disclosure, including the specification and drawings (see also *Whirlpool Corp v Camco Inc*, 2000 SCC 67 at paras 49(f) and (g) and 52 [*Whirlpool*]). In accordance with the *Manual of Patent Office Practice* [MOPOP], §12.02 (revised June 2015), the first step of purposive claim construction is to identify the person skilled in the art and their relevant common general knowledge (“CGK”). The next step is to identify the problem addressed by the inventors and the solution put forth in the application. Essential

elements can then be identified as those required to achieve the disclosed solution as claimed.

### **Statutory Subject-Matter**

[16] The definition of invention is set out in section 2 of the *Patent Act*:

“invention” means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter.

[17] The Office examination memo PN 2013-03 entitled “*Examination Practice Respecting Computer-Implemented Inventions*” (“PN 2013-03”) clarifies examination practice with respect to the Office’s approach to computer implemented inventions.

[18] As stated in *PN 2013-03*, Office practice considers that where a computer is found to be an essential element of a construed claim, the claimed subject-matter will generally be statutory. Where, on the other hand, it is determined that the essential elements of a construed claim are limited to matter excluded from the definition of invention (for example, fine arts, methods of medical treatment, features lacking in physicality, or claims where the subject-matter is a mere idea, scheme, rule or set of rules), the claim will not be compliant with section 2 of the *Patent Act*.

## **ANALYSIS**

### **Claim Construction**

[19] In the R-PR and at the hearing, the Applicant contended that the Panel applied the wrong principles in performing a purposive construction of the claims. The Applicant contends that the problem and solution approach is completely unsupported by Canadian jurisprudence and disagrees with any conclusions resulting from it.

[20] Similar points have already been addressed in the PR letter, in which the Panel explained that the claim construction approach set out in *MOPOP* §12.02 has been followed.

[21] With respect to *FreeWorldTrust*, the role of this case and the associated *Whirlpool* case is discussed in *MOPOP* §12.02:

In *Canada (Attorney General) v Amazon.com Inc*, the Federal Court of Appeal observed that, during examination, Supreme Court jurisprudence “requires the Commissioner's identification of the actual invention to be grounded in a purposive construction of the patent claims”.

The application of the principles of purposive construction to the examination of a patent application must take into account the role of the patent examiner and the purpose and context of examination.

In *Free World Trust* and *Whirlpool*, the Supreme Court outlined that purposive construction is performed by the court to objectively determine what the person skilled in the art would, as of the date of publication of the patent application and on the basis of the particular words or phrases used in the claim, have understood the applicant to have intended to be the scope of protection sought for the disclosed invention.

[22] *MOPOP* §12.02.01 then sets out the steps to be followed in purposively construing a claim:

When examining a claim, an examiner must read the claim in an informed and purposive way. Prior to construing a claim an examiner will:

1. Identify the person of ordinary skill in the art [see 12.02.02b]; and
2. Identify the relevant common general knowledge of the person of ordinary skill in the art at the time of publication [see 12.02.02c].

The above steps provide the context in which the claim is to be read. Once the context is determined the examiner will:

3. Identify the problem addressed by the application and its solution as contemplated by the inventor [see 12.02.02d]; and
4. Determine the meaning of the terms used in the claim and identify the elements of the claim that are essential to solve the identified problem [see 12.02.02e].

- [23] The Panel has followed the above approach, both in the PR letter and in this recommendation.

*The person skilled in the art*

- [24] In the PR letter, as was the case in the FA, the person skilled in the art was characterized as:

a team skilled in hydraulic fracture characterization using microseismic event data, including a geologist, a computer specialist, and electrical and/or mechanical engineers.

- [25] The above characterization was not disputed by the Applicant in the R-PR or at the hearing. We apply it in our analysis below.

*The relevant common general knowledge*

- [26] In the PR letter, the Panel adopted the relevant CGK of the person skilled in the art as set out in the FA, which included the following:

[H]e or she is well informed of the methods, techniques, and equipment used for modelling hydraulic fracturing. He or she is also knowledgeable in the use of sensors to detect microseismic events resulting from fracturing and the use of computers and means for displaying models.

It was also common general knowledge that microseismic event data is sometimes acquired during hydraulic fracturing, wherein the fracturing produces microseismic events associated with fractures in a reservoir (§ [0004] of the description). Microseismic event locations are commonly monitored in real-time and displayed three-dimensionally (§ [0005] of the description). Each microseismic event may be characterized by orientation, magnitude, location, planes, and other attributes (§ [0006] of the description). Fractures may be characterized by length, width, height, pressure, orientation, dip, and spacing (§ [0006] of the description). Various techniques are known in the art to numerically model the attributes of microseismic events and fractures (§ [0009]-[0012] of the description).

- [27] The Applicant did not dispute any of the points above in the R-PR or at the hearing, but suggested that the person skilled in the art would also be aware that in many of the known



modelling techniques, “the analysis of the microseismic data becomes very subjective and interpretive,’ in particular for ‘complex fracture [patterns] of induced or reactivated fractures,’” pointing to paragraph [0007] of the instant application. Given that this is presented as background information in the instant application, we agree that it should be included as part of the relevant CGK.

*The problem to be solved*

[28] In the PR letter, in addressing the Applicant’s submissions in the R-FA, the Panel stated (Note: the reference to *MOPOP* refers to the pre-October 30, 2019 version):

With respect to the problem to be solved, we note that in the R-FA at page 5, the Applicant references para. [0013] of the instant application for the point that “there is a need to overcome ‘deficiencies in the prior art’ regarding ‘systems and methods for hydraulic fracture characterization’.” However, we note that this reference is to the discussion of the “Summary of the Invention” and while it points to the invention as addressing prior art deficiencies in general, it points to the provision of the “systems and methods of hydraulic fracture characterization” as addressing such deficiencies, which is not reflective of the problem to be solved.

The Applicant also asserts at page 5 of the R-FA that the problem as set out in the application relates to addressing “the shortcomings of existing, computer-based implementation techniques for characterizing hydraulic fractures” pointing to the discussion of the shortcomings or prior art techniques set out in the “Background of the Invention” at paras. [0007], [0010] and [0012]. The Applicant therefore contends that the FA should not have excluded the “processor, memory, computer, and/or the feature of receiving microseismic data recited in the claims as non-essential.”

However, the shortcomings discussed in the above noted portions of the instant application relate to deficiencies in the method of analysis itself of the microseismic data, not in any computer implementation of it, although this may have been the manner in which the analyses were carried out. In our view, there is no explicit limitation of the problem to one being “computer-based,” as the Applicant contends at page 5 of the R-FA.

The Applicant further contends that the problem to be solved is a computer problem and that therefore the computer elements are essential to the solution. In support of this position, the Applicant points to four factors set out in *PN2013-03* as suggestive of the presence of a computer problem:

- the description details a specific problem with the operation of a computer;
- the solution to the problem involves controlling a chip, system component or technical architecture element such as through firmware (embedded software);
- the description emphasizes challenges or deficiencies in prior computers; and
- a significant level of detail is devoted to describing technical details, such as the algorithm or logic performed by the computer.

With respect to the first factor, the Applicant contends at page 6 of the R-FA that the Background section of the instant application sets out problems with existing computer-based hydraulic fracture characterization and therefore problems with the operation of a computer. However, in our view, as noted above, these problems or shortcomings are with the method of analyzing the microseismic data and not with the operation of the computer itself.

The Applicant made no submissions with respect to the second factor.

With respect to the third factor, the Applicant points again to the deficiencies or shortcomings of the prior art computer systems discussed in the Background section. Again, in our view these deficiencies or shortcomings relate to the method of analysis performed by the computer rather than the operation of the computer itself.

With respect to the fourth factor, the level of technical detail in the description, the Applicant points to pages 8 through 15 of the description, in particular noting the level of detail set out with respect to the algorithm or logic performed by the computer. However, the algorithm in this case relates to the method of analysis of the data itself and does not represent some change in the fundamental operation of the computer, other than implementing software consisting of performing mathematical operations. As such, these details do not point to a problem relating to the operation of the computer itself.

We also note that in the instant application at pages 16-19, the description of the computer system that may be used to implement the alleged invention relates to generic computer elements. The disclosure of generic computer elements does not point to any problem relating to the operation of a computer that is addressed by the method of analysis of microseismic data.

In addition to the above factors, the Applicant asserts that the Courts in Canada have not placed a statutory bar against patenting software and that the computer problems discussed in *PN2013-03* need not relate only to computer hardware.

While it is true that a “computer problem” need not be related to hardware, per *MOPOP §16.08.04*, computer programs claimed as such are considered by the Patent Office to be an abstract scheme, plan or set of rules for operating a computer and consequently not an invention within the meaning of section [2] of the *Patent Act*.

- [29] In the R-PR and at the hearing, the Applicant contended, in relation to the Panel’s identification of the problem, that the use of such an assessment in construing the claims was improper in view of Canadian jurisprudence. We have already addressed above the Applicant’s general submissions in relation to the applicability of the claim construction approach set out in *MOPOP* §12.02.
- [30] The Applicant also contended in the R-PR that because “it was commonplace and indeed **expected** that the type of operations recited in the proposed claims, which include those operations disclosed in the present application, would be performed using computers” [emphasis in original], it cannot be suggested that a computer is inessential. Although referring to the proposed claim set-2, we take the arguments as applicable to the claims on file as well. At the hearing, the Applicant further contended that it was seeking to solve a computer problem, pointing to the subjective and interpretive nature of prior techniques discussed in the instant application as a basis for the need for a computer.
- [31] However, given that the operations disclosed and claimed in the instant application had been commonly performed using computers, the use of computers to perform such operations cannot form part of the problem to be solved, in accordance with the Office approach to claim construction.
- [32] In light of the above, we conclude that the problem to be solved is as stated in the PR letter and the FA, namely, “a need for an improved method of characterizing hydraulic fractures using microseismic data.”

### *The solution*

- [33] In the PR letter, after considering the Applicant’s position in the R-FA that the solution “revolves around *improving the operations of computers* which perform hydraulic fracture characterization” [emphasis in original], we were of the preliminary view that the solution was as stated in the FA, namely “using microseismic event data to identify orientation,

spacing and dip for subsurface fractures and performing a statistical analysis for sets of planes to determine an uncertainty related to the orientation, spacing and dip.”

- [34] In the R-PR, the Applicant contended that the solution cannot omit the involvement of the computerized elements of the claims since the person skilled in the art, based on the relevant CGK and the existing techniques disclosed in the Background section of the instant application, would understand that “the numerical and analytical techniques considered by the Applicant would **necessarily** be implemented on a computer.” [emphasis in original]
- [35] As discussed in relation to the problem to be solved, since the use of computers to perform such techniques was part of the relevant CGK, there were no problems to be solved related to the computer implementation of such techniques and therefore the computer elements are not part of the solution. The problem is related to the need for an improved method of characterizing the hydraulic fractures using the microseismic event data and the solution that addresses this problem is the analysis of the data to identify characteristics of the fractures such as orientation, spacing and dip, as well as performing a statistical analysis to determine the related uncertainty.
- [36] The Applicant also contended in the R-PR and at the hearing that the solution would be more appropriately considered as the automation of steps previously performed by human operators, which provides a more reliable and predictable result. At the hearing, the Applicant highlighted the requirement for accurate and timely information. However, the Applicant has already stated in the R-FA and R-PR as noted above, that the type of steps to be performed would typically be performed on a computer, and as such, there would be no problem related to the automation that would necessitate the inclusion of the computer elements in the solution.
- [37] In light of the above, we conclude that the solution is as identified in the PR letter, set out above.

*Essential Elements*

[38] The instant application contains two independent claims 1 and 10 on file, claim 1 being a method claim and claim 10 being a computer program product storing instructions representing the method of claim 1. Independent claim 1 on file is reproduced below:

1. A method for hydraulic fracture characterization using microseismic datapoints comprising:  
 receiving microseismic event data collected from instrumentation as a result of one or more microseismic events during hydraulic fracturing;  
 identifying principal strike orientations of average microseismic datapoints from the microseismic event data that relate to one or more sets of planes and an orientation uncertainty thereof using a computer processor;  
 determining a dip of each set of planes considering a contact weight between each microseismic datapoint and each plane within each set of planes;  
 determining a location of each plane within each set of planes;  
 performing a statistical analysis for each set of planes with a common principal strike orientation to determine an uncertainty related to an orientation, spacing and dip of a respective set of subsurface fractures; and  
 displaying the statistical analysis to characterize the hydraulic fracturing.

[39] In the PR letter, we identified the essential elements of the independent claims as being those set out in the FA:

- identifying the principle strike orientations of average microseismic event datapoints that relate to one or more sets of planes and their orientation uncertainty;
- determining the dip of each set of planes considering a contact weight between each microseismic event datapoint and each plane;
- determining the location of each plane; and
- performing a statistical analysis of each set of planes with a common principle strike orientation to determine an uncertainty related to orientation, spacing, and dip of a set of subsurface fractures.

[40] We stated:

Those elements relating to the reception of microseismic event data, the computer elements and the step of displaying the results of the statistical analysis were considered non-essential as they did not relate to the solution, which is directed to an improved analysis of the data, not to its collection or the display of the results of the analysis.

In the R-FA at pages 5-6, the Applicant contends that the solution that they have identified is “implemented by providing methods and computer-readable media which cause a process to implement a plurality of features, and the solution *requires* the use of a computer and/or various computer-like elements” [emphasis in original]. However, our preliminary view of the solution does not require the use of a computer or computer-like elements. Instead it relates to the improved method of analysis of the data, rather than whether it may be implemented on a computer. Therefore the computer-related elements of the claims would not represent essential elements necessary for providing the identified solution.

We further note that as pointed out at page 4 of the FA, the description of the instant application at paragraph [0051] specifies that the disclosed invention *may* be implemented through computer software. There is no requirement that this *must* be the case. This does not support the Applicant’s position that computer implementation is required by the alleged invention.

In the R-FA at page 6, the Applicant attempted to distinguish the present case from that of *Schlumberger Canada Ltd v Commissioner of Patents* (1981), 56 CPR (2d) 204 (FCA) [*Schlumberger*], in that the claims in *Schlumberger* “merely recited a method and added a caveat that the method was to be ‘machine-operated’.” The Applicant contended that “the present claims include elements or steps of identifying principal strike orientations, determining a dip and a location for sets of planes, performing statistical analysis for each set of planes, identifying a first set of fracture patterns, and of performing a real-time analysis. In addition, the claims include the elements or steps of performing a first and a subsequent hydraulic fracture stimulation.”

We first note that the performance of a real-time analysis and the first and subsequent hydraulic fracture stimulation are features of the claims proposed in the R-FA and are not features of the claims on file. These features will be addressed later in our preliminary analysis of the proposed claims.

Further, in our preliminary view, the difference between the invention in *Schlumberger* and that of the instant application is not as significant as the Applicant contends. In both cases, a computer may be used to perform the mathematical analyses that make up the methods, but it is not essential that the methods be implemented in this manner. Both cases relate to the analyses of data through various calculations. The use of a computer, though convenient, is not essential to perform the analyses.

In light of the above, it is our preliminary view that the essential elements of independent claims 1 and 10 on file are those set out in the FA, noted above.

With respect to the dependent claims on file, the additional features of these claims also relate to the improved data analysis method.

[41] In the R-PR and at the hearing, the Applicant did not directly address our preliminary views above as to the essential elements of the claims on file. The Applicant did make arguments as part of its submissions related to the problem and solution in regard to the essentiality of the computerized elements of the claims, which arguments have already been addressed under the relevant sections above.

[42] We conclude that the essential elements of the claims are as set out in the PR letter and reproduced above.

### **Statutory Subject-Matter**

[43] In the PR letter, in reviewing the FA and the Applicant's submissions in the R-FA, we stated (Note: the references to *MOPOP* refer to the pre-October 30, 2019 version):

In the FA at page 4, the essential elements of the independent claims on file were considered to “define an abstract or disembodied idea lacking tangible elements, a mere scheme or plan for calculations and the manipulation of data, and are consequently not a statutory ‘art’ or ‘process’”, reference having been made to sections 12.06.02 and 12.06.06 of *MOPOP* in support of these conclusions. We note that in view of the most recent revision to Chapter 12 of the *MOPOP*, these principles are now found in *MOPOP* §12.03.08.

In the R-FA at page 2, the Applicant asserts that the claims are not abstract or disembodied in that they include steps of performing first and subsequent hydraulic fracture stimulations, as well as performing real-time analysis during the subsequent hydraulic fracture stimulation. As noted earlier, these features are only present in the proposed claims and we will consider them in our analysis of those claims.

The Applicant also asserts, in the R-FA at page 3, that the presence of a data acquisition step in the claims on file, namely the reception of microseismic event data that is then used in the data analysis, makes the claims statutory, since the consideration of such a step was a factor in a past decision of the Commissioner of Patents (*Re Weyerhaeuser NR Company's Patent Application 2,333,184* (2013), CD 1345 (Pat App Bd & Pat Commr) that led to a favorable statutory subject matter outcome.

However, as shown in our analysis above of the essential elements of the claims on file, the reception of the microseismic event data is not an essential element that would be considered for compliance with section 2 of the *Patent Act*. The problem to be solved and the resultant solution are not related to the acquisition of data. Rather, they are related to analysis of the data. With respect to the

Commissioner's Decision referred to in the R-FA, the determination of the essential elements in a given case depends on whether those elements contribute to the particular solution identified in that case, and therefore a determination that certain elements in one case are essential is not determinative of a future case where the identified solution is different.

Given that the essential elements of the claims on file, identified above, relate to a method of data analysis that involves only calculations, it is our preliminary view that the claims on file are directed to a process that is the equivalent of a series of mental steps and are therefore abstract and disembodied.

[44] The Applicant did not make any submissions in the R-PR or at the hearing in response to the above, other than as part of the submissions in relation to the problem to be solved and the solution, which have already been addressed in the respective sections above.

[45] We conclude that claims 1-18 on file are directed to non-statutory subject-matter and therefore non-compliant with section 2 of the *Patent Act*.

### **Proposed Claims**

[46] In the PR letter we set out our preliminary view in respect of proposed claim set-1, being of the view that proposed claim set-1 would not alter our preliminary view with respect to the non-statutory nature of the claims on file.

[47] In the R-PR, the Applicant provided submissions in respect of our views on proposed claim set-1, but also submitted the substitute proposed claim set-2 for consideration. As proposed claim set-2 is the current set of proposed claims and, as indicated at the hearing, proposed claim set-1 is no longer being pursued by the Applicant, we consider proposed claim set-2 below.

[48] In proposed claim set-2, the Applicant has amended the independent claims 1 and 10 on file to include features of dependent claims 2 to 4 and 11 to 13, respectively. The Applicant contends in the R-PR that the problem it sought to solve "relates to existing techniques for characterizing fracture patterns requiring subjective, interpretive human intervention", which is fundamentally a technical problem. The Applicant also contends that the analysis



steps such as creating a plane cannot be performed outside of a computer modelling context. The Applicant contended at the hearing and in the R-PR that the solution automatically characterizes the hydraulic fracture points and that therefore the solution cannot be divorced from the computerized elements. The Applicant further contended at the hearing that the claims inherently included a real-time calculation aspect due to the nature of the analysis and its application in adjusting fracturing operations.

- [49] Proposed claim set-2 contains the subject-matter of the claims on file, with the independent claims amended as specified above, the exception being the addition of the limitation that the method is for “automating” the characterization of the hydraulic fractures.
- [50] We have already addressed the automation argument put forward at the hearing and in the R-PR under our discussion of the solution presented by the instant application, above.
- [51] Further, we have previously considered the subject-matter of the dependent claims on file that have been incorporated into the proposed independent claims as part of our analysis in the PR letter, reproduced above under the consideration of statutory subject-matter. We concluded that the additional features of the dependent claims on file, like the essential features of the independent claims on file, relate to the improved data analysis method that is considered to be equivalent to a series of mental steps and therefore abstract and disembodied. Therefore, the addition of such features to the independent claims on file would not alter our conclusion above.
- [52] With respect to the Applicant’s contention that the problem relates to existing techniques for characterizing the fracture patterns and is therefore a technical problem, as we have previously stated, given that the type of techniques disclosed and claimed in the instant application had been commonly performed using computers, the use of computers to perform such operations cannot form part of the problem to be solved, in accordance with the Office approach to claim construction.

- [53] As for the Applicant's contention that the analysis steps such as creating a plane cannot be performed outside of a computer modelling context, such steps are comprised of mathematical operations, which are equivalent to a series of mental steps and therefore abstract.
- [54] Regarding the Applicant's contention that the proposed claim set-2 inherently includes some form of real-time analysis, as we noted at the hearing, the claims contain no such limitation. Even if such a limitation was included, as we indicated in the PR letter with respect to proposed claim set-1, which contained such a limitation, "it was part of the CGK to monitor microseismic event locations in real-time and to analyze and validate in real-time the location of events as they occur." Therefore real-time analysis was not a problem to be solved by the invention disclosed in the instant application and as such cannot form part of the solution or the essential elements of the claims.
- [55] In light of the above considerations, we conclude that the subject-matter of proposed claim set-2 is directed to non-statutory subject-matter and is therefore non-compliant with section 2 of the *Patent Act*. As such, the claim set does not overcome the defect under non statutory subject-matter for the claims on file and is therefore not "necessary" for compliance with the *Patent Act* and *Patent Rules* as required by subsection 86(11) of the *Patent Rules*.

## CONCLUSION

- [56] We have determined that claims 1-18 on file are directed to non-statutory subject matter and are therefore non-compliant with section 2 of the *Patent Act*.

**RECOMMENDATION OF THE BOARD**

[57] In view of the above, the Panel recommends that the application be refused on the ground that the claims on file are directed to non-statutory subject-matter and are therefore non-compliant with section 2 of the *Patent Act*.

Stephen MacNeil  
Member

Paul Fitzner  
Member

Andrew Pothier  
Member

**DECISION**

[58] I concur with the conclusion and recommendation of the Board that the application be refused on the ground that the claims on file are directed to non-statutory subject-matter and are therefore non-compliant with section 2 of the *Patent Act*.

[59] Therefore, in accordance with section 40 of the *Patent Act*, I refuse to grant a patent on this application. Under section 41 of the *Patent Act*, the Applicant has six months within which to appeal my decision to the Federal Court of Canada.

Johanne Bélisle  
Commissioner of Patents

Dated at Gatineau, Quebec,  
this 18<sup>th</sup> day of November, 2019.