

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

Dawson Geophysical Company

(Exact name of registrant as specified in its charter)

Texas
*(State or other jurisdiction of
incorporation or organization)*

**508 West Wall, Suite 800
Midland, Texas 79701
(432) 684-3000**
*(Address, including zip code, and telephone number, including
area code, of registrant’s principal executive offices)*

75-0970548
*(I.R.S. Employer
Identification No.)*

**Stephen C. Jumper
President and Chief Executive Officer
Dawson Geophysical Company
508 West Wall, Suite 800
Midland, Texas 79701
(432) 684-3000**
*(Name, address, including zip code, and telephone number, including area code,
of agent for service)*

**Copy to:
Neel Lemon
Sarah Rechter
Baker Botts L.L.P.
2001 Ross Avenue, Suite 700
Dallas, Texas 75201-2980
Telephone: (214) 953-6500
Facsimile: (214) 953-6503**

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this Registration Statement.

If the only securities being registered on this Form are to be offered pursuant to dividend or interest reinvestment plans, please check the following box. ☐

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended (the “Securities Act”), other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. ☒

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. ☐

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting company” in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☐ Accelerated filer ☒ Non-accelerated filer ☐ Smaller reporting company ☐
(Do not check if a smaller reporting company)

CALCULATION OF REGISTRATION FEE

| Title of Each Class of Securities to be Registered | Proposed Maximum Aggregate Offering Price (1)(2)(3) | Amount of Registration Fee (3) |
|--|---|--------------------------------|
| Senior Debt Securities | | |
| Subordinated Debt Securities | | |

| | | |
|--|---------------|---------|
| Preferred Stock, par value \$1.00 per share | | |
| Common Stock, par value \$0.33 ¹ / ₃ per share (4) | | |
| Warrants | | |
| Total | \$100,000,000 | \$5,580 |

- (1) Estimated solely for the purpose of computing the registration fee pursuant to Rule 457(o) under the Securities Act and exclusive of accrued interest, distributions and dividends, if any. In no event will the aggregate initial offering price of all securities issued from time to time pursuant to this Registration Statement exceed \$100,000,000. If any debt securities are issued at an original issue discount, then the offering price shall be in such greater principal amount as shall result in an aggregate initial offering price of up to \$100,000,000, less the dollar amount of any securities previously issued hereunder. Any securities registered hereunder may be sold separately or as units with other securities registered hereunder or other securities.
- (2) There is being registered hereunder such indeterminate number or amount of senior and subordinated debt securities, preferred stock, common stock and warrants as may from time to time be issued at indeterminate prices and as may be issuable upon conversion, redemption, exchange, exercise or settlement of any securities registered hereunder, including under any applicable antidilution provisions.
- (3) Pursuant to Rule 457(p) under the Securities Act, the registrant hereby offsets the registration fee required in connection with this Registration Statement by \$8,828 previously paid by the registrant in connection with the registration of an aggregate initial offering price of \$75,000,000 of securities pursuant to the Registration Statement on Form S-3 (Registration No. 333-127268) (the “Prior Registration Statement”), initially filed with the Commission on August 5, 2005. Unsold securities having an aggregate initial offering price of \$75,000,000 remain under the Prior Registration Statement. Pursuant to Rule 457(p) of the Securities Act, the \$8,828 filing fee for such unsold securities under the Prior Registration Statement is being offset against the entire \$5,580 filing fee currently due in connection with this Registration Statement. The remaining unused \$3,248 may be used to offset future registration fees in accordance with Rule 457(p).
- (4) Each share of common stock includes one right to purchase 1/100th of a share of Series A Junior Participating Preferred Stock under the Registrant’s Rights Agreement. No separate consideration is payable for the preferred share purchase rights. The registration fee for these securities is included in the fee for the common stock.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to Completion, dated March 31, 2009

PROSPECTUS

\$100,000,000

Dawson Geophysical Company



Senior Debt Securities
Subordinated Debt Securities
Common Stock
Preferred Stock
Warrants

We may offer and sell these securities to or through one or more underwriters, dealers or agents, or directly to purchasers, on a continuous or delayed basis. This prospectus describes only the general terms of these securities and the general manner in which we will offer the securities. We will provide the specific terms of the securities in supplements to this prospectus. The prospectus supplement will describe the specific manner in which we will offer the securities and also may add, update or change information contained in this prospectus. You should read this prospectus and any supplement carefully before you invest. Our common stock is quoted on The Nasdaq Global Select Market under the symbol "DWSN."

Investing in our securities involves risk. You should carefully consider the risk factors described under "Risk Factors" beginning on page 3 of this prospectus before you make any investment in our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is March 31, 2009.

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ABOUT THIS PROSPECTUS

In this prospectus, unless we state otherwise or the context clearly indicates otherwise, all references to “we,” “us,” “our,” or “Dawson” refer to Dawson Geophysical Company.

This prospectus is part of a registration statement that we have filed with the Securities and Exchange Commission using a “shelf” registration process. Using this process, we may offer any combination of the securities described in this prospectus in one or more offerings with a total initial offering price of up to \$100,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we use this prospectus to offer securities, we will provide a prospectus supplement and, if applicable, a pricing supplement that will describe the specific terms of that offering. The prospectus supplement and any pricing supplement may also add, update or change information contained or incorporated by reference in this prospectus. Please carefully read this prospectus, the prospectus supplement and any pricing supplement together with the information contained in the documents we refer to under the heading “Where You Can Find More Information.”

You should rely only on the information we have provided or incorporated by reference in this prospectus, the prospectus supplement and any pricing supplement. We have not authorized any person, including any salesman or broker, to provide you with additional or different information. We are not making an offer of these securities in any jurisdiction where the offer is not permitted.

You should not assume that the information in this prospectus is accurate as of any date other than the date on the cover page of this prospectus or that any information we have incorporated by reference is accurate as of any date other than the date of the documents incorporated by reference. Our business, financial condition, results of operations and prospects may have changed since those dates.

DAWSON GEOPHYSICAL COMPANY

We are the leading provider of onshore seismic data acquisition services in the lower 48 states of the United States as measured by the number of active data acquisition crews. Founded in 1952, we acquire and process 2-D, 3-D, and multi-component seismic data for our clients, ranging from major oil and gas companies to independent oil and gas operators, as well as providers of multi-client data libraries. In the past few years, substantially all of our clients have been focused on the exploration for and production of natural gas. Our clients rely on seismic data to identify areas where subsurface conditions are favorable for the accumulation of hydrocarbons and to optimize the development and production of hydrocarbon reservoirs. During fiscal 2008, substantially all of our revenues were derived from 3-D seismic data acquisition operations.

We market and supplement our services from our headquarters in Midland, Texas and from additional offices in Houston, Denver, Oklahoma City, and Michigan. Our geophysicists perform data processing in our Midland, Houston, and Oklahoma City offices, and our field operations are supported from our field office facility in Midland. The results of a seismic survey conducted for a client belong to that client. We do not acquire seismic data for our own account nor do we participate in oil and gas ventures.

Additional information concerning our business and operations is incorporated by reference herein from our other filings made with the Securities and Exchange Commission (the “SEC”) and may be included in applicable prospectus supplements and any pricing supplements.

We are a Texas corporation with our principal executive offices located at 508 West Wall, Suite 800, Midland, Texas 79701. Our telephone number at such address is (432) 684-3000.

RISK FACTORS

Our business is subject to uncertainties and risks. You should carefully consider and evaluate all of the information included or incorporated by reference in this prospectus, including the risk factors incorporated by reference from our most recent annual report on Form 10-K, as updated by our quarterly reports on Form 10-Q and other SEC filings filed after such annual report. It is possible that our business, financial condition, liquidity or results of operations could be materially adversely affected by any of these risks.

FORWARD-LOOKING INFORMATION

This prospectus, including the information we incorporate by reference, contains “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Statements other than statements of historical fact that relate to forecasts, estimates or other expectations regarding future events may be deemed to be forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. These statements can be identified by the use of forward-looking terminology including “forecast,” “may,” “believe,” “will,” “expect,” “anticipate,” “estimate,” “continue” or other similar words. These statements discuss future expectations, contain projections of results of operations or of financial condition or state other “forward-looking” information. We and our representatives may from time to time make other oral or written statements that are also forward-looking statements.

These forward-looking statements are made based upon our management’s current plans, expectations, estimates, assumptions and beliefs concerning future events impacting us and therefore involve a number of risks and uncertainties. We caution that forward-looking statements are not guarantees and that actual results could differ materially from those expressed or implied in the forward-looking statements as a result of certain factors, including but not limited to the volatility of oil and natural gas prices, disruptions in the global economy, dependence upon energy industry spending, limited number of customers, credit risk related to our customers, cancellations of service contracts, high fixed costs of operations, weather interruptions, inability to obtain land access rights of way, industry competition, managing growth, the availability of capital resources and operational disruptions. Most of these factors are beyond our control.

Because these forward-looking statements involve risks and uncertainties, actual results could differ materially from those expressed or implied by these forward looking statements for a number of important reasons, including those described under “Risk Factors” in our most recent annual report on Form 10-K.

USE OF PROCEEDS

Unless we inform you otherwise in the prospectus supplement or any pricing supplement, we expect to use the net proceeds from the sale of securities offered by this prospectus for general corporate purposes, including repayment or refinancing of debt, further expansion of our seismic data operations, acquisitions and other maintenance capital requirements. Pending any specific application, we may initially invest funds in short-term marketable securities.

RATIO OF EARNINGS TO FIXED CHARGES

We have presented in the table below our historical ratio of earnings to fixed charges for the periods shown.

| | Three Months Ended December 31, 2008 | Years Ended September 30, | | | | |
|------------------------------------|--|---------------------------|---------|------|---------|------|
| | | 2008 | 2007 | 2006 | 2005 | 2004 |
| Ratio of earnings to fixed charges | N/A | 118.03x | 307.61x | N/A | 224.42x | N/A |

We have computed the ratio of earnings to fixed charges by dividing earnings by fixed charges. For this purpose, “earnings” consist of pretax income from continuing operations and fixed charges, less interest capitalized. “Fixed charges” consist of interest expensed and capitalized.

We had no outstanding debt as of the end of any periods presented without a ratio. In addition, we had no preferred stock outstanding for any period presented, and accordingly, the ratio of earnings to combined fixed charges and preferred stock dividends is the same as the ratio of earnings to fixed charges.

DESCRIPTION OF DEBT SECURITIES

The debt securities covered by this prospectus will be our general unsecured obligations. The debt securities will be either senior debt securities or subordinated debt securities. We will issue the debt securities under one or more separate indentures between us and a trustee we will name in the prospectus supplement. Senior debt securities will be issued under a senior indenture, and subordinated debt securities will be issued under a subordinated indenture. We refer to the senior indenture and the subordinated indenture collectively as the indentures. The indentures will be substantially identical, except for provisions relating to subordination.

We have summarized material provisions of the indentures and the debt securities below. You should read the indentures for more details regarding the provisions we describe below and for other provisions that may be important to you. We have filed the forms of the indentures with the SEC as exhibits to the registration statement of which this prospectus forms a part, and you should read the indentures for provisions that may be important to you. Please read “Where You Can Find More Information.”

General

Neither indenture limits the amount of debt securities that may be issued under that indenture, and neither limits the amount of other unsecured debt or securities that we may issue. We may issue debt securities under the indentures from time to time in one or more series, each in an amount authorized prior to issuance. No securities are outstanding under the indentures.

The senior debt securities will constitute our senior unsecured indebtedness and will rank equally in right of payment with all of our other unsecured and unsubordinated debt and senior in right of payment to all of our subordinated indebtedness. The senior debt securities will be effectively subordinated to, and thus have a junior position to, our secured indebtedness with respect to the assets securing that indebtedness. The subordinated debt securities will rank junior to all of our senior indebtedness and may rank equally with or senior to other subordinated indebtedness we may issue from time to time.

Unless we inform you otherwise in the prospectus supplement, the indentures and the debt securities will not contain:

- any covenants or other provisions designed to protect holders of the debt securities in the event we participate in a highly leveraged transaction or upon a change of control; or
- provisions that give holders of the debt securities the right to require us to repurchase their securities in the event of a decline in our credit rating for any reason, including as a result of a takeover, recapitalization or similar restructuring or otherwise.

Terms

The prospectus supplement relating to any series of debt securities being offered will include specific terms relating to the offering. These terms will include some or all of the following:

- whether the debt securities will be senior or subordinated debt securities;
- the title of the debt securities;
- the total principal amount of the debt securities;
- whether a series of subordinated debt is junior in any respect to another series of subordinated debt;
- whether we will issue the debt securities in individual certificates to each holder or in the form of temporary or permanent global securities held by a depositary on behalf of holders;
- the date or dates on which the principal of and any premium on the debt securities will be payable;
- any interest rate, the date from which interest will accrue, interest payment dates and record dates for interest payments;
- whether and under what circumstances we will pay any additional amounts with respect to the debt securities;
- the place or places where payments on the debt securities will be payable;
- any provisions for redemption or early repayment;
- any sinking fund or other provisions that would obligate us to redeem, purchase or repay the debt securities;
- the denominations in which we will issue the debt securities if other than \$1,000 and integral multiples of \$1,000;
- whether payments on the debt securities will be payable in foreign currency or currency unit or another form and whether payments will be payable by reference to any index or formula;
- the portion of the principal amount of debt securities that will be payable if the maturity is accelerated, if other than the entire principal amount;
- any additional means of defeasance of the debt securities, any additional conditions or limitations to defeasance of the debt securities or any changes to those conditions or limitations;
- any changes or additions to the events of default or covenants described in this prospectus;
- any restrictions or other provisions relating to the transfer or exchange of debt securities;

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- any terms for the conversion or exchange of the debt securities for other securities;
- with respect to the subordinated indenture, any changes to the subordination provisions for the subordinated debt securities; and
- any other terms of the debt securities not inconsistent with the applicable indenture.

We may sell the debt securities at a discount, which may be substantial, below their stated principal amount. These debt securities may bear no interest or interest at a rate that at the time of issuance is below market rates. If we sell these debt securities, we will describe in the prospectus supplement any material United States federal income tax consequences and other special considerations.

If we sell any of the debt securities for any foreign currency or currency unit or if payments on the debt securities are payable in any foreign currency or currency unit, we will describe in the prospectus supplement the restrictions, elections, tax consequences, specific terms and other information relating to those debt securities and the foreign currency or currency unit.

Consolidation, Merger and Sales of Assets

The indentures generally permit a consolidation or merger involving us. They also permit us to sell, lease, convey, assign, transfer or otherwise dispose of all or substantially all of our assets. We have agreed, however, that we will not consolidate with or merge into any entity or sell, lease, convey, assign, transfer or dispose of all or substantially all of our assets to any entity unless:

- (1) either
 - we are the continuing entity, or
 - the resulting or surviving entity assumes the due and punctual payments on the debt securities and the performance of our covenants and obligations under the applicable indenture and the debt securities; and
- (2) immediately after giving effect to the transaction, no default or event of default under the indentures has occurred and is continuing or would result from the transaction.

This covenant will not apply to any merger of another entity into us. Upon any transaction of the type described in and effected in accordance with this section, the resulting entity will succeed to and be substituted for and may exercise all of our rights and powers under the indenture and the debt securities with the same effect as if the resulting entity had been named as us in the indenture. In the case of any asset transfer or disposition other than a lease, when the resulting entity assumes all of our obligations and covenants under the applicable indenture and the debt securities, we will be relieved of all such obligations.

Events of Default

Unless we inform you otherwise in the applicable prospectus supplement, the following are events of default with respect to a series of debt securities:

- our failure to pay interest on any debt security of that series for 30 days when due;
- our failure to pay principal of or any premium on any debt security of that series when due;
- our failure to deposit any sinking fund payment for 30 days when due;
- our failure to comply with any covenant or agreement in that series of debt securities or the applicable indenture (other than an agreement or covenant that has been included in the indenture solely for the benefit of other series of debt securities) for 90 days after written notice by the trustee or by the holders of at least 25% in principal amount of the outstanding debt securities issued under that indenture that are affected by that failure;

- specified events involving bankruptcy, insolvency or reorganization of us; and
- any other event of default provided for that series of debt securities.

A default under one series of debt securities will not necessarily be a default under any other series. If a default or event of default for any series of debt securities occurs, is continuing and is known to the trustee, the trustee will notify the holders of applicable debt securities within 90 days after it occurs. The trustee may withhold notice to the holders of the debt securities of any default or event of default, except in any payment on the debt securities, if the trustee in good faith determines that withholding notice is in the interests of the holders of those debt securities.

If an event of default for any series of debt securities occurs and is continuing, the trustee or the holders of at least 25% in principal amount of the outstanding debt securities of the series affected by the default (or, in some cases, 25% in principal amount of all debt securities issued under the applicable indenture that are affected, voting as one class) may declare the principal of and all accrued and unpaid interest on those debt securities to be due and payable immediately. If an event of default relating to certain events of bankruptcy, insolvency or reorganization of our company occurs, the principal of and accrued and unpaid interest on all the debt securities issued under the applicable indenture will become immediately due and payable without any action on the part of the trustee or any holder. At any time after a declaration of acceleration has been made, the holders of a majority in principal amount of the outstanding debt securities of the series affected by the default (or, in some cases, of all debt securities issued under the applicable indenture that are affected, voting as one class) may in some cases rescind this accelerated payment requirement and its consequences.

A holder of a debt security of any series issued under an indenture may pursue any remedy under that indenture only if:

- the holder gives the trustee written notice of a continuing event of default with respect to that series;
- the holders of at least 25% in principal amount of the outstanding debt securities of that series make a written request to the trustee to pursue the remedy;
- the holders offer to the trustee indemnity satisfactory to the trustee against any loss, liability or expense;
- the trustee does not comply with the request within 60 days after receipt of the request and offer of indemnity; and
- during that 60-day period, the holders of a majority in principal amount of the debt securities of that series do not give the trustee a direction inconsistent with the request.

This provision does not, however, affect the right of a holder of a debt security to sue for enforcement of any overdue payment.

In most cases, holders of a majority in principal amount of the outstanding debt securities of a series (or of all debt securities issued under the applicable indenture that are affected, voting as one class) may direct the time, method and place of:

- with respect to debt securities of a series, conducting any proceeding for any remedy available to the trustee and exercising any trust or power conferred on the trustee relating to or arising as a result of specified events of default; or
- with respect to all debt securities issued under the applicable indenture that are affected, conducting any proceeding for any remedy available to the trustee and exercising any trust or power conferred on the trustee relating to or arising other than as a result of such specified events of default.

The trustee, however, may refuse to follow any such direction that conflicts with law or the indentures, is unduly prejudicial to the rights of other holders of the debt securities, or would involve the trustee in personal

liability. In addition, prior to acting at the direction of holders, the trustee will be entitled to be indemnified by those holders against any loss and expenses caused thereby.

The indentures require us to furnish to the trustee annually a statement as to our performance of certain of our obligations under the indentures and as to any default in performance.

Modification and Waiver

We and the trustee may supplement or amend each indenture with the consent of the holders at least a majority in principal amount of the outstanding debt securities of all series issued under that indenture that are affected by the amendment or supplement (voting as one class). Without the consent of the holder of each debt security affected, however, no supplement or amendment may:

- reduce the amount of debt securities whose holders must consent to an amendment, supplement or waiver;
- reduce the rate of or change the time for payment of interest on the debt security;
- reduce the principal of the debt security or change its stated maturity;
- reduce any premium payable on the redemption of the debt security or change the time at which the debt security may or must be redeemed;
- change any obligation to pay additional amounts on the debt security;
- make payments on the debt security payable in currency other than as originally stated in the debt security;
- impair the holder's right to institute suit for the enforcement of any payment on or with respect to the debt security;
- make any change in the percentage of principal amount of debt securities necessary to waive compliance with certain provisions of the indenture or to make any change in the provision related to modification;
- with respect to the subordinated indenture, modify the provisions relating to the subordination of any subordinated debt security in a manner adverse to the holder of that security;
- waive a continuing default or event of default regarding any payment on the debt securities; or
- if applicable, make any change that materially and adversely affects the right to convert any debt security.

We and the applicable trustee may supplement or amend either indenture or waive any provision of either indenture without the consent of any holders of debt securities issued under that indenture in certain circumstances, including:

- to cure any ambiguity, omission, defect or inconsistency;
- to provide for the assumption of our obligations under the indenture by a successor upon any merger, consolidation or asset transfer permitted under the indenture;
- to provide for uncertificated debt securities in addition to or in place of certificated debt securities or to provide for bearer debt securities;
- to provide any security for, or to add any guarantees of or obligors on, any series of debt securities;

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- to comply with any requirement to effect or maintain the qualification of that indenture under the Trust Indenture Act of 1939;
- to add covenants that would benefit the holders of any debt securities or to surrender any rights we have under the indenture;
- to add events of default with respect to any series of debt securities;
- to make any change that does not adversely affect any outstanding debt securities of any series issued under that indenture in any material respect; and
- to establish the form of any debt securities and to accept the appointment of a successor trustee, each as permitted under the indenture.

The holders of a majority in principal amount of the outstanding debt securities of any series (or, in some cases, of all debt securities issued under the applicable indenture that are affected, voting as one class) may waive any existing or past default or event of default with respect to those debt securities. Those holders may not, however, waive any default or event of default in any payment on any debt security or compliance with a provision that cannot be amended or supplemented without the consent of each holder affected.

Defeasance and Discharge

Defeasance. When we use the term defeasance, we mean discharge from some or all of our obligations under an indenture. If we deposit with the trustee under an indenture any combination of money or government securities sufficient to make payments on the debt securities of a series issued under that indenture on the dates those payments are due, then, at our option, either of the following will occur:

- we will be discharged from our obligations with respect to debt securities of that series (“legal defeasance”); or
- we will no longer have any obligation to comply with the consolidation, merger and sale of assets covenant and other specified restrictive covenants relating to the debt securities of that series, and the related events of default will no longer apply (“covenant defeasance”).

If a series of debt securities is defeased, the holders of the debt securities of that series will not be entitled to the benefits of the applicable indenture, except for obligations to register the transfer or exchange of debt securities, replace stolen, lost or mutilated debt securities or maintain paying agencies and hold money for payment in trust. In the case of covenant defeasance, our obligation to pay principal, premium and interest on the debt securities will also survive.

Unless we inform you otherwise in the prospectus supplement, we will be required to deliver to the trustee an opinion of counsel that the deposit and related defeasance would not cause the holders of the debt securities to recognize income, gain or loss for U.S. federal income tax purposes. If we elect legal defeasance, that opinion of counsel must be based upon a ruling from the United States Internal Revenue Service or a change in law to that effect.

Satisfaction and Discharge. In addition, an indenture will cease to be of further effect with respect to the debt securities of a series issued under that indenture, subject to exceptions relating to compensation and indemnity of the trustee under that indenture and repayment to us of excess money or government securities, when:

- either
 - (a) all outstanding debt securities of that series have been delivered to the trustee for cancellation; or
 - (b) all outstanding debt securities of that series not delivered to the trustee for cancellation either:

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- have become due and payable,
- will become due and payable at their stated maturity within one year, or
- are to be called for redemption within one year; and
- we have deposited with the trustee any combination of money or government securities in trust sufficient to pay the entire indebtedness on the debt securities of that series when due; and
- we have paid all other sums payable by us with respect to the debt securities of that series.

Subordination

Under the subordinated indenture, payment of the principal of and any premium and interest on the subordinated debt securities will generally be subordinated and junior in right of payment to the prior payment in full of all senior debt. Unless we inform you otherwise in the prospectus supplement, we may not make any payment of principal of or any premium or interest on the subordinated debt securities if:

- we fail to pay the principal, interest, premium or any other amounts on any senior debt when due; or
- we default in performing any other covenant (a “covenant default”) on any senior debt that we have designated if the covenant default allows the holders of that senior debt to accelerate the maturity of the senior debt they hold.

The subordination does not affect our obligation, which is absolute and unconditional, to pay, when due, the principal of and any premium and interest on the subordinated debt securities. In addition, the subordination does not prevent the occurrence of any default under the subordinated indenture.

The subordinated indenture does not limit the amount of senior debt that we may incur. As a result of the subordination of the subordinated debt securities, if we become insolvent, holders of subordinated debt securities may receive less on a proportionate basis than other creditors.

Unless we inform you otherwise in the prospectus supplement, “senior debt” will mean all debt, including guarantees of the Company, unless the debt states that it is not senior to our subordinated debt securities or other junior debt. Senior debt with respect to a series of subordinated debt securities could include a series of debt securities issued under a subordinated indenture.

Governing Law

New York law will govern the indentures and the debt securities.

The Trustees

Pursuant to applicable provisions of the indentures and the Trust Indenture Act of 1939 governing trustee conflicts of interest, any uncured event of default with respect to any series of debt securities will force the trustee to resign as trustee under either the subordinated indenture or the senior indenture. Any resignation requires the appointment of a successor trustee under the applicable indenture in accordance with its terms and conditions.

The trustee may resign or be removed by us under certain circumstances specified in the indenture with respect to one or more series of debt securities and a successor trustee may be appointed to act with respect to any series. The holders of a majority in aggregate principal amount of the debt securities of any series may remove the trustee with respect to the debt securities of that series.

Each indenture contains limitations on the right of the trustee, if it or any of its affiliates is then our creditor, to obtain payment of claims or to realize on certain property received for any such claim, as security or otherwise. The trustee and its affiliates are permitted to engage in other transactions with us. If, however, the trustee acquires any conflicting interest, it must eliminate that conflict or resign within 90 days after ascertaining that it has a conflicting interest. If an event of default occurs and is continuing, the trustee will be required to use the degree of care and skill of a prudent person in the conduct of his own affairs.

Payment and Paying Agents

Unless we inform you otherwise in a prospectus supplement, we will make payments on the debt securities in U.S. dollars at the office of the trustee and any paying agent. At our option, however, payments may be made by

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wire transfer for global debt securities or by check mailed to the address of the person entitled to the payment as it appears in the security register. Unless we inform you otherwise in a prospectus supplement, we will make interest payments to the person in whose name the debt security is registered at the close of business on the record date for the interest payment.

Unless we inform you otherwise in a prospectus supplement, the trustee under the applicable indenture will be designated as the paying agent for payments on debt securities issued under that indenture. We may at any time designate additional paying agents or rescind the designation of any paying agent or approve a change in the office through which any paying agent acts.

If the principal of or any premium or interest on debt securities of a series is payable on a day that is not a business day, the payment will be made on the following business day. For these purposes, unless we inform you otherwise in a prospectus supplement, a “business day” is any day that is not a Saturday, a Sunday or a day on which banking institutions in any of New York, New York, Midland, Texas or a place of payment on the debt securities of that series is authorized or obligated by law, regulation or executive order to remain closed.

Subject to the requirements of any applicable abandoned property laws, the trustee and paying agent will pay to us upon written request any money held by them for payments on the debt securities that remains unclaimed for two years after the date upon which that payment has become due. After payment to us, holders entitled to the money must look to us for payment. In that case, all liability of the trustee or paying agent with respect to that money will cease.

Form, Exchange, Registration and Transfer

We will issue the debt securities in registered form, without interest coupons. Debt securities of any series will be exchangeable for other debt securities of the same series, the same total principal amount and the same terms but in different authorized denominations in accordance with the applicable indenture. Holders may present debt securities for registration of transfer at the office of the security registrar or any transfer agent designated by us. The security registrar or transfer agent will effect the transfer or exchange if its requirements and the requirements of the applicable indenture are met. We will not charge a service charge for any registration of transfer or exchange of the debt securities. We may, however, require payment of any transfer tax or similar governmental charge payable for that registration.

We will appoint the trustee as security registrar for the debt securities. If a prospectus supplement refers to any transfer agents we initially designate, we may at any time rescind that designation or approve a change in the location through which any transfer agent acts. We are required to maintain an office or agency for transfers and exchanges in each place of payment. We may at any time designate additional transfer agents for any series of debt securities.

In the case of any redemption or any repurchase of debt securities, we will not be required to register the transfer or exchange of:

- any debt security during a period beginning 15 business days prior to the mailing of the relevant notice of redemption or repurchase and ending on the close of business on the day of mailing of such notice; or
- any debt security that has been called for redemption in whole or in part, except the unredeemed portion of any debt security being redeemed in part.

Book-Entry Debt Securities

We may issue the debt securities in the form of one or more global debt securities that would be deposited with a depository or its nominee identified in the prospectus supplement. We may issue global debt securities in either temporary or permanent form. We will describe in the prospectus supplement the terms of any depository arrangement and the rights and limitations of owners of beneficial interests in any global debt security.

DESCRIPTION OF CAPITAL STOCK

The following is a description of our capital stock and a summary of the material provisions of our Second Restated Articles of Incorporation, as amended (“articles of incorporation”), our Amended and Restated Bylaws (“bylaws”) and our shareholder rights plan. You should also refer to our articles of incorporation and bylaws, which are incorporated herein by reference, and to Texas law.

General

Our authorized capital stock consists of 5,000,000 shares of preferred stock, \$1.00 par value per share, and 50,000,000 shares of common stock, \$0.33 ¹/₃ par value per share. As of March 26, 2009, there were 7,799,744 shares of our common stock issued and outstanding, 1,072,756 shares of our common stock reserved for issuance under our incentive stock plans and no shares of preferred stock issued and outstanding. The outstanding shares of our common stock are legally issued, fully paid and nonassessable. Additional shares of authorized common stock may be issued, as authorized by our board of directors from time to time, without stockholder approval, except as may be required by applicable stock exchange requirements.

Common Stock

Each share of our common stock has one vote on all matters presented to our shareholders. Since our common stock does not have cumulative voting rights, the holders of more than 50% of our common stock may, if they choose to do so, elect all of the directors and, in that event, the holders of the remaining shares of our common stock will not be able to elect any directors. Subject to the rights and preferences of any preferred stock that may be designated and issued, the holders of our common stock are entitled to dividends when and as declared by our board of directors and are entitled on liquidation to all assets remaining after payment of liabilities, subject to the liquidation preferences of any shares of preferred stock. Our common stock has no preemptive or other subscription rights. There are no conversion rights or redemption or sinking fund provisions with respect to our common stock.

Our common stock is quoted on The Nasdaq Global Select Market under the symbol “DWSN.”

Preferred Stock

Our preferred stock may be issued in series, and shares of each series shall have such rights and preferences as shall be fixed by our board of directors in the resolution or resolutions authorizing the issuance of that particular series. In designating any series of preferred stock, our board of directors has authority, without further action by the holders of our common stock, to fix the rights, dividend rate, conversion rights, rights and terms of redemption (including any sinking fund provisions), and the liquidation preferences of that series of preferred stock.

The prospectus supplement relating to any series of preferred stock we are offering will include specific terms relating to the offering. We will file the form of the preferred stock with the SEC before we issue any of it, and you should read it for provisions that may be important to you. The prospectus supplement will include some or all of the following terms:

- the title of the preferred stock;
- the maximum number of shares of the series;
- the dividend rate or the method of calculating the dividend, the date from which dividends will accrue and whether dividends will be cumulative;
- any liquidation preference;
- any optional redemption provisions;
- any sinking fund or other provisions that would obligate us to redeem or purchase the preferred stock;
- any terms for the conversion or exchange of the preferred stock for other securities of us or any other entity;

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- any voting rights; and
- any other preferences and relative, participating, optional or other special rights or any qualifications, limitations or restrictions on the rights of the shares.

The issuance of preferred stock by us could adversely affect the voting power of holders of our common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation and could have the effect of delaying, deferring or preventing a change in control of us.

Anti-Takeover Effects of Our Articles of Incorporation and Bylaws and Texas Law

Our articles of incorporation and bylaws contain provisions that could delay or make more difficult the acquisition of control of us through a hostile tender offer, open market purchases, proxy contest, merger or other takeover attempt that a stockholder might consider in his or her best interest, including those attempts that might result in a premium over the market price of our common stock. These provisions, as well as certain provisions of Texas law and our shareholder rights plan, are designed to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of this increased protection gives us the potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us, and that the benefits of this increased protection outweigh the disadvantages of discouraging those proposals, because negotiation of those proposals could result in an improvement of their terms.

Board of Directors; Vacancies. Our articles of incorporation and bylaws expressly prohibit cumulative voting. The exact number of members of our board of directors will be fixed from time to time by resolution of the board of directors. Any vacancy occurring on the board of directors and any newly created directorship may be filled by a majority of the remaining directors in office.

Shareholder Meetings. Our bylaws provide that special meetings of the holders of common stock may be called by our president or secretary at the request in writing of stockholders owning at least 25% of the shares of capital stock outstanding and entitled to vote. Such request must state the purpose or purposes of the proposed meeting. Under Texas law, special meetings of the shareholders may also be called by our president and our board of directors.

Modification of Bylaws. Our bylaws may be altered or repealed by the affirmative vote of a majority of our board of directors at any regular meeting of the board of directors or any special meeting of the board of directors if notice of the board proposed alteration or repeal is contained in the notice of such special meeting. Our bylaws may also be altered or repealed by the affirmative vote of the holders of capital stock entitled to vote at any regular meeting of shareholders or any special meeting of shareholders if notice of the proposed alteration or repeal is contained in the notice of such special meeting.

Modification of Articles of Incorporation. Amendments to our articles of incorporation that are recommended by the board of directors require the affirmative vote of holders of at least two-thirds of the voting power of all outstanding shares of capital stock entitled to vote in the election of directors.

Other Limitations on Shareholder Actions. Our bylaws also impose procedural requirements on shareholders who wish to (i) make nominations in the election of directors and (ii) propose any other business to be brought before an annual or special meeting of shareholders.

Limitation of Director Liability. Our articles of incorporation provide that our directors will have no personal liability to us or our shareholders for monetary damages for breach or alleged breach of our directors' duty of care. This provision in our articles of incorporation does not eliminate our directors' fiduciary duty of care, and in appropriate circumstances, equitable remedies such as an injunction or other forms of non-monetary relief should remain available under Texas law. Furthermore, each of our directors will continue to be subject to liability for (i) a breach of the directors' duty of loyalty, (ii) acts or omissions not in good faith or involving intentional misconduct or knowing violations of law, (iii) any transaction from which a director derives an improper personal benefit or (iv) an act or omission for which the liability of a director is expressly provided by an applicable statute. This provision

does not affect a director's responsibilities under any other laws, such as the federal securities laws or state or federal environmental laws.

Texas Anti-Takeover Law. We are subject to Article 13.03 of the Texas Business Corporation Act. That section prohibits Texas corporations from engaging in a wide range of specified transactions with any affiliated shareholders during the three-year period immediately following the affiliated shareholder's acquisition of shares in the absence of certain board of director or shareholder approvals. An affiliated shareholder of a corporation is any person, other than the corporation and any of its wholly owned subsidiaries, that is or was within the preceding three-year period the beneficial owner of 20% or more of any class or series of stock entitled to vote generally in the election of directors. Article 13.03 may deter any potential unfriendly offers or other efforts to obtain control of us that are not approved by our board. This may deprive our shareholders of opportunities to sell shares of our common stock at a premium to the prevailing market price.

Shareholder Rights Plan

We have adopted a Shareholder Rights Plan. The Rights described below are issued pursuant to the Rights Agreement dated as of July 13, 1999 between us and Mellon Investor Services, LLC, as rights agent (the "Rights Agreement"). We have summarized selected portions of the Rights Agreement and the Rights below. This summary is qualified in its entirety by reference to the Rights Agreement, a copy of which we have filed or incorporated by reference as an exhibit to the registration statement of which this prospectus forms a part.

On July 13, 1999, our board of directors authorized and declared a dividend to the holders of record on July 23, 1999 (the "Record Date") of one Right (a "Right") for each outstanding share of our common stock. In addition, we have authorized the issuance of one Right with respect to each share of common stock that shall become outstanding between the Record Date and the earliest of the Distribution Date, the Redemption Date and July 23, 2009 (the "Final Expiration Date"). When exercisable, each Right will entitle the holder to purchase one one-hundredth of a share of our Series A Junior Participating Preferred Stock, par value \$1.00 per share (the "Preferred Shares"), at an exercise price of \$50.00 per Right (the "Purchase Price"). The rights are not currently exercisable and will become exercisable only if a person or group who acquires beneficial ownership of 20% or more of our outstanding common stock (an "Acquiring Person") publicly announces such acquisition or a person or group announces a tender offer or exchange offer, the consummating of which would result in attaining the triggering percentage (the earlier of such dates being referred to as the "Distribution Date"). We may redeem the Rights for \$0.01 per Right at any time prior to the tenth day after the first public announcement of a triggering acquisition.

In the event that any person or group of affiliated or associated persons becomes an Acquiring Person, proper provision shall be made so that each holder of a Right, other than Rights beneficially owned by the Acquiring Person (which will thereafter be null and void and nontransferable), will thereafter have the right to receive upon exercise that number of our common shares having a market value of two times the exercise price of the Right. In the event that we are acquired in a merger or other business combination transaction or 50% or more of its consolidated assets or earning power are sold after a person or group of affiliated or associated persons has become an Acquiring Person, proper provision will be made so that each holder of a Right will thereafter have the right to receive, upon the exercise thereof at the then current exercise price of the Right, that number of shares of common stock of the acquiring company which at the time of such transaction will have a market value of two times the exercise price of the Right.

At any time after any person or group of affiliated or associated persons becomes an Acquiring Person and prior to the acquisition by such person or group of 50% or more of our outstanding common stock, our board of directors may exchange the Rights (other than Rights owned by such person or group which will have become null and void and nontransferable), in whole or in part, at an exchange ratio of one share of common stock, or one one-hundredth of a Preferred Share (or of a share of a class or series of our preferred stock having equivalent rights, preferences and privileges), per Right (subject to adjustment).

At any time prior to the close of business on the tenth day following a public announcement that an Acquiring Person has become such an Acquiring Person, our board of directors may redeem the Rights in whole, but not in part, at a price of \$0.01 per Right. The redemption of the Rights may be made effective at such time, on such basis and with such conditions as our board of directors in its sole discretion may establish. The time at which the

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Rights are redeemed by us is herein referred to as the “Redemption Date.” Immediately upon any redemption of the Rights, the right to exercise the Rights will terminate and the only right thereafter of the holders of Rights will be to receive the redemption price.

At any time prior to the Distribution Date and subject to the last sentence of this paragraph, the terms of the Rights may be amended by our board of directors without the consent of the holders of the Rights, including without limitation an amendment to lower certain thresholds described above to not less than the greater of (i) the sum of 0.001% and the largest percentage of our outstanding common stock then known by us to be beneficially owned by any person or group of affiliated or associated persons and (ii) ten percent. From and after the Distribution Date and subject to applicable law, the terms of the Rights may be amended by our board of directors without the consent of the holders of the Rights to, among other things, make any other provisions in regard to matters under the Rights Agreement that we may deem necessary or desirable and that shall not adversely affect the interests of the holders of the Rights (other than an Acquiring Person or an affiliate or associate of an Acquiring Person). The terms of the Rights may not be amended to (i) reduce the redemption price (except as required by antidilution provisions) or (ii) provide for an earlier Final Expiration Date.

The Rights have certain anti-takeover effects. The Rights will cause substantial dilution to a person or group that attempts to acquire us in a manner or on terms not approved by our board of directors. The Rights, however, should not deter any prospective offeror willing to negotiate in good faith with our board of directors, nor should the Rights interfere with any merger or business combination approved by our board of directors prior to an Acquiring Person’s acquiring 20% or more of our common stock.

DESCRIPTION OF WARRANTS

We may issue warrants to purchase any combination of senior or subordinated debt securities, common stock, preferred stock or other securities. We may issue warrants independently or together with other securities. Warrants sold with other securities may be attached to or separate from the other securities. Warrants may also be issued through a dividend or other distribution to our stockholders. We will issue warrants under one or more warrant agreements between us and a warrant agent that we will name in the applicable prospectus supplement or any pricing supplement.

The prospectus supplement (or the pricing supplement) relating to any warrants we are offering will include specific terms relating to the offering. We will file the form of any warrant agreement with the SEC, and you should read the warrant agreement for provisions that may be important to you. The prospectus supplement (or pricing supplement) will include some or all of the following terms:

- the title of the warrants;
- the aggregate number of warrants offered;
- the designation, number and terms of the debt securities, common stock, preferred stock or other securities purchasable upon exercise of the warrants, and procedures by which those numbers may be adjusted;
- the exercise price of the warrants;
- the dates or periods during which the warrants are exercisable;
- the designation and terms of any securities with which the warrants are issued;
- if the warrants are issued as a unit with another security, the date, if any, on and after which the warrants and the other security will be separately transferable;
- a discussion of the material United States federal income tax considerations applicable to the warrants;
- any minimum or maximum amount of warrants that may be exercised at any one time; and
- any terms, procedures and limitations relating to the transferability, exchange or exercise of the warrants.

PLAN OF DISTRIBUTION

We may sell the securities in and outside the United States through underwriters or dealers, directly to purchasers or through agents or through a combination of any of these methods. The prospectus supplement (or a pricing supplement) will include the following information:

- the terms of the offering;
- the names of any underwriters or agents;
- the purchase price of the securities from us;
- the net proceeds to us from the sale of securities;
- any delayed delivery arrangements;
- any underwriting discounts, commissions and other items constituting underwriters' compensation;
- any initial public offering price;
- any discounts or concessions allowed or reallocated or paid to dealers; and
- any commissions paid to agents.

Sale Through Underwriters or Dealers

If we use underwriters in the sale of securities, the underwriters will acquire the securities for their own account. The underwriters may resell the securities from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at or prior to the time of sale, including at prevailing market prices or at prices related to prevailing market prices. Underwriters may offer securities to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. Unless we inform you otherwise in the prospectus supplement, the obligations of the underwriters to purchase the securities will be subject to conditions, and the underwriters will be obligated to purchase all the offered securities if they purchase any of them. The underwriters may change from time to time any initial public offering price and any discounts or concessions allowed or reallocated or paid to dealers.

During and after an offering through underwriters, the underwriters may purchase and sell the securities in the open market. These transactions may include overallotment and stabilizing transactions and purchases to cover syndicate short positions created in connection with the offering. The underwriters also may impose a penalty bid, which means that selling concessions allowed to syndicate members or other broker-dealers for the offered securities sold for their account may be reclaimed by the syndicate if the offered securities are repurchased by the syndicate in stabilizing or covering transactions. These activities may stabilize, maintain or otherwise affect the market price of the offered securities, which may be higher than the price that might otherwise prevail in the open market. If commenced, the underwriters may discontinue these activities at any time.

If we use dealers in the sale of securities, we will sell the securities to them as principals. They may then resell those securities to the public at varying prices determined by the dealers at the time of resale. The dealers participating in any sale of the securities may be deemed to be underwriters within the meaning of the Securities Act of 1933 with respect to any sale of those securities. We will include in the prospectus supplement the names of the dealers and the terms of the transaction.

Direct Sales and Sales Through Agents

We may sell the securities directly. In that event, no underwriters or agents would be involved. We may also sell the securities through agents we designate from time to time. In the prospectus supplement, we will name any agent involved in the offer or sale of the offered securities, and we will describe any commissions payable by us to the agent. Unless we inform you otherwise in the prospectus supplement, any agent will agree to use its reasonable best efforts to solicit purchases for the period of its appointment.

We may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act of 1933 with respect to any sale of those securities. We will describe the terms of any such sales in the prospectus supplement.

Delayed Delivery Contracts

If we so indicate in the prospectus supplement, we may authorize agents, underwriters or dealers to solicit offers from certain types of institutions to purchase securities from us at the public offering price under delayed delivery contracts. These contracts would provide for payment and delivery on a specified date in the future. The contracts would be subject only to those conditions described in the prospectus supplement. The prospectus supplement will describe the commission payable for solicitation of those contracts.

Remarketing

We may offer and sell any of the securities in connection with a remarketing upon their purchase, in accordance with a redemption or repayment by their terms or otherwise, by one or more remarketing firms acting as principals for their own accounts or as our agents. We will identify any remarketing firm, the terms of any remarketing agreement and the compensation to be paid to the remarketing firm in the prospectus supplement. Remarketing firms may be deemed underwriters under the Securities Act of 1933.

Derivative Transactions

We may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third parties may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third parties in these sale transactions will be underwriters and will be identified in the applicable prospectus supplement or in a post-effective amendment to the registration statement of which this prospectus forms a part.

General Information

We may have agreements with the agents, dealers and underwriters to indemnify them against certain civil liabilities, including liabilities under the Securities Act of 1933, or to contribute with respect to payments that the agents, dealers or underwriters may be required to make. Agents, dealers and underwriters may be customers of, engage in transactions with or perform services for us in the ordinary course of their businesses.

Each series of offered securities will be a new issue, and other than the common stock, which is listed on The Nasdaq Global Select Market, will have no established trading market. We may elect to list any series of offered securities on an exchange, but we are not obligated to do so. It is possible that one or more underwriters may make a market in a series of offered securities. However, they will not be obligated to do so and may discontinue market making at any time without notice. We cannot assure you that a liquid trading market for any of our offered securities will develop.

LEGAL MATTERS

The validity of the securities offered in this prospectus will be passed upon for us by Baker Botts L.L.P., Dallas, Texas. If certain legal matters in connection with an offering of the securities made by this prospectus and a related prospectus supplement are passed on by counsel for the underwriters of such offering, that counsel will be named in the applicable prospectus supplement related to that offering.

EXPERTS

The financial statements and schedule of Dawson Geophysical Company as of September 30, 2008 and 2007 and for each of the years in the three-year period ended September 30, 2008 and management's assessment of the effectiveness of internal control over financial reporting as of September 30, 2008 have been incorporated by reference herein in reliance upon the reports of KPMG LLP, independent registered public accounting firm, also incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing. The audit report covering the September 30, 2008 financial statements refers to the Company's adoption of Statement of Financial Accounting Standards No. 123 (revised 2004), *Share-Based Payment*, in fiscal year 2006.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement with the SEC under the Securities Act of 1933 that registers the securities we may offer pursuant to this prospectus. The registration statement, including the attached exhibits, contains additional relevant information about us. The rules and regulations of the SEC allow us to omit some information included in the registration statement from this prospectus.

In addition, we file annual, quarterly and other reports, proxy statements and other information with the SEC. You can read and copy any document we file at the SEC's public reference room at 100 F Street, N.E., Washington, D.C. 20549. You can obtain further information about the operation of the SEC's public reference room by calling the SEC at 1-800-SEC-0330. Our SEC filings are available on the SEC's web site at <http://www.sec.gov>. We also make available free of charge on our web site, at www.dawson3d.com, all materials that we file electronically with the SEC, including our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, Section 16 reports and amendments to these reports as soon as reasonably practicable after such materials are electronically filed with, or furnished to, the SEC. Information contained on our web site or any other web site is not incorporated by reference into this prospectus and does not constitute a part of this prospectus.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus the information we have filed with the SEC. This means that we can disclose important information to you without actually including the specific information in this prospectus by referring you to other documents filed separately with the SEC. These other documents contain important information about us, our financial condition and results of operations. The information we incorporate by reference is an important part of this prospectus. Information that we file later with the SEC will automatically update and may replace information in this prospectus and information previously filed with the SEC.

We incorporate by reference in this prospectus the documents listed below:

- our annual report on Form 10-K for the fiscal year ended September 30, 2008 filed with the SEC on December 9, 2008;
- our quarterly report on Form 10-Q for the quarter ended December 31, 2008 filed with the SEC on February 9, 2009;
- our proxy statement on Schedule 14A filed with the SEC on December 16, 2008;
- our current reports on Form 8-K filed with the SEC on October 29, 2008, November 5, 2008, November 7, 2008, December 5, 2008, January 28, 2009, February 4, 2009 and February 6, 2009, and our current report on Form 8-K/A filed with the SEC on January 30, 2009, in each case other than information furnished and not filed with the SEC;
- the description of our common stock contained in our Registration Statement on Form 8-A filed on February 1, 1982, as amended by Form 8-A/A filed on March 8, 1982 and as thereafter amended from time to time for the purpose of updating, changing or modifying such description, and the description of our rights to purchase Series A Junior Participating Preferred Stock on Form 8-A filed on July 19, 1999 and as thereafter amended from time to time for the purpose of updating, changing or modifying such description; and
- all documents filed by us under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 between the date of this prospectus and the termination of the registration statement (excluding any portions thereof that are deemed to be furnished and not filed).

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You may obtain any of the documents incorporated by reference in this prospectus from the SEC through the SEC's web site at the address provided above. You may also request a copy of any document incorporated by reference in this prospectus (including exhibits to those documents specifically incorporated by reference in this document), at no cost, by visiting our internet web site at www.dawson3d.com, or by writing or calling us at the following address and telephone number:

Dawson Geophysical Company
508 West Wall, Suite 800
Midland, Texas 79701
Attention: Christina W. Hagan
Telephone: (432) 684-3000

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PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth the estimated expenses (other than underwriting discounts and commissions) payable by Dawson Geophysical Company in connection with the offering described in this Registration Statement. With the exception of the Securities and Exchange Commission registration fee, the amounts set forth below are estimates:

| | |
|---|---------------|
| Securities and Exchange Commission registration fee | \$ 5,580 |
| FINRA filing fee | 10,500 |
| Printing expenses | (1) |
| Accounting fees and expenses | (1) |
| Legal fees and expenses | (1) |
| Trustee fees and expenses | (1) |
| Rating agency fees | (1) |
| Miscellaneous | (1) |
| Total | <u>\$ (1)</u> |

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- (1) Estimated expenses are not presently known. The foregoing sets forth the general categories of expenses (other than underwriting discounts and commissions) that we anticipate to incur in connection with the offering of securities under this registration statement. An estimate of the aggregate expenses in connection with the issuance and distribution of the securities being offered will be included in the applicable prospectus supplement.

Item 15. Indemnification of Directors and Officers.

Article Seven of our articles of incorporation, as amended, provides as follows:

“A director of the corporation shall not be personally liable to the corporation or its shareholders for monetary damages for an act or omission in such director's capacity as a director, except for liability for (i) a breach of a director's duty of loyalty to the corporation or its shareholders; (ii) an act or omission not in good faith or that involves intentional misconduct or a knowing violation of the law; (iii) a transaction from which a director received an improper benefit, whether or not the benefit resulted from an action taken within the scope of the director's office; (iv) an act or omission for which the liability of a director is expressly provided by statute; or (v) an act related to an unlawful stock repurchase or payment of a dividend. If the laws of the State of Texas are hereafter amended to authorize corporate action further eliminating or limiting the personal liability of a director of the corporation, then the liability of a director of the corporation shall thereupon be automatically eliminated or limited to the fullest extent permitted by such laws. Any repeal or modification of this Article Seven by the shareholders of the corporation shall not adversely affect any right or protection of a director existing at the time of such repeal or modification with respect to events or circumstances occurring or existing prior to such time.”

Article IX of our bylaws provides that:

“To the extent permitted by Texas Business Corporation Act Article 2.02-1, the corporation shall indemnify any present or former Director, officer, employee, or agent of the corporation against judgments, penalties (including excise and similar taxes), fines, settlements, and reasonable expenses actually incurred by the person in connection with a proceeding in which the person was, is, or is threatened to be made a named defendant or respondent because the person is or was a Director, officer, employee, or agent of the corporation.”

Article 2.02-1 of the Texas Business Corporation Act permits corporations to indemnify a person who was or is a director, officer, employee or agent of a corporation or who serves at the corporation's request as a director, officer, partner, venturer, proprietor, trustee, employee, agent, or similar functionary of another foreign or domestic corporation, employee benefit plan, other enterprise, or other entity (an “outside enterprise”), who was, is, or is threatened to be named a defendant in a legal proceeding by virtue of such person's position in the corporation or in an outside enterprise, but only if the person acted in good faith and reasonably believed, in the case of conduct in the person's official capacity, that the conduct was in or, in the case of all other conduct, that the conduct was not opposed to the corporation's best interest, and, in the case of a criminal proceeding, the person had no reasonable cause to believe the conduct was unlawful. A person may be indemnified within the above limitations against

judgments, penalties (including excise and similar taxes), fines, settlements, and reasonable expenses actually incurred; however, indemnification is limited to reasonable expenses actually incurred in a proceeding in which the person is found liable to the corporation or is found to have improperly received a personal benefit and shall not be made in respect of any proceeding in which the person shall have been found liable for willful or intentional misconduct in the performance of his duty to the corporation. A corporation must indemnify a director, officer, employee, or agent against reasonable expenses incurred in connection with a proceeding in which the person is a party because of the person’s corporate position, if the person was successful, on the merits or otherwise, in the defense of the proceeding. Under certain circumstances, a corporation may also advance expenses to such person.

Indemnification can be made by the corporation only upon a determination made in the manner prescribed by the statute that indemnification is proper in the circumstances because the party seeking indemnification has met the applicable standard of conduct as set forth in Article 2.02-1 of the Texas Business Corporation Act.

Article 2.02-1 of the Texas Business Corporation Act also permits a corporation to purchase and maintain insurance or to make other arrangements on behalf of any of the above persons against any liability asserted against and incurred by the person in such capacity, or arising out of the person’s status as such a person, whether or not the corporation would have the powers to indemnify the person against the liability under applicable law.

Item 16. Exhibits.

| <u>Exhibit No.</u> | <u>Description of Exhibit</u> |
|--------------------|---|
| 1.1† | Form of Underwriting Agreement. |
| 4.1* | Second Restated Articles of Incorporation of the Company, as amended (filed on February 9, 2007 as Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended December 31, 2006 and incorporated herein by reference and filed on November 28, 2007 as Exhibit 3.1 to the Company's Current Report on Form 8-K and incorporated herein by reference). |
| 4.2* | Amended and Restated Bylaws of the Company (filed on August 7, 2007 as Exhibit 3.2 to the Company's Quarterly Report on Form 10-Q for the third quarter ended June 30, 2007 and incorporated herein by reference). |
| 4.3* | Rights Agreement by and between the Company and Mellon Investor Services, LLC (f/k/a Chasemellon Shareholder Services, L.L.C.), as Rights Agent, dated July 13, 1999 (filed on December 11, 2003 as Exhibit 4 to the Registrant's Annual Report on Form 10-K for the fiscal year ended September 30, 2003 (File No. 000-10144) and incorporated herein by reference). |
| 4.4* | Form of Senior Indenture (filed on August 5, 2005 as Exhibit 4.2 to the Registrant's Registration Statement on Form S-3 (File No. 333-127268) and incorporated herein by reference). |
| 4.5* | Form of Subordinated Indenture (filed on August 5, 2005 as Exhibit 4.3 to the Registrant's Registration Statement on Form S-3 (File No. 333-127268) and incorporated herein by reference). |
| 5.1 | Opinion of Baker Botts L.L.P. as to the validity of the securities. |
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| 23.1 | Consent of Independent Registered Public Accounting Firm. |
| 23.2 | Consent of Baker Botts L.L.P. (included in Exhibit 5.1). |
| 24.1 | Powers of Attorney (included on the signature page). |
| 25.1† | Form T-1 Statement of Eligibility and Qualification under the Trust Indenture Act of 1939. |

† To be filed by amendment or as an exhibit with a subsequent Current Report on Form 8-K in connection with a specific offering.

* Incorporated by reference as indicated.

Item 17. Undertakings.

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) of the Securities Act of 1933 if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) If the registrant is relying on Rule 430B:

(A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify

any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
- (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
- (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
- (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

(d) The undersigned registrant hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act of 1939 (the "Act") in accordance with the rules and regulations prescribed by the Commission under Section 305(b)(2) of the Act.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Company certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Midland, State of Texas, on March 31, 2009.

DAWSON GEOPHYSICAL COMPANY

By: /s/ Stephen C. Jumper

Name: Stephen C. Jumper

Title: President, Chief Executive Officer
and Director

POWER OF ATTORNEY

Each person whose signature appears below appoints Stephen C. Jumper and Christina W. Hagan, and each of them acting individually, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement and any Registration Statement (including any amendment thereto) of the type contemplated by Rule 462(b) under the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully and for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities indicated and on the date indicated.

| <u>Signature</u> | <u>Title</u> | <u>Date</u> |
|---|--|----------------|
| <u>/s/ L. Decker Dawson</u> L. Decker Dawson | Chairman of the Board | March 31, 2009 |
| <u>/s/ Stephen C. Jumper</u> Stephen C. Jumper | President, Chief Executive Officer and Director (Principal Executive Officer) | March 31, 2009 |
| <u>/s/ Paul H. Brown</u> Paul H. Brown | Director | March 31, 2009 |
| <u>/s/ Gary M. Hoover</u> Gary M. Hoover | Director | March 31, 2009 |
| <u>/s/ Jack D. Ladd</u> Jack D. Ladd | Director | March 31, 2009 |
| <u>/s/ Ted R. North</u> Ted R. North | Director | March 31, 2009 |
| <u>/s/ Tim C. Thompson</u> Tim C. Thompson | Director | March 31, 2009 |
| <u>/s/ Christina W. Hagan</u> Christina W. Hagan | Executive Vice President, Secretary and Chief Financial Officer (Principal Financial and Accounting Officer) | March 31, 2009 |

INDEX TO EXHIBITS

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* Incorporated by reference as indicated.

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NEW YORK
PALO ALTO
RIYADH
WASHINGTON

March 31, 2009

Dawson Geophysical Company
508 West Wall, Suite 800
Midland, Texas 79701

Ladies and Gentlemen:

We have acted as counsel for Dawson Geophysical Company, a Texas corporation (the “Company”), with respect to certain legal matters in connection with the Registration Statement on Form S-3 (the “Registration Statement”) filed on this date by the Company with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended (the “Securities Act”). The Registration Statement relates to the proposed issuance and sale from time to time pursuant to Rule 415 under the Securities Act of up to \$100,000,000 aggregate initial offering price of (a) the Company’s senior debt securities (the “Senior Debt Securities”), (b) the Company’s subordinated debt securities (the “Subordinated Debt Securities”), (c) shares of common stock, par value \$0.33 1/3 per share (the “Common Stock”), of the Company, (d) shares of preferred stock, par value \$1.00 per share (“Preferred Stock”), of the Company and (e) warrants of the Company to purchase other securities (the “Warrants”). The Senior Debt Securities, Subordinated Debt Securities, Common Stock, Preferred Stock and Warrants may be hereinafter referred to as the “Securities.”

Each series of the Senior Debt Securities will be issued pursuant to an indenture to be entered into in connection with the first series of Senior Debt Securities issued thereunder between the Company and the trustee thereunder (the “Senior Indenture”), and each series of the Subordinated Debt Securities will be issued pursuant to an indenture to be entered into in connection with the first series of Subordinated Debt Securities issued thereunder between the Company and the trustee thereunder (the “Subordinated Indenture”), as each such indenture will be supplemented, in connection with the issuance of each such series, by a supplemental indenture or other appropriate action of the Company creating such series (each, a “Supplemental Indenture”).

In furnishing this opinion, we have examined and relied upon originals or copies, certified or otherwise identified to our satisfaction, of the Second Restated Articles of Incorporation and Amended and Restated Bylaws of the Company, as amended to date (together, the “Charter Documents”), resolutions adopted by the Board of Directors of the Company (the Board of Directors, or to the extent permitted by the Texas Business Corporation Act and the Charter Documents, a duly constituted and acting committee thereof, being referred to herein as the “Board”), the Senior Indenture and the Subordinated Indenture filed as exhibits to the Registration Statement, the Registration Statement and the prospectus contained therein, corporate records of the Company, including minute books of the Company, certificates of public officials and of representatives of the Company, statutes and other instruments and documents as we have deemed necessary or appropriate to form a basis for the opinions

hereinafter expressed. In such examination, we have assumed, without independent investigation, the authenticity, accuracy and completeness of all documents submitted to us as originals, the conformity to the originals of all documents submitted to us as copies and the genuineness of all signatures on all documents examined by us.

In connection with this opinion, we have assumed: (a) the Registration Statement, and any amendments thereto (including post-effective amendments) will have become effective under the Securities Act; (b) a prospectus supplement will have been filed with the Commission describing the Securities offered thereby; (c) all Securities will be offered, issued and sold in compliance with applicable federal and state securities laws and in the manner stated in the Registration Statement and the applicable prospectus supplement; (d) each of the Senior Indenture and the Subordinated Indenture under which the Senior Debt Securities and the Subordinated Debt Securities, respectively, will be issued will have become qualified under the Trust Indenture Act of 1939, as amended; (e) a definitive purchase, underwriting or similar agreement with respect to any Securities offered will have been duly authorized and validly executed and delivered by the Company and the other parties thereto; (f) any securities issuable upon conversion, exchange, redemption or exercise of any Securities being offered will be duly authorized, created and, if appropriate, reserved for issuance upon such conversion, exchange, redemption or exercise; and (h) with respect to shares of Common Stock or Preferred Stock offered, there will be sufficient shares of Common Stock or Preferred Stock authorized under the Company's Charter Documents and not otherwise issued or reserved for issuance.

On the basis of the foregoing, and subject to the assumptions, limitations and qualifications set forth herein, we are of the opinion that:

1. With respect to a series of Senior Debt Securities, when (a) an indenture substantially in the form of the Senior Indenture has been duly authorized and validly executed and delivered by the parties thereto, (b) any applicable Supplemental Indenture relating to such series has been duly authorized and validly executed and delivered by each of the parties thereto, (c) the Board has taken all necessary corporate action to approve and establish the terms of the offering thereof and related matters, and (d) the Senior Debt Securities of such series have been duly executed, authenticated, issued and delivered in accordance with the Senior Indenture, any applicable Supplemental Indenture relating to such series and the applicable definitive purchase, underwriting or similar agreement approved by the Board in exchange for payment of the consideration therefor provided therein, the Senior Debt Securities of such series will constitute legal, valid and binding obligations of the Company, enforceable against the Company in accordance with their terms, except as the enforceability thereof may be subject to the effect of (i) bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance or other laws relating to or affecting creditors' rights generally, (ii) general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law) and (iii) any implied covenants of good faith and fair dealing.

2. With respect to a series of Subordinated Debt Securities, when (a) an indenture substantially in the form of the Subordinated Indenture has been duly authorized and validly

executed and delivered by the parties thereto, (b) any applicable Supplemental Indenture relating to such series has been duly authorized and validly executed and delivered by each of the parties thereto, (c) the Board has taken all necessary corporate action to approve and establish the terms of the offering thereof and related matters, and (d) the Subordinated Debt Securities of such series have been duly executed, authenticated, issued and delivered in accordance with the Subordinated Indenture, any applicable Supplemental Indenture relating to such series and the applicable definitive purchase, underwriting or similar agreement approved by the Board in exchange for payment of the consideration therefor provided therein, the Subordinated Debt Securities of such series will constitute legal, valid and binding obligations of the Company, enforceable against the Company in accordance with their terms, except as the enforceability thereof may be subject to the effect of (i) bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance or other laws relating to or affecting creditors' rights generally, (ii) general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law) and (iii) any implied covenants of good faith and fair dealing.

3. With respect to shares of Common Stock, when (a) the Board has taken all necessary corporate action to approve the issuance thereof and the terms of the offering of shares of Common Stock and related matters, and (b) certificates representing the shares of Common Stock have been duly executed, countersigned, registered and delivered, or, if uncertificated, valid book-entry notations have been made in the share register of the Company, in accordance with the provisions of the Charter Documents of the Company and either (i) in accordance with the applicable definitive purchase, underwriting or similar agreement approved by the Board in exchange for payment of the consideration therefor (not less than the par value of the Common Stock) provided for therein, or (ii) upon conversion, exchange, redemption or exercise of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion, exchange, redemption or exercise as approved by the Board, for the consideration approved by the Board (not less than the par value of the Common Stock), the shares of Common Stock will be duly authorized, validly issued, fully paid and non-assessable.

4. With respect to shares of Preferred Stock, when (a) the Board has taken all necessary corporate action to approve and establish the terms of the shares of Preferred Stock, to approve the issuance thereof and the terms of the offering thereof and related matters, including the adoption of resolutions designating and establishing the terms of such series of Preferred Stock and causing any required statements respecting such series of Preferred Stock to be prepared and filed with the Secretary of State of the State of Texas, and (b) certificates representing the shares of Preferred Stock have been duly executed, countersigned, registered and delivered, or, if uncertificated, valid book-entry notations have been made in the share register of the Company, either (i) in accordance with the applicable definitive purchase, underwriting or similar agreement approved by the Board in exchange for payment of the consideration therefor (not less than the par value of the Preferred Stock) provided for therein, or (ii) upon conversion, exchange, redemption or exercise of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion, exchange, redemption or exercise as approved by the Board, for the consideration

approved by the Board (not less than the par value of the Preferred Stock), the shares of Preferred Stock will be duly authorized, validly issued, fully paid and non-assessable.

5. With respect to Warrants, when (a) the Board has taken all necessary corporate action to approve the creation of and the issuance and terms of the Warrants, the terms of the offering thereof and related matters, (b) the warrant agreement or agreements relating to the Warrants have been duly authorized and validly executed and delivered by the Company and the warrant agent appointed by the Company, and (c) the Warrants or certificates representing the Warrants have been duly executed, countersigned, registered and delivered in accordance with the appropriate warrant agreement or agreements and the applicable definitive purchase, underwriting or similar agreement approved by the Board in exchange for payment of the consideration therefor provided for therein, the Warrants will be duly authorized and validly issued and will constitute legal, valid and binding obligations of the Company, enforceable against the Company in accordance with their terms, except as the enforceability thereof may be subject to the effect of (i) bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance or other laws relating to or affecting creditors' rights generally and (ii) general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law) and (iii) any implied covenants of good faith and fair dealing.

The foregoing opinions are limited in all respects to matters of contract law of the State of New York, the laws of the State of Texas and applicable federal laws of the United States, each as in effect on the date hereof.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement and to the reference to us under "Legal Matters" in the prospectus forming a part of the Registration Statement. In giving this consent, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Baker Botts L.L.P.

DAWSON GEOPHYSICAL COMPANY
COMPUTATION OF RATIO OF EARNINGS TO FIXED CHARGES
(in thousands)

| | Three Months Ended December 31, 2008 | Fiscal Years Ended September 30, | | | | |
|--|---|----------------------------------|----------|----------|-----------|---------|
| | | 2008 | 2007 | 2006 | 2005 | 2004 |
| Pretax income from continuing operations | \$12,561 | \$56,407 | \$44,458 | \$25,213 | \$ 14,522 | \$7,082 |
| Fixed charges and amortization of capitalized interest | — | 482 | 145 | — | 65 | — |
| Capitalized interest | — | — | — | — | — | — |
| Earnings | \$12,561 | \$56,889 | \$44,603 | \$25,213 | \$ 14,587 | \$7,082 |
| Interest expensed and capitalized | — | 482 | 145 | — | 65 | — |
| Amortized premiums | — | — | — | — | — | — |
| Portion of rent representative of interest | — | — | — | — | — | — |
| Total fixed charges: | — | \$ 482 | \$ 145 | — | \$ 65 | — |
| Ratio of earnings to fixed charges: | N/A | 118.03x | 307.61x | N/A | 224.42x | N/A |

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors
Dawson Geophysical Company:

We consent to the incorporation by reference in the registration statement on Form S-3 of Dawson Geophysical Company of our reports dated December 9, 2008, with respect to the balance sheets of Dawson Geophysical Company as of September 30, 2008 and 2007, and the related statements of operations, stockholders' equity and other comprehensive income, and cash flows for each of the years in the three-year period ended September 30, 2008, and the related financial statement schedule, and the effectiveness of internal control over financial reporting as of September 30, 2008 which reports appear in the September 30, 2008 annual report on Form 10-K of Dawson Geophysical Company, and to the reference to our firm under the heading "Experts" in the prospectus. Our report on the financial statements refers to the Company's adoption of Statement of Financial Accounting Standard No. 123 (revised 2004), *Share-Based Payment* in fiscal year 2006.

/s/ KPMG LLP

Dallas, Texas
March 31, 2009