United States District Court,
N.D. Texas, Wichita Falls Division.

ECHOMETER COMPANY and James N. Mccoy,
Plaintiffs.
v.
LUFKIN INDUSTRIES, INC,
Defendant.

No. Civ.A. 7:00-CV-0101-

July 31, 2003.

MEMORANDUM OPINION AND ORDER

GODBEY**, J.**

Before the Court are the parties' briefs on claim construction, pursuant to Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed.Cir.1995) (en banc), *aff'd,* 517 U.S. 360 (1996). The parties request the Court construe the claim language of U.S. Patent No. 5,117,399, filed July 16, 1990, entitled data processing and display for echo sounding data (the " '399 Patent"). The '399 Patent discloses a well analyzer tool ("Well Analyzer") for determining the depth to the liquid level of oil and other fluids in an oil well; the Well Analyzer calculates depth by sending an acoustic pulse down a well bore and measuring the time it takes for the pulse to return in the form of an echo reflection. The claims of the '399 Patent concern the Well Analyzer's method for collecting and displaying data from echo reflections.

By consulting the text of the '399 Patent, the Patent's prosecution history, standard dictionaries, and expert testimony, the Court has defined and determined the scope of the terms and phrases of the '399 Patent claims that are in dispute by the parties. The Court finds, in summary, that the claims' preambles are not limiting upon their scope; the terms and phrases of the claims are not inherently limited by the determination of collar frequency and acoustic velocity; and 35 U.S.C. section 112 paragraph 6 ("Section 112(6)") does not apply to steps of the asserted claims.

I. BACKGROUND

Plaintiffs Echometer Company and James N. McCoy (collectively "Echometer") allege Defendant Lufkin Industries, Inc. ("Lufkin") infringed their '399 Patent. FN1 The '399 Patent discloses a Well Analyzer that measures and displays the liquid level of oil or other fluids in a well borehole. Echometer contends that aspects of Lufkin's oil well measurement tool (the "Ventawave") infringe upon claims 1, 2, 6, 7, 10, 12, 13-21 and 23-26 of its '399 patent.

FN1. James McCoy is listed as one of the inventors of the '399 Patent and as the sole assignee of the Patent.

Both the Well Analyzer and the Ventawave measure the depth of liquid in a well bore by sending an acoustic or pressure pulse, generated at the surface of the well, down a borehole. The pulse travels through the gas in the well bore and is reflected by the surface of the liquid in the well. By determining the velocity of the acoustic pulse and the time it takes for the pulse to return to the surface, the Well Analyzer and the Ventawave can determine the depth of fluid in the oil well. Acoustic velocity may vary due to, for example, the pressure within the well bore. The tools differ in the way that they determine the velocity of the acoustic or pressure pulse. The Well Analyzer measures the velocity internal to the well bore by counting the echo reflections generated by the well bore's tubing collars. FN2 The Ventawave determines the pulse's velocity external to the well bore by sending a pressure pulse into a known length of tubing and measuring the time it takes for the pulse to return.

FN2. Oil is pumped out of the well through a string of tubing located in the center of the well bore. The tubing string is assembled from a number of tubing joints, which are essentially pipes of fixed length, with a tubing collar at one end. The end of one tubing joint threads into the collar of the adjoining tubing joint in the string. The collars, therefore, have a greater outside diameter than the body of the tubing joints. The Well Analyzer measures the level of fluid or oil external to the tubing string. When the Well Analyzer sends an acoustic pulse into the well bore, it encounters discontinuities in the area of the well bore, such as the collars of the tubing string, that produce echo reflections. Because each tubing joint is a known length, the time between echoes off tubing collars can be used to determine acoustic velocity in the well bore.

Echometer contends that the Ventawave infringes the claims of the '399 Patent which pertain to the Well Analyzer's methods of collecting and displaying data from echo reflections. The specification of the '399 Patent describes different aspects of the Well Analyzer. Three separate patents having detailed descriptions virtually identical to that of the '399 Patent have been issued by the U.S. Patent and Trademark Office: the '399 Patent currently being litigated; U.S. Patent No. 5,200,894 (the " '894 Patent")-the claims of which pertain to a method for processing echo sounding data utilizing collar reflections; and U.S. Patent No. 5,285,388 (the " '388 Patent")-the claims of which describe a method for detecting a liquid level reflection. Echometer alleges infringement by Lufkin of only the '399 Patent.

II. CONSTRUCTION OF THE '399 PATENT

The parties have submitted a series of briefs asking the Court to construe certain terms and phrases in the claims of the '399 Patent. The crux of the parties' disagreements concern: (1) the extent to which the claims' preambles limit their scope; (2) whether the determination of collar frequency and acoustic velocity are inherent limits upon the definitions of certain terms and phrases; and (3) whether Section 112(6) applies to certain steps of the asserted claims. The Court's construction is as follows:

A. Principles of Claim Construction

Claim construction is a question of law for the Court. *Markman,* 517 U.S. at 384; Texas Digital Sys. Inc. v. Telegenix, Inc., 308 F.3d 1193, 1201 (Fed Cir.2002). Claim construction begins with the claim language itself. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996); Inverness Med. Switzerland GmbH v. Warner Lambert Co., 309 F.3d 1373, 1378 (Fed.Cir.2002). Terms within a claim are to be accorded their ordinary and accustomed meaning. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed.Cir.2002). Moreover, "a technical term used in a patent is interpreted as having the meaning a person of ordinary skill in the field of the invention would understand it to mean." Bell Atlantic Network

Serv., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1267 (Fed.Cir.2001). Dictionaries are useful resources to assist the court in determining the ordinary and customary meanings of claim terms as well as the meanings that would have been ascribed to technical terms by those of skill in the relevant art. Tex. Digital Sys., Inc. v. Telegenixs, Inc., 308 F.3d 1193, 1202 (Fed.Cir.2002). However, a technical term will not be assigned its ordinary meaning by one skilled in the art if it is clear from the patent and the file history that the inventor assigned a different meaning to the term. Phillips Petroleum v. Huntsman Polymers, 157 F.3d 866, 871 (Fed.Cir.1998) (quoting Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1578 (Fed.Cir.1996)). "[A] patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996).

In an effort to reconcile a disputed claim term, courts should initially examine the intrinsic evidence (the patent itself, the specification, and the claims). *Id*. If an examination of the intrinsic evidence reveals a clear meaning of a disputed term, then that meaning shall apply. Frank's Casing Crew & Rental Tools, Inc. v. PMR Techs., Ltd., 292 F.3d 1363, 1374 (Fed.Cir.2002). However, extrinsic evidence (including expert and inventor testimony) may be utilized where the claim language remains unclear after consulting the intrinsic evidence. *Id*.

B. The Preambles Do Not Limit the Scope of the Claims

This Court is called upon to determine if the preambles of independent Claims 1, 2, 6, 7, 10, and 12 are limiting. FN3 The parties disagree about the degree of significance to be accorded to the preambles in circumscribing their respective claims. Lufkin argues that various terms and phrases in the preambles limit the breadth of scope of the '399 Patent claims; specifically, Lufkin argues the '399 Patent claims require that: (1) acoustic energy be transmitted down a borehole for the production of echo returns; (2) the borehole has a tubing string with interconnected tubing joints; and (3) the echo returns include discontinuities caused by the tubing collars. Echometer, in turn, contends that the preambles are not limiting on the scope of its claims.

FN3. Though the preambles of the various claims are worded somewhat differently, the preamble of claim 6 represents such typical language: "[A] method for acquiring and displaying data associated with a borehole in the earth which has an installed tubing string comprising interconnected tubing joints each having a collar, wherein acoustic energy is transmitted down the borehole for producing echo returns upon encountering discontinuities, including the tubing collars and a liquid surface, in the borehole, the method comprising the steps of...."'399 Patent, at 40, (col.36, l.56-63).

A determination of whether a preamble is limiting should be based on a review of the entire patent. Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed.Cir.1989). A claim preamble can be a limitation on an invention if "it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." Catalina Mktg Int'l, Inc. v.. Coolsaving.com, Inc., 289 F.3d 801, 808 (Fed.Cir.2002) (quoting Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed.Cir.1999)). On the other hand, "a preamble is not limiting 'where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention." ' Catalina Mktg., 289 F.3d at 808 (quoting Rowe v. Dror, 112 F.3d 473, 478 (Fed.Cir.1997)).

The Federal Circuit has cautioned that there is no litmus test which determines when a preamble limits

claim scope. Catalina Mktg ., 289 F.3d at 808. Yet, some case law has emerged which offers helpful guideposts in making this determination. *Id*. For example, "dependence on a particular disputed preamble phrase for antecedent basis may limit claim scope because it indicates a reliance on both the preamble and claim body to define the claimed invention." *Id*. Or stated differently, if the terms within the claim body can only be understood by reference to the preamble, then the preamble is considered a limitation on the claim's scope. Pitney Bowes, Inc., 182 F.3d at 1306. "Further, when reciting additional structure or steps underscored as important by the specification, the preamble may operate as a claim limitation." Catalina Mktg., 289 F.3d at 808.

The Court does not interpret the preamble language as limiting the claims of the '399 Patent. The '399 Patent deals with methods of acquiring and displaying data associated with Echometer's well analyzer. The '894 and '388 Patents deal with different inventive aspects of the well analyzer, including processing the echo data utilizing collar reflections and detecting liquid level reflection. Lufkin attempts to bring limitations from these Patents into the '399 Patent. The preamble language concerning echo reflections in boreholes and tubing strings with interconnected tubing joints does not recite essential steps of the claims nor does it limit the environment in which echo reflections can be analyzed. *See* id. Rather, Echometer defines a structurally complete invention in the body of its claims and uses the preamble only to state a purpose or intended use for the invention. *See* id.

As this Court understands the backdrop for this technology, a typical borehole environment includes a tubing string having interconnected tubing joints, with each tubing joint having a tubing collar. As acoustic energy travels down the borehole and encounters discontinuities caused by the changes in the borehole's diameter, each discontinuity creates an echo reflection. The preambles of the '399 Patent claims merely describe a typical environment in which echo reflections are monitored before describing the actual limitations of the respective claims in the body of those claims. In other words, a typical environment in which a well analyzer operates is a borehole with a tubing string consisting of multiple interconnected tubing joints. The identification of such a typical environment does not give life, meaning, and vitality to the body of the claims. *See* id. Thus, the Court concludes that the preamble language pertaining to echo reflections in boreholes with tubing strings is not a limitation upon the asserted claims, but instead provides the environment for the body of these claims. FN4

FN4. This construction applies only to borehole references in the claims' preambles. References found within the body of the claims to acoustic energy transmitted down a borehole would be limiting in accordance with traditional principles of claim construction.

The Court similarly holds that the preamble language suggesting the relation of tubing collars to echo reflections, echo returns and echoes does not limit these terms in the body of the claims. Lufkin argues that because echo reflections, echo returns, and echoes are used in the claim preambles to include tubing collars, these terms should carry the same definition when used the body of the claims. *See Bell Communications Research, Inc. v. Vitalink Communications Corp,* 55 F.3d at 620. The Court disagrees.

The preamble language found in claim 2 "wherein acoustic energy is transmitted down the borehole for producing echo returns upon encountering discontinuities, including the tubing collars," and other such similar language found in claims 6, 7, 10, and 12, is not limiting upon the body of these claims. The Court reads this preamble language as clarifying that tubing collars are representative examples of discontinuities that exist within the borehole environment. Tubing collars create changes in the diameter of the borehole

environment, necessarily producing an echo reflection; however other discontinuities also produce echo reflections, and the language of the relevant claims of the '399 patent does not limit or narrow echo reflections to only those echoes from tubing collars. In fact, the specification makes clear that discontinuities also include tubing anchors, perforations, and deposits. *See* '399 Patent, at 23 (col.2, l.21-25). Therefore, the terms echo reflections, echo returns, and echoes, as used within the body of the relevant claims, are not limited in scope by the claim preamble's inclusion of tubing collars in these signals. FN5

FN5. Likewise, the terms "return signal," "digital sample," and "waveform" also are not limited in scope by the inclusion of tubing collar data.

C. Construction of Claim Terms

Echometer asserts that this Court should give the disputed claim terms and phrases of the '399 Patent their ordinary and unambiguous meaning, as found in various plain language and technical dictionaries and encylopedias. On the other hand, Lufkin asserts that this Court should construe the claim terms and phrases according to the law of preambles, the explicit and implicit definitions found within the '399 Patent's specification, and in accordance with its expert's opinion on construction. The Court's conclusions regarding the claim terms are as follows:

1. Echo Returns, Echo(es), and Reflections: Lufkin's proffered claim construction limits the definition of echo returns, echo(es), and reflections (collectively "Echo Returns") to the process described in the '399 Patent. Lufkin argues that this Court should reject the plain meaning of Echo Returns, as submitted by Echometer, because it is too broad and general. Lufkin maintains that Echo Returns are acoustic signals created when an acoustic pulse, transmitted down a borehole, encounters tubing collars and other discontinuities located in the borehole.

Conversely, Echometer asserts that Echo Returns are acoustic signals created when an acoustic pulse encounters a discontinuity as it is transmitted through a medium. To support its position, Echometer relies on standard dictionary definitions. The Federal Circuit has indicated that "[d]ictionaries, encyclopedias and treatises, publicly available at the time the patent is issued, are objective resources that serve as reliable sources of information on the established meanings that would have been attributed to the terms of the claims by those of skill in the art." Tex. Digital Sys., Inc. v. Telegenixs, Inc., 308 F.3d 1193, 1202-03 (Fed.Cir.2002).

In this instance, this Court concludes that the ordinary meaning of Echo Returns is applicable. An "echo" is defined as a "repetition of a sound by a reflection of sound waves from a surface." THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (3d ed.1992). The language of the '399 Patent does not appear to rebut the ordinary meaning of this term, rather the specification language appears to support interpreting Echo Return broadly:

When the acoustic pulse produced by gun 86 is transmitted down the annulus 54, it strikes the tubing collars, such as 42 and 44, and produces a reflection from each of the collars. A reflection is further produced by the liquid level surface 80. In addition, should there be any other objects, such as tubing anchors, within the annulus 54, a reflection will be produced by each of these objects. Anything that changes the cross sectional area of the annulus, either larger or smaller, produces a reflection that is within the return signal.

'399 Patent, at 25 (col.6, l.36-45). This language defines an Echo Return simply as a reflection of the acoustic pulse which is produced when the pulse encounters discontinuities in the well bore's annulus; the specification's definition is consistent with the dictionary definition of an echo. Based on the term's usage in the specification, there exists a "heavy presumption" that the term means what it says. CCS Fitness, 288 F.3d at 1366.

The Court therefore construes the term Echo Returns in accordance with Echometer's proffered definition; Echo Returns are acoustic signals created when an acoustic pulse, encountering a discontinuity or surface, is reflected as it is transmitted through a medium.

2. Return Signal: Echometer argues that a return signal is an electrical signal produced by a transducer. Lufkin concurs with Echometer's definition, in part, but adds the further limitation that the signal consists of collar reflections from the borehole, which includes the rate of receipt of collar reflections as the most important information in the signal. The Court finds Lufkin's definition of return signal unnecessarily restrictive in light of the language of the '399 Patent specification:

[A] microphone, which is mounted within the gun 86, picks up the acoustic pressure variations within the gun 86 which is open to the annulus 54. These pressure variations, in the form of acoustic energy, are detected by the microphone which produces an electrical signal, termed a return signal, which is transmitted through the cable 102 to the electronics module 100.

'399 Patent, at 25 (col.6, l.25-33). Thus, the specification defines a return signal as an electrical signal, produced by a microphone, in response to detections of acoustic pressure variations and that definition is the proper construction of the disputed term.

3. Digital Sample: Echometer's proffered construction of digital sample is a digital representation of the instantaneous value of an electrical signal, while Lufkin's position is that a digital sample is derived from the return signal, which contains the rate of collar reflections as the most important information of the signal. As discussed previously, a return signal does not necessarily contain the rate of collar reflections. Without this important distinction between the two constructions, the Court finds the parties definitions in harmony with each other and the '399 Patent specification. '399 Patent, at 23 (col.2, l.57-59) ("[t]he return signal is digitized to produce a set of digital samples representing the return signal."). Thus, a digital sample is a digital representation of the instantaneous value of the return signal.

4. Waveform: Echometer argues that waveform should be construed, consistent with its ordinary meaning, as a graphical illustration of a signal as a function of time. In support, Echometer references the '399 Patent wherein it provides that "[a] waveform representing the return signal is displayed on a screen along a dimension which is proportional to time." '399 Patent, at 23 (col.2, l.44-46). Lufkin, consistent in its arguments, seeks to narrow the definition of "waveform" to a graphical illustration corresponding to the return signal which contains collar reflections as the most important information in the waveform. As previously defined, a return signal does not necessarily include collar reflections, therefore a waveform need not contain these reflections either. Thus, a waveform is defined as a graphical illustration of a return signal as a function of time.

5. Acoustic Velocity: Lufkin argues that acoustic velocity is the velocity of sound determined by an acoustic pulse sent down the borehole, which requires determination of collar frequency. FN6 To support its definition, Lufkin cites to the language of the '399 Patent specification stating that acoustic velocity is the

product of joint length and collar frequency multiplied by two. '399 Patent, at 29 (col.14, l.17-18). Echometer argues that acoustic velocity is the speed of sound through a medium and that the specification of the '399 Patent merely teaches one method, albeit preferred, for calculating acoustic velocity.

FN6. The parties agree that "collar frequency" is defined as the rate of receipt of collar reflections within the borehole.

The parties' interpretations of acoustic velocity overlap in that both define acoustic velocity as the speed of sound through a medium. Lufkin's definition further specifies the method by which the speed of sound is measured, namely sending an acoustic pulse down a borehole and determining collar frequency. Though the specification discloses this method of calculating acoustic velocity, the Court finds Lufkin's definition unduly restrictive; acoustic velocity is the speed of sound through a medium, and the specification merely describes a preferred method for calculating such numeric value.

6. Marker: Echometer argues that a "marker" as used in its '399 Patent is a symbol or indicator of a specific location on a display, but the particular marker's use depends upon the type of marker described in the individual claim being construed. Lufkin argues that the term "marker" is limited to a line identifying a specific depth or time, and the determination of the depth or time is dependent upon the calculation of acoustic velocity and collar frequency. The Court finds, consistent with its previous rationale, no reason to read into the term marker additional limitations pertaining to the calculation of the marker's exact position in the well bore. FN7 Therefore, the Court concurs with Echometer and defines the term marker as a symbol or indicator of a specific location on a display.

FN7. The term "marker," however, is limited depending upon the context in which it is used in the '399 Patent claims, *e.g.,* claim 1 describes a marker "for each of known reflectors," claim 2 describes "incremental depth markers," and claim 7 describes a "moveable marker." The Court does not find it necessary to impose any additional limitations on the term marker beyond the contextual limitations of the claims, *i.e.* the markers of claim 7 are found at various increments and are used for measuring depth.

7. Depth: Echometer's position is that depth, as used generally in the claims of the '399 Patent, means the measure of distance below a reference level; as used within the context of the asserted claims, Echometer states that the reference level is the top of the borehole. Lufkin's position is that depth is the distance in the borehole below the well surface. Having no basis to find to the contrary, this Court concludes that the parties' agreed definition of this term holds. Depth, as used within the context of the asserted claims, means the distance in the borehole below the well surface.

8. Processing: Echometer argues that "processing" should be construed consistent with its ordinary meaning as the manipulation of digital information. Lufkin seeks to limit Echometer's broad definition of processing by requiring the term to include the step of determining acoustic velocity, which requires collar counting or detection of collar frequency.

As previously defined, acoustic velocity, used only in claim 25, is the speed of sound through a medium and does not necessarily require the determination of collar counting or collar frequency to calculate its numeric value. Further, the Court finds processing to be a general term which is defined, or limited, by the context in which it used, *e.g.* claim 6 describes the step of processing the digital samples to detect an echo return from

the liquid surface and claim 7 describes the step of processing digital samples to detect a reflection from the liquid surface. '399 Patent, at 41, (col.37, l.4-5, 33-34). The general term processing, therefore, is further defined and limited by its context in the asserted claims; the Court does not find that the term processing need be limited to processing via specific equations or calculations. The Court, therefore, defines processing generally as the manipulation of digital information and does not adopt Lufkin's additional limitations concerning the method by which the processing must occur.

9. Borehole: The Court admits to being somewhat puzzled by the parties arguments pertaining to the definitions of (1) borehole, (2) schematic illustration of a borehole, and (3) schematic illustration of at least a portion of a borehole. Lufkin argues without explanation that any depiction of any part of a schematic of a borehole is within the definition of borehole as used in claim 12. Rather than respond to this confusing interpretation of borehole, Echometer glosses over it as unsubstantiated and defines, instead, the phrase "the schematic illustration of a borehole" as a graphical representation of the physical components of a borehole; Echometer suggests that the physical components can be any one or more of the following: the tubing string, the casing, the fluid column, tubing perforations, or pump depth.

In further muddying the waters, Lufkin contends that the specific phrase, used in claim 12, any depiction of any part of a schematic illustration of a borehole is any depiction of any part of a schematic of a borehole and is not limited to the specific features recited in dependent claims 13 and 20, *i.e.* bottom of the string of tubing joints, a casing, a column of liquid which indicates the liquid surface, tubing, tubing perforations, and pump depth. In response, Echometer picks that Lufkin's construction of any part of a schematic of a borehole does not make clear that the part must be a physical component of the borehole and must be in the form of a graphical or pictorial representation.

It appears to the Court that: (1) Lufkin's definition of borehole does not make sense, but is not challenged or discussed by Echometer, therefore the Court abstains from constructing the term; (2) Echometer does not limit the universe of physical components of a borehole to those enumerated in claims 13 and 20, therefore the parties concur on the definition of schematic illustration of a borehole; and (3) the differences in the parties' construction of the phrase "schematic illustration of at least a portion of a borehole" are slight, and Echometer's clarifications of Lufkin's very basic definition are reasonable. Therefore, a schematic illustration of a borehole is a graphical representation of the physical components of a borehole; the physical components of a borehole are not limited to the components enumerated in claims 13 and 20; and a schematic illustration of at least a portion of a borehole is a graphical or pictorial representation of at least one physical component of a borehole.

D. Section 112***(6) Does Not Apply***

Lufkin argues that Section 112(6) applies to certain steps of claims 1, 2, 6, 7, 10, and 12, specifically steps that pertain to detecting or monitoring to produce a return signal, displaying waveforms or markers, and processing digital samples. Section 112(6) states that:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

If the claims of the '399 Patent meet the conditions of Section 112(6), as set forth in Seal-Flex, Inc. v.

Athletic Track and Court Constr., 172 F.3d 836, 843-44 (Fed.Cir.1999), then the claims are to be interpreted in view of the acts described in the specification and equivalents thereof.

Upon consideration, the Court finds Section 112(6) inapplicable to the claims of the '399 Patent. The '399 Patent claims are not expressed as steps for performing a specified function without the recital of acts. *See* id. at 843. The claims do not use the "step for" language that raises a presumption that Section 112(6) applies. *See* id. Rather, the preamble of the claims to which Lufkin refers conclude with the phrase "steps of"; this phrase colloquially signals the introduction of specific acts rather than functions. *See* id. Moreover, the prosecution history of the '399 Patent does not suggest an intent to invoke Section 112(6). *See* id . at 843. Therefore, the Court does not find Section 112(6) applicable to the claims of the '399 Patent.

CONCLUSION

In summary, the Court finds the preambles are not limiting upon the scope of the '399 Patent claims. The terms and phrases of the '399 Patent claims are as follows: (1) Echo Returns are acoustic signals created when an acoustic pulse, encountering a discontinuity or surface, is reflected as it is transmitted through a medium; (2) a return signal is an electrical signal, produced by a microphone, in response to detections of acoustic pressure variations; (3) a digital sample is a digital representation of the instantaneous value of a return signal; (4) a waveform is defined as a graphical illustration of a return signal as a function of time; (5) acoustic velocity is the speed of sound through a medium; (6) a marker is a symbol or indicator of a specific location on a display; (7) depth means the distance in the borehole below the well surface; (8) processing is the manipulation of digital information; (9) a schematic illustration of a borehole is a graphical representation of the physical components of a borehole; and (10) a schematic illustration of at least a portion of a borehole is a graphical or pictorial representation of at least one physical component of a borehole. Lastly, Section 112(6) does not apply to the claims of the '399 Patent.

SO ORDERED.

N.D.Tex.,2003.
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