

COMMISSIONER'S DECISION

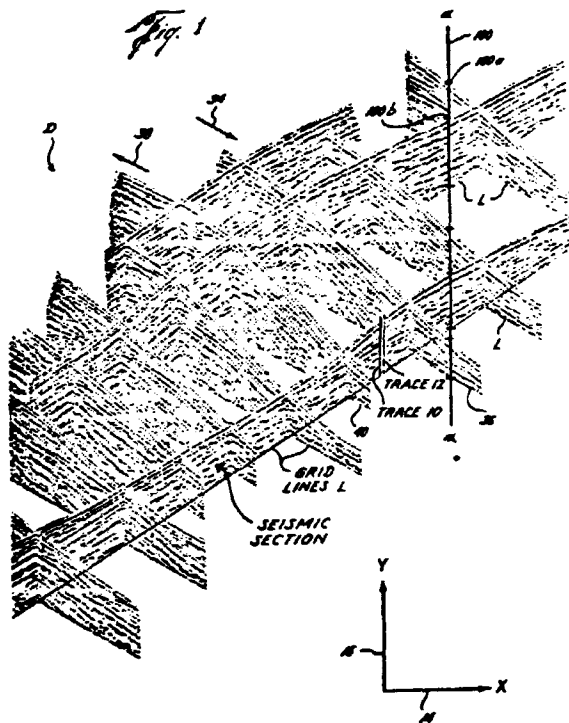
NON STATUTORY, SEC. 2: DISPLAY OF SEISMIC SECTION

The display of coordinates in isometric form together with the computer processing steps is more than merely performing calculations.

Final Action: Reversed.

This decision deals with Applicant's request for review by the Commissioner of the Final Action on application 285,029 (Class 349-22) assigned to Seiscom Delta Inc. entitled DISPLAYING SEISMIC SECTIONS IN ISOMETRIC VIEW. The inventors are L.R. Chapman and R.F. O'Doherty. The Examiner in charge issued a Final Action refusing to allow the application.

The application relates to a three-dimensional display of seismic traces representing a portion of the earth's subsurface on a two-dimensional grid, in fence diagram form as shown in figure 1 following.



Seismic traces obtained during a survey are recorded as x and y coordinates, and the beginning and end of all traces are computed and stored. To construct the display all traces having a common x coordinate are retrieved from storage and positioned to form points in the display as shown by vertical line 100 on which the vertical y coordinates are marked. By this method a composite record is developed for each section surveyed and a fence diagram is formed. This technique facilitates an analysis of the lateral continuity of events between sections and the making of interpretive judgements.

In the Final Action the Examiner referred to Applicant's invention as "...a method of displaying 3-D seismic traces on a 2-D display surface in an isometric view." He then referred to the decision in Schlumberger Canada Ltd. v The Commissioner of Patents 56 CPR (1981) at p.204 and considered Applicant's method to be for "...converting measurements into more useful information..." and was not "...an invention within the meaning of Section 2."

In his response Applicant also referred to Schlumberger and quoted a passage in which Pratte J. said that Section 2 contains no provision "...so as to exclude inventions involving computers..." .

The issue before the Board is whether or not the application and the claims are directed to patentable subject matter under Section 2 of the Patent Act.

Claim 1 reads:

A method of forming on a two-dimensional display surface an isometric seismic display to simulate a three-dimension view of seismic traces in plural seismic sections, obtained along a two-dimensional grid of survey lines comprising the steps of:

- (a) assigning a two-dimensional, positional relationship on the display surface to the survey grid lines in terms of their respective lengths and intersection points on the display surface according to the isometric view to be formed;
- (b) assembling the seismic traces in an order with respect to each other in accordance with the positional relationship assigned to their grid lines by computing horizontal and vertical co-ordinates for the beginning and ending of the seismic traces; and
- (c) displaying the assembled seismic traces on the display surface wherein an isometric display is formed of the seismic traces with increased information content on the two-dimensional display surface.

We consider now the relevance to the application of the passages quoted from the Schlumberger decision during the prosecution. From our reading of the passage in the Final Action, we understand the Examiner's line of reasoning as follows. He likened Applicant's method of converting measurements into more useful information by making calculations, to be similar to the subject matter in the Schlumberger case, interpreting the case as "...making calculations according to certain formulae to obtain useful information from measurements". This kind of comparative reasoning is not unusual in examining applications to determine whether certain subject matter falls under Section 2, because all things are not patentable under that Section, for example, methods of medical treatment, vide Tennessee Eastman v The Commissioner of Patents 1974 SCR 111, and Schlumberger, supra.

Turning to the passage quoted by Applicant, we understand it to be part of the introductory preamble to a consideration of the issue by the Court. We feel therefore it should be considered together with the first sentence in the paragraph immediately following the passage quoted by Applicant where Pratte, J. said

In order to determine whether the application discloses a patentable invention, it is first necessary to determine what, according to the application, has been discovered.

Pratte, J. then reasoned the discovery in Schlumberger related to the calculations to be made and to the mathematical formulae to use. He expressed his view that mental operations and processes are not the kind of processes that are referred to in the definition of invention in Section 2. He commented further that computers should not be considered as lending patentability to things which were clearly not patentable under the Act. In reaching his decision Pratte J. said:

I am of opinion that the fact a computer is or should be used to implement discovery does not change the nature of that discovery. What the appellant claims as an invention here is merely the discovery that by making certain calculations according to certain formulae, useful information could be extracted from certain measurements. This is not, in my view, an invention within the meaning of section 2.

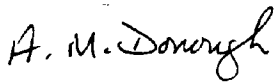
What then is the invention in the application before us? In the Final Action, the Examiner sees it to be a method of converting measurements into more useful information by making calculations according to certain formula. When describing the prior art in his application, Applicant refers to surveys which have produced readings indicating the variations in the subsurface of the earth. He sets out his problem as producing a meaningful display of the features. He maintains throughout the prosecution that the invention relates to a novel display on a two dimensional surface of seismic data indicative of a three dimensional subsurface formation. He advances that what is claimed is the combination of a new sequence of process steps. He argues he has a process invention involving two aspects, the 'what' being the combination and sequence of events, the 'how' being the practical method of carrying it out. He believes the Examiner's characterization of the invention only involves a conventional computer and is the 'how'. Applicant contends further his claims constitute the 'what' because they contain a combination of steps, and do not refer to the 'how', the computer. In method claim 1 we see parts (a) and (b) provide a description of steps to assign a position to the grid lines on the display and to assemble the signals on the grid lines by computing x and y coordinates, and part (c) calls for displaying the signals to form an isometric display.

At this point we find guidance from all the passages from Schlumberger referred to during prosecution, in conjunction with another observation by Pratt J. that the mere fact computers perform calculations should not be viewed as making patentable what under the Act is not patentable. The assessment to be made then is whether the application relates to converting measurements or to a patentable combination of elements. In our view it is the display of the coordinates in isometric form together with the

computer processing steps that make up Applicant's invention, and the invention in our opinion is not merely performing calculations. We are satisfied that the step of displaying an isometric view of a formation brings the invention into an art area in which patents may be granted under Section 2, providing there is conformity with all other parts of the Act.

We feel it is appropriate to comment briefly on the art of record in this application. At least one of the patents made of record by Applicant, United States Patent 3,931,609 January 6, 1976, corresponding to Canadian Patent 1,007,352 issued March 22, 1977, pertains to displaying seismic information in an isometric fence form of diagram to illustrate variations in the earth's sub surface. Further, two other references submitted by Applicant demonstrate a three dimensional showing of seismic information, namely the isometric fence diagram in the Encyclopedia Dictionary of Exploration Physics, 1973 on pages 77 and 79, and the 1969 article by Dorbin in Computer Processing of Seismic Reflections. In the claims we observe the steps of assigning the positional relationship of the seismic signals, assembling the traces by computing coordinates, and displaying the traces isometrically on a display surface, are similar to the above art. So far as being directed to subject matter under Section 2, we find the claims satisfactory. We note however no art was cited in the Final Action, and we make no ruling with respect to the patentability of the claims.


We recommend that the rejection of the application for being directed to subject matter not patentable under Section 2 be withdrawn, and the application returned to the Examiner for continued prosecution.



A. McDonough
Chairman
Patent Appeal Board



M.G. Brown
Assistant Chairman



S.D. Kot
Member

I concur with the findings and the recommendation of the Patent Appeal Board.
Accordingly, I withdraw the Final Action and I remand the application to the
Examiner for prosecution consistent with the findings of the Board.



J.H.A. Gariépy
Commissioner of Patents

Dated at Hull, Quebec

this 6th. day of May, 1985

Agent for Applicant

G.H. Riches & Assocts.
Suite 2900
2 Bloor St. East
Toronto, Ont.
M4W 3J5