

NANOGEN INC  
Form FWP  
August 28, 2007

**Filed Pursuant to Rule 433  
Registration Nos. 333-144880 and 333-145650**

**Proposed Financing**

**of**

**Nanogen, Inc.**

**Confidential Summary of Terms and Conditions**

**August 24, 2007**

The following outlines the terms of a proposed transaction in Nanogen, Inc. ( "NGEN" or the "Company" ) by Seven Hills Partners LLC (the "Placement Agent" ). By reading the information contained within this document, the recipient agrees with the Company and the Placement Agent to maintain in confidence such information, together with any other non-public information regarding the Company from the Company or the Placement Agent, or their agents during the course of the proposed financing and to comply with the recipient's obligations under applicable U.S. and state securities laws.

**Seven Hills Partners LLC**

**The Company has filed registration statement (Registration Nos. 333-144880 and 145650, including a prospectus) with the SEC for the offering to which this communication relates. Before you invest, you should read the prospectus in such registration statements, the prospectus supplement relating to this financing and other documents the Company has filed with the SEC for more complete information about the Company and this offering. You may get these documents for free by visiting EDGAR on the SEC website at [www.sec.gov](http://www.sec.gov). Alternatively, the Company or the Placement Agent will arrange to send you the prospectus and any other offering documents if you request them by calling collect at (415) 869-6223. You may also request a copy by e-mail from [tschneider@sevenhills.com](mailto:tschneider@sevenhills.com).**

**CONFIDENTIAL SUMMARY OF TERMS AND CONDITIONS**

*This Confidential Summary of Terms and Conditions is not intended to be contractually binding, other than the cover sheet, and is subject in all respects (other than with respect to such section) to the Securities Purchase Agreement, the Indenture, the Notes and the Warrants, which are attached hereto as Exhibits A, B, C and D, respectively. All potential investors are encouraged to read the entire text of the Securities Purchase Agreement and the other Exhibits attached hereto prior to making an investment decision.*

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Issuer:</b>                   | Nanogen, Inc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Issue:</b>                    | Senior Convertible Notes (the Notes ) and Warrants to Purchase Common Stock (collectively, the Securities )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Purchase Amount:</b>          | \$20 million in the aggregate. A Letter of Credit in the amount of \$7 million will be issued for the benefit of the purchasers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Closing:</b>                  | It is expected that the closing of the offering shall occur, and the Securities shall be issued and funds paid to the Company therefore, on or about August 27, 2007 (the Closing Date ).                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Use of Proceeds:</b>          | See prospectus supplement, dated August 24, 2007.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Risk Factors:</b>             | The Securities offered involve a high degree of risk. See the sections entitled Risk Factors in the prospectus supplement and the prospectus, and the documents filed by the Company with the SEC under the Securities Exchange Act of 1934, as amended.                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Restricted Cash Account:</b>  | The Company will deposit \$7.3 million in cash from the proceeds of the offering in a collateral cash account to secure the Letter of Credit. This amount may be released to the Company, and the Letter of Credit will be terminated, if the Company's common stock closes at a price 20% above the Initial Conversion Price (defined below) for twenty (20) out of thirty (30) consecutive trading days and certain other conditions are met.                                                                                                                                                                            |
| <b>Coupon:</b>                   | The coupon will be 6.25% per annum on the unpaid/unconverted principal balance payable quarterly in cash or registered common stock. If the Company pays interest in registered common stock, the price used for valuation of the stock portion of any interest payment shall be the lower of the Initial Conversion Price or 90% of the simple average of the daily VWAP on the 5 trading days prior to the payment date. Notwithstanding the foregoing, the Company may not issue shares at a price below \$1.13 per share. The ability to pay interest in shares of common stock will be subject to certain conditions. |
| <b>Initial Conversion Price:</b> | The Initial Conversion Price will be equal to \$1.27 per share.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Maturity:</b>                 | 3 Years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Rank:</b>                     | The Notes shall be senior obligations of the Company. The Notes will not be secured by any assets of the Company or assets of any of its subsidiaries, except that the Company has agreed to obtain the Letter of Credit as described above.                                                                                                                                                                                                                                                                                                                                                                               |



**Warrants:** 110% warrant coverage. The number of warrants will be equal to the quotient of (x) the principal amount of the Notes divided by (y) the Initial Conversion Price. Warrants shall operate as follows:

(1) Series A Warrants (40%): The exercise price for Series A Warrants will be equal to \$1.14 per share. Series A Warrants will have a 5-year term. If the closing price of NGEN is 135% of the exercise price for twenty (20) out of thirty (30) consecutive trading days beginning at any point following the termination of the Letter of Credit, then the Company may require the Investor(s) to exercise Series A Warrants.

(2) Series B Warrants (40%): If the Company requires the Investor(s) to exercise the Series A Warrants, or the Investor(s) choose(s) to exercise the Series A Warrants, then Series B Warrants will become exercisable. The exercise price of those Series B Warrants that become exercisable during any calendar quarter due to partial exercise of the Series A Warrants will be equal to 110% of the closing sales price of the company's common stock on the last trading day of such calendar quarter. On the date when all of the Series A Warrants are exercised, then the exercise price of all of the Series B Warrants not then exercised will be equal to 110% of the close sales price of the common stock on such date. In either case, the exercise price of the Series B Warrants may not be lower than \$1.13 per share. Series B Warrants will have a 3-year term. Series B Warrants will not have a forced exercise provision.

(3) Series C Warrants (30%): The exercise price for Series C Warrants will be equal to \$1.14 per share. Series C Warrants will have a 5-year term. Beginning the later of (i) six (6) months from the date of issuance of the Series C Warrants, (ii) thirty (30) days after the date when all Series A Warrants are exercised, and (iii) thirty (30) days after the Letter of Credit is terminated, if the closing price of NGEN equals or exceeds 125% of the exercise price for twenty (20) out of thirty (30) consecutive trading days, then the Company may require the Investor(s) to exercise Series C Warrants.

**Forced Conversion:** If the registration statement covering the underlying shares is effective, beginning twenty-four (24) months after the Closing Date (the Trigger Date), the Company can force the Notes to convert to common stock if the simple average of the daily VWAP is \$2.2225 per share for twenty (20) out of (30) consecutive trading days after the Trigger Date.

**Right of Participation:** The Investor(s) may participate in any financings completed by the Company for the first two (2) years following the Closing Date. The Investor(s) would have the right to purchase up to 30% of the subsequent financings on a pro rata basis with their initial purchase of the Notes. Stock issued for strategic investments, underwritten public offerings and stock option and incentive plans will be excluded from the Right of Participation.

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Anti-Dilution Provision:</b>         | The Investor(s) will have full-ratchet anti-dilution protection for eighteen (18) months following the Closing Date and weighted-average anti-dilution thereafter. Any adjustment with respect to the Initial Conversion Price shall be subject to a price floor of \$1.2675 per share, and any adjustment with respect to the exercise price of any Warrants shall be subject to a price floor of \$1.13 per share. |
| <b>Investor(s) Trading Restriction:</b> | The Investor(s) and its affiliates will agree not to trade in the Company's Common Stock until the earlier of (i) the announcement of the closing of this transaction, or (ii) termination of discussions between the Investor(s) and the Company regarding this transaction.                                                                                                                                        |
| <b>Stockholder Approval:</b>            | The Company will seek stockholder approval of the issuance of the shares of common stock issuable upon conversion of the Notes, payment of interest, and exercise of the Warrants. In the event stockholder approval is obtained, the conversion price and the exercise price floors and the limitation on the Company's rights to pay interest in shares will no longer be applicable.                              |
| <b>Expense Reimbursement:</b>           | The Company shall pay to the Investor(s) for expenses reasonably incurred in relation to due diligence and investment documentation (including legal expenses) in the amount of up to \$85,000.                                                                                                                                                                                                                      |

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SECURITIES PURCHASE AGREEMENT

**SECURITIES PURCHASE AGREEMENT** (the **Agreement** ), dated as of August 26, 2007, by and among Nanogen Inc., a Delaware corporation, with headquarters located at 10398 Pacific Center Court, San Diego, California 92121 (the **Company** ), and the investors listed on the Schedule of Buyers attached hereto (individually, a **Buyer** and collectively, the **Buyers** ).

**WHEREAS:**

A. The Company and the Buyers desire to enter into this transaction to purchase the Notes (as defined below) and Warrants (as defined below) pursuant to the Registration Statement (as defined below) which is currently effective, has at least \$50,000,000 of initial offering price of unallocated securities available for sale as of the date hereof and has been declared effective in accordance with the Securities Act of 1933, as amended (the **1933 Act** ), by the United States Securities and Exchange Commission (the **SEC** ).

B. The Company has authorized the issuance of a new series of 6.25% senior convertible notes due 2010 of the Company, in the form attached hereto as Exhibit A to the Indenture (as defined below) (the **Notes** ), which Notes shall be convertible into shares of common stock, par value \$0.001 per share, of the Company (the **Common Stock** ) (as converted, the **Conversion Shares** ), in accordance with the terms of the Notes, which Conversion Shares shall be issued pursuant to the Registration Statement (as defined below), or, if such Registration Statement is not available at the time of issuance of such Conversion Shares, as securities exempt from registration pursuant to Section 3(a)(9) of the 1933 Act.

C. Each Buyer wishes to purchase, and the Company wishes to sell, upon the terms and conditions stated in this Agreement, (i) that aggregate principal amount of the Notes set forth opposite such Buyer's name in column (3) on the Schedule of Buyers attached hereto (which aggregate amount for all Buyers shall be \$20,000,000 (ii) warrants, in substantially the form attached hereto as Exhibit B-1 (the **Series A Warrants** ), to acquire up to that number of additional shares of Common Stock set forth opposite such Buyer's name in column (4) of the Schedule of Buyers (as exercised, collectively, the **Series A Warrant Shares** ), (iii) warrants, in substantially the form attached hereto as Exhibit B-2 (the **Series B Warrants** ), to acquire up to that number of additional shares of Common Stock set forth opposite such Buyer's name in column (5) of the Schedule of Buyers (as exercised, collectively, the **Series B Warrant Shares** ) and (iv) warrants in substantially the form attached hereto as Exhibit B-3 (the **Series C Warrants** ), together with the Series A Warrants and the Series B Warrants, the **Warrants** ) to acquire up to that number of shares of Common Stock set forth opposite such Buyer's name in column (6) on the Schedule of Buyers (as exercised, collectively, the **Series C Warrant Shares** ), and together with the Series A Warrant Shares and the Series B Warrant Shares, the **Warrant Shares** ), which Warrant Shares shall be issued pursuant to the Registration Statement (as defined below) or, if such Registration Statement is not available at the time of issuance of such Warrant Shares, shall be issued solely pursuant to the cashless exercise provisions of the Warrant as securities exempt from registration pursuant to Section 3(a)(9) of the 1933 Act. The Notes will be issued pursuant to a supplemental indenture in the form attached hereto as Exhibit A, dated August 27, 2007, which supplements the Indenture dated August 27, 2007 by and between the Company and The Bank of New York Trust Company, N.A., as trustee (the **Trustee** ), (collectively, the **Indenture** ).

D. The Notes bear interest, which, subject to certain conditions, may be paid in shares of Common Stock (the **Interest Shares** ).

E. The Notes, the Conversion Shares, the Interest Shares, the Warrants and the Warrant Shares collectively are referred to herein as the **Securities** .

**NOW, THEREFORE**, the Company and each Buyer hereby agree as follows:

1. PURCHASE AND SALE OF NOTES AND WARRANTS.

(a) Purchase of Notes and Warrants.

(i) Notes and Warrants. Subject to the satisfaction (or waiver) of the conditions set forth in Sections 6 and 7 below, the Company shall issue and sell to each Buyer, and each Buyer severally, but not jointly, shall purchase from the Company on the Closing Date (as defined below), (w) a principal amount of Notes as is set forth opposite such Buyer's name in column (3) on the Schedule of Buyers, (x) Series A Warrants to acquire up to that number of Warrant Shares as is set forth opposite such Buyer's name in column (4) on the Schedule of Buyers, (y) Series B Warrants to acquire up to that number of Warrant Shares as is set forth opposite such Buyer's name in column (5) on the Schedule of Buyers and (z) Series C Warrants to acquire up to that number of Warrant Shares as is set forth opposite such Buyer's name in column (6) on the Schedule of Buyers (the **Closing** ).

(ii) Closing. The date of the Closing (the **Closing Date** ) shall be, on the date of notification of satisfaction (or waiver) of the conditions to the Closing set forth in Sections 6 and 7 below at the offices of Schulte Roth & Zabel LLP, 919 Third Avenue, New York, New York 10022 (unless otherwise mutually agreed to by the Company and each Buyer). The Closing shall be deemed to have occurred at 10:00 a.m., New York City time on the Closing Date.

(iii) Purchase Price.

(1) The aggregate purchase price for the Notes and the Warrants to be purchased by each such Buyer at the Closing (the **Purchase Price** ) shall be the amount set forth opposite each Buyer's name in column (6) of the Schedule of Buyers. Each Buyer shall pay \$1,000 for each \$1,000 of principal amount of Notes and related Warrants to be purchased by such Buyer at the Closing.

(2) The Buyers and the Company agree that the Notes and the Warrants constitute an investment unit for purposes of Section 1273(c)(2) of the Internal Revenue Code of 1986, as amended (the **Code** ) and that the issue price of such investment unit will be allocated 72 percent to the Notes, 12 percent to the Series A Warrants, 7 Percent to the Series B Warrants and 9 percent to the Series C Warrants in accordance with Section 1273(c)(2) of the Code and Treasury Regulation Section 1.1273-2(h). Neither the Buyers nor the Company shall take any position inconsistent with such allocation in any tax return or in any judicial or administrative proceeding in respect of taxes.

(b) Form of Payment. On the Closing Date, (i) each Buyer shall pay its Purchase Price to the Company for the Notes and the Warrants to be issued and sold to such Buyer at the Closing, by wire transfer of immediately available funds in accordance with the Company's written wire instructions and (ii) the Company shall deliver, or cause to be delivered, to each Buyer the Notes (allocated in the principal amounts as such Buyer shall request) which such Buyer is then purchasing hereunder along with the Warrants (allocated in the amounts as such Buyer shall request) which such Buyer is purchasing, in each case duly executed on behalf of the Company and registered in the name of such Buyer or its designee.

2. BUYER'S REPRESENTATIONS AND WARRANTIES. Each Buyer, severally and not jointly, represents and warrants with respect to only itself that:

(a) No Sale or Distribution. Such Buyer is acquiring the Notes and hereunder in the ordinary course of its business for its own account. Such Buyer does not presently have any agreement or understanding, directly or indirectly, with any Person to distribute any of the Notes.

(b) Organization; Authority. Such Buyer is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization with the requisite power and authority to enter into and to consummate the transactions contemplated by the applicable Transaction Documents (as defined below) and otherwise to carry out its obligations thereunder. The execution, delivery and performance by such Buyer of the transactions contemplated by this Agreement has been duly authorized by all necessary action on the part of such Buyer. This Agreement has been duly executed by such Buyer, and when delivered by such Buyer in accordance with the terms hereof, will constitute the valid and legally binding obligation of such Buyer, enforceable against it in accordance with its terms, except (i) as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting creditors' rights generally, (ii) as enforceability of any indemnification and contribution provisions may be limited under the federal and state securities laws and public policy, and (iii) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to equitable defenses and to the discretion of the court before which any proceeding therefor may be brought.

(c) No Conflicts. The execution, delivery and performance by such Buyer of this Agreement and the consummation by such Buyer of the transactions contemplated hereby will not (i) result in a violation of the organizational documents of such Buyer or (ii) conflict with, or constitute a default (or an event which with notice or lapse of time or both would become a default) under, or give to others any rights of termination, amendment, acceleration or cancellation of, any agreement, indenture or instrument to which such Buyer is a party, or (iii) result in a violation of any law, rule, regulation, order, judgment or decree (including federal and state securities laws) applicable to such Buyer, except in the case of clauses (ii) and (iii) above, for such conflicts, defaults, rights or violations which would not, individually or in the aggregate, reasonably be expected to have a material adverse effect on the ability of such Buyer to perform its obligations hereunder.

(d) Residency. Such Buyer is a resident of that jurisdiction specified below its address on the Schedule of Buyers.

(e) Certain Trading Activities. Other than with respect to this Agreement and the transactions contemplated herein, since the time that such Buyer was first contacted by the Company, the Agent (as defined below) or any other Person regarding this investment in the Company neither the Buyer nor any Affiliate of such Buyer which (x) had knowledge of the transactions contemplated hereby, (y) has or shares discretion relating to such Buyer's investments or trading or information concerning such Buyer's investments and (z) is subject to such Buyer's review or input concerning such Affiliate's investments or trading (collectively, **Trading Affiliates**) has directly or indirectly, nor has any Person acting on behalf of or pursuant to any understanding with such Buyer or Trading Affiliate, effected or agreed to effect any transactions in the securities of the Company. Such Buyer hereby covenants and agrees not to, and shall cause its Trading Affiliates not to, engage, directly or indirectly, in any transactions in the securities of the Company or involving the Company's securities during the period from the date hereof until such time as (i) the transactions contemplated by this Agreement are first publicly announced as described in Section 4(h) hereof or (ii) this Agreement is terminated in full pursuant to Section 8 hereof. Notwithstanding the foregoing, for avoidance of doubt, nothing contained herein shall constitute a representation or warranty, or preclude any actions, with respect to the identification of the availability of, or securing of, available shares to borrow in order to effect short sales or similar transactions in the future. For the purpose of this Agreement, **Person** means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization and a government or any department or agency thereof.

(f) Acquiring Person. Such Buyer, after giving effect to the transactions contemplated hereby, will not be the beneficial owner of 20% or more of the Company's outstanding Common Stock. For purposes of this Section 2(f), beneficial ownership shall be determined pursuant to a Rule 13d-3 under the Securities Exchange Act of 1934, as amended (the **1934 Act**).

(g) Consents. Each approval, consent, order, authorization, designation, declaration or filing by or with any regulatory, administrative or other governmental body necessary in connection with the execution and delivery by such Buyer of this Agreement and the consummation of the transactions herein contemplated has been obtained or made and is in full force and effect.

The Company acknowledges and agrees that each Buyer does not make or has not made any representations or warranties with respect to the transactions contemplated hereby other than those specifically set forth in this Section 2.

3. REPRESENTATIONS AND WARRANTIES OF THE COMPANY. The Company represents and warrants to each of the Buyers that, as of the date hereof and as of the Closing Date:

(a) Shelf Registration Statement. A shelf registration statement on Form S-3 (File No. 333-144880) with respect to the Securities has been prepared by the Company in

conformity in all material respects with the requirements of the 1933 Act, and the rules and regulations (the **Rules and Regulations**) of the SEC thereunder and has been filed with the SEC. The Company and the transactions contemplated by this Agreement meet the requirements and comply with the conditions for the use of Form S-3. The Registration Statement (as defined below) meets the requirements of Rule 415(a)(1)(x) under the 1933 Act and complies in all material respects with said rule. Copies of such registration statement, including any amendments thereto, the base prospectus (meeting in all material respects the requirements of the Rules and Regulations) contained therein and the exhibits, financial statements and schedules, as finally amended and revised, have heretofore been delivered by the Company to the Buyers. Such registration statement, together with any registration statement filed by the Company pursuant to Rule 462(b) under the 1933 Act, is herein referred to as the

**Registration Statement**, which shall be deemed to include all information omitted therefrom in reliance upon Rules 430A, 430B or 430C under the 1933 Act and contained in the Prospectus referred to below, has become effective under the 1933 Act and no post-effective amendment to the Registration Statement has been filed as of the date of this Agreement. The term **Prospectus** as used in this Agreement means the form of base prospectus together with the final prospectus supplement relating to the Securities (the **Prospectus Supplement**) first filed with the SEC pursuant to and within the time limits described in Rule 424(b) under the 1933 Act. Any reference herein to the Registration Statement or the Prospectus or to any amendment or supplement to any of the foregoing documents shall be deemed to refer to and include any documents incorporated by reference therein, and, in the case of any reference herein to the Prospectus, also shall be deemed to include any documents incorporated by reference therein, and any supplements or amendments thereto, filed with the SEC after the date of filing of the Prospectus Supplement under Rule 424(b) under the 1933 Act and prior to the termination of the offering of the Securities.

(b) **Prospectus**. As of the Applicable Time (as defined below) and as of the Closing Date (as defined below), neither (x) the General Use Free Writing Prospectus(es) (as defined below) issued at or prior to the Applicable Time, the Prospectus (as defined below), all considered together (collectively, the **General Disclosure Package**), nor (y) any individual Limited Use Free Writing Prospectus (as defined below), when considered together with the General Disclosure Package, included or will include any untrue statement of a material fact or omitted or will omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that the Company makes no representations or warranties as to information contained in or omitted from any Issuer Free Writing Prospectus and the General Disclosure Package, in reliance upon, and in conformity with, written information furnished to the Company by or on behalf of the Buyers, specifically for use therein. As used in this subsection and elsewhere in this Agreement:

(i) **Applicable Time** means 5:30 p.m. (New York time) on the date of this Agreement or such other time as agreed to by the Company and the Buyers.

(ii) **Issuer Free Writing Prospectus** means any issuer free writing prospectus, as defined in Rule 433 under the 1933 Act, relating to the Securities in the form filed or required to be filed with the SEC or, if not required to be filed, in the form retained in the Company's records pursuant to Rule 433(g) under the 1933 Act.

(iii) **General Use Free Writing Prospectus** means any Issuer Free Writing Prospectus that is identified on Schedule I to this Agreement.

(iv) **Limited Use Free Writing Prospectus** means any Issuer Free Writing Prospectus that is not a General Use Free Writing Prospectus.

(c) **Organization.** The Company has been duly organized and is validly existing as a corporation in good standing under the laws of the State of Delaware, with corporate power and authority to own or lease its properties and conduct its business as described in the Registration Statement, the General Disclosure Package and the Prospectus. The Company has no significant subsidiaries (as such term is defined in Rule 1-02 of Regulation S-X promulgated by the SEC) other than as listed in Exhibit 21.1 to the Company's Annual Report on Form 10-K for the year ended December 31, 2006 (the **Annual Report**) (collectively, the **Subsidiaries**). Each of the Subsidiaries has been duly organized and is validly existing as an entity in good standing under the laws of the jurisdiction of its organization, with corporate power and authority to own or lease its properties and conduct its business as described in the Registration Statement, the General Disclosure Package and the Prospectus. The Subsidiaries are the only subsidiaries, direct or indirect, of the Company. The Company and each of the Subsidiaries are duly qualified to transact business in all jurisdictions in which the conduct of their business requires such qualification, except where the failure to be so qualified would not reasonably be expected to (i) result in any material adverse change, or any development that would reasonably be expected to result in a material adverse change, in or affecting the business, results of operations, or financial condition of the Company and of the Subsidiaries taken as a whole, whether or not occurring in the ordinary course of business, or (ii) prevent, burden or impair the consummation of the transactions contemplated by this Agreement (collectively a **Material Adverse Effect**). The outstanding shares of capital stock of each of the Subsidiaries have been duly authorized and validly issued, are fully paid and non-assessable and are owned by the Company or another Subsidiary free and clear of all liens, encumbrances and equities and claims, except as described in the Registration Statement and the General Disclosure Package; and no options, warrants or other rights to purchase, agreements or other obligations to issue or other rights to convert any obligations into shares of capital stock or ownership interests in the Subsidiaries are outstanding.

(d) **Authorization; Enforcement; Validity.** The Company has the requisite corporate power and authority to enter into and perform its obligations under this Agreement, the Notes, the Indenture, the Irrevocable Transfer Agent Instructions (as defined in Section 5(b)), the Warrants and each of the other agreements entered into by the parties hereto in connection with the transactions contemplated by this Agreement (collectively, the **Transaction Documents**) and to issue the Securities in accordance with the terms hereof and thereof. The execution and delivery of the Transaction Documents by the Company and the consummation by the Company of the transactions contemplated hereby and thereby, including, without limitation, the issuance of the Notes and the Warrants, the reservation for issuance and the issuance of the Conversion Shares issuable upon conversion of the Notes, the reservation for issuance and the issuance of the Interest Shares in accordance with the terms of the Indenture and the Notes and the reservation for issuance and issuance of Warrant Shares issuable upon exercise of the Warrants have been duly authorized by the Company's Board of Directors, and no further filing, consent, or authorization is required by the Company's Board of Directors or its stockholders. This

Agreement and the other Transaction Documents of even date herewith have been duly executed and delivered by the Company, and constitute the legal, valid and binding obligations of the Company, enforceable against the Company in accordance with their respective terms, except as such enforceability may be limited by general principles of equity or applicable bankruptcy, insolvency, reorganization, moratorium, liquidation, conservatorship, receivership or similar laws relating to, or affecting generally, the enforcement of applicable creditors' rights and remedies.

(e) Issuance of Securities. The outstanding shares of Common Stock of the Company have been duly authorized and validly issued and are fully paid and non-assessable; the Securities to be issued and sold by the Company have been duly authorized and when issued and paid for as contemplated herein will be validly issued, fully paid and non-assessable; and no preemptive rights of stockholders exist with respect to any of the Securities or the issue and sale thereof. As of the Closing, a number of shares of Common Stock shall have been duly authorized and reserved for issuance which equals or exceeds 130% of the aggregate of the maximum number of shares of Common Stock issuable as of the Closing Date (i) upon conversion of the Notes, (ii) as Interest Shares pursuant to the terms of the Indenture and the Notes and (iii) upon exercise of the Warrants. Neither the filing of the Registration Statement nor the offering or sale of the Securities as contemplated by this Agreement gives rise to any rights, other than those which have been waived or satisfied, for or relating to the registration of any shares of Common Stock. Upon conversion or exercise in accordance with the Indenture and the Notes or the Warrants, as the case may be, the Conversion Shares, the Interest Shares and the Warrant Shares, respectively, will be validly issued, fully paid and nonassessable and free from all preemptive or similar rights, taxes, liens and charges with respect to the issue thereof, with the holders being entitled to all rights accorded to a holder of Common Stock.

(f) Equity Capitalization. As of the date hereof and as of the Closing Date, the Company has or will have, as the case may be, an authorized, issued and outstanding capitalization as is set forth in the Registration Statement and the Prospectus (subject, in each case, to the issuance of shares of Common Stock upon exercise of stock options and warrants disclosed as outstanding in the Registration Statement and the Prospectus and the grant or issuance of options or shares under existing equity compensation plans or stock purchase plans described in the Registration Statement or the Prospectus), and such authorized capital stock conforms to the description thereof set forth in the Registration Statement and the Prospectus. All of the Securities conform to the description thereof contained in the Registration Statement and the Prospectus. The form of certificates for the Conversion Shares, the Interest Shares and the Warrant Shares will conform to the corporate law of the jurisdiction of the Company's incorporation.

(g) Disclosure.

(i) The SEC has not issued an order preventing or suspending the use of any Issuer Free Writing Prospectus or the Prospectus relating to the proposed offering of the Securities, and no proceeding for that purpose or pursuant to Section 8A of the 1933 Act has been instituted or, to the Company's knowledge, threatened by the SEC. The Registration Statement conforms, and the Prospectus and any amendments or supplements thereto will conform to the requirements of the 1933 Act and the Rules and Regulations. The documents

incorporated, or to be incorporated, by reference in the Prospectus, at the time filed with the SEC conformed in all material respects, or will conform in all respects, to the requirements of the 1934 Act, or the 1933 Act, as applicable, and the Rules and Regulations. The Registration Statement and any amendment thereto do not contain, and on the Closing Date will not contain, any untrue statement of a material fact and do not omit, and on the Closing Date will not omit, to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus and any amendments and supplements thereto do not contain, and on the Closing Date will not contain, any untrue statement of a material fact; and do not omit, and on the Closing Date will not omit, to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that the Company makes no representations or warranties as to information contained in or omitted from the Registration Statement or the Prospectus, or any such amendment or supplement, in reliance upon, and in conformity with, written information furnished to the Company by or on behalf of the Buyers, specifically for use therein.

(ii) Each Issuer Free Writing Prospectus, as of its issue date and at all subsequent times through the completion of the public offer and sale of the Securities or until any earlier date that the Company notified or notifies the Buyers as described in the next sentence, did not, does not and will not include any information that conflicted, conflicts or will conflict with the information contained in the Registration Statement or the Prospectus, including any document incorporated by reference therein that has not been superseded or modified. If at any time following issuance of an Issuer Free Writing Prospectus, there occurred or occurs an event or development as a result of which such Issuer Free Writing Prospectus included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in light of the circumstances, not misleading, the Company has notified or will notify promptly the Buyers so that any use of such Issuer Free Writing Prospectus may cease until it is amended or supplemented. The foregoing two sentences do not apply to statements or omissions from any Issuer Free Writing Prospectus based upon and in conformity with written information furnished to the Company by the Buyers specifically for use therein.

(iii) The Company confirms that neither it nor any other Person acting on its behalf has provided any of the Buyers or their agents or counsel with any information that constitutes or could reasonably be expected to constitute material, nonpublic information, that is not included in the 8-K Filing (as defined below) or other public filing of the Company filed prior to the 8-K Filing Time (as defined below). The Company understands and confirms that each of the Buyers will rely on the foregoing representations in effecting transactions in securities of the Company. No event or circumstance has occurred or information exists with respect to the Company or any of its Subsidiaries or its or their business, properties, prospects, operations or financial conditions, which, under applicable law, rule or regulation, requires public disclosure or announcement by the Company but which has not been so publicly announced or disclosed.

(h) Offering Materials. The Company has not, directly or indirectly, distributed and will not distribute any offering material in connection with the offering and sale of the Securities other than the Prospectus, any Permitted Free Writing Prospectus (as defined below) and other materials, if any, permitted under the 1933 Act. The Company will file with

the SEC all Issuer Free Writing Prospectuses in the time required under Rule 433(d) under the 1933 Act. The Company has satisfied or will satisfy the conditions in Rule 433 under the 1933 Act to avoid a requirement to file with the SEC any electronic road show.

(i) Ineligible Issuer Status. At the time of filing the Registration Statement and (ii) as of the date hereof (with such date being used as the determination date for purposes of this clause (ii)), the Company was not and is not an ineligible issuer (as defined in Rule 405 under the 1933 Act, without taking into account any determination by the SEC pursuant to Rule 405 under the 1933 Act that it is not necessary that the Company be considered an ineligible issuer), including, without limitation, for purposes of Rules 164 and 433 under the 1933 Act with respect to the offering of the Securities as contemplated by the Registration Statement.

(j) Financial Statements. The condensed consolidated financial statements of the Company and the Subsidiaries, together with related notes and schedules as set forth or incorporated by reference in the Registration Statement, the General Disclosure Package and the Prospectus, present fairly in all material respects the financial position and the results of operations and cash flows of the Company and the consolidated Subsidiaries, at the indicated dates and for the indicated periods. Such condensed consolidated financial statements and related schedules have been prepared in accordance with generally accepted principles of accounting ( **GAAP** ), consistently applied throughout the periods involved, except as disclosed therein, and all adjustments necessary for a fair presentation of results for such periods have been made. The summary and selected consolidated financial and statistical data included or incorporated by reference in the Registration Statement, the General Disclosure Package and the Prospectus presents fairly in all material respects the information shown therein, at the indicated dates and for the indicated periods, and such data has been compiled on a basis consistent with the financial statements presented therein and the books and records of the Company. All disclosures, if any, contained in the Registration Statement, the General Disclosure Package and the Prospectus regarding non-GAAP financial measures (as such term is defined by the Rules and Regulations) comply in all material respects with Regulation G of the 1934 Act and Item 10 of Regulation S-K under the 1933 Act, to the extent applicable. The Company and the Subsidiaries do not have any material liabilities or obligations, direct or contingent (including any off-balance sheet obligations or any variable interest entities within the meaning of Financial Accounting Standards Board Interpretation No. 46), not disclosed in the Registration Statement, the General Disclosure Package and the Prospectus. There are no financial statements (historical or pro forma) that are required to be included in the Registration Statement, the General Disclosure Package or the Prospectus that are not included as required.

(k) Accountants. Ernst & Young LLP, who have certified certain of the financial statements filed with the SEC as part of, or incorporated by reference in, the Registration Statement, the General Disclosure Package and the Prospectus, has represented to the Company that it is an independent registered public accounting firm with respect to the Company and the Subsidiaries within the meaning of the 1933 Act and the applicable Rules and Regulations and the Public Company Accounting Oversight Board (United States) (the **PCAOB** ).

(l) Weaknesses or Changes in Internal Accounting Controls. Except as disclosed in the Registration Statement, the General Disclosure Package and the Prospectus,

neither the Company nor any of the Subsidiaries is aware of (i) any material weakness in its internal control over financial reporting or (ii) change in internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

(m) Sarbanes-Oxley. Solely to the extent that the Sarbanes-Oxley Act of 2002, as amended, and the rules and regulations promulgated by the SEC and The NASDAQ Global Market (the **Principal Market**) thereunder (collectively, the **Sarbanes-Oxley Act**) has been applicable to the Company, there is and has been no failure on the part of the Company to comply in all material respects with any provision of the Sarbanes-Oxley Act. The Company has taken all necessary actions to ensure that it is in compliance in all material respects with all provisions of the Sarbanes-Oxley Act that are in effect with respect to which the Company is required to comply and is actively taking steps to ensure that it will be in compliance with the other provisions of the Sarbanes-Oxley Act which will become applicable to the Company.

(n) Litigation. There is no action, suit, claim or proceeding pending or, to the knowledge of the Company, threatened against the Company or any of the Subsidiaries before any court or administrative agency or otherwise which if determined adversely to the Company or any of the Subsidiaries would have, individually or in the aggregate, a Material Adverse Effect, except as set forth in the Registration Statement, the General Disclosure Package and the Prospectus.

(o) Title. The Company and the Subsidiaries have good and marketable title to all of the material properties and assets reflected in the condensed consolidated financial statements hereinabove described or described in the Registration Statement, the General Disclosure Package and the Prospectus, subject to no lien, mortgage, pledge, charge or encumbrance of any kind except those reflected in such financial statements or described in the Registration Statement, the General Disclosure Package and the Prospectus or which are not material in amount or would not materially interfere with the use to be made of such properties or assets. The Company and the Subsidiaries occupy their leased properties under valid and binding leases conforming in all material respects to the description thereof set forth in the Registration Statement, the General Disclosure Package and the Prospectus.

(p) Taxes. The Company and the Subsidiaries have filed all Federal, State, local and foreign tax returns which have been required to be filed and have paid all taxes indicated by such returns and all assessments received by them or any of them to the extent that such taxes have become due and are not being contested in good faith and for which an adequate reserve for accrual has been established in accordance with GAAP. All tax liabilities have been adequately provided for in the condensed consolidated financial statements of the Company in accordance with GAAP, and the Company does not know of any actual or proposed additional material tax assessments.

(q) Absence of Certain Changes. Since the respective dates as of which information is given in the Registration Statement, the General Disclosure Package and the Prospectus, as each may be amended or supplemented, there has not been any Material Adverse Effect, and there has not been any material transaction entered into by the Company or the Subsidiaries, other than transactions in the ordinary course of business and transactions described

in the Registration Statement, the General Disclosure Package and the Prospectus, as each may be amended or supplemented. The Company and the Subsidiaries have no material contingent obligations which are not disclosed in the Company's condensed consolidated financial statements which are included in the Registration Statement, the General Disclosure Package and the Prospectus.

(r) No Conflicts. Neither the Company nor any of the Subsidiaries is or with the giving of notice or lapse of time or both, will be in violation of its certificate of incorporation, by-laws, or other organizational documents. The execution and delivery of this Agreement and the consummation of the transactions herein contemplated and the fulfillment of the terms hereof will not conflict with or result in a breach of any of the terms or provisions of, or constitute a default under, any indenture, mortgage, deed of trust or other agreement or instrument to which the Company or any Subsidiary is a party or by which the Company or any Subsidiary or any of their respective properties is bound, or of the certificate of incorporation or by-laws of the Company or any law, order, rule or regulation judgment, order, writ or decree applicable to the Company or any Subsidiary of any court or of any government, regulatory body or administrative agency or other governmental body having jurisdiction, except to the extent that such conflict, breach or default would not have a Material Adverse Effect.

(s) Contracts. There is no document, contract or other agreement required to be described in the Registration Statement or Prospectus or to be filed as an exhibit to the Registration Statement which is not described or filed as required by the 1933 Act or the Rules and Regulations. Each description of a contract, document or other agreement in the Registration Statement and the Prospectus accurately reflects in all material respects the terms of the underlying contract, document or other agreement. Each contract, document or other agreement described in the Registration Statement and Prospectus or listed in the exhibits to the Registration Statement or incorporated by reference is in full force and effect and is valid and enforceable by and against the Company in accordance with its terms (except as rights to indemnity and contribution thereunder may be limited by federal or state securities laws and matter of public policy and except as the enforceability thereof may be limited by bankruptcy, insolvency, reorganization, moratorium or other similar laws affecting the enforcement of creditors' rights generally and by general equitable principle). Neither the Company nor any of its Subsidiaries nor, to the Company's knowledge, any other party is in default in the observance or performance of any term or obligation to be performed by it under any such agreement or any other agreement or instrument to which the Company or its Subsidiaries is a party or by which the Company or its Subsidiaries or their respective properties or businesses may be bound, and no event has occurred which with notice or lapse of time or both would constitute such a default, in any such case in which the default or event, individually or in the aggregate, would have a Material Adverse Effect.

(t) Regulatory Approvals. Each approval, consent, order, authorization, designation, declaration or filing by or with any regulatory, administrative or other governmental body necessary in connection with the execution and delivery by the Company of this Agreement and the consummation of the transactions herein contemplated (except such additional steps as may be required by the SEC, the National Association of Securities Dealers, Inc. (the **NASD**) or such additional steps as may be required under state securities or Blue Sky laws) has been obtained or made and is in full force and effect.

(u) **Intellectual Property.** Except as described in the Registration Statement and the General Disclosure Package or in any document incorporated by reference therein, the Company and each of the Subsidiaries hold all material licenses, certificates and permits from governmental authorities which are necessary to the conduct of their businesses in the manner in which they are being conducted; the Company and the Subsidiaries each own or possess the right to use all patents, patent rights, trademarks, trade names, service marks, service names, copyrights, license rights, know-how (including trade secrets and other unpatented and unpatentable proprietary or confidential information, systems or procedures) and other intellectual property rights ( **Intellectual Property** ) necessary to carry on their business in all material respects in the manner in which it is being conducted; to the Company's knowledge, neither the Company nor any of the Subsidiaries has infringed, and none of the Company or the Subsidiaries have received notice of conflict with, any Intellectual Property of any other person or entity. The Company has taken all steps reasonably necessary to secure ownership interests in Intellectual Property created for it by any contractors. There are no outstanding options, licenses or agreements of any kind relating to the Intellectual Property of the Company that are required to be described in the Registration Statement, the General Disclosure Package and the Prospectus and are not described therein in all material respects. The Company is not a party to or bound by any options, licenses or agreements with respect to the Intellectual Property of any other person or entity that are required to be set forth in the Prospectus and are not described therein in all material respects. None of the technology employed by the Company and material to the Company's business has been obtained or is being used by the Company in violation of any contractual obligation binding on the Company or, to the Company's knowledge, any of its officers, directors or employees or, to the Company's knowledge, otherwise in violation of the rights of any persons; the Company has not received any written or oral communications alleging that the Company has violated, infringed or conflicted with, or, by conducting its business as set forth in the Registration Statement, the General Disclosure Package and the Prospectus, would violate, infringe or conflict with, any of the Intellectual Property of any other person or entity. The Company knows of no infringement by others of Intellectual Property owned by or licensed to the Company.

(v) **FDA; Studies.** Since the respective dates as of which information is set forth in the Registration Statement, the General Disclosure Package and the Prospectus, (i) all of the descriptions of the Company's legal and governmental proceedings and procedures before the United States Food and Drug Administration (the **FDA** ) or any other national, departmental, state or local governmental body exercising comparable authority are true and correct in all material respects, (ii) the studies, tests and preclinical and clinical trials conducted by or on behalf of the Company and its Subsidiaries that are described in the Registration Statement, the General Disclosure Package and the Prospectus were and, if still pending, are (a) with respect to the foregoing conducted by employees of the Company or any of its Subsidiaries ( **Company Studies** ), being conducted in accordance with experimental protocols, procedures and controls pursuant to, where applicable, accepted professional scientific standards, in each case in all necessary respects and in all material respects; and (b) with respect to the foregoing conducted on behalf of the Company or independently by others using the Company's or any of its Subsidiaries' technologies, products or product candidates ( **Independent Studies** ), to the Company's knowledge, being conducted in accordance with experimental protocols, procedures and controls pursuant to, where applicable, accepted professional scientific standards, in each case in all necessary respects and in all material respects; (iii) the descriptions of the results of

the Company Studies, and, to the Company's knowledge, the Independent Studies, contained in the Registration Statement, the General Disclosure Package and the Prospectus are true and correct in all material respects; and (iv) except as disclosed in the Registration Statement, the General Disclosure Package and the Prospectus, neither the Company nor its Subsidiaries have received any notices or correspondence from the FDA, or any national, state or local governmental body exercising comparable authority requiring the termination, suspension or material modification of any of the Company Studies or Independent Studies.

(w) Manipulation of Prices. Neither the Company, nor to the Company's knowledge, any of its affiliates, has taken or may take, directly or indirectly, any action designed to cause or result in, or which has constituted or which might reasonably be expected to constitute, the stabilization or manipulation of the price of the shares of Common Stock to facilitate the sale or resale of the Securities.

(x) Investment Company Act. Neither the Company nor any Subsidiary is or, after giving effect to the offering and sale of the Securities contemplated hereunder and the application of the net proceeds from such sale as described in the Prospectus, will be an investment company within the meaning of such term under the Investment Company Act of 1940 as amended (the **1940 Act**), and the rules and regulations of the SEC thereunder.

(y) Internal Accounting Controls.

(i) The Company and each of the Subsidiaries maintains a system of internal accounting controls sufficient to provide reasonable assurances that (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

(ii) The Company has established and maintains disclosure controls and procedures (as defined in Rules 13a-15e and 15d-15e under the 1934 Act); the Company's disclosure controls and procedures are reasonably designed to ensure that all information (both financial and non-financial) required to be disclosed by the Company in the reports that it files or submits under the 1934 Act is recorded, processed, summarized and reported within the time periods specified in the rules and regulations of the 1934 Act, and that all such information is accumulated and communicated to the Company's management as appropriate to allow timely decisions regarding required disclosure and to make the certifications of the Chief Executive Officer and Chief Financial Officer of the Company required under the 1934 Act with respect to such reports.

(z) Money Laundering Laws. The operations of the Company and the Subsidiaries are and have been conducted at all times in compliance with applicable financial record-keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the **Money Laundering Laws**), and no action, suit or

proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the Company's knowledge, threatened.

(aa) Office of Foreign Assets Control. Neither the Company nor, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ( **OFAC** ); and the Company will not directly or indirectly use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other person or entity, for the purpose of financing the activities of any person currently subject to any U.S. sanctions administered by OFAC.

(bb) Insurance. The Company and each of the Subsidiaries carry, or are covered by, insurance in such amounts and covering such risks as is adequate for the conduct of their respective businesses and the value of their respective properties and as is customary for companies engaged in similar businesses.

(cc) Employee Benefits. The Company and each Subsidiary is in compliance in all material respects with all presently applicable provisions of the Employee Retirement Income Security Act of 1974, as amended, including the regulations and published interpretations thereunder ( **ERISA** ); no reportable event (as defined in ERISA) has occurred with respect to any pension plan (as defined in ERISA) for which the Company and each Subsidiary would have any material liability; the Company and each Subsidiary has not incurred and does not expect to incur material liability under (i) Title IV of ERISA with respect to termination of, or withdrawal from, any pension plan or (ii) Sections 412 or 4971 of the Internal Revenue Code of 1986, as amended, including the regulations and published interpretations thereunder (the **Code** ); and each pension plan for which the Company or any Subsidiary would have any liability that is intended to be qualified under Section 401(a) of the Code is so qualified in all material respects and nothing has occurred, whether by action or by failure to act, which would cause the loss of such qualification.

(dd) Transactions with Affiliates. To the Company's knowledge, there are no affiliations or associations between any member of the NASD and any of the Company's officers, directors or 5% or greater securityholders, except as set forth in the Registration Statement. There are no relationships or related-party transactions involving the Company or any of the Subsidiaries or, to the knowledge of the Company, any other person required to be described in the Prospectus which have not been described as required.

(ee) Environmental Laws. Neither the Company nor any of the Subsidiaries is in violation of any statute, rule, regulation, decision or order of any governmental agency or body or any court, domestic or foreign, relating to the use, disposal or release of hazardous or toxic substances or relating to the protection or restoration of the environment or human exposure to hazardous or toxic substances (collectively, **environmental laws** ), owns or operates any real property contaminated with any substance that is subject to environmental laws, is liable for any off-site disposal or contamination pursuant to any environmental laws, or is subject to any claim relating to any environmental laws, which violation, contamination, liability or claim would, individually or in the aggregate, have a Material Adverse Effect; and the Company is not aware of any pending investigation which would reasonably be expected to lead to such a claim.

(ff) Listing; 1934 Act Registration. The Common Stock has been approved for listing subject to notice of issuance on the Principal Market. The Company has taken no action designed to, or likely to have the effect of, terminating the registration of the Common Stock under the 1934 Act or the quotation of the Common Stock on the Principal Market, nor, has the Company received any notification that the SEC or the Principal Market is contemplating terminating such registration or quotation.

(gg) Contributions; Foreign Corrupt Practices. Neither the Company nor any of the Subsidiaries has made any contribution or other payment to any official of, or candidate for, any federal, state or foreign office in violation of any law which violation is required to be disclosed in the Prospectus.

(hh) No Integrated Offering. The Company has not sold or issued any securities that would be integrated with the offering of the Securities contemplated by this Agreement pursuant to the 1933 Act, the Rules and Regulations or the interpretations thereof by the SEC. None of the Company, its Subsidiaries, any of their affiliates, and any Person acting on their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Securities to require approval of stockholders of the Company for purposes of any applicable stockholder approval provisions, including, without limitation, under the rules and regulations of any exchange or automated quotation system on which any of the securities of the Company are listed or designated. None of the Company, its Subsidiaries, their affiliates and any Person acting on their behalf will take any action or steps referred to in the preceding sentence that would cause the offering of the Securities to be integrated with other offerings for purposes of any such applicable stockholder approval provisions.

(ii) Brokerage Fees; Commissions. Except as described in the Registration Statement and the General Disclosure Package, neither the Company nor any of its Subsidiaries is a party to any contract, agreement or understanding with any person that would give rise to a valid claim against the Company or the Buyers for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Securities. The Company shall pay, and hold the Buyer harmless against, any liability, loss or expense (including, without limitation, attorneys' fees and out-of-pocket expenses) arising in connection with any such claim.

(jj) Consents. Other than as described in Section 3(t) hereof, or as have been obtained, filed or made, neither the Company nor any of its Subsidiaries is required to obtain any consent, authorization or order of, or make any filing or registration with, any court, governmental agency or any regulatory or self-regulatory agency or any other Person in order for it to execute, deliver or perform any of its obligations under or contemplated by the Transaction Documents, in each case in accordance with the terms hereof or thereof (other than any filings which may be required to be made by the Company with the SEC or the Principal Market subsequent to the date hereof, including but not limited to the Prospectus Supplement and any blue sky filings which may be required to be made). The Company is not in violation of the listing requirements of the Principal Market and has no knowledge of any facts that would reasonably lead to delisting or suspension of the Common Stock in the foreseeable future.

(kk) Acknowledgment Regarding Buyer's Purchase of Securities. The Company acknowledges and agrees that each Buyer is acting solely in the capacity of an arm's length purchaser with respect to the Transaction Documents and the transactions contemplated hereby and thereby and that no Buyer is (i) an officer or director of the Company, (ii) to the knowledge of the Company, an affiliate of the Company or any of its Subsidiaries (as defined in Rule 144 of the 1933 Act) or (iii) to the knowledge of the Company, a beneficial owner of more than 10% of the shares of Common Stock (as defined for purposes of Rule 13d-3 of the 1934 Act). The Company further acknowledges that no Buyer is acting as a financial advisor or fiduciary of the Company or any of its Subsidiaries (or in any similar capacity) with respect to the Transaction Documents and the transactions contemplated hereby and thereby, and any advice given by a Buyer or any of its representatives or agents in connection with the Transaction Documents and the transactions contemplated hereby and thereby is merely incidental to such Buyer's purchase of the Securities. The Company further represents to each Buyer that the Company's decision to enter into the Transaction Documents has been based solely on the independent evaluation by the Company and its representatives.

(ll) Dilutive Effect. The Company understands and acknowledges that the number of Conversion Shares issuable upon conversion of the Notes and the Warrant Shares issuable upon exercise of the Warrants will increase in certain circumstances. The Company further acknowledges that its obligation to issue Conversion Shares upon conversion of the Notes in accordance with this Agreement, the Notes and the Indenture and its obligation to issue the Warrant Shares upon exercise of the Warrants in accordance with this Agreement and the Warrants is, in each case, absolute and unconditional regardless of the dilutive effect that such issuance may have on the ownership interests of other stockholders of the Company.

(mm) Application of Takeover Protections; Rights Agreement. The Company and its board of directors have taken all necessary action, if any, in order to exempt the Company's issuance of the Securities and any Buyer's ownership of the Securities from the provisions of any control share acquisition, business combination or other similar anti-takeover provision under the Certificate of Incorporation of the Company or the laws of the state of its incorporation which is or could become applicable to any Buyer as a result of the transactions contemplated by this Agreement. Except as described in the Registration Statement and the General Disclosure Package, the Company does not have any stockholder rights plan or similar arrangement relating to accumulations of beneficial ownership of Common Stock or a change in control of the Company.

(nn) Subsidiary Rights. The Company or one of its Subsidiaries has the unrestricted right to vote, and (subject to limitations imposed by applicable law) to receive dividends and distributions on, all capital securities of its Subsidiaries as owned by the Company or such Subsidiary.

(oo) Off Balance Sheet Arrangements. There is no transaction, arrangement, or other relationship between the Company and an unconsolidated or other off balance sheet entity that is required to be disclosed by the Company in its 1934 Act filings and is not so disclosed or that otherwise would be reasonably likely to have a Material Adverse Effect.

(pp) Transfer Taxes. On the Closing Date, all stock transfer or other similar taxes (other than income or similar taxes) which are required to be paid in connection with the sale and transfer of the Securities to be sold to each Buyer hereunder will be, or will have been, fully paid or provided for by the Company, and all laws imposing such taxes will be or will have been complied with.

(qq) Acknowledgement Regarding Buyers' Trading Activity. Anything in this Agreement or elsewhere herein to the contrary notwithstanding, but subject to compliance by the Buyers with applicable law, it is understood and acknowledged by the Company (i) that none of the Buyers have been asked by the Company or its Subsidiaries to agree, nor has any Buyer agreed with the Company or its Subsidiaries, to desist from purchasing or selling, long and/or short, securities of the Company, or derivative securities based on securities issued by the Company or to hold the Securities for any specified term; (ii) that past or future open market or other transactions by any Buyer, including, without limitation, short sales or derivative transactions, before or after the closing of this or future private placement transactions, may negatively impact the market price of the Company's publicly-traded securities; (iii) that any Buyer, and counter parties in derivative transactions to which any such Buyer is a party, directly or indirectly, presently may have a short position in the Common Stock, and (iv) that each Buyer shall not be deemed to have any affiliation with or control over any arm's length counter-party in any derivative transaction. The Company further understands and acknowledges that, subject to compliance by the Buyers with applicable law, (a) one or more Buyers may engage in hedging and/or trading activities at various times during the period that the Securities are outstanding, including, without limitation, during the periods that the value of the Conversion Shares and the Warrant Shares deliverable with respect to Securities are being determined and (b) such hedging and/or trading activities (if any) could reduce the value of the existing stockholders' equity interests in the Company at and after the time that the hedging and/or trading activities are being conducted.

(rr) U.S. Real Property Holding Corporation. The Company is not, nor has it ever been, a U.S. real property holding corporation within the meaning of Section 897 of the Internal Revenue Code of 1986, as amended, and the Company shall so certify upon any Buyer's request.

(ss) Trust Indenture Act. The Indenture is qualified the Trust Indenture Act of 1939, as amended (the "Trust Indenture Act").

#### 4. COVENANTS.

(a) Reasonable Best Efforts. Each party shall use its reasonable best efforts timely to satisfy each of the conditions to be satisfied by it as provided in Sections 6 and 7 of this Agreement.

(b) Maintenance of Registration Statement. For so long as any of the Notes or Warrants remain outstanding, the Company shall use its reasonable best efforts to maintain the

effectiveness of the Registration Statement for the issuance thereunder of the Registrable Securities (as defined below); provided that, if at any time while the Notes or the Warrants are outstanding the Company shall be ineligible to utilize Form S-3 (or any successor form) for the purpose of issuance of the Registrable Securities the Company shall use its reasonable best efforts to promptly amend the Registration Statement on such other form as may be necessary to maintain the effectiveness of the Registration Statement for this purpose. For the purpose of this Agreement,

**Registrable Securities** means (i) the Conversion Shares issued or issuable upon conversion of the Notes, (ii) the Interest Shares issued or issuable in accordance with the terms of the Indenture and the Notes, (iii) the Warrant Shares issued or issuable upon exercise of the Warrants and (iv) any shares of capital stock of the Company issued or issuable with respect to the Conversion Shares, the Notes, the Interest Shares, the Warrant Shares and the Warrants as a result of any stock split, stock dividend, recapitalization, exchange or similar event or otherwise, without regard to any limitations on conversions of the Notes or exercises of the Warrants.

(c) Prospectus Supplement and Blue Sky. In the manner required by law, the Company shall have delivered to the Buyers, and as soon as practicable after the Closing the Company shall file, the Prospectus Supplement with respect to the Securities as required under and in conformity with the 1933 Act, including Rule 424(b) thereunder. If required, the Company, on or before the Closing Date, shall take such action as the Company shall reasonably determine is necessary in order to obtain an exemption for or to qualify the Securities for sale to the Buyers at the Closing pursuant to this Agreement under applicable securities or Blue Sky laws of the states of the United States (or to obtain an exemption from such qualification), and shall provide evidence of any such action so taken to the Buyers on or prior to the Closing Date. The Company shall make all filings and reports relating to the offer and sale of the Securities required under applicable securities or Blue Sky laws of the states of the United States following the Closing Date.

(d) Use of Proceeds. The Company will use the proceeds from the sale of the Securities in the manner described in the Registration Statement and the General Disclosure Package, except as otherwise limited by any prohibitions contained in the Indenture for so long as such Notes are outstanding.

(e) Listing. The Company shall promptly secure the listing of all of the Conversion Shares, Interest Shares and Warrant Shares upon each national securities exchange and automated quotation system, if any, upon which the Common Stock is then listed (subject to official notice of issuance) and shall use its reasonable best efforts to maintain, in accordance with the Notes and Warrants, such listing of all Conversion Shares, Interest Shares and Warrant Shares from time to time issuable under the terms of the Transaction Documents. The Company use reasonable best efforts to maintain the Common Stocks authorization for quotation on the Principal Market or if such authorization is not able to be maintained, on another Eligible Market (as defined in the Indenture). Neither the Company nor any of its Subsidiaries shall take any action which would be reasonably expected to result in the delisting or suspension of the Common Stock on the Principal Market. The Company shall pay all fees and expenses in connection with satisfying its obligations under this Section 4(e).

(f) Fees. Subject to Section 8 below, at Closing, the Company shall pay an expense allowance to Portside Growth and Opportunity Fund (a Buyer) or its designee(s) (in

addition to any other expense amounts paid to any Buyer prior to the date of this Agreement) for all actual and accountable reasonable costs and expenses incurred in connection with the transactions contemplated by the Transaction Documents (including all reasonable legal fees and disbursements in connection therewith, documentation and implementation of the transactions contemplated by the Transaction Documents and due diligence in connection therewith), in an amount not to exceed \$105,000 (in addition to any other expense amounts paid to any Buyer prior to the date of this Agreement), which amount shall be withheld by such Buyer from its Purchase Price at the Closing. The Company shall be responsible for the payment of any placement agent's fees, financial advisory fees, or broker's commissions (other than for Persons engaged by any Buyer) relating to or arising out of the transactions contemplated hereby. The Company shall pay, and hold each Buyer harmless against, any liability, loss or expense (including, without limitation, reasonable attorney's fees and out-of-pocket expenses) arising in connection with any claim relating to any such payment.

(g) Pledge of Securities. The Company acknowledges and agrees that the Securities may be pledged in compliance with applicable law by any holder of Securities (an **Investor**) in connection with a bona fide margin agreement or (but not the enforcement of any pledge) other loan or financing arrangement that is secured by the Securities. The pledge of Securities shall not be deemed to be a transfer, sale or assignment of the Securities hereunder, and no Investor effecting a pledge of Securities shall be required to provide the Company with any notice thereof or otherwise make any delivery to the Company pursuant to this Agreement or any other Transaction Document. The Company hereby agrees, subject to applicable securities laws, to execute and deliver such documentation as a pledgee of the Securities may reasonably request in connection with a pledge of the Securities to such pledgee by an Investor.

(h) Disclosure of Transactions and Other Material Information. On or before 8:30 a.m., New York City time, on the first Business Day following the date of this Agreement (the **8-K Filing Time**), the Company shall issue a press release and file a Current Report on Form 8-K describing the terms of the transactions contemplated by the Transaction Documents in the form required by the 1934 Act and attaching the material Transaction Documents (including, without limitation, this Agreement, the Indenture, the form of the Notes and the form of Warrant) as exhibits to such filing (including all attachments, the **8-K Filing**). As of immediately following the filing of the 8-K Filing with the SEC, no Buyer shall be in possession of any material, nonpublic information received from the Company, any of its Subsidiaries or any of their respective officers, directors, employees or agents, that is not disclosed in the 8-K Filing or in prior filings with the SEC. For so long as the Notes and the Warrants are outstanding, other than notices required to be delivered pursuant to Section 4(m), the Company shall not, and shall cause each of its Subsidiaries and its and each of their respective officers, directors, employees and agents, not to, provide any Buyer with any material, nonpublic information regarding the Company or any of its Subsidiaries from and after the filing of the 8-K Filing with the SEC without the express written consent of such Buyer. For so long as the Notes and the Warrants are outstanding, if a Buyer has, or believes it has, received any such material, nonpublic information regarding the Company or any of its Subsidiaries provided in breach of the preceding sentence, it shall provide the Company with written notice thereof in which case the Company shall, within five (5) Trading Days (as defined in the Indenture) of receipt of such notice, make public disclosure of any such material, nonpublic information provided in breach of the preceding sentence. In the event of a breach of the foregoing covenant by the Company, any

of its Subsidiaries, or any of its or their respective officers, directors, employees and agents, in addition to any other remedy provided herein or in the Transaction Documents, a Buyer shall have the right to make a public disclosure, in the form of a press release, public advertisement or otherwise, of such material, nonpublic information without the prior approval by the Company, its Subsidiaries, or any of its or their respective officers, directors, employees or agents. No Buyer shall have any liability to the Company, its Subsidiaries, or any of its or their respective officers, directors, employees, stockholders or agents for any such disclosure. Subject to the foregoing, neither the Company, its Subsidiaries nor any Buyer shall issue any press releases or any other public statements with respect to the transactions contemplated hereby; provided, however, that the Company shall be entitled, without the prior approval of any Buyer, to make any press release or other public disclosure with respect to such transactions (i) in substantial conformity with the 8-K Filing and contemporaneously therewith and (ii) as is required by applicable law, regulation or any Eligible Market on which the Company's securities are then listed or quoted (provided that in the case of clause (i) each Buyer shall be consulted by the Company in connection with any such press release or other public disclosure prior to its release). Without the prior written consent of any applicable Buyer, neither the Company nor any of its Subsidiaries or affiliates shall disclose the name of such Buyer in any filing, announcement, release or otherwise other than in connection with the Registration Statement unless such disclosure is required by law, regulation or any Eligible Market on which the Company's securities are then listed or quoted.

(i) Additional Notes: Variable Securities: Dilutive Issuances. For so long as any Notes remain outstanding, the Company will not issue any Notes other than to the Buyers as contemplated hereby and the Company shall not issue any other securities that would cause a breach or default under the Notes. For so long as any Notes or Warrants remain outstanding, the Company shall not, in any manner, issue or sell any rights, warrants or options to subscribe for or purchase Common Stock or directly or indirectly convertible into or exchangeable or exercisable for Common Stock at a price which varies or may vary with the market price of the Common Stock, including by way of one or more reset(s) to any fixed price unless the conversion, exchange or exercise price of any such security cannot be less than the then applicable Conversion Price (as defined in the Indenture) with respect to the Common Stock into which any Note is convertible or the then applicable Exercise Price (as defined in the Warrants) with respect to the Common Stock into which any Warrant is exercisable. For so long as any Notes or Warrants remain outstanding, the Company shall not, in any manner, enter into or affect any Dilutive Issuances (as defined in the Indenture) if the effect of such Dilutive Issuance is to cause, or but for the Securities Limitations (as defined below) would cause, the Company to be required to issue upon conversion of any Note or exercise of any Warrant any shares of Common Stock in excess of that number of shares of Common Stock which the Company may issue upon conversion of the Notes and exercise of the Warrants without breaching the Company's obligations under the rules or regulations of the Principal Market, in each case without giving effect to (w) the limitations on conversion contained in the Indenture, (x) the application of any Conversion Floor Price (as defined in the Indenture), (y) the limitations on exercise contained in the Warrants, and (z) the application of any Exercise Floor Price (as defined in the Warrants) (the **Securities Limitations**). For so long as any Notes or Warrants are outstanding, unless or until the Stockholder Approval (as defined below) has been obtained, the Company shall not take any action if the effect of such action would be to cause either (i) the Conversion Price to be reduced below the Conversion Floor Price or (ii) the Exercise Price to be reduced below the Exercise Floor Price, in each case without giving effect to any Securities Limitations.

(j) Corporate Existence. For so long as any Notes or Warrants remain outstanding, the Company shall not be party to any Fundamental Transaction (as defined in the Indenture) unless the Company is in compliance with the applicable provisions governing Fundamental Transactions set forth in the Indenture and the Warrants.

(k) Reservation of Shares. The Company shall take all action necessary to at all times have authorized, and reserved for the purpose of issuance, no less than 130% of the sum of the number of shares of Common Stock issuable (i) upon conversion of the Notes issued at the Closing, (ii) as Interest Shares pursuant to the terms of the Indenture and the Notes and (iii) upon exercise of the Warrants issued at the Closing (without taking into account any limitations on the Conversion of the Notes or exercise of the Warrants set forth in the Indenture and Warrants, respectively).

(l) Conduct of Business. The business of the Company and its Subsidiaries shall not be conducted in violation of any law, ordinance or regulation of any governmental entity, except where such violations would not result, either individually or in the aggregate, in a Material Adverse Effect.

(m) Additional Issuances of Securities.

(i) For purposes of this Section 4(m), the following definitions shall apply.

(1) **Convertible Securities** means any stock or securities (other than Options) convertible into or exercisable or exchangeable for shares of Common Stock.

(2) **Options** means any rights, warrants or options to subscribe for or purchase shares of Common Stock or Convertible Securities.

(3) **Common Stock Equivalents** means, collectively, Options and Convertible Securities.

(4) **Shelf Offering** means any Subsequent Placement of Common Stock or Common Stock Equivalents directly by the Company or through an underwriter of the Company to buyers of such Common Stock or Common Stock Equivalents under an effective shelf registration statement pursuant to Rule 415 of the 1933 Act.

(5) **Other Subsequent Placements** means any Subsequent Placements other than a Shelf Offering.

(ii) From the date hereof until the date that is thirty (30) Trading Days (as defined in the Indenture) following the effective date of the Prospectus Supplement (the **Trigger Date**), the Company will not, directly or indirectly, file any registration statement

with the SEC other than the Registration Statement and shall not file any prospectus supplement with respect to any Subsequent Placement (as defined below). From the date hereof until the Trigger Date, the Company will not, directly or indirectly, offer, sell, grant any option to purchase, or otherwise dispose of (or announce any offer, sale, grant or any option to purchase or other disposition of) any of its or its Subsidiaries' equity or equity equivalent securities, including without limitation any debt, preferred stock or other instrument or security that is, at any time during its life and under any circumstances, convertible into or exchangeable or exercisable for shares of Common Stock or Common Stock Equivalents (any such offer, sale, grant, disposition or announcement being referred to as a **Subsequent Placement** ).

(iii) From the Trigger Date until the second anniversary of the Closing Date, the Company will not, directly or indirectly, effect any Subsequent Placement unless the Company shall have first complied with this Section 4(m)(iii).

(1) The Company shall deliver to each Buyer a written notice (the **Offer Notice** ) of any proposed or intended issuance or sale or exchange (the **Offer** ) of the securities being offered (the **Offered Securities** ) in a Subsequent Placement, which Offer Notice shall (w) identify and describe the Offered Securities, (x) describe the price and other terms upon which they are to be issued, sold or exchanged, and the number or amount of the Offered Securities to be issued, sold or exchanged, (y) identify the persons or entities (if known) to which or with which the Offered Securities are to be offered, issued, sold or exchanged and (z) offer to issue and sell to or exchange with such Buyers at least thirty percent (30%) of the Offered Securities, allocated among such Buyers (a) based on such Buyer's pro rata portion of the aggregate principal amount of Notes purchased hereunder (the **Basic Amount** ), and (b) with respect to each Buyer that elects to purchase its Basic Amount, any additional portion of the Offered Securities attributable to the Basic Amounts of other Buyers as such Buyer shall indicate it will purchase or acquire should the other Buyers subscribe for less than their Basic Amounts (the **Undersubscription Amount** ), which process shall be repeated (other than any requirement to provide an updated Offer Notice reflecting such Undersubscription Amount which shall not be required to be repeated in the event that such process is appropriately described in the initial Offer Notice) until the Buyers shall have an opportunity to subscribe for any remaining Undersubscription Amount.

(2) To accept an Offer, in whole or in part, such Buyer must deliver a written notice to the Company prior to the end of (x) with respect to a Shelf Offering, the third (3<sup>rd</sup>) Business Day or (y) with respect to an Other Subsequent Placement, the seven (7<sup>th</sup>) Business Day after such Buyer's receipt of the Offer Notice (the **Offer Period** ), setting forth the portion of such Buyer's Basic Amount that such Buyer elects to purchase and, if such Buyer shall elect to purchase all of its Basic Amount, the Undersubscription Amount, if any, that such Buyer elects to purchase (in either case, the **Notice of Acceptance** ); provided, however, that the Buyers may not accept an Offer by electing to purchase less than 5% of the Offered Securities on an aggregate basis. If the Basic Amounts subscribed for by all Buyers are less than the total of all of the Basic Amounts, then each Buyer who has set forth an Undersubscription Amount in its Notice of Acceptance shall be entitled to purchase, in addition to the Basic Amounts subscribed for, the Undersubscription Amount it has subscribed for; provided,

however, that if the Undersubscription Amounts subscribed for exceed the difference between the total of all the Basic Amounts and the Basic Amounts subscribed for (the **Available Undersubscription Amount**), each Buyer who has subscribed for any Undersubscription Amount shall be entitled to purchase only that portion of the Available Undersubscription Amount as the Basic Amount of such Buyer bears to the total Basic Amounts of all Buyers that have subscribed for Undersubscription Amounts, subject to rounding by the Company to the extent its deems reasonably necessary. Notwithstanding anything to the contrary contained herein, if the Company desires to modify or amend any material terms or conditions of the Offer prior to the expiration of the Offer Period, the Company may deliver to the Buyers a new Offer Notice and the Offer Period shall expire on (x) with respect to a Shelf Offering, the third (3<sup>rd</sup>) Business Day or (y) with respect to an Other Subsequent Placement, the seventh (7<sup>th</sup>) Business Day after such Buyer's receipt of such new Offer Notice.

(3) The Company shall have fifteen (15) Business Days from the expiration of the Offer Period above to offer, issue, sell or exchange all or any part of such Offered Securities as to which a Notice of Acceptance has not been given by the Buyers (the **Refused Securities**), but only to the offerees described in the Offer Notice (if so described therein) and only upon terms and conditions (including, without limitation, unit prices and interest rates) that are not more favorable to the acquiring person or persons or less favorable to the Company than those set forth in the Offer Notice and (ii) to publicly announce (a) the execution of such Subsequent Placement Agreement, and (b) either (x) the consummation of the transactions contemplated by such Subsequent Placement Agreement or (y) the termination of such Subsequent Placement Agreement, which shall be filed with the SEC on a Current Report on Form 8-K with such Subsequent Placement Agreement and any documents contemplated therein filed as exhibits thereto.

(4) In the event the Company shall propose to sell less than all the Refused Securities (any such sale to be in the manner and on the terms specified in Section 4(m)(iii)(3) above), then each Buyer may, at its sole option and in its sole discretion, reduce the number or amount of the Offered Securities specified in its Notice of Acceptance to an amount that shall be not less than the number or amount of the Offered Securities that such Buyer elected to purchase pursuant to Section 4(m)(iii)(2) above multiplied by a fraction, (i) the numerator of which shall be the number or amount of Offered Securities the Company actually proposes to issue, sell or exchange (including Offered Securities to be issued or sold to Buyers pursuant to Section 4(m)(iii)(3) above prior to such reduction) and (ii) the denominator of which shall be the original amount of the Offered Securities. In the event that any Buyer so elects to reduce the number or amount of Offered Securities specified in its Notice of Acceptance, the Company may not issue, sell or exchange more than the reduced number or amount of the Offered Securities unless and until such securities have again been offered to the Buyers in accordance with Section 4(m)(iii)(1) above.

(5) Upon the closing of the issuance, sale or exchange of all or less than all of the Refused Securities, the Buyers shall acquire from the Company, and the Company shall issue to the Buyers, the number or amount of Offered Securities

specified in the Notices of Acceptance, as reduced pursuant to Section 4(m)(iii)(4) above if the Buyers have so elected, upon the terms and conditions specified in the Offer. The purchase by the Buyers of any Offered Securities is subject in all cases to the preparation, execution and delivery by the Company and the Buyers of a purchase agreement relating to such Offered Securities reasonably satisfactory in form and substance to the Buyers and their respective counsel.

(6) Any Offered Securities not acquired by the Buyers or other persons in accordance with Section 4(m)(iii)(3) above may not be issued, sold or exchanged until they are again offered to the Buyers under the procedures specified in this Agreement.

(7) The Company and the Buyers agree that if any Buyer elects to participate in the Offer, (x) neither the agreement regarding the Subsequent Placement (the **Subsequent Placement Agreement**) with respect to such Offer nor any other transaction documents related thereto (collectively, the **Subsequent Placement Documents**) shall include any term or provisions whereby any Buyer shall be required to agree to any restrictions in trading as to any securities of the Company owned by such Buyer prior to such Subsequent Placement and (y) the Buyers shall be entitled to the same registration rights provided to other investors in the Subsequent Placement.

(8) Notwithstanding anything to the contrary in this Section 4(m) and unless otherwise agreed to by the Buyers, the Company shall either confirm in writing to the Buyers that the transaction with respect to the Subsequent Placement has been abandoned or shall publicly disclose its intention to issue the Offered Securities, in either case in such a manner such that the Buyers will not be in possession of material non-public information, by the fifteen (15<sup>th</sup>) Business Day following delivery of the Offer Notice. If by the fifteen (15<sup>th</sup>) Business Day following delivery of the Offer Notice no public disclosure regarding a transaction with respect to the Offered Securities has been made, and no notice from the Company regarding the abandonment of such transaction has been received by the Buyers, such transaction shall be deemed to have been abandoned and the Buyers shall not be deemed to be in possession of any material, non-public information with respect to the Company. Should the Company decide to pursue such transaction with respect to the Offered Securities, the Company shall provide each Buyer with another Offer Notice and each Buyer will again have the right of participation set forth in this Section 4(m)(iii). The Company shall not be permitted to deliver more than one such Offer Notice to the Buyers in any 60 day period (other than the Offer Notices contemplated by the last sentence of Section 4(m)(iii)(2) of this Agreement or the prior sentence of this Section 4(m)(iii)(8)).

(iv) The restrictions contained in subsections (ii) and (iii) of this Section 4(m) shall not apply in connection with the issuance of any Excluded Securities (as defined in the Indenture).

(n) Letter of Credit.

(i) On or prior to the Business Day immediately following the Closing Date, the Company shall obtain an irrevocable letter of credit (the **Letter of Credit**), in the amount of \$7,000,000 (the **Letter of Credit Amount**) issued in favor of Portside Growth and Opportunity Fund, in its capacity as letter of credit agent for the holders of the Notes (the **LC Agent**) by a bank acceptable to such LC Agent (the **Letter of Credit Bank**) and in form and substance acceptable to such LC Agent. The Letter of Credit, including any renewals, extensions or replacements referred to below, shall expire not earlier than 91 days after the Stated Maturity (as defined in the Indenture) of the Notes (the **LC Expiration Date**). Upon (i) the occurrence and during the continuance of an Event of Default (as defined in the Indenture) under any of the Notes or (ii) the Stated Maturity of the Notes, the LC Agent shall be entitled to draw under the Letter of Credit, including any renewals, extensions or replacements referred to below, for the full Letter of Credit Amount then available thereunder, it being understood that the LC Agent shall act for the benefit of the Buyers on a pro rata basis based on the principal amount of the Notes initially issued to each of the Buyers and hold such amount as collateral security for the obligations under the Notes for the benefit of the Buyers. The Company shall obtain such renewals, extensions or replacements of the Letter of Credit as necessary to ensure that the Letter of Credit shall not expire prior to the LC Expiration Date (unless the Letter of Credit shall have been reduced to zero in accordance with the terms contained in this Section 4(n) prior to such date). If, at any time, the Company cannot obtain a renewal, extension or replacement of the Letter of Credit such that the Letter of Credit will expire prior to the LC Expiration Date (a **Withdrawal Event**), the Company and the Letter of Credit Bank shall each give the LC Agent written notice of the occurrence of a Withdrawal Event at least forty-five (45) days prior to the then current expiration date of the Letter of Credit. Following a Withdrawal Event, the LC Agent shall be entitled to draw down the Letter of Credit Amount in its entirety (whether or not an Event of Default shall have occurred or be continuing under any of the Notes) and hold such amount as collateral security for the obligations under the Notes for the benefit of the Buyers. With respect to each Buyer that has delivered an Event of Default Redemption Notice pursuant to the Indenture (with a copy to the LC Agent), no later than the later of (i) the Event of Default Redemption Date with respect to such holder of Notes and (ii) the second (2nd) Business Day following the date that the LC Agent received all or any portion of the Letter of Credit Amount from the Letter of Credit Bank, the LC Agent shall distribute to such Buyer an amount in cash equal to the lesser of (i) such Buyer's Event of Default Redemption Price and (ii) an amount calculated by multiplying the Letter of Credit Amount by the quotient determined by dividing (A) the principal amount of Notes issued to such Buyer on the Closing Date by (B) the aggregate principal amount of all Notes issued to all Buyers on the Closing Date (the Letter of Credit Allocation); provided, that in no event shall the LC Agent be required to deliver to the Buyers more than the total amount drawn under the Letter of Credit. In the event that any Buyer shall sell or otherwise transfer any of such Buyer's Notes, the transferee shall be allocated a pro rata portion of such Buyer's Letter of Credit Allocation, and the rights of the applicable transferor contained in the prior sentence shall apply to the applicable transferee with respect to the portion of the Letter of Credit Allocation allocated to such transferee. In the event that any Buyer of Notes shall convert all or a portion of such Buyer's Notes, which leaves such Buyer with an aggregate principal amount of Notes that is less than such Buyer's Letter of Credit Allocation, then such Buyer's Letter of Credit Allocation shall be reduced to the outstanding principal of Notes held by such Buyer and the difference between such Buyer's Letter of Credit Allocation and the outstanding principal amount of Notes held by such Buyer shall be allocated to the respective Letter of Credit Allocations of the remaining Buyers of Notes on a pro rata basis in proportion to the outstanding principal amount of Notes then held by each such Buyer.

(ii) If at any time during any thirty (30) consecutive Trading Day period (the **Measuring Period** ) after the Closing Date (A) the Equity Conditions (as defined in the Indenture) have been satisfied and (B) the Closing Sale Price (as defined in the Indenture) of the Common Stock equals or exceeds 120% of the initial Conversion Price (as defined in the Indenture) for twenty (20) Trading Days during the Measuring Period, the Company shall promptly deliver a notice to the LC Agent (the **LC Termination Notice** ), certifying as to the occurrence of such events. Within 10 days of the receipt of an LC Termination Notice, the LC Agent shall issue a written instruction to the Letter of Credit Bank to request the termination of the Letter of Credit and the release and return of the Letter of Credit to the Company (the date of such termination, the **LC Termination Date** ).

(iii) Portside Growth and Opportunity Fund is hereby appointed as the LC Agent for the Buyers hereunder, and each Buyer hereby authorizes the LC Agent (and its officers, directors, employees and agents) to take any and all such actions on behalf of the Buyers with respect to the Letter of Credit in accordance with the terms of this Agreement. The LC Agent shall not have, by reason hereof or any of the other Transaction Documents, a fiduciary relationship in respect of any Buyer. To the extent that the LC Agent, in such capacity, receives any funds pursuant to the terms of this Section 4(n), except as contemplated above, if the LC Agent is to distribute any of such funds to any Buyer (including Portside Growth and Opportunity Fund, in its capacity as a Buyer), it shall distribute such funds to all of the Buyers on a pro rata basis based on the principal amount of the Notes held by each of the Buyers. Neither the LC Agent nor any of its officers, directors, employees and agents shall have any liability to the Buyer for any action taken or omitted to be taken in connection hereof, and any Buyer agrees to defend, protect, indemnify and hold harmless the LC Agent and all of its officers, directors, employees and agents (collectively, the **LC Indemnitees** ) from and against any losses, damages, liabilities, obligations, penalties, actions, judgments, suits, fees, costs and expenses (including, without limitation, reasonable attorneys' fees, costs and expenses) incurred by such LC Indemnitee, whether direct, indirect or consequential, arising from or in connection with the performance by such LC Indemnitee of the duties and obligations of the LC Agent pursuant hereto. In the event that Portside Growth and Opportunity Fund no longer holds any Notes, a majority of the holders of the Notes shall appoint a new LC Agent. At any time, upon two (2) Business Days advance notice to the Company, the Letter of Credit Bank and the Buyers, the LC Agent may resign as LC Agent, and a majority of the holders of the Notes shall appoint a new LC Agent. After any LC Agent's resignation hereunder, the provisions of this Section 4(n) shall inure to its benefit. If a successor LC Agent shall not have been so appointed within said two (2) Business Day period, the retiring LC Agent shall then appoint a successor LC Agent who shall serve until such time, if any, as the holders of a majority of the Notes appoint a successor LC Agent as provided above.

(o) Stockholder Approval. The Company shall provide each stockholder entitled to vote at the next annual meeting of stockholders of the Company (the **Stockholder Meeting** ), which shall be promptly called and held not later than June 30, 2008 (the **Stockholder Meeting Deadline** ), a proxy statement, substantially in the form which has been previously reviewed by the Buyers and a counsel of their choice, at the expense of the Company,

not to exceed \$10,000, soliciting each such stockholder's affirmative vote at the Stockholder Meeting for approval of resolutions (the **Stockholder Resolutions**) providing for the Company's issuance of all of the Securities as described in the Transaction Documents in accordance with applicable law and the rules and regulations of the Principal Market (such affirmative approval being referred to herein as the **Stockholder Approval**), and the Company shall use its best efforts to solicit its stockholders' approval of such resolutions and to cause the Board of Directors of the Company to recommend to the stockholders that they approve such resolutions. The Company shall be obligated to seek to obtain the Stockholder Approval by the Stockholder Meeting Deadline.

**5. REGISTER; TRANSFER AGENT INSTRUCTIONS.**

(a) **Register.** The Company shall maintain at its principal executive offices (or such other office or agency of the Company as it may designate by notice to each holder of Securities), a register for the Notes and the Warrants in which the Company shall record the name and address of the Person in whose name the Notes and the Warrants have been issued (including the name and address of each transferee), the principal amount of Notes held by such Person, the number of Conversion Shares issued and issuable upon conversion of the Notes, the number of Interest Shares issued and issuable as payment of interest on the Notes and the number of Warrant Shares issued and issuable upon exercise of the Warrants held by such Person. The Company shall keep the register open and available at all times during business hours for inspection of any Buyer or its legal representatives.

(b) **Transfer Agent Instructions.** The Company shall issue irrevocable instructions to the Transfer Agent, and any subsequent transfer agent, in the form of Exhibit C attached hereto (the **Irrevocable Transfer Agent Instructions**). The Company represents and warrants that no instruction other than the Irrevocable Transfer Agent Instructions referred to in this Section 5 will be given by the Company to the Transfer Agent, and any subsequent transfer agent with respect to the Securities, and that the Securities shall otherwise be freely transferable on the books and records of the Company as and to the extent provided in this Agreement and the other Transaction Documents. The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to a Buyer. Accordingly, the Company acknowledges that the remedy at law for a breach of its obligations under this Section 5 will be inadequate and agrees, in the event of a breach or threatened breach by the Company of the provisions of this Section 5, that a Buyer shall be entitled, in addition to all other available remedies, to an order and/or injunction restraining any breach and requiring immediate issuance and transfer, without the necessity of showing economic loss and without any bond or other security being required.

**6. CONDITIONS TO THE COMPANY'S OBLIGATION TO SELL.**

The obligation of the Company hereunder to issue and sell the Notes and the related Warrants to each Buyer at the Closing is subject to the satisfaction, at or before the Closing Date, of each of the following conditions, provided that these conditions are for the Company's sole benefit and may be waived by the Company at any time in its sole discretion by providing each Buyer with prior written notice thereof:

(i) Each Buyer and the Trustee shall have executed each of the Transaction Documents to which it is a party and delivered the same to the Company.

(ii) Such Buyer and each other Buyer shall have delivered to the Company the Purchase Price (less, in the case of Portside Growth and Opportunity Fund, the amounts withheld pursuant to Section 4(f)) for the Notes and the related Warrants being purchased by such Buyer at the Closing by wire transfer of immediately available funds pursuant to the wire instructions provided by the Company.

(iii) The representations and warranties of such Buyer shall be true and correct in all material respects (except for those representations and warranties that are qualified by materiality or Material Adverse Effect, which shall be true and correct in all respects) as of the date when made and as of the Closing Date as though made at that time (except for representations and warranties that speak as of a specific date, which shall be true and correct as of such specified date), and such Buyer shall have performed, satisfied and complied in all material respects with the covenants, agreements and conditions required by this Agreement to be performed, satisfied or complied with by such Buyer at or prior to the Closing Date.

7. CONDITIONS TO EACH BUYER'S OBLIGATION TO PURCHASE.

The obligation of each Buyer hereunder to purchase the Notes and the related Warrants at the Closing is subject to the satisfaction, at or before the Closing Date, of each of the following conditions, provided that these conditions are for each Buyer's sole benefit and may be waived by such Buyer at any time in its sole discretion by providing the Company with prior written notice thereof:

(i) The Company shall have duly executed and delivered to such Buyer (i) each of the Transaction Documents and (ii) the Notes (allocated in such principal amounts as such Buyer shall request), being purchased by such Buyer at the Closing pursuant to this Agreement and (iii) the related Warrants (allocated in such amounts as such Buyer shall request) being purchased by such Buyer at the Closing pursuant to this Agreement. The Trustee shall have executed and delivered the Indenture to the Company.

(ii) Such Buyer shall have received the opinion of Morgan, Lewis & Bockius LLP, the Company's counsel, dated as of the Closing Date, in substantially the form of Exhibit D attached hereto.

(iii) The Company shall have delivered to such Buyer a copy of the Irrevocable Transfer Agent Instructions, in the form of Exhibit C attached hereto, which instructions shall have been delivered to and acknowledged in writing by the Company's transfer agent.

(iv) The Company shall have delivered to such Buyer a certificate (or a fax or pdf copy of such certificate) evidencing the formation and good standing of the Company and each of its Subsidiaries in such entity's jurisdiction of formation issued by the Secretary of State (or comparable office) of such jurisdiction, as of a date within 10 days of the Closing Date.

(v) The Company shall have delivered to such Buyer a certificate (or a fax or pdf copy of such certificate) evidencing the Company's qualification as a foreign corporation and good standing issued by the Secretary of State of California, which is the only jurisdiction in which the Company conducts business and is required to so qualify, as of a date within 10 days of the Closing Date.

(vi) The Company shall have delivered to such Buyer a certified copy of the Certificate of Incorporation as certified by the Secretary of State of the State of Delaware (or a fax or pdf copy of such certificate) within ten (10) days of the Closing Date.

(vii) The Company shall have delivered to such Buyer a certificate, executed by the Secretary of the Company and dated as of the Closing Date, as to (i) the resolutions consistent with Section 3(b) as adopted by the Company's Board of Directors in a form reasonably acceptable to such Buyer, (ii) the Certificate of Incorporation and (iii) the Bylaws, each as in effect at the Closing, in the form attached hereto as Exhibit E.

(viii) The representations and warranties of the Company shall be true and correct in all material respects (except for those representations and warranties that are qualified by materiality or Material Adverse Effect, which shall be true and correct in all respects) as of the date when made and as of the Closing Date as though made at that time (except for representations and warranties that speak as of a specific date, which shall be true and correct as of such specified date) and the Company shall have performed, satisfied and complied in all material respects with the covenants, agreements and conditions required by the Transaction Documents to be performed, satisfied or complied with by the Company at or prior to the Closing Date. Such Buyer shall have received a certificate, executed by the Chief Executive Officer or Chief Financial Officer of the Company, dated as of the Closing Date, to the foregoing effect in the form attached hereto as Exhibit F.

(ix) The Company shall have delivered to such Buyer a letter from the Company's transfer agent certifying the number of shares of Common Stock outstanding as of a date within five days of the Closing Date.

(x) The Common Stock (I) shall be designated for quotation or listed on the Principal Market and (II) shall not have been suspended, as of the Closing Date, by the SEC or the Principal Market from trading on the Principal Market nor shall suspension by the SEC or the Principal Market have been threatened, as of the Closing Date, either (A) in writing by the SEC or the Principal Market or (B) by falling below the minimum listing maintenance requirements of the Principal Market.

(xi) The Registration Statement shall be effective and available for the issuance and sale of the Securities hereunder and the Company shall have delivered to such Buyer the Prospectus and the Prospectus Supplement as required thereunder.

(xii) The Company shall have delivered to such Buyer such other documents relating to the transactions contemplated by this Agreement as such Buyer or its counsel may reasonably request.

8. **TERMINATION.** In the event that the Closing shall not have occurred with respect to a Buyer on or before five (5) Business Days from the date hereof due to the Company's or such Buyer's failure to satisfy the conditions set forth in Sections 6 and 7 above (and the nonbreaching party's failure to waive such unsatisfied condition(s)), the nonbreaching party shall have the option to terminate this Agreement with respect to such breaching party at the close of business on such date without liability of any party to any other party; provided, however, that if this Agreement is terminated pursuant to this Section 8, the Company shall remain obligated to reimburse the non-breaching Buyers for the expenses described in Section 4(g) above.

9. **MISCELLANEOUS.**

(a) **Governing Law; Jurisdiction; Jury Trial.** All questions concerning the construction, validity, enforcement and interpretation of this Agreement shall be governed by the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in The City of New York, Borough of Manhattan, for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof to such party at the address for such notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law. **EACH PARTY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION WITH OR ARISING OUT OF THIS AGREEMENT OR ANY TRANSACTION CONTEMPLATED HEREBY.**

(b) **Counterparts.** This Agreement may be executed in two or more identical counterparts, all of which shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to the other party; provided that a facsimile signature shall be considered due execution and shall be binding upon the signatory thereto with the same force and effect as if the signature were an original, not a facsimile signature.

(c) **Headings.** The headings of this Agreement are for convenience of reference and shall not form part of, or affect the interpretation of, this Agreement.

(d) **Severability.** If any provision of this Agreement shall be invalid or unenforceable in any jurisdiction, such invalidity or unenforceability shall not affect the validity or enforceability of the remainder of this Agreement in that jurisdiction or the validity or enforceability of any provision of this Agreement in any other jurisdiction.

(e) Entire Agreement; Amendments. This Agreement and the other Transaction Documents supersede all other prior oral or written agreements between the Buyers, the Company, their affiliates and Persons acting on their behalf with respect to the matters discussed herein, and this Agreement, the other Transaction Documents and the instruments referenced herein and therein contain the entire understanding of the parties with respect to the matters covered herein and therein and, except as specifically set forth herein or therein, neither the Company nor any Buyer makes any representation, warranty, covenant or undertaking with respect to such matters. No provision of this Agreement may be amended other than by an instrument in writing signed by the Company and the holders of at least a majority of the aggregate number of Registrable Securities issued and issuable hereunder and under the Notes, and any amendment to this Agreement made in conformity with the provisions of this Section 9(e) shall be binding on all Buyers and holders of Securities as applicable. No provision hereof may be waived other than by an instrument in writing signed by the party against whom enforcement is sought. No such amendment shall be effective to the extent that it applies to less than all of the holders of the applicable Securities then outstanding. No consideration shall be offered or paid to any Person to amend or consent to a waiver or modification of any provision of any of the Transaction Documents unless the same consideration also is offered to all of the parties to the Transaction Documents, holders of Notes or holders of the Warrants, as the case may be. The Company has not, directly or indirectly, made any agreements with any Buyers relating to the terms or conditions of the transactions contemplated by the Transaction Documents except as set forth in the Transaction Documents. Without limiting the foregoing, the Company confirms that, except as set forth in this Agreement, no Buyer has made any commitment or promise or has any other obligation to provide any financing to the Company or otherwise.

(f) Notices. Any notices, consents, waivers or other communications required or permitted to be given under the terms of this Agreement must be in writing and will be deemed to have been delivered: (i) upon receipt, when delivered personally; (ii) upon receipt, when sent by facsimile (provided confirmation of transmission is mechanically or electronically generated and kept on file by the sending party); or (iii) one Business Day after deposit with an overnight courier service, in each case properly addressed to the party to receive the same. The addresses and facsimile numbers for such communications shall be:

If to the Company:

Nanogen Inc.

10398 Pacific Center Court

San Diego, California 92121

Telephone: (858) 410-4600

Facsimile: (858) 410-4949

Attention: Robert Saltmarsh

with a copy (for informational purposes only) to:

Morgan, Lewis & Bockius LLP

One Market, Spear Street Tower

San Francisco, CA 94605

Telephone: (415) 442-1091

Facsimile: (415) 442-1001

Attention: Scott D. Karchmer, Esq.

If to the Transfer Agent:

Computershare Investor Services

250 Royall Street

Canton, MA 02021

Telephone: (877) 282-1168

Facsimile: (781) 575-3606

Attention: Jeff Seiders

If to a Buyer, to its address and facsimile number set forth on the Schedule of Buyers, with copies to such Buyer's representatives as set forth on the Schedule of Buyers,

with a copy (for informational purposes only) to:

Schulte Roth & Zabel LLP

919 Third Avenue

New York, New York 10022

Telephone: (212) 756-2000

Facsimile: (212) 593-5955

Attention: Eleazer N. Klein, Esq.

or to such other address and/or facsimile number and/or to the attention of such other Person as the recipient party has specified by written notice given to each other party five (5) days prior to the effectiveness of such change. Written confirmation of receipt (A) given by the recipient of such notice, consent, waiver or other communication, (B) mechanically or electronically generated by the sender's facsimile machine containing the time, date, recipient facsimile number and an image of the first page of such transmission or (C) provided by an overnight courier service shall be rebuttable evidence of personal service, receipt by facsimile or receipt from an overnight courier service in accordance with clause (i), (ii) or (iii) above, respectively.

(g) Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their respective successors and assigns, including any purchasers of the Notes or the Warrants. The Company shall not assign this Agreement or any rights or obligations hereunder without the prior written consent of the holders of at least a majority of the aggregate number of Registrable Securities issued and issuable hereunder, including by way of a Fundamental Transaction (unless the Company is in compliance with the applicable provisions

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governing Fundamental Transactions set forth in the Indenture and the Warrants). A Buyer may assign some or all of its rights hereunder without the consent of the Company, in which event such assignee shall be deemed to be a Buyer hereunder with respect to such assigned rights.

- 32 -

(h) No Third Party Beneficiaries. This Agreement is intended for the benefit of the parties hereto and their respective permitted successors and assigns, and is not for the benefit of, nor may any provision hereof be enforced by, any other Person.

(i) Survival. Unless this Agreement is terminated under Section 8, the representations and warranties of the Company and the Buyers contained in Sections 2 and 3, and the agreements and covenants set forth in Sections 4, 5 and 9 shall survive the Closing. Each Buyer shall be responsible only for its own representations, warranties, agreements and covenants hereunder.

(j) Further Assurances. Each party shall do and perform, or cause to be done and performed, all such further acts and things, and shall execute and deliver all such other agreements, certificates, instruments and documents, as are reasonably necessary in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby.

(k) Indemnification. (i) In consideration of each Buyer's execution and delivery of the Transaction Documents and acquiring the Securities thereunder and in addition to all of the Company's other obligations under the Transaction Documents, the Company shall defend, protect, indemnify and hold harmless each Buyer and each other holder of the Securities and all of their stockholders, partners, members, officers, directors, employees and direct or indirect investors and any of the foregoing Persons' agents or other representatives (including, without limitation, those retained in connection with the transactions contemplated by this Agreement) (collectively, the **Indemnitees**) from and against any and all actions, causes of action, suits, claims, losses, costs, penalties, fees, liabilities and damages, and expenses in connection therewith (irrespective of whether any such Indemnatee is a party to the action for which indemnification hereunder is sought), and including reasonable attorneys' fees and disbursements (the **Indemnified Liabilities**), incurred by any Indemnatee as a result of, or arising out of, or relating to (a) any misrepresentation or breach of any representation or warranty made by the Company in the Transaction Documents or any other certificate, instrument or document contemplated hereby or thereby, (b) any breach of any covenant, agreement or obligation of the Company contained in the Transaction Documents or any other certificate, instrument or document contemplated hereby or thereby or (c) any cause of action, suit or claim brought or made against such Indemnatee by a third party that is not an Affiliate of such Indemnatee (including for these purposes a derivative action brought on behalf of the Company) and arising out of or resulting from (i) the execution, delivery, performance or enforcement of the Transaction Documents or any other certificate, instrument or document contemplated hereby or thereby, (ii) any transaction financed or to be financed in whole or in part, directly or indirectly, with the proceeds of the issuance of the Securities, or (iii) the status of such Buyer or holder of the Securities as an investor in the Company. To the extent that the foregoing undertaking by the Company may be unenforceable for any reason, the Company shall make the maximum contribution to the payment and satisfaction of each of the Indemnified Liabilities which is permissible under applicable law.

(ii) Promptly after receipt by an Indemnitee under this Section 9(k) of notice of the commencement of any action or proceeding (including any governmental action or proceeding) involving an Indemnified Liability, such Indemnitee shall, if a claim for indemnification in respect thereof is to be made against any indemnifying party under this Section 9(k), deliver to the indemnifying party a written notice of the commencement thereof, and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume control of the defense thereof with counsel mutually satisfactory to the indemnifying party and the Indemnitee; provided, however, that an Indemnitee shall have the right to retain its own counsel with the fees and expenses of not more than one counsel for such Indemnitee to be paid by the indemnifying party, if, in the reasonable opinion of the Indemnitee, the representation by such counsel of the Indemnitee and the indemnifying party would be inappropriate due to actual or potential differing interests between such Indemnitee and any other party represented by such counsel in such proceeding. Legal counsel referred to in the immediately preceding sentence shall be selected by the Investors holding at least a majority of the Purchased Shares. The Indemnitee shall cooperate fully with the indemnifying party in connection with any negotiation or defense of any such action or Indemnified Liabilities by the indemnifying party and shall furnish to the indemnifying party all information reasonably available to the Indemnitee that relates to such action or Indemnified Liabilities. The indemnifying party shall keep the Indemnitee fully apprised at all times as to the status of the defense or any settlement negotiations with respect thereto. No indemnifying party shall be liable for any settlement of any action, claim or proceeding effected without its prior written consent, provided, however, that the indemnifying party shall not unreasonably withhold, delay or condition its consent. No indemnifying party shall, without the prior written consent of the Indemnitee, which consent shall not be unreasonably withheld conditioned or delayed, consent to entry of any judgment or enter into any settlement or other compromise which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnitee of a release from all liability in respect to such Indemnified Liabilities or litigation. Following indemnification as provided for hereunder, the indemnifying party shall be subrogated to all rights of the Indemnitee with respect to all third parties, firms or corporations relating to the matter for which indemnification has been made. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action shall not relieve such indemnifying party of any liability to the Indemnitee under this Section 9(k), except to the extent that the indemnifying party is prejudiced in its ability to defend such action.

(iii) The indemnification required by this Section 9(k) shall be made by periodic payments of the amount thereof during the course of the investigation or defense, as and when bills are received or Indemnified Liabilities are incurred.

(iv) The indemnity agreements contained herein shall be in addition to (x) any cause of action or similar right of the Indemnitee against the indemnifying party or others, and (y) any liabilities the indemnifying party may be subject to pursuant to the law.

(l) No Strict Construction. The language used in this Agreement will be deemed to be the language chosen by the parties to express their mutual intent, and no rules of strict construction will be applied against any party.

(m) Remedies. Each Buyer and each holder of the Securities shall have all rights and remedies set forth in the Transaction Documents and all rights and remedies which such holders have been granted at any time under any other agreement or contract and all of the rights which such holders have under any law. Any Person having any rights under any provision of this Agreement shall be entitled to enforce such rights specifically (without posting a bond or other security), to recover damages by reason of any breach of any provision of this Agreement and to exercise all other rights granted by law. Furthermore, the Company recognizes that in the event that it fails to perform, observe, or discharge any or all of its obligations under the Transaction Documents, any remedy at law may prove to be inadequate relief to the Buyers. The Company therefore agrees that the Buyers shall be entitled to seek temporary and permanent injunctive relief in any such case without the necessity of proving actual damages and without posting a bond or other security.

(n) Rescission and Withdrawal Right. Notwithstanding anything to the contrary contained in (and without limiting any similar provisions of) the Transaction Documents, whenever any Buyer exercises a right, election, demand or option under a Transaction Document and the Company does not timely perform its related obligations within the periods therein provided, then such Buyer may rescind or withdraw, in its sole discretion from time to time upon written notice to the Company, any relevant notice, demand or election in whole or in part without prejudice to its future actions and rights.

(o) Payment Set Aside. To the extent that the Company makes a payment or payments to the Buyers hereunder or pursuant to any of the other Transaction Documents or the Buyers enforce or exercise their rights hereunder or thereunder, and such payment or payments or the proceeds of such enforcement or exercise or any part thereof are subsequently invalidated, declared to be fraudulent or preferential, set aside, recovered from, disgorged by or are required to be refunded, repaid or otherwise restored to the Company, a trustee, receiver or any other Person under any law (including, without limitation, any bankruptcy law, foreign, state or federal law, common law or equitable cause of action), then to the extent of any such restoration the obligation or part thereof originally intended to be satisfied shall be revived and continued in full force and effect as if such payment had not been made or such enforcement or setoff had not occurred.

(p) Independent Nature of Buyers' Obligations and Rights. The obligations of each Buyer under any Transaction Document are several and not joint with the obligations of any other Buyer, and no Buyer shall be responsible in any way for the performance of the obligations of any other Buyer under any Transaction Document. Nothing contained herein or in any other Transaction Document, and no action taken by any Buyer pursuant hereto or thereto, shall be deemed to constitute the Buyers as, and the Company acknowledges, and each Buyer confirms, that the Buyers do not so constitute, a partnership, an association, a joint venture or any other kind of entity, or create a presumption that the Buyers are in any way acting in concert or as a group, and the Company will not assert any such claim with respect to such obligations or the transactions contemplated by the Transaction Documents and the Company acknowledges, and each Buyer confirms, that the Buyers are not acting in concert or as a group with respect to such obligations or the transactions contemplated by the Transaction Documents. The Company acknowledges and each Buyer confirms that it has independently participated in the negotiation of the transaction contemplated hereby with the advice of its own counsel and advisors. Each

Buyer shall be entitled to independently protect and enforce its rights, including, without limitation, the rights arising out of this Agreement or out of any other Transaction Documents, and it shall not be necessary for any other Buyer to be joined as an additional party in any proceeding for such purpose.

**[Signature Page Follows]**

- 36 -

**IN WITNESS WHEREOF**, each Buyer and the Company have caused their respective signature page to this Securities Purchase Agreement to be duly executed as of the date first written above.

**COMPANY:**

**NANOGEN INC.**

By: /s/ Robert Saltmarsh

Name: Robert Saltmarsh

Title: Chief Financial Officer

**SCHEDULE OF BUYERS**

**EXHIBITS**

|             |                                                 |
|-------------|-------------------------------------------------|
| Exhibit A   | Form of Note                                    |
| Exhibit B-1 | Form of Series A Warrant                        |
| Exhibit B-2 | Form of Series B Warrant                        |
| Exhibit B-3 | Form of Series C Warrant                        |
| Exhibit C   | Form of Irrevocable Transfer Agent Instructions |
| Exhibit D   | Form of Opinion of Company's Counsel            |
| Exhibit E   | Form of Secretary's Certificate                 |
| Exhibit F   | Form of Officers Certificate                    |

**SCHEDULES**

|            |                                             |
|------------|---------------------------------------------|
| Schedule I | List of General Use Free Writing Prospectus |
|------------|---------------------------------------------|

**SCHEDULE I**

**Nanogen, Inc., Issuer**

**and**

**The Bank of New York Trust Company, N.A., Trustee**

**Indenture**

*Dated as of August 27, 2007*

**DEBT SECURITIES**

**Nanogen, Inc.**

**Debt Securities**

**Cross Reference Sheet<sup>1</sup>**

This Cross Reference Sheet shows the location in the  
 Indenture of the provisions inserted pursuant  
 to Sections 310 - 318(a), inclusive, of the  
 Trust Indenture Act of 1939, as amended.

| <b>Trust Indenture Act</b> | <b>Sections of Indenture</b> |
|----------------------------|------------------------------|
| §310(a)(1)                 | 9.08                         |
| (a)(2)                     | 9.08                         |
| (a)(3)                     | Inapplicable                 |
| (a)(4)                     | Inapplicable                 |
| (a)(5)                     | 9.08                         |
| (b)                        | 9.07 and 9.09                |
| (c)                        | Inapplicable                 |
| §311(a)                    | 9.12                         |
| (b)                        | 9.12                         |
| (c)                        | Inapplicable                 |
| §312(a)                    | 7.01 and 7.02                |
| (b)                        | 7.02                         |
| (c)                        | 7.02                         |
| §313(a)                    | 7.03                         |
| (b)                        | 7.03                         |
| (c)                        | 7.03                         |
| (d)                        | 7.03                         |
| §314(a)                    | 7.04                         |
| (a)(4)                     | 1.01 and 6.07                |
| (b)                        | Inapplicable                 |
| (c)(1)                     | 13.05                        |
| (c)(2)                     | 13.05                        |
| (c)(3)                     | Inapplicable                 |
| (d)                        | Inapplicable                 |
| (e)                        | 13.05                        |
| (f)                        | Inapplicable                 |
| §315 (a)                   | 9.01                         |
| (b)                        | 8.08                         |
| (c)                        | 9.01                         |
| (d)                        | 9.01                         |
| (e)                        | 8.07                         |
| §316 (a)                   | 1.01                         |

<sup>1</sup> The Cross Reference Sheet is not part of the Indenture.

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|            |               |
|------------|---------------|
| (a)(l)(A)  | 8.01 and 8.06 |
| (a)(l)(B)  | 8.01          |
| (a)(2)     | Inapplicable  |
| (b)        | 8.09          |
| (c)        | 13.11         |
| §317(a)(1) | 8.02          |
| (a)(2)     | 8.02          |
| (b)        | 6.03          |
| §318(a)    | 13.08         |

(2)

**TABLE OF CONTENTS**

|                     |                                                                                                     |           |
|---------------------|-----------------------------------------------------------------------------------------------------|-----------|
| <b>ARTICLE I.</b>   | <b>DEFINITIONS</b>                                                                                  | <b>8</b>  |
| SECTION 1.01.       | CERTAIN TERMS DEFINED                                                                               | 8         |
| <b>ARTICLE II.</b>  | <b>THE SECURITIES</b>                                                                               | <b>17</b> |
| SECTION 2.01.       | DESIGNATION AND AMOUNT OF SECURITIES                                                                | 17        |
| SECTION 2.02.       | FORM OF SECURITIES AND TRUSTEE'S CERTIFICATE OF AUTHENTICATION                                      | 19        |
| SECTION 2.03.       | DATE AND DENOMINATIONS                                                                              | 19        |
| SECTION 2.04.       | EXECUTION, AUTHENTICATION AND DELIVERY OF SECURITIES                                                | 19        |
| SECTION 2.05.       | REGISTRATION OF TRANSFER AND EXCHANGE                                                               | 21        |
| SECTION 2.06.       | TEMPORARY SECURITIES                                                                                | 23        |
| SECTION 2.07.       | MUTILATED, DESTROYED, LOST, AND STOLEN SECURITIES                                                   | 23        |
| SECTION 2.08.       | CANCELLATION OF SURRENDERED SECURITIES                                                              | 24        |
| SECTION 2.09.       | PAYMENT OF INTEREST; INTEREST RIGHTS PRESERVED                                                      | 24        |
| SECTION 2.10.       | PERSONS DEEMED OWNERS                                                                               | 25        |
| SECTION 2.11.       | COMPUTATION OF INTEREST                                                                             | 26        |
| SECTION 2.12.       | CUSIP NUMBERS                                                                                       | 26        |
| <b>ARTICLE III.</b> | <b>REDEMPTION OF SECURITIES</b>                                                                     | <b>26</b> |
| SECTION 3.01.       | APPLICABILITY OF ARTICLE                                                                            | 26        |
| SECTION 3.02.       | ELECTION TO REDEEM; NOTICE TO TRUSTEE                                                               | 26        |
| SECTION 3.03.       | DEPOSIT OF REDEMPTION PRICE                                                                         | 27        |
| SECTION 3.04.       | SECURITIES PAYABLE ON REDEMPTION DATE                                                               | 27        |
| SECTION 3.05.       | SECURITIES REDEEMED IN PART                                                                         | 28        |
| <b>ARTICLE IV.</b>  | <b>SINKING FUNDS</b>                                                                                | <b>28</b> |
| SECTION 4.01.       | APPLICABILITY OF ARTICLE                                                                            | 28        |
| SECTION 4.02.       | SATISFACTION OF SINKING FUND PAYMENTS WITH SECURITIES                                               | 28        |
| SECTION 4.03.       | REDEMPTION OF SECURITIES FOR SINKING FUND                                                           | 29        |
| <b>ARTICLE V.</b>   | <b>DEFEASANCE AND COVENANT DEFEASANCE</b>                                                           | <b>29</b> |
| SECTION 5.01.       | COMPANY'S OPTION TO EFFECT DEFEASANCE OR COVENANT DEFEASANCE                                        | 29        |
| SECTION 5.02.       | DEFEASANCE AND DISCHARGE                                                                            | 29        |
| SECTION 5.03.       | COVENANT DEFEASANCE                                                                                 | 30        |
| SECTION 5.04.       | CONDITIONS TO DEFEASANCE OR COVENANT DEFEASANCE                                                     | 30        |
| SECTION 5.05.       | DEPOSITED MONEY AND U.S. GOVERNMENT OBLIGATIONS TO BE HELD IN TRUST; OTHER MISCELLANEOUS PROVISIONS | 32        |
| SECTION 5.06.       | REINSTATEMENT                                                                                       | 32        |
| <b>ARTICLE VI.</b>  | <b>PARTICULAR COVENANTS OF THE COMPANY</b>                                                          | <b>33</b> |
| SECTION 6.01.       | PAYMENT OF PRINCIPAL, PREMIUM AND INTEREST ON SECURITIES                                            | 33        |
| SECTION 6.02.       | MAINTENANCE OF OFFICE OR AGENCY                                                                     | 33        |
| SECTION 6.03.       | MONEY FOR SECURITIES PAYMENTS TO BE HELD IN TRUST                                                   | 33        |
| SECTION 6.04.       | PAYMENT OF TAXES AND OTHER CLAIMS                                                                   | 35        |
| SECTION 6.05.       | MAINTENANCE OF PROPERTIES                                                                           | 35        |
| SECTION 6.06.       | EXISTENCE                                                                                           | 35        |
| SECTION 6.07.       | COMPLIANCE WITH LAWS                                                                                | 35        |
| SECTION 6.08.       | STATEMENT BY OFFICERS AS TO DEFAULT                                                                 | 36        |
| SECTION 6.09.       | WAIVER OF CERTAIN COVENANTS                                                                         | 36        |
| SECTION 6.10.       | CALCULATION OF ORIGINAL ISSUE DISCOUNT                                                              | 36        |
| <b>ARTICLE VII.</b> | <b>SECURITIES HOLDERS LIST AND REPORTS BY THE COMPANY AND THE TRUSTEE</b>                           | <b>36</b> |
| SECTION 7.01.       | COMPANY TO FURNISH TRUSTEE NAMES AND ADDRESSES OF HOLDERS                                           | 36        |
| SECTION 7.02.       | PRESERVATION OF INFORMATION; COMMUNICATION TO HOLDERS                                               | 37        |
| SECTION 7.03.       | REPORTS BY TRUSTEE                                                                                  | 37        |

(i)

|                      |                                                                                                                                                       |           |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| SECTION 7.04.        | REPORTS BY COMPANY                                                                                                                                    | 37        |
| <b>ARTICLE VIII.</b> | <b>DEFAULT</b>                                                                                                                                        | <b>38</b> |
| SECTION 8.01.        | EVENT OF DEFAULT                                                                                                                                      | 38        |
| SECTION 8.02.        | COVENANT OF COMPANY TO PAY TO TRUSTEE WHOLE AMOUNT DUE ON SECURITIES ON DEFAULT IN PAYMENT OF INTEREST OR PRINCIPAL; SUITS FOR ENFORCEMENT BY TRUSTEE | 40        |
| SECTION 8.03.        | APPLICATION OF MONEY COLLECTED BY TRUSTEE                                                                                                             | 42        |
| SECTION 8.04.        | LIMITATION ON SUITS BY HOLDERS OF SECURITIES                                                                                                          | 42        |
| SECTION 8.05.        | RIGHTS AND REMEDIES CUMULATIVE; DELAY OR OMISSION IN EXERCISE OF RIGHTS NOT A WAIVER OF EVENT OF DEFAULT                                              | 43        |
| SECTION 8.06.        | RIGHTS OF HOLDERS OF MAJORITY IN PRINCIPAL AMOUNT OF OUTSTANDING SECURITIES TO DIRECT TRUSTEE                                                         | 43        |
| SECTION 8.07.        | REQUIREMENT OF AN UNDERTAKING TO PAY COSTS IN CERTAIN SUITS UNDER THE INDENTURE OR AGAINST THE TRUSTEE                                                | 43        |
| SECTION 8.08.        | NOTICE OF DEFAULTS                                                                                                                                    | 44        |
| SECTION 8.09.        | UNCONDITIONAL RIGHT OF HOLDERS TO RECEIVE PRINCIPAL, PREMIUM, AND INTEREST                                                                            | 44        |
| SECTION 8.10.        | RESTORATION OF RIGHTS AND REMEDIES                                                                                                                    | 44        |
| SECTION 8.11.        | TRUSTEE MAY FILE PROOFS OF CLAIMS                                                                                                                     | 44        |
| <b>ARTICLE IX.</b>   | <b>CONCERNING THE TRUSTEE</b>                                                                                                                         | <b>45</b> |
| SECTION 9.01.        | CERTAIN DUTIES AND RESPONSIBILITIES                                                                                                                   | 45        |
| SECTION 9.02.        | CERTAIN RIGHTS OF TRUSTEE                                                                                                                             | 46        |
| SECTION 9.03.        | NOT RESPONSIBLE FOR RECITALS OR ISSUANCE OF SECURITIES                                                                                                | 47        |
| SECTION 9.04.        | MAY HOLD SECURITIES                                                                                                                                   | 48        |
| SECTION 9.05.        | MONEY HELD IN TRUST                                                                                                                                   | 48        |
| SECTION 9.06.        | COMPENSATION AND REIMBURSEMENT                                                                                                                        | 48        |
| SECTION 9.07.        | DISQUALIFICATION; CONFLICTING INTERESTS                                                                                                               | 49        |
| SECTION 9.08.        | CORPORATE TRUSTEE REQUIRED; ELIGIBILITY                                                                                                               | 49        |
| SECTION 9.09.        | RESIGNATION AND REMOVAL; APPOINTMENT OF SUCCESSOR                                                                                                     | 49        |
| SECTION 9.10.        | ACCEPTANCE OF APPOINTMENT BY SUCCESSOR                                                                                                                | 51        |
| SECTION 9.11.        | MERGER, CONVERSION, CONSOLIDATION, OR SUCCESSION TO BUSINESS                                                                                          | 52        |
| SECTION 9.12.        | PREFERENTIAL COLLECTION OF CLAIMS AGAINST COMPANY                                                                                                     | 52        |
| SECTION 9.13.        | APPOINTMENT OF AUTHENTICATING AGENT                                                                                                                   | 52        |
| SECTION 9.14.        | TRUSTEE'S APPLICATION FOR INSTRUCTIONS FROM THE COMPANY                                                                                               | 54        |
| <b>ARTICLE X.</b>    | <b>SUPPLEMENTAL INDENTURES AND CERTAIN ACTIONS</b>                                                                                                    | <b>54</b> |
| SECTION 10.01.       | PURPOSES FOR WHICH SUPPLEMENTAL INDENTURES MAY BE ENTERED INTO WITHOUT CONSENT OF HOLDERS                                                             | 54        |
| SECTION 10.02.       | MODIFICATION OF INDENTURE WITH CONSENT OF HOLDERS OF AT LEAST A MAJORITY IN PRINCIPAL AMOUNT OF OUTSTANDING SECURITIES                                | 55        |
| SECTION 10.03.       | EXECUTION OF SUPPLEMENTAL INDENTURES                                                                                                                  | 56        |
| SECTION 10.04.       | EFFECT OF SUPPLEMENTAL INDENTURES                                                                                                                     | 57        |
| SECTION 10.05.       | CONFORMITY WITH TRUST INDENTURE ACT                                                                                                                   | 57        |
| SECTION 10.06.       | REFERENCE IN SECURITIES TO SUPPLEMENTAL INDENTURES                                                                                                    | 57        |
| <b>ARTICLE XI.</b>   | <b>CONSOLIDATION, MERGER, SALE, OR TRANSFER</b>                                                                                                       | <b>57</b> |
| SECTION 11.01.       | CONSOLIDATIONS AND MERGERS OF COMPANY AND SALES PERMITTED ONLY ON CERTAIN TERMS                                                                       | 57        |
| <b>ARTICLE XII.</b>  | <b>SATISFACTION AND DISCHARGE OF INDENTURE</b>                                                                                                        | <b>58</b> |
| SECTION 12.01.       | SATISFACTION AND DISCHARGE OF INDENTURE                                                                                                               | 58        |
| SECTION 12.02.       | APPLICATION OF TRUST MONEY                                                                                                                            | 58        |
| <b>ARTICLE XIII.</b> | <b>SUBORDINATION</b>                                                                                                                                  | <b>59</b> |

|                     |                                                                                                                     |           |
|---------------------|---------------------------------------------------------------------------------------------------------------------|-----------|
| <b>ARTICLE XIV.</b> | <b>MISCELLANEOUS PROVISIONS</b>                                                                                     | <b>61</b> |
| SECTION 14.01.      | SUCCESSORS AND ASSIGNS OF COMPANY BOUND BY INDENTURE                                                                | 61        |
| SECTION 14.02.      | SERVICE OF REQUIRED NOTICE TO TRUSTEE AND COMPANY                                                                   | 61        |
| SECTION 14.03.      | SERVICE OF REQUIRED NOTICE TO HOLDERS; WAIVER                                                                       | 61        |
| SECTION 14.04.      | INDENTURE AND SECURITIES TO BE CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK; WAIVER OF JURY TRIAL | 62        |
| SECTION 14.05.      | COMPLIANCE CERTIFICATES AND OPINIONS                                                                                | 62        |
| SECTION 14.06.      | FORM OF DOCUMENTS DELIVERED TO TRUSTEE                                                                              | 62        |
| SECTION 14.07.      | PAYMENTS DUE ON NON-BUSINESS DAYS                                                                                   | 63        |
| SECTION 14.08.      | PROVISIONS REQUIRED BY TRUST INDENTURE ACT TO CONTROL                                                               | 63        |
| SECTION 14.09.      | INVALIDITY OF PARTICULAR PROVISIONS                                                                                 | 63        |
| SECTION 14.10.      | INDENTURE MAY BE EXECUTED IN COUNTERPARTS                                                                           | 63        |
| SECTION 14.11.      | ACTS OF HOLDERS; RECORD DATES                                                                                       | 64        |
| SECTION 14.12.      | EFFECT OF HEADINGS AND TABLE OF CONTENTS                                                                            | 66        |
| SECTION 14.13.      | BENEFITS OF INDENTURE                                                                                               | 66        |
| SECTION 14.14.      | FORCE MAJEURE                                                                                                       | 66        |

Indenture, dated as of August 27, 2007 between Nanogen, Inc., a corporation duly organized and existing under the laws of the state of Delaware (the Company), and The Bank of New York Trust Company, N.A., a national banking association (herein called the Trustee).

### Recitals

A. The Company has duly authorized the execution and delivery of this Indenture to provide for the issuance from time to time of its unsecured debentures, notes, and other evidences of indebtedness (the Securities), to be issued in one or more series as in this Indenture provided.

B. The Securities of each series will be in substantially the form set forth below, or in such other form as may be established by or pursuant to a Board Resolution or in one or more indentures supplemental hereto, in each case with such appropriate insertions, omissions, substitutions, and other variations as are required or permitted by this Indenture, and may have such letters, numbers, or other marks of identification and such legends or endorsements placed thereon as may be required to comply with the rules of any securities exchange or as may, consistently herewith, be determined by the officers executing such Securities, as evidenced by their execution of the Securities.

[Form of Face of Security]

[Insert any legend required by the Internal

Revenue Code and the regulations thereunder.]

CUSIP No. \_\_\_\_\_

No. R -

\$ \_\_\_\_\_

Nanogen, Inc., a corporation duly organized and existing under the laws of the [state] of Delaware (hereinafter called the Company), which term includes any successor Person under the Indenture hereinafter referred to), for value received, hereby promises to pay to \_\_\_\_\_, or registered assigns, the principal sum of \$ \_\_\_\_\_ on \_\_\_\_\_ [if the Security is to bear interest prior to Maturity, insert: ], and to pay interest thereon from or from the most recent Interest Payment Date to which interest has been paid or duly provided for, on \_\_\_\_\_ and \_\_\_\_\_ in each year, commencing on \_\_\_\_\_, at the rate of \_\_\_\_% per annum, until the principal hereof is paid or made available for payment [if applicable, insert: ], and at the rate of \_\_\_\_% per annum on any overdue principal and premium and on any overdue installment of interest ]. The interest so payable, and punctually paid or duly provided for, on any Interest Payment Date will, as provided in such Indenture, be paid to the Person in whose name this Security (or one or more Predecessor Securities) is registered at the close of business on the Regular Record Date for such interest, which will be the \_\_\_\_\_ or \_\_\_\_\_ (whether or not a Business Day), as the case may be, next preceding such Interest Payment Date. Any such interest not so

punctually paid or duly provided for will forthwith cease to be payable to the Holder on such Regular Record Date and may either be paid to the Person in whose name this Security (or one or more Predecessor Securities) is registered at the close of business on a Special Record Date for the payment of such Defaulted Interest to be fixed by the Trustee, notice whereof will be given to Holders of Securities of this series not less than 10 calendar days prior to such Special Record Date, or be paid at any time in any other lawful manner not inconsistent with the requirements of any securities exchange on which the Securities of this series may be listed, and upon such notice as may be required by such exchange, all as more fully provided in said Indenture ].

[If the Security is not to bear interest prior to Maturity, insert: The principal of this Security will not bear interest except in the case of a default in payment of principal upon acceleration, upon redemption, or at Stated Maturity, and in such case the overdue principal of this Security will bear interest at the rate of \_% per annum which will accrue from the date of such default in payment to the date payment of such principal has been made or duly provided for. Interest on any overdue principal will be payable on demand. Any such interest on any overdue principal that is not so paid on demand will bear interest at the rate of \_% per annum which will accrue from the date of such demand for payment to the date payment of such interest has been made or duly provided for, and such interest will also be payable on demand. ]

Payment of the principal of (and premium, if any) and [if applicable, insert: any such interest on this Security will be made at the office or agency of the Company maintained for the purpose in \_\_\_\_\_, in such coin or currency of the United States of America as at the time of payment is legal tender for payment of public and private debts [if applicable, insert: : provided, however, that at the option of the Company payment of interest may be made by check mailed to the address of the Person entitled thereto as such address appears in the Security Register ].

REFERENCE IS HEREBY MADE TO THE FURTHER PROVISIONS SET FORTH ON THE REVERSE HEREOF. SUCH PROVISIONS WILL FOR ALL PURPOSES HAVE THE SAME EFFECT AS THOUGH FULLY SET FORTH IN THIS PLACE.

This Security will not be valid or become obligatory for any purpose until the certificate of authentication herein has been signed manually by the Trustee under the Indenture referred to on the reverse side hereof.

**IN WITNESS WHEREOF, this instrument has been duly executed in accordance with the Indenture.**

By:

Attest:

By:

[Form of Reverse of Security]

This Security is one of a duly authorized issue of securities of the Company (herein called the Securities ) and is to be issued in one or more series under an Indenture, dated as of \_\_\_\_\_, 20\_\_ (herein called the Indenture ), between the Company and The Bank of New York Trust Company, N.A., as Trustee (herein called the Trustee , which term includes any successor trustee under the Indenture), to which Indenture and all indentures supplemental thereto reference is hereby made for a statement of the respective rights, limitations of rights, duties, and immunities thereunder of the Company, the Trustee, and the Holders of the Securities and of the terms upon which the Securities are, and are to be, authenticated and delivered. This Security is one of the series designated on the face hereof if applicable, insert: , limited in aggregate principal amount to \$\_\_\_\_ ].

If applicable, insert: The Securities of this series are subject to redemption upon not less than 30 calendar days notice by mail. If applicable, insert: (a) on \_\_\_\_\_ in each year commencing with the \_\_\_\_ year and ending with the year \_\_\_\_ through operation of the sinking fund for this series at a Redemption Price equal to 100% of the principal amount, and (b) ] at any time if applicable, insert: on or after \_\_\_\_\_, \_\_\_\_ ], as a whole or in part, at the election of the Company, at the following Redemption Prices (expressed as percentages of the principal amount): If redeemed If applicable, insert: on or before \_\_\_\_\_, \_\_\_\_%, and if redeemed during the 12-month period beginning \_\_\_\_\_ of the years indicated,

| Year | Redemption<br>Price | Year | Redemption<br>Price |
|------|---------------------|------|---------------------|
|------|---------------------|------|---------------------|

and thereafter at a Redemption Price equal to \_% of the principal amount, together in the case of any such redemption if applicable, insert: (whether through operation of the sinking fund or otherwise) ] with accrued interest to the Redemption Date, but interest installments whose Stated Maturity is on or prior to such Redemption Date will be payable to the Holders of such Securities, or one or more Predecessor Securities, of record at the close of business on the relevant Record Dates referred to on the face hereof, all as provided in the Indenture. ].

If applicable, insert: The Securities of this series are subject to redemption upon not less than 30 calendar days notice by mail. If applicable, insert: (a) on \_\_\_\_\_ in each year commencing with the year \_\_\_\_ and ending with the year \_\_\_\_ through operation of the sinking fund for this series at the following Redemption Prices (expressed as percentages of the principal amount) applicable to redemption

through operation of the sinking fund and (b) ☐ at any time [if applicable, insert: on or after \_\_\_\_\_, \_\_\_\_] as a whole or in part, at the election of the Company, at the following Redemption Prices (expressed as percentages of the principal amount) applicable to redemption otherwise than through operation of the sinking fund: If redeemed [If applicable, insert: on or before \_\_\_\_\_, \_\_%, and if redeemed ☐ during the 12-month period beginning \_\_\_\_\_ of the years indicated,

| Year                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Redemption Price For<br>Redemption Through<br>Operation of the<br>Sinking Fund | Redemption Price For<br>Redemption Otherwise<br>Than Through Operation<br>of the Sinking Fund |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| and thereafter at a Redemption Price equal to <u>__%</u> of the principal amount, together in the case of any such redemption (whether through operation of the sinking fund or otherwise) with accrued interest to the Redemption Date, but interest installments whose Stated Maturity is on or prior to such Redemption Date will be payable to the Holders of such Securities, or one or more Predecessor Securities, of record at the close of business on the relevant Record Dates referred to on the face hereof, all as provided in the Indenture. <input type="checkbox"/> .                                                                                                                                                                                                                                                             |                                                                                |                                                                                               |
| <u>[If applicable, insert: Notwithstanding the foregoing, the Company may not, prior to _____, redeem any Securities of this series as contemplated by <u>[if applicable, insert: Clause (b) of <input type="checkbox"/></u> the preceding paragraph as a part of, or in anticipation of, any refunding operation by the application, directly or indirectly, of moneys borrowed having an interest cost to the Company (calculated in accordance with generally accepted financial practice) of less than <u>__%</u> per annum. <input type="checkbox"/></u>                                                                                                                                                                                                                                                                                      |                                                                                |                                                                                               |
| <u>[If applicable, insert: The sinking fund for this series provides for the redemption on _____ in each year beginning with the year ____ and ending with the year ____ of <u>[if applicable, insert: not less than \$_____ ( mandatory sinking fund ) and not more than <input type="checkbox"/></u> \$_____ aggregate principal amount of Securities of this series. Securities of this series acquired or redeemed by the Company otherwise than through <u>[if applicable, insert: mandatory <input type="checkbox"/></u> sinking fund payments may be credited against subsequent <u>[if applicable, insert: mandatory <input type="checkbox"/></u> sinking fund payments otherwise required to be made <u>[if applicable, insert: in the inverse order in which they become due <input type="checkbox"/></u>. <input type="checkbox"/>.</u> |                                                                                |                                                                                               |
| <u>[If the Security is subject to redemption of any kind, insert: In the event of redemption of this Security in part only, a new Security or Securities of this series and of like tenor for the unredeemed portion hereof will be issued in the name of the Holder hereof upon the cancellation hereof. <input type="checkbox"/></u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                |                                                                                               |
| <u>[If applicable, insert: The Indenture contains provisions for defeasance at any time of (a) the entire indebtedness evidenced by this Security or (b) certain restrictive</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                |                                                                                               |

covenants and Events of Default with respect to this Security, in each case upon compliance with certain conditions set forth in the Indenture. ]

[If the Security is not an Original Issue Discount Security, insert: If an Event of Default with respect to Securities of this series shall occur and be continuing, the principal of the Securities of this series may be declared due and payable in the manner and with the effect provided in the Indenture. ]

[If the Security is an Original Issue Discount Security, insert: If an Event of Default with respect to Securities of this series shall occur and be continuing, an amount of principal of the Securities of this series may be declared due and payable in the manner and with the effect provided in the Indenture. Such amount will be equal to [insert formula for determining the amount]. Upon payment (a) of the amount of principal so declared due and payable and (b) of interest on any overdue principal and overdue interest, all of the Company's obligations in respect of the payment of the principal of and interest, if any, on the Securities of this series will terminate. ]

The Indenture permits, with certain exceptions as therein provided, the amendment thereof and the modification of the rights and obligations of the Company and the rights of the Holders of the Securities of each series to be affected under the Indenture at any time by the Company and the Trustee with the consent of the Holders of a majority in principal amount of the Securities at the time Outstanding of each series to be affected. The Indenture also contains provisions permitting the Holders of specified percentages in principal amount of the Securities of each series at the time Outstanding, on behalf of the Holders of all Securities of such series, to waive compliance by the Company with certain provisions of the Indenture and certain past defaults under the Indenture and their consequences. Any such consent or waiver by the Holder of this Security will be conclusive and binding upon such Holder and upon all future Holders of this Security and of any Security issued upon the registration of transfer hereof or in exchange herefor or in lieu hereof, whether or not notation of such consent or waiver is made upon this Security.

As provided in and subject to the provisions of the Indenture, the Holder of this Security will not have the right to institute any proceeding with respect to the Indenture or for the appointment of a receiver or trustee or for any other remedy thereunder, unless such Holder shall have previously given the Trustee written notice of a continuing Event of Default with respect to the Securities of this series, the Holders of not less than 51% in principal amount of the Securities of this series at the time Outstanding shall have made written request to the Trustee to institute proceedings in respect of such Event of Default as Trustee and offered the Trustee indemnity satisfactory to it, and the Trustee shall not have received from the Holders of a majority in principal amount of Securities of this series at the time Outstanding a direction inconsistent with such request and shall have failed to institute such proceeding for 60 calendar days after receipt of such notice, request, and offer of indemnity. The foregoing will apply to any suit instituted by the Holder of this Security for the enforcement of any payment of principal hereof or any premium or interest hereon on or after the respective due dates expressed herein.

No reference herein to the Indenture and no provision of this Security or of the Indenture will alter or impair the obligation of the Company, which is absolute and unconditional, to pay the principal of and any premium and interest on this Security at the times, place, and rate, and in the coin or currency, herein prescribed.

As provided in the Indenture and subject to certain limitations therein set forth, the transfer of this Security is registerable in the Security Register, upon surrender of this Security for registration of transfer at the office or agency of the Company in any place where the principal of and any premium and interest on this Security are payable, duly endorsed by, or accompanied by a written instrument of transfer in form satisfactory to the Company and the Security Registrar duly executed by, the Holder hereof or his attorney duly authorized in writing, and thereupon one or more new Securities of this series and of like tenor, of authorized denominations and for the same aggregate principal amount, will be issued to the designated transferee or transferees.

The Securities of this series are issuable only in registered form without coupons in denominations of \$1,000 and integral multiples thereof. As provided in the Indenture and subject to certain limitations therein set forth, Securities of this series are exchangeable for a like aggregate principal amount of Securities of this series and of like tenor of a different authorized denomination, as requested by the Holder surrendering the same.

No service charge will be made for any such registration of transfer or exchange, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith.

Prior to due presentment of this Security for registration of transfer, the Company, the Trustee, and any agent of the Company or the Trustee may treat the Person in whose name this Security is registered as the owner hereof for all purposes, whether or not this Security shall be overdue, and neither the Company, the Trustee, nor any such agent will be affected by notice to the contrary.

All terms used in this Security that are defined in the Indenture will have the respective meanings assigned to them in the Indenture.

This Security shall be governed by, and construed in accordance with, the laws of the State of New York, without regard to conflicts of laws principles thereof.

C. The Trustee's certificate of authentication will be in substantially the following form:

[Form of Trustee's Certificate Of

Authentication for Securities]

Trustee's Certificate of Authentication

This is one of the Securities of the series designated therein referred to in the within-mentioned Indenture.

The Bank of New York  
Trust Company, N.A.,  
as Trustee

Dated: \_\_\_\_\_

By:  
Authorized Signatory

D. Every Global Security authenticated and delivered hereunder will bear a legend in substantially the following form:

Form of Legend for Global Securities

THIS SECURITY IS A GLOBAL SECURITY WITHIN THE MEANING OF THE INDENTURE HEREINAFTER REFERRED TO AND IS REGISTERED IN THE NAME OF A DEPOSITARY OR A NOMINEE THEREOF. THIS SECURITY MAY NOT BE TRANSFERRED TO, OR REGISTERED OR EXCHANGED FOR SECURITIES REGISTERED IN THE NAME OF, ANY PERSON OTHER THAN THE DEPOSITARY OR A NOMINEE THEREOF, AND NO SUCH TRANSFER MAY BE REGISTERED, EXCEPT IN THE LIMITED CIRCUMSTANCES DESCRIBED IN THE INDENTURE. EVERY SECURITY AUTHENTICATED AND DELIVERED UPON REGISTRATION OF TRANSFER OF, OR IN EXCHANGE FOR, OR IN LIEU OF, THIS SECURITY WILL BE A GLOBAL SECURITY SUBJECT TO THE FOREGOING, EXCEPT IN SUCH LIMITED CIRCUMSTANCES.

E. All acts and things necessary to make the Securities, when the Securities have been executed by the Company and authenticated by the Trustee and delivered as provided in this Indenture, the valid, binding, and legal obligations of the Company and to constitute these presents a valid indenture and agreement according to its terms, have been done and performed, and the execution and delivery by the Company of this Indenture and the issue hereunder of the Securities have in all respects been duly authorized; and the Company, in the exercise of legal right and power in it vested, is executing and delivering this Indenture and proposes to make, execute, issue, and deliver the Securities.

**NOW, THEREFORE, THIS INDENTURE WITNESSETH:**

In order to declare the terms and conditions upon which the Securities are authenticated, issued, and delivered, and in consideration of the premises and of the purchase and acceptance of the Securities by the Holders thereof, it is mutually agreed, for the equal and proportionate benefit of the respective Holders from time to time of the Securities or of a series thereof, as follows:

Article I.

DEFINITIONS

Section 1.01. Certain Terms Defined.

(a) The terms defined in this Section 1.01 (except as herein otherwise expressly provided or unless the context of this Indenture otherwise requires) for all purposes of this Indenture and of any indenture supplemental hereto have the respective meanings specified in this Section 1.01. All other terms used in this Indenture that are defined in the Trust Indenture Act, either directly or by reference therein (except as herein otherwise expressly provided or unless the context of this Indenture otherwise requires), have the respective meanings assigned to such terms in the Trust Indenture Act as in force at the date of this Indenture as originally executed.

Act:

The term Act, when used with respect to any Holder, has the meaning set forth in Section 14.11.

Affiliate:

The term Affiliate means, with respect to a particular Person, any Person that, directly or indirectly, is in control of, is controlled by, or is under common control with, such Person. For purposes of this definition, control of a Person means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise; and the terms controlling and controlled have meanings correlative of the foregoing.

Authenticating Agent:

The term Authenticating Agent means any Person authorized by the Trustee pursuant to Section 9.13 to act on behalf of the Trustee to authenticate Securities of one or more series.

Board of Directors:

The term Board of Directors means the Board of Directors of the Company or a duly authorized committee of such Board.

Board Resolution:

The term Board Resolution means a copy of a resolution certified by the Secretary or an Assistant Secretary of the Company to have been duly adopted by the Board of Directors and to be in full force and effect on the date of such certification, and delivered to the Trustee.

Business Day:

The term **Business Day**, when used with respect to any Place of Payment, means each Monday, Tuesday, Wednesday, Thursday, and Friday which is not a day on which banking institutions in that Place of Payment are authorized or required by law or executive order to close.

Capital Lease:

The term **Capital Lease** means, with respect to any Person, any lease of property (whether real, personal, or mixed) by such Person or its Subsidiaries as lessee that would be capitalized on a balance sheet of such Person or its Subsidiaries prepared in conformity with GAAP, other than, in the case of such Person or its Subsidiaries, any such lease under which such Person or any of its Subsidiaries is the lessor.

Capital Lease Obligations:

The term **Capital Lease Obligations** means, with respect to any Person, the capitalized amount of all obligations of such Person and its Subsidiaries under Capital Leases, as determined on a consolidated basis in conformity with GAAP.

Commission:

The term **Commission** means the Securities and Exchange Commission, as from time to time constituted, created under the Exchange Act or, if at any time after the execution of this instrument such Commission is not existing and performing the duties now assigned to it under the Trust Indenture Act, then the body performing such duties at such time.

Common Stock:

The term **Common Stock** means the common stock of the Company.

Company:

The term **Company** means Nanogen, Inc., a Delaware corporation, until a successor Person shall have become such pursuant to the applicable provisions of this Indenture, and thereafter **Company** will mean such successor Person.

Company Request or Company Order:

The term **Company Request** or **Company Order** means a written request or order signed in the name of the Company by the Chairman of the Board of Directors, the Vice Chairman of the Board of Directors, the President, a Vice President, the Treasurer, an Assistant Treasurer, the Secretary, or an Assistant Secretary of the Company, and delivered to the Trustee.

Corporate Trust Office:

Corporate Trust Office means the designated office of the Trustee at which at any time its corporate trust business shall be administered, which office at the date hereof is located at 700 South Flower Street, Suite 500, Los Angeles, California 90017, Attention: Corporate Trust Administration, or such other address as the Trustee may designate from time to time by notice to the Holders and the Company, or the principal corporate trust office of any successor Trustee (or such other address as such successor Trustee may designate from time to time by notice to the Holders and the Company).

Covenant Defeasance:

The term Covenant Defeasance has the meaning set forth in Section 5.03.

Default:

The term Default means any event which, with notice or passage of time or both, would constitute an Event of Default.

Defaulted Interest:

The term Defaulted Interest has the meaning set forth in Section 2.09.

Defeasance:

The term Defeasance has the meaning set forth in Section 5.02.

Defeasible Series:

The term Defeasible Series has the meaning set forth in Section 5.01.

Depository:

The term Depository means, with respect to Securities of any series issuable in whole or in part in the form of one or more Global Securities, a clearing agency registered under the Exchange Act that is designated to act as Depository for such Securities as contemplated by Section 2.01.

Event of Default:

The term Event of Default has the meaning set forth in Section 8.01(a).

Exchange Act:

The term Exchange Act means the Securities Exchange Act of 1934, as amended, or any similar Federal statute, and the rules and regulations of the Commission thereunder, as the same may be in effect from time to time.

GAAP:

The term **GAAP** means generally accepted accounting principles in the United States of America as in effect from time to time set forth in the opinions and pronouncements of the Accounting Principles Board and The American Institute of Certified Public Accountants and the statements and pronouncements of the Financial Accounting Standards Board, or in such other statements by any successor entity as may be in general use by significant segments of the accounting profession, which are applicable to the circumstances as of the date of determination.

Global Security:

The term **Global Security** means a Security that evidences all or part of the Securities of any series and is authenticated and delivered to, and registered in the name of, the Depositary for such Securities or a nominee thereof.

Holder:

The term **Holder** means a person in whose name a particular Security is registered in the Security Register.

Indebtedness:

The term **Indebtedness** means, as applied to any Person, without duplication: (a) all obligations of such Person for borrowed money; (b) all obligations of such Person for the deferred purchase price of property or services (other than property and services purchased, and expense accruals and deferred compensation items arising, in the ordinary course of business); (c) all obligations of such Person evidenced by notes, bonds, debentures, mandatorily redeemable preferred stock, or other similar instruments (other than performance, surety, and appeals bonds arising in the ordinary course of business); (d) all payment obligations created or arising under any conditional sale, deferred price, or other title retention agreement with respect to property acquired by such Person (unless the rights and remedies of the seller or lender under such agreement in the event of default are limited to repossession or sale of such property); (e) any Capital Lease Obligation of such Person; (f) all reimbursement, payment, or similar obligations, contingent or otherwise, of such Person under acceptance, letter of credit, or similar facilities (other than letters of credit in support of trade obligations or incurred in connection with public liability insurance, workers compensation, unemployment insurance, old-age pensions, and other social security benefits other than in respect of employee benefit plans subject to ERISA); (g) all obligations of such Person, contingent or otherwise, under any guarantee by such Person of the obligations of another Person of the type referred to in clauses (a) through (f) above; and (h) all obligations referred to in clauses (a) through (f) above secured by (or for which the holder of such Indebtedness has an existing right, contingent or otherwise, to be secured by) any mortgage or security interest in property (including without limitation accounts, contract rights, and general intangibles) owned by such Person and as to which such Person has not assumed or become liable for the payment of such obligations other than to the extent of the property

subject to such mortgage or security interest; provided, however, that Indebtedness of the type referred to in clauses (g) and (h) above shall be included within the definition of Indebtedness only to the extent of the least of: (i) the amount of the underlying Indebtedness referred to in the applicable clause (a) through (f) above; (ii) in the case of clause (g), the limit on recoveries, if any, from such Person under obligations of the type referred to in clause (g) above; and (iii) in the case of clause (h), the aggregate value (as determined in good faith by the Board of Directors) of the security for such Indebtedness.

Indenture:

The term Indenture means this Indenture, as this Indenture may be amended, supplemented, or otherwise modified from time to time, including, for all purposes of this Indenture and any such supplemental indenture, the provisions of the Trust Indenture Act that are deemed to be a part of and govern this instrument and any such supplemental indenture, respectively. The term Indenture will also include the terms of particular series of Securities established as contemplated by Section 2.01.

Interest:

The term interest (i) when used with respect to an Original Issue Discount Security which by its terms bears interest only after Maturity, means interest which accrues from and after and is payable after Maturity and (ii) when used with respect to any Security, means the amount of all interest accruing on such Security, including any default interest and any interest accruing after any Event of Default that would have accrued but for the occurrence of such Event of Default, whether or not a claim for such interest would be otherwise allowable under applicable law.

Interest Payment Date:

The term Interest Payment Date when used with respect to any Security means the Stated Maturity of an installment of interest on such Security.

Material Adverse Effect:

The term Material Adverse Effect means a material adverse effect on the business, assets, financial condition or results of operations of the Company (taken together with its Subsidiaries as a whole). The Trustee shall be entitled to conclusively rely upon an Opinion of Counsel as to the existence of a Material Adverse Effect.

Maturity:

The term Maturity when used with respect to any Security means the date on which the principal of that Security or an installment of principal becomes due and payable as therein or herein provided, whether at the Stated Maturity or by declaration of acceleration, call for redemption, or otherwise.

Notice of Default:

The term Notice of Default means a written notice of the kind set forth in Section 8.01(a)(iv).

Officer's Certificate:

The term Officer's Certificate means a certificate executed on behalf of the Company by a responsible officer and delivered to the Trustee.

Opinion of Counsel:

The term Opinion of Counsel means an opinion in writing signed by legal counsel, who, subject to any express provisions hereof, may be an employee of or counsel for the Company or any Subsidiary, reasonably acceptable to the Trustee.

Original Issue Discount Security:

The term Original Issue Discount Security means any Security which provides for an amount less than the principal amount thereof to be due and payable upon a declaration of acceleration of the Maturity thereof pursuant to Section 8.01(b).

Outstanding:

The term Outstanding means, when used with reference to Securities as of a particular time, all Securities theretofore issued by the Company and authenticated and delivered by the Trustee under this Indenture, except (a) Securities theretofore cancelled by the Trustee or delivered to the Trustee for cancellation, (b) Securities for the payment or redemption of which money in the necessary amount has been theretofore deposited with the Trustee or any Paying Agent (other than the Company) in trust or set aside and segregated in trust by the Company (if the Company is acting as its own Paying Agent) for the Holders of such Securities; provided that, if such Securities are to be redeemed, notice of such redemption has been duly given pursuant to this Indenture or provision often not covered therefor satisfactory to the Trustee has been made, and (c) Securities paid pursuant to Section 2.07 or Securities in exchange for or in lieu of which other Securities have been authenticated and delivered pursuant to this Indenture, other than any such Securities in respect of which there shall have been presented to the Trustee proof satisfactory to it that such Securities are held by a bona fide purchaser in whose hands such Securities are valid obligations of the Company; provided, however, that in determining whether the Holders of the requisite principal amount of the Outstanding Securities have given any request, demand, authorization, direction, notice, consent, or waiver hereunder, (i) the principal amount of an Original Issue Discount Security that will be deemed to be Outstanding will be the amount of the principal thereof that would be due and payable as of the date of such determination upon acceleration of the Maturity thereof to such date pursuant to Section 8.01(b), (ii) the principal amount of a Security denominated in one or more foreign currencies or currency units will be the U.S. dollar equivalent, determined in the manner contemplated by Section 2.01 on the date of original issuance of such Security, of the principal amount (or, in the case of an

Original Issue Discount Security, the U.S. dollar equivalent on the date of original issuance of such Security of the amount determined as provided in clause (i) above) of such Security, and (iii) Securities owned by the Company or any other obligor upon the Securities or any Affiliate of the Company or of such other obligor will be disregarded and deemed not to be Outstanding, except that, in determining whether the Trustee will be protected in relying upon any such request, demand, authorization, direction, notice, consent, or waiver, only Securities which a Responsible Officer of the Trustee actually knows to be so owned will be so disregarded. Securities so owned which have been pledged in good faith may be regarded as Outstanding if the pledgor establishes to the satisfaction of the Trustee the pledgee's right so to act with respect to such Securities and that the pledgee is not the Company or any other obligor upon the Securities or any Affiliate of the Company or of such other obligor.

Paying Agent:

The term "Paying Agent" means any Person authorized by the Company to pay the principal of or any premium or interest on any Securities on behalf of the Company.

Person:

The term "Person" means any individual, partnership, corporation, joint stock company, business trust, trust, unincorporated association, joint venture, or other entity, or government or political subdivision or agency thereof.

Place of Payment:

The term "Place of Payment" when used with respect to the Securities of any series means the place or places where the principal of and any premium and interest on the Securities of that series are payable as specified as contemplated by Section 2.01.

Predecessor Security:

The term "Predecessor Security" when used with respect to any particular Security means every previous Security evidencing all or a portion of the same debt as that evidenced by such Security; and, for the purposes of this definition, any Security authenticated and delivered under Section 2.07 in exchange for or in lieu of a mutilated, destroyed, lost, or stolen Security will be deemed to evidence the same debt as the mutilated, destroyed, lost, or stolen Security.

Redemption Date:

The term "Redemption Date" when used with respect to any Security to be redeemed means the date fixed for such redemption by or pursuant to this Indenture.

Redemption Price:

The term **Redemption Price** when used with respect to any Security to be redeemed means the price (including premium, if any) at which it is to be redeemed pursuant to this Indenture.

Regular Record Date:

The term **Regular Record Date** for the interest payable on any Interest Payment Date on the Securities of any series means the date specified for that purpose as contemplated by Section 2.01.

Responsible Officer:

**Responsible Officer** when used with respect to the Trustee, means any vice president, any assistant vice president, any senior trust officer or assistant trust officer, any trust officer, or any other officer associated with the corporate trust department of the Trustee customarily performing functions similar to those performed by any of the above designated officers and also means, with respect to a particular corporate trust matter, any other officer to whom such matter is referred because of such person's knowledge of and familiarity with the particular subject.

Securities:

The term **Securities** has the meaning set forth in the first recital of this Indenture and more particularly means any Securities authenticated and delivered under this Indenture.

Security Register and Security Registrar:

The terms **Security Register** and **Security Registrar** have the respective meanings set forth in Section 2.05.

Special Record Date:

The term **Special Record Date** for the payment of any Defaulted Interest means a date fixed by the Trustee pursuant to Section 2.09.

Stated Maturity:

The term **Stated Maturity** when used with respect to any Security, any installment of interest thereon, or any other amount payable under this Indenture or the Securities means the date specified in this Indenture or such Security as the regularly scheduled date on which the principal of such Security, such installment of interest, or such other amount, is due and payable.

Subsidiary:

The term **Subsidiary** means, as applied with respect to any Person, any corporation, partnership, or other business entity of which, in the case of a corporation, more than 50% of the issued and outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether at the time capital stock of any other class or classes of such corporation has or might have voting power upon the occurrence of any contingency), or, in the case of any partnership or other legal entity, more than 50% of the ordinary equity capital interests, is at the time directly or indirectly owned or controlled by such Person, by such Person and one or more of its other Subsidiaries, or by one or more of such Person's other Subsidiaries.

Trust Indenture Act:

The term **Trust Indenture Act** means the Trust Indenture Act of 1939, as amended, as in force upon the date as of which this instrument was executed; provided, however, that in the event the Trust Indenture Act of 1939 is amended after such date, **Trust Indenture Act** means, to the extent required by any such amendment, the Trust Indenture Act of 1939 as so amended.

Trustee:

The term **Trustee** means the Person named as the **Trustee** in the first paragraph of this Indenture until a successor Trustee shall have become such pursuant to the applicable provisions of this Indenture, and thereafter **Trustee** will mean or include each Person who is then a Trustee hereunder, and if at any time there is more than one such Person, **Trustee** as used with respect to the Securities of any series will mean each Trustee with respect to Securities of that series.

U.S. Government Obligation:

The term **U.S. Government Obligation** means (a) any security that is (i) a direct obligation of the United States of America for the payment of which full faith and credit of the United States of America is pledged or (ii) an obligation of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America, which, in either case (i) or (ii), is not callable or redeemable at the option of the issuer thereof and (b) any depositary receipt issued by a bank (as defined in Section 3(a)(2) of the Securities Act of 1933, as amended) as custodian with respect to any U.S. Government Obligation specified in clause (a), which U.S. Government Obligation is held by such custodian for the account of the holder of such depositary receipt, or with respect to any specific payment of principal of or interest on any such U.S. Government Obligation, provided that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depositary receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of principal or interest evidenced by such depositary receipt.

Vice President:

(a) The term Vice President when used with respect to the Company or the Trustee means any vice president, whether or not designated by a number or a word or words added before or after the title vice president .

(b) The words Article and Section refer to an Article and Section, respectively, of this Indenture. The words herein , hereof and hereunder and other words of similar import refer to this Indenture as a whole and not to any particular Article, Section, or other subdivision. Certain terms used principally in Articles V, VI, and IX are defined in those Articles. Terms in the singular include the plural and terms in the plural include the singular.

Article II.

THE SECURITIES

Section 2.01. Designation and Amount of Securities.

(a) The aggregate principal amount of Securities that may be authenticated and delivered under this Indenture is unlimited.

(b) The Securities may be issued in one or more series. There will be established in or pursuant to a Board Resolution and, subject to Section 2.04, set forth or determined in the manner provided in an Officer's Certificate, or established in one or more indentures supplemental hereto, prior to the issuance of Securities of any series: (i) the title of the Securities of the series (which will distinguish the Securities of the series from Securities of any other series); (ii) any limit upon the aggregate principal amount of the Securities of the series which may be authenticated and delivered under this Indenture (except for Securities authenticated and delivered upon registration of transfer of, or in the exchange for, or in lieu of, other Securities of the series pursuant to Section 2.05, 2.06, 2.07, 3.05, or 10.06 and except for any Securities which, pursuant to Section 2.04, are deemed never to have been authenticated and delivered hereunder); (iii) the Person to whom any interest on a Security of the series will be payable, if other than the Person in whose name that Security (or one or more Predecessor Securities) is registered at the close of business on the Regular Record Date for such interest; (iv) the date or dates on which the principal of the Securities of the series is payable; (v) the rate or rates at which the Securities of the series will bear interest, if any, the date or dates from which such interest will accrue, the Interest Payment Dates on which any such interest will be payable, and the Regular Record Date for any interest payable on any Interest Payment Date; (vi) the place or places where the principal of and any premium and interest on Securities of the series will be payable; (vii) the period or periods within which, the price or prices at which, and the terms and conditions upon which Securities of the series may be redeemed, in whole or in part, at the option of the Company; (viii) the obligation, if any, of the Company to redeem or purchase Securities of the series pursuant to any sinking fund or analogous provisions or at the option of a Holder thereof and the period or periods within which, the price or prices at which, and the terms and conditions upon

which Securities of the series will be redeemed or purchased, in whole or in part, pursuant to such obligation; (ix) if other than denominations of \$1,000 and integral multiples thereof, the denominations in which Securities of the series will be issuable; (x) the currency, currencies, or currency units in which payment of the principal of and any premium and interest on any Securities of the series will be payable if other than the currency of the United States of America and the manner of determining the equivalent thereof in the currency of the United States of America for purposes of the definition of "Outstanding" in Section 1.01; (xi) if the amount of payments of principal of or any premium or interest on any Securities of the series may be determined with reference to an index, based upon a formula, or in some other manner, the manner in which such amounts will be determined; (xii) if the principal of or any premium or interest on any Securities of the series is to be payable, at the election of the Company or a Holder thereof, in one or more currencies or currency units other than that or those in which the Securities are stated to be payable, the currency, currencies, or currency units in which payment of the principal of and any premium and interest on Securities of such series as to which such election is made will be payable, and the periods within which and the terms and conditions upon which such election is to be made; (xiii) if other than the principal amount thereof, the portion of the principal amount of Securities of the series which will be payable upon declaration of acceleration of the Maturity thereof pursuant to Section 8.01(b); (xiv) if applicable, that the Securities of the series will be subject to either or both of Defeasance or Covenant Defeasance as provided in Article V, provided that no series of Securities that is convertible into Common Stock pursuant to Section 2.01(b)(xvi) or convertible into or exchangeable for any other securities pursuant to Section 2.01(b)(xvii) will be subject to Defeasance pursuant to Section 5.02; (xv) if and as applicable, that the Securities of the series will be issuable in whole or in part in the form of one or more Global Securities and, in such case, the Depositary or Depositaries for such Global Security or Global Securities and any circumstances other than those set forth in Section 2.05 in which any such Global Security may be transferred to, and registered and exchanged for Securities registered in the name of, a Person other than the Depositary for such Global Security or a nominee thereof and in which any such transfer may be registered; (xvi) the terms and conditions, if any, pursuant to which the Securities are convertible into Common Stock; (xvii) the terms and conditions, if any, pursuant to which the Securities are convertible into or exchangeable for any other securities, including (without limitation) securities of Persons other than the Company; and (xviii) any other terms of, or provisions, covenants, rights or other matters applicable to, the series (which terms, provisions, covenants, rights or other matters will not be inconsistent with the provisions of this Indenture, except as permitted by Section 10.01(e)).

(c) All Securities of any one series will be substantially identical except as to denomination and except as may otherwise be provided in or pursuant to the Board Resolution referred to below and (subject to Section 2.04) set forth or determined in the manner provided in the Officers' Certificate referred to above or in any such indenture supplemental hereto.

(d) If any of the terms of the series are established by action taken pursuant to a Board Resolution, a copy of an appropriate record of such action will be certified by the Secretary or an Assistant Secretary of the Company and delivered to the

Trustee concurrently with or prior to the delivery of the Officer's Certificate setting forth the terms of the series.

Section 2.02. Form of Securities and Trustee's Certificate of Authentication.

(a) The Securities of each series will be in substantially the form set forth in or otherwise contemplated by the recitals to this Indenture, with appropriate variations to reflect the specific terms of such series. If the form of Securities of any series is established by action taken pursuant to a Board Resolution, a copy of an appropriate record of such action will be certified by the Secretary or an Assistant Secretary of the Company and delivered to the Trustee concurrently with or prior to the delivery of the Company Order contemplated by Section 2.04 for the authentication and delivery of such Securities.

(b) The definitive Securities will be printed, lithographed, or engraved on steel engraved borders or may be produced in any other manner permitted by the rules of any securities exchange on which the Securities may be listed, all as determined by the officers executing such Securities, as evidenced by their execution of such Securities.

(c) The Trustee's certificate of authentication will be in substantially the form set forth in the recitals to this Indenture.

(d) Every Global Security authenticated and delivered hereunder will bear a legend in substantially the form set forth in the recitals to this Indenture.

Section 2.03. Date and Denominations.

Each Security will be dated the date of its authentication. The Securities of each series will be issuable only in registered form without coupons in such denominations as may be specified as contemplated by Section 2.01. In the absence of any such specified denomination with respect to the Securities of any series, the Securities of such series will be issuable in denominations of \$1,000 and integral multiples thereof.

Section 2.04. Execution, Authentication and Delivery of Securities.

(a) The Securities will be executed on behalf of the Company by the Chairman or any Vice Chairman of the Board of Directors, the Chief Executive Officer, the President, or any Vice President of the Company and attested by the Treasurer, the Secretary, any Assistant Treasurer, or any Assistant Secretary of the Company under its corporate seal. The signature of any of these officers on the Securities may be manual or facsimile. The seal of the Company may be in the form of a facsimile thereof and may be impressed, affixed, imprinted, or otherwise reproduced on the Securities.

(b) Only such Securities bearing the Trustee's certificate of authentication, signed manually by the Trustee, will be entitled to the benefits of this Indenture or be valid or obligatory for any purpose. Such execution of the certificate of authentication by the Trustee upon any Securities executed by the Company will be

conclusive evidence that the Securities so authenticated have been duly authenticated and delivered hereunder. Notwithstanding the foregoing, if any Security shall have been authenticated and delivered hereunder but never issued and sold by the Company, and the Company shall deliver such Security to the Trustee for cancellation as provided in Section 2.08, for all purposes of this Indenture such Security will be deemed never to have been authenticated and delivered hereunder and will never be entitled to the benefits of this Indenture.

(c) Securities bearing the manual or facsimile signatures of individuals who were at any time the proper officers of the Company will bind the Company, notwithstanding that such individuals or any of them have ceased to hold such offices prior to the authentication and delivery of such Securities or did not hold such offices at the date of such Securities.

(d) At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver Securities of any series executed by the Company to the Trustee for authentication, together with a Company Order for the authentication and delivery of such Securities, and the Trustee in accordance with the Company Order will authenticate and deliver such Securities. If the form or terms of the Securities of the series have been established in or pursuant to one or more Board Resolutions as permitted by Sections 2.01 and 2.02, in authenticating such Securities, and accepting the additional responsibilities under this Indenture in relation to such Securities, the Trustee shall receive, and (subject to Section 9.01) will be fully protected in relying upon, an Opinion of Counsel stating:

(i) if the form of such Securities has been established by or pursuant to a Board Resolution as permitted by Section 2.02, that such form has been established in conformity with the provisions of this Indenture,

(ii) if the terms of such Securities have been established by or pursuant to a Board Resolution as permitted by Section 2.01, that such terms have been established in conformity with the provisions of this Indenture,

(iii) that such Securities, when authenticated and delivered by the Trustee and issued by the Company in the manner and subject to any conditions specified in such Opinion of Counsel, will constitute valid and binding obligations of the Company enforceable in accordance with their terms, except as the enforceability thereof may be limited by bankruptcy, insolvency, reorganization, moratorium, or other laws relating to or affecting creditors' rights and by general principles of equity; and

(iv) that all conditions precedent set forth in the Indenture to the execution and delivery by the Company of such Securities have been satisfied.

The Trustee shall have the right to decline to authenticate and deliver any Securities under this Section if the Trustee, being advised by counsel, determines that

such action may not lawfully be taken or if the Trustee in good faith shall determine that such action would expose the Trustee to personal liability to existing Holders.

(e) Notwithstanding the provisions of Sections 2.01 and 2.04(d), if all Securities of a series are not to be originally issued at one time, it will not be necessary to deliver the Officer's Certificate otherwise required pursuant to Section 2.01 or the Company Order and Opinion of Counsel otherwise required pursuant to Section 2.04(d) at or prior to the time of authentication of each Security of such series if such documents are delivered at or prior to the authentication upon original issuance of the first Security of such series to be issued.

Section 2.05. Registration of Transfer and Exchange.

(a) The Company will cause to be kept at the Corporate Trust Office a register (the register maintained in such office and in any other office or agency of the Company in a Place of Payment being herein sometimes collectively referred to as the Security Register ) in which, subject to such reasonable regulations as it may prescribe, the Company will provide for the registration of Securities and of transfers of Securities. The Trustee is hereby appointed Security Registrar for the purpose of registering Securities and transfers of Securities as herein provided.

(b) Upon surrender for registration of transfer of any Security of any series at the office or agency in a Place of Payment for that series, the Company will execute, and the Trustee will authenticate and deliver in the name of the designated transferee or transferees, one or more new Securities of the same series, of any authorized denominations and of a like aggregate principal amount and tenor.

(c) At the option of the Holder, Securities of any series may be exchanged for other Securities of the same series, of any authorized denominations and of a like aggregate principal amount and tenor, upon surrender of the Securities to be exchanged at such office or agency. Whenever any Securities are so surrendered for exchange, the Company will execute, and the Trustee will authenticate and deliver the Securities which the Holder making the exchange is entitled to receive.

(d) Every Security presented or surrendered for registration of transfer or exchange will (if so required by the Company or the Trustee) be duly endorsed, or be accompanied by a written instrument or instruments of transfer, in form reasonably satisfactory to the Company and the Security Registrar duly executed, by the Holder thereof or his attorney duly authorized in writing. No service charge will be made for any registration of transfer or exchange of Securities, but the Company may require payment of a sum sufficient to cover any tax, assessment, fee or other governmental charge that may be imposed in connection with any registration of transfer or exchange of Securities, other than exchanges pursuant to Section 2.06, 3.05, or 10.06 not involving any transfer. The Company will not be required (i) to issue, register the transfer of, or exchange Securities of any series during a period beginning at the opening of business 15 calendar days before the mailing of a notice of redemption of Securities of that series selected for redemption under Section 3.02(c) and ending at the close of business on the

day of such mailing or (ii) to register the transfer of or exchange any Security so selected for redemption in whole or in part, except, in the case of any Securities to be redeemed in part, the portion thereof not being redeemed.

(e) All Securities issued upon any registration of transfer or exchange of Securities will be valid obligations of the Company, evidencing the same debt, and entitled to the same benefits under this Indenture, as the Securities surrendered upon such registration of transfer or exchange.

(f) Notwithstanding any other provision in this Indenture, no Global Security may be transferred to, or registered or exchanged for Securities registered in the name of, any Person other than the Depositary for such Global Security or any nominee thereof, and no such transfer may be registered, unless (i) such Depositary (A) notifies the Company that it is unwilling or unable to continue as Depositary for such Global Security or (B) ceases to be a clearing agency registered under the Exchange Act, (ii) the Company executes and delivers to the Trustee a Company Order that such Global Security shall be so transferable, registrable, and exchangeable, and such transfers shall be registrable, (iii) there shall have occurred and be continuing an Event of Default with respect to the Securities evidenced by such Global Security, or (iv) there shall exist such other circumstances, if any, as have been specified for this purpose as contemplated by Section 2.01. Notwithstanding any other provision in this Indenture, a Global Security to which the restriction set forth in the preceding sentence shall have ceased to apply may be transferred only to, and may be registered and exchanged for Securities registered only in the name or names of, such Person or Persons as the Depositary for such Global Security shall have directed and no transfer thereof other than such a transfer may be registered. Every Security authenticated and delivered upon registration of transfer of, or in exchange for or in lieu of, a Global Security to which the restriction set forth in the first sentence of this Section 2.05(f) shall apply, whether pursuant to this Section 2.05, Section 2.06, 2.07, 3.05, or 10.06 or otherwise, will be authenticated and delivered in the form of, and will be, a Global Security.

(g) Each Holder of a Security agrees to indemnify the Company and the Trustee against any liability that may result from the transfer, exchange or assignment of such Holder's Security in violation of any provision of this Indenture and/or applicable United States Federal or state securities law.

(h) The Trustee shall have no obligation or duty to monitor, determine or inquire as to compliance with any restrictions on transfer imposed under this Indenture or under applicable law with respect to any transfer of any interest in any Security [(including any transfers between or among Depositary Participants or beneficial owners of interests in any Global Security)] other than to require delivery of such certificates and other documentation or evidence as are expressly required by, and to do so if and when expressly required by the terms of, this Indenture, and to examine the same to determine substantial compliance as to form with the express requirements hereof.

Section 2.06. Temporary Securities.

Pending the preparation of definitive Securities of any series, the Company may execute and register and upon Company Order the Trustee will authenticate and deliver temporary Securities (printed, lithographed, or typewritten) of any authorized denomination, and substantially in the form of the definitive Securities but with such omissions, insertions, and variations as may be appropriate for temporary Securities, all as may be determined by the officers executing such Securities as evidenced by their execution of such Securities; provided, however that the Company will use reasonable efforts to have definitive Securities of that series available at the times of any issuance of Securities under this Indenture. Every temporary Security will be executed and registered by the Company and be authenticated by the Trustee upon the same conditions and in substantially the same manner, and with like effect, as the definitive Securities. The Company will execute and register and furnish definitive Securities of such series as soon as practicable and thereupon any or all temporary Securities of such series may be surrendered in exchange therefor at the office or agency of the Company in the Place of Payment for that series, and the Trustee will authenticate and deliver in exchange for such temporary Securities of such series one or more definitive Securities of the same series, of any authorized denominations, and of a like aggregate principal amount and tenor. Such exchange will be made by the Company at its own expense and without any charge to the Holder therefor. Until so exchanged, the temporary Securities of any series will be entitled to the same benefits under this Indenture as definitive Securities of the same series authenticated and delivered hereunder.

Section 2.07. Mutilated, Destroyed, Lost, and Stolen Securities.

(a) If any mutilated Security is surrendered to the Trustee, the Company will execute and the Trustee will authenticate and deliver in exchange therefor a new Security of the same series and of like tenor and principal amount and bearing a number not contemporaneously outstanding.

(b) If there shall be delivered to the Company and the Trustee (i) evidence to their satisfaction of the destruction, loss, or theft of any Security and (ii) such security or indemnity as may be required by them to save each of them and any agent of either of them harmless, then, in the absence of notice to the Company or the Trustee that such Security has been acquired by a bona fide purchaser, the Company will execute and the Trustee will authenticate and deliver, in lieu of any such destroyed, lost, or stolen Security, a new Security of the same series and of like tenor and principal amount and bearing a number not contemporaneously outstanding.

(c) In case any such mutilated, destroyed, lost, or stolen Security has become or is about to become due and payable, the Company in its discretion may, instead of issuing a new Security, pay such Security.

(d) Upon the issuance of any new Security under this Section 2.07, the Company may require the payment of a sum sufficient to cover any tax, assessment, fee

or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith.

(e) Every new Security of any series issued pursuant to this Section 2.07 in exchange for any mutilated Security or in lieu of any destroyed, lost, or stolen Security will constitute an original additional contractual obligation of the Company, whether or not the mutilated, destroyed, lost, or stolen Security shall be at any time enforceable by anyone, and will be entitled to all the benefits of this Indenture equally and proportionately with any and all other Securities of that series duly issued hereunder.

(f) The provisions of this Section 2.07 are exclusive and will preclude (to the extent lawful) all other rights and remedies with respect to the replacement or payment of mutilated, destroyed, lost, or stolen Securities.

Section 2.08. Cancellation of Surrendered Securities.

All Securities surrendered for payment, redemption, registration of transfer or exchange, or for credit against any sinking fund payment will, if surrendered to any Person other than the Trustee, be delivered to the Trustee and will be promptly cancelled by it. The Company may at any time deliver to the Trustee for cancellation any Securities previously authenticated and delivered hereunder which the Company may have acquired in any manner whatsoever, and may deliver to the Trustee (or to any other Person for delivery to the Trustee) for cancellation any Securities previously authenticated hereunder which the Company has not issued and sold, and all Securities so delivered will be promptly cancelled by the Trustee. No Securities will be authenticated in lieu of or in exchange for any Securities cancelled as provided in this Section 2.08, except as expressly permitted by this Indenture. The Trustee shall dispose of all cancelled Securities in accordance with its customary procedures.

Section 2.09. Payment of Interest; Interest Rights Preserved.

(a) Except as otherwise provided as contemplated by Section 2.01 with respect to any series of Securities, interest on any Security which is payable, and is punctually paid or duly provided for, on any Interest Payment Date will be paid to the Person in whose name that Security (or one or more Predecessor Securities) is registered at the close of business on the Regular Record Date for such interest.

(b) Any interest on any Security of any series which is payable, but is not punctually paid or duly provided for, on any Interest Payment Date (herein called Defaulted Interest ) will forthwith cease to be payable to the Holder on the relevant regular Record Date by virtue of having been such Holder, and such Defaulted Interest may be paid by the Company together with interest thereon (to the extent permitted by law) at the rate of interest applicable to such Security, at its election in each case, as provided in clause (i) or (ii) below:

(i) The Company may elect to make payment of any Defaulted Interest (and interest thereon, if any) to the Persons in whose names the Securities of such series (or their respective Predecessor Securities) are registered at the

close of business on a Special Record Date for the payment of such Defaulted Interest, which will be fixed in the following manner. The Company will promptly notify the Trustee in writing of the amount of Defaulted Interest (and interest thereon, if any) proposed to be paid on each Security of such series and the date of the proposed payment, and at the same time the Company will deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest (and interest thereon, if any) or will make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the persons entitled to such Defaulted Interest (and interest thereon, if any) as in this clause (i) provided. Thereupon the Trustee will fix a Special Record Date for the payment of such Defaulted Interest (and interest thereon, if any) which will be not more than 15 calendar days and not less than 10 calendar days prior to the date of the proposed payment and not less than 10 calendar days after the receipt by the Trustee of the notice of the proposed payment. The Trustee will promptly notify the Company of such Special Record Date and, in the name and at the expense of the Company, will cause notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor to be mailed, first class postage prepaid, to each Holder of Securities of such series at his address as it appears in the Security Register, not less than 10 calendar days prior to such Special Record Date. Notice of the proposed payment of such Defaulted Interest (and interest thereon, if any) and the Special Record Date therefor having been so mailed, such Defaulted Interest will be paid to the Persons in whose names the Securities of such series (or their respective Predecessor Securities) are registered at the close of business on such Special Record Date and will no longer be payable pursuant to the following clause (ii).

(ii) The Company may make payment of any Defaulted Interest (and interest thereon, if any) on the Securities of any series in any other lawful manner not inconsistent with the requirements of any securities exchange on which such Securities may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Company to the Trustee of the proposed payment pursuant to this clause (ii), such manner of payment shall be deemed practicable by the Trustee.

(c) Subject to the foregoing provisions of this Section 2.09, each Security delivered under this Indenture upon registration of transfer of or in exchange for or in lieu of any other Security will carry the rights to interest accrued and unpaid, and to accrue, which were carried by such other Security.

#### Section 2.10. Persons Deemed Owners.

Prior to due presentment of a Security for registration of transfer, the Company, the Trustee, and any agent of the Company or the Trustee may treat the Person in whose name such Security is registered as the owner of such Security for the purpose of receiving payment of principal of and any premium and (subject to Section 2.09) any interest on such Security and for all other purposes whatsoever, whether or not such

Security shall be overdue, and neither the Company, the Trustees nor any agent of the Company or the Trustee will be affected by notice to the contrary.

Section 2.11. Computation of Interest.

Except as otherwise specified as contemplated by Section 2.01 for Securities of any series, interest on the Securities of each series will be computed on the basis of a 360-day year consisting of twelve 30-day months.

Section 2.12. CUSIP Numbers.

The Company in issuing any series of the Securities may use CUSIP numbers, if then generally in use, and thereafter with respect to such series, the Trustee may use such numbers in any notice of redemption or exchange with respect to such series provided that any such notice may state that no representation is made as to the correctness of such numbers either as printed on the Securities or as contained in any notice of a redemption and that reliance may be placed only on the other identification numbers printed on the Securities, and any such redemption shall not be affected by any defect in or omission of such numbers. The Company will promptly notify the Trustee in writing of any change in the CUSIP numbers.

Article III.

REDEMPTION OF SECURITIES

Section 3.01. Applicability of Article.

Securities of any series which are redeemable before their Stated Maturity will be redeemable in accordance with their terms and (except as otherwise specified as contemplated by Section 2.01 for Securities of any series) in accordance with this Article III.

Section 3.02. Election to Redeem; Notice to Trustee.

(a) The election of the Company to redeem any Securities will be evidenced by a Board Resolution. In case of any redemption at the election of the Company, the Company will, at least 60 calendar days prior to the Redemption Date fixed by the Company (unless a shorter notice shall be satisfactory to the Trustee), notify the Trustee of such Redemption Date and of the principal amount of Securities of such series to be redeemed. In the case of any redemption of Securities prior to the expiration of any restriction on such redemption provided in the terms of such Securities or elsewhere in this Indenture, the Company will furnish the Trustee with an Officer's Certificate evidencing compliance with such restriction.

(b) Notice of redemption of Securities to be redeemed at the election of the Company will be given by the Company or, at the Company's request, by the Trustee in the name and at the expense of the Company and will be irrevocable. Notice of redemption will be given by mail, first class postage prepaid, not less than 30 or more

than 60 calendar days prior to the Redemption Date, to each Holder of Securities to be redeemed, at his address appearing in the Security Register. All notices of redemption will include the CUSIP number and will state (i) the Redemption Date, (ii) the Redemption Price, (iii) if less than all the Outstanding Securities of any series are to be redeemed, the identification (and, in the case of partial redemption of any Securities, the principal amounts) of the particular Securities to be redeemed, (iv) that on the Redemption Date the Redemption Price will become due and payable upon each such Security to be redeemed and, if applicable, that interest thereon will cease to accrue on and after said date, (v) the place or places where such Securities are to be surrendered for payment of the Redemption Price, (vi) that the redemption is for a sinking fund, if such is the case, and (vii) the specific provision of this Indenture pursuant to which such Securities are to be redeemed.

(c) If less than all the Securities of any series are to be redeemed, the particular Securities to be redeemed will be selected not more than 60 calendar days prior to the Redemption Date by the Trustee, from the Outstanding Securities of such series not previously called for redemption, by such method as the Trustee may deem fair and appropriate and which may provide for the selection for redemption of portions (equal to the minimum authorized denomination for Securities of that series or any integral multiple thereof) of the principal amount of Securities of such series of a denomination larger than the minimum authorized denomination for Securities of that series. The Trustee will promptly notify the Company in writing of the Securities selected for redemption and, in the case of any Securities selected for partial redemption, the principal amount thereof to be redeemed.

(d) For all purposes of this Indenture, unless the context otherwise requires, all provisions relating to the redemption of Securities will relate, in the case of any Securities redeemed or to be redeemed only in part, to the portion of the principal amount of such Securities which has been or is to be redeemed.

#### Section 3.03. Deposit of Redemption Price.

Prior to 10:00 a.m. (local time at the Place of Payment) on the Redemption Date specified in the notice of redemption given as provided in Section 3.02, the Company will deposit with the Trustee or with a Paying Agent (or, if the Company is acting as its own Paying Agent, segregate and hold in trust as provided in Section 6.03) an amount of money sufficient to pay the Redemption Price of, and (except if the Redemption Date shall be an Interest Payment Date) any accrued interest on, all of the Securities that are to be redeemed on that date.

#### Section 3.04. Securities Payable on Redemption Date.

(a) Notice of redemption having been given as aforesaid, the Securities so to be redeemed will, on the Redemption Date, become due and payable at the Redemption Price therein specified, and from and after such date (unless the Company defaults in the payment of the Redemption Price and accrued interest) such Securities will cease to accrue interest. Upon surrender of any such Security for

redemption in accordance with said notice, such Security will be paid by the Company at the Redemption Price, together with accrued interest to the Redemption Date; provided, however, that unless otherwise specified as contemplated by Section 2.01, installments of interest whose Stated Maturity is on or prior to the Redemption Date will be payable to the Holders of such Securities, or one or more Predecessor Securities, registered as such at the close of business on the relevant Record Dates in accordance with their terms and the provisions of Section 2.09.

(b) If any Security called for redemption shall not be so paid upon surrender thereof for redemption, the principal and any premium will, until paid, bear interest from the Redemption Date at the rate prescribed therefor in the Security.

Section 3.05. Securities Redeemed in Part.

Any Security that is to be redeemed only in part will be surrendered at a Place of Payment therefor (with, if the Company or the Trustee so requires, due endorsement by, or a written instrument of transfer in form satisfactory to the Company and the Trustee duly executed by, the Holder thereof or his attorney duly authorized in writing), and the Company will execute, and the Trustee will authenticate and deliver to the Holder of such Security without service charge, a new Security or Securities of the same series and of like tenor, of any authorized denomination as requested by such Holder, in aggregate principal amount equal to and in exchange for the unredeemed portion of the principal of the Security so surrendered.

Article IV.

SINKING FUNDS

Section 4.01. Applicability of Article.

The provisions of this Article IV will be applicable to any sinking fund for the retirement of Securities of a series except as otherwise specified as contemplated by Section 2.01 for Securities of such series. The minimum amount of any sinking fund payment provided for by the terms of Securities of any series is herein referred to as a mandatory sinking fund payment, and any payment in excess of such minimum amount provided for by the terms of Securities of any series is herein referred to as an optional sinking fund payment. If provided for by the terms of Securities of any series, the amount of any sinking fund payment may be subject to reduction as provided in Section 4.02. Each sinking fund payment with respect to Securities of a particular series will be applied to the redemption of Securities of such series as provided for by the terms of Securities of such series.

Section 4.02. Satisfaction of Sinking Fund Payments With Securities.

The Company (a) may deliver Outstanding Securities of a series (other than any previously called for redemption) and (b) may apply as a credit Securities of a series which have been redeemed either at the election of the Company pursuant to the terms of such Securities or through the application of permitted optional sinking fund

payments pursuant to the terms of such Securities, in each case in satisfaction of all or any part of any sinking fund payment with respect to the Securities of such series required to be made pursuant to the terms of such Securities as provided for by the terms of such series, provided that such Securities have not been previously so credited. Such Securities will be received and credited for such purpose by the Trustee at the Redemption Price specified in such Securities for redemption through operation of the sinking fund and the amount of such sinking fund payment will be reduced accordingly.

Section 4.03. Redemption of Securities for Sinking Fund.

Not less than 60 calendar days prior to each sinking fund payment date for any series of Securities, the Company will deliver to the Trustee an Officer's Certificate specifying the amount of the next ensuing sinking fund payment for that series pursuant to the terms of that series, the portion thereof, if any, that is to be satisfied by payment of cash and the portion thereof, if any, that is to be satisfied by delivering and crediting Securities of that series pursuant to Section 4.02 and will also deliver to the Trustee any Securities to be so delivered. Not less than 30 calendar days before each such sinking fund payment date, the Trustee will select the Securities to be redeemed upon such sinking fund payment date in the manner specified in Section 3.02(c) and cause notice of the redemption thereof to be given in the name of and at the expense of the Company in the manner provided in Section 3.02(b). Such notice having been duly given, the redemption of such Securities will be made upon the terms and in the manner stated in Sections 3.04 and 3.05.

Article V.

DEFEASANCE AND COVENANT DEFEASANCE

Section 5.01. Company's Option to Effect Defeasance or Covenant Defeasance.

The Company may elect, at its option by Board Resolution at any time, to have either Section 5.02 or Section 5.03 applied to the Outstanding Securities of any series designated pursuant to Section 2.01 as being defeasible pursuant to this Article V (hereinafter called "Defeasible Series"), upon compliance with the conditions set forth below in this Article V, provided that Section 5.02 will not apply to any series of Securities that is convertible into Common Stock pursuant to Section 2.01(b)(xvi) or convertible into or exchangeable for any other securities pursuant to Section 2.01 (b)(xvii).

Section 5.02. Defeasance and Discharge.

Upon the Company's exercise of the option provided in Section 5.01 to have this Section 5.02 applied to the Outstanding Securities of any Defeasible Series and subject to the proviso to Section 5.01, the Company will be deemed to have been discharged from its obligations with respect to the Outstanding Securities of such series as provided in this Section 5.02 on and after the date the conditions set forth in Section 5.04 are satisfied (hereinafter called "Defeasance"). For this purpose, such Defeasance means that the Company will be deemed to have paid and discharged the entire

indebtedness represented by the Outstanding Securities of such series and to have satisfied all its other obligations under the Securities of such series and this Indenture insofar as the Securities of such series are concerned (and the Trustee, at the expense of the Company, will execute proper instruments acknowledging the same), subject to the following which will survive until otherwise terminated or discharged hereunder: (a) the rights of Holders of Securities of such series to receive, solely from the trust fund described in Section 5.04 and as more fully set forth in Section 5.04, payments in respect of the principal of and any premium and interest on such Securities of such series when payments are due, (b) the Company's obligations with respect to the Securities of such series under Sections 2.05, 2.06, 2.07, 6.02, 6.03, and 10.06, (c) the rights, powers, trusts, duties, and immunities of the Trustee hereunder, and (d) this Article V. Subject to compliance with this Article V, the Company may exercise its option provided in Section 5.01 to have this Section 5.02 applied to the Outstanding Securities of any Defeasible Series notwithstanding the prior exercise of its option provided in Section 5.01 to have Section 5.03 applied to the Outstanding Securities of such series.

Section 5.03. Covenant Defeasance.

Upon the Company's exercise of the option provided in Section 5.01 to have this Section 5.03 applied to the Outstanding Securities of any Defeasible Series, (a) the Company will be released from its obligations under Sections 6.04 through 6.07, inclusive, Section 11.01, and the provisions of any Supplemental Indenture specified in such Supplemental Indenture, and (b) the occurrence of any event specified in Sections 8.01(a)(iii), 8.01(a)(iv) (with respect to any of Sections 6.04 through 6.07, inclusive, Section 11.01, and the provisions of any Supplemental Indenture specified in such Supplemental Indenture), 8.01(a)(v), and 8.01(a)(viii) will be deemed not to be or result in an Event of Default, in each case with respect to the Outstanding Securities of such series as provided in this Section on and after the date the conditions set forth in Section 5.04 are satisfied (hereinafter called "Covenant Defeasance"). For this purpose, such Covenant Defeasance means that the Company may omit to comply with and will have no liability in respect of any term, condition, or limitation set forth in any such specified Section (to the extent so specified in the case of Section 8.01(a)(iv)), whether directly or indirectly by reason of any reference elsewhere herein to any such Section or by reason of any reference in any such Section to any other provision herein or in any other document, but the remainder of this Indenture and the Securities of such series will be unaffected thereby.

Section 5.04. Conditions to Defeasance or Covenant Defeasance.

The following will be the conditions to application of either Section 5.02 or Section 5.03 to the Outstanding Securities of any Defeasible Series:

(a) The Company shall irrevocably have deposited or caused to be deposited with the Trustee (or another trustee that satisfies the requirements contemplated by Section 9.08 and agrees to comply with the provisions of this Article V applicable to it) as trust funds in trust for the benefit of the Holders of Outstanding Securities of such series (i) money in an amount, or (ii) U.S. Government Obligations that through the

scheduled payment of principal and interest in respect thereof in accordance with their terms will provide, without reinvestment, not later than one day before the due date of any payment, money in an amount, or (iii) a combination thereof, in each case sufficient in the opinion of an independent firm of certified public accountants, to pay and discharge, and which will be applied by the Trustee (or any such other qualifying trustee) to pay and discharge, the principal of and any premium and interest on the Securities of such series on the respective Stated Maturities or on any earlier date or dates on which the Securities of such series shall be subject to redemption and the Company shall have given the Trustee irrevocable instructions satisfactory to the Trustee to give notice to the Holders of the redemption of the Securities of such series, all in accordance with the terms of this Indenture and the Securities of such series.

(b) In the case of an election under Section 5.02, the Company shall have delivered to the Trustee an Opinion of Counsel (from a counsel who shall not be an employee of the Company) to the effect that (i) the Company has received from, or there has been published by, the Internal Revenue Service a ruling, or (ii) since the date of this Indenture there has been a change in the applicable Federal income tax law, in either case to the effect that, and based thereon, such opinion shall confirm that, the Holders of the Outstanding Securities of such series will not recognize gain or loss for Federal income tax purposes as a result of the deposit, Defeasance, and discharge to be effected with respect to the Securities of such series and will be subject to Federal income tax on the same amount, in the same manner, and at the same times as would be the case if such deposit, Defeasance, and discharge were not to occur.

(c) In the case of an election under Section 5.03, the Company shall have delivered to the Trustee an Opinion of Counsel (from a counsel who shall not be an employee of the Company) to the effect that the Holders of the Outstanding Securities of such series will not recognize gain or loss for Federal income tax purposes as a result of the deposit and Covenant Defeasance to be effected with respect to the Securities of such series and will be subject to Federal income tax on the same amount, in the same manner, and at the same times as would be the case if such deposit and Covenant Defeasance were not to occur.

(d) The Company shall have delivered to the Trustee an Officer's Certificate to the effect that the Securities of such series, if then listed on any securities exchange, will not be delisted solely as a result of such deposit.

(e) No Event of Default or event that (after notice or lapse of time or both) would become an Event of Default shall have occurred and be continuing at the time of such deposit or, with regard to any Event of Default or any such event specified in Sections 8.01(a)(vi) and (vii), at any time on or prior to the 90th calendar day after the date of such deposit (it being understood that this condition will not be deemed satisfied until after such 90th calendar day).

(f) Such Defeasance or Covenant Defeasance will not cause the Trustee to have a conflicting interest within the meaning of the Trust Indenture Act (assuming all Securities are in default within the meaning of such Act).

(g) Such Defeasance or Covenant Defeasance will not result in a breach or violation of, or constitute a default under, any other agreement or instrument to which the Company is a party or by which it is bound.

(h) The Company shall have delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that all conditions precedent with respect to such Defeasance or Covenant Defeasance have been complied with.

(i) Such Defeasance or Covenant Defeasance will not result in the trust arising from such deposit constituting an investment company within the meaning of the Investment Company Act of 1940, as amended, unless such trust will be qualified under such Act or exempt from regulation thereunder.

Section 5.05. Deposited Money and U.S. Government Obligations to be Held in Trust; Other Miscellaneous Provisions.

(a) Subject to the provisions of Section 6.03(e), all money and U.S. Government Obligations (including the proceeds thereof) deposited with the Trustee or other qualifying trustee (solely for purposes of this Section 5.05 and Section 5.06, the Trustee and any such other trustee are referred to collectively as the "Trustee") pursuant to Section 5.04 in respect of the Securities of any Defeasible Series will be held in trust and applied by the Trustee, in accordance with the provisions of the Securities of such series and this Indenture, to the payment, either directly or through any such Paying Agent (including the Company acting as its own Paying Agent) as the Trustee may determine, to the Holders of Securities of such series, of all sums due and to become due thereon in respect of principal and any premium and interest, but money so held in trust need not be segregated from other funds except to the extent required by law.

(b) The Company will pay and indemnify the Trustee against any tax, fee, or other charge imposed on or assessed against the U.S. Government Obligations deposited pursuant to Section 5.04 or the principal and interest received in respect thereof other than any such tax, fee, or other charge that by law is for the account of the Holders of Outstanding Securities.

(c) Notwithstanding anything in this Article V to the contrary, the Trustee will deliver or pay to the Company from time to time upon a Company Request any money or U.S. Government Obligations held by it as provided in Section 5.04 with respect to Securities of any Defeasible Series that are in excess of the amount thereof that would then be required to be deposited to effect an equivalent Defeasance or Covenant Defeasance with respect to the Securities of such series.

Section 5.06. Reinstatement.

If the Trustee or the Paying Agent is unable to apply any money in accordance with this Article V with respect to the Securities of any series by reason of any order or judgment of any court or governmental authority enjoining, restraining, or otherwise prohibiting such application, then the Company's obligations under this Indenture and the Securities of such series will be revived and reinstated as though no

deposit had occurred pursuant to this Article V with respect to Securities of such series until such time as the Trustee or Paying Agent is permitted to apply all money held in trust pursuant to Section 5.05 with respect to Securities of such series in accordance with this Article V; provided, however, that if the Company makes any payment of principal of or any premium or interest on any Security of such series following the reinstatement of its obligations, the Company will be subrogated to the rights of the Holders of Securities of such series to receive such payment from the money so held in trust.

Article VI.

PARTICULAR COVENANTS OF THE COMPANY

Section 6.01. Payment of Principal, Premium and Interest on Securities.

The Company, for the benefit of each series of Securities, will duly and punctually pay the principal of and any premium and interest on the Securities of that series in accordance with the terms of the Securities and this Indenture.

Section 6.02. Maintenance of Office or Agency.

(a) The Company will maintain in each Place of Payment for any series of Securities an office or agency where Securities of that series may be presented or surrendered for payment, where Securities of that series may be surrendered for registration of transfer or exchange, and where notices and demands to or upon the Company in respect of the Securities of that series and this Indenture may be served. The Company will give prompt written notice to the Trustee of the location, and any change in the location, of such office or agency. If at any time the Company shall fail to maintain any such required office or agency or shall fail to furnish the Trustee with the address thereof, such presentations, surrenders, notices, and demands may be made or served at the Corporate Trust Office, and the Company hereby appoints the Trustee as its agent to receive all such presentations, surrenders, notices, and demands.

(b) The Company may also from time to time designate one or more other offices or agencies where the Securities of one or more series may be presented or surrendered for any or all such purposes and may from time to time rescind such designations; provided, however, that no such designation or rescission will in any manner relieve the Company of its obligation to maintain an office or agency in each Place of Payment for Securities of any series for such purposes. The Company will give prompt written notice to the Trustee of any such designation or rescission and of any change in the location of any such other office or agency.

Section 6.03. Money for Securities Payments to be Held in Trust.

(a) If the Company shall at any time act as its own Paying Agent with respect to any series of Securities, it will, prior to 10:00 a.m. (local time at the Place of Payment) on the due date of the principal of or any premium or interest on any of the Securities of that series, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay the principal and any premium and interest so becoming

due until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee of its action or failure so to act.

(b) Whenever the Company shall have one or more Paying Agents for any series of Securities, it will, prior to each due date of the principal of or any premium or interest on any Securities of that series, deposit with a Paying Agent a sum sufficient to pay such amount, such sum to be held as provided by the Trust Indenture Act, and (unless such Paying Agent is the Trustee) the Company will promptly notify the Trustee of its action or failure so to act.

(c) The Company will cause each Paying Agent for any series of Securities other than the Trustee to execute and deliver to the Trustee an instrument in which such Paying Agent will agree with the Trustee, subject to the provisions of this Section 6.03, that such Paying Agent will (i) comply with the provisions of the Trust Indenture Act applicable to it as a Paying Agent and (ii) during the continuance of any default by the Company (or any other obligor upon the Securities of that series) in the making of any payment in respect of the Securities of that series, and upon the written request of the Trustee, forthwith pay to the Trustee all sums held in trust by such Paying Agent for payment in respect of the Securities of that series.

(d) The Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or by Company Order direct any Paying Agent to pay, to the Trustee all sums held in trust by the Company or such Paying Agent, such sums to be held by the Trustee upon the same trusts as those upon which such sums were held by the Company or such Paying Agent; and, upon such payment by any Paying Agent to the Trustee, such Paying Agent will be released from all further liability with respect to such money.

(e) Any money deposited with the Trustee or any Paying Agent, or then held by the Company, in trust for the payment of the principal of or any premium or interest on any Security of any series and remaining unclaimed for two years after such principal, premium, or interest has become due and payable will be paid to the Company upon a Company Request (or, if then held by the Company, will be discharged from such trust); and the Holder of such Security will thereafter, as an unsecured general creditor, look only to the Company for payment thereof, and all liability of the Trustee or such Paying Agent with respect to such trust money, and all liability of the Company as trustee thereof, will thereupon cease; provided, however, that the Trustee or such Paying Agent, before being required to make any such repayment, shall, at the expense of the Company cause to be published once, in a newspaper published in the English language, customarily published on each Business Day and of general circulation in the Borough of Manhattan, The City of New York, notice, to be prepared by the Company, that such money remains unclaimed and that, after a date specified therein, which will not be less than 30 calendar days from the date of such publication, any unclaimed balance of such money then remaining will be repaid to the Company.

Section 6.04. Payment of Taxes and Other Claims.

The Company will pay or discharge or cause to be paid or discharged, before the same shall become delinquent, (a) all taxes, assessments, and governmental charges levied or imposed upon the Company or any Subsidiary of the Company or upon the income, profits, or property of the Company or any Subsidiary of the Company, and (b) all lawful claims for labor, materials, and supplies, in each case which, if unpaid, might by law become a lien upon the property of the Company or any Subsidiary of the Company and might have a Material Adverse Effect; provided, however, that the Company will not be required to pay or discharge or cause to be paid or discharged any such tax, assessment, charge, or claim the amount, applicability, or validity of which is being contested in good faith by appropriate proceedings.

Section 6.05. Maintenance of Properties.

The Company will cause all properties used or useful in the conduct of its business or the business of any Subsidiary of the Company to be maintained and kept in good condition, repair, and working order and supplied with all necessary equipment and will cause to be made all necessary repairs, renewals, replacements, betterments, and improvements thereof, all as in the judgment of the Company may be necessary so that the business carried on in connection therewith may be properly and advantageously conducted at all times; provided, however, that nothing in this Section 6.05 will prevent the Company from discontinuing the operation or maintenance of any of such properties if such discontinuance is, in the judgment of the Company, desirable in the conduct of its business or the business of any Subsidiary of the Company and will not result in a Material Adverse Effect.

Section 6.06. Existence.

Subject to Article XI, the Company will, and will cause each of its Subsidiaries to, do or cause to be done all things necessary to preserve and keep in full force and effect its existence, rights (charter and statutory), and franchises; provided, however, that neither the Company nor any Subsidiary will be required to preserve any such right or franchise if the Company determines that the preservation thereof is no longer desirable in the conduct of the business of the Company and that the loss thereof will not result in a Material Adverse Effect.

Section 6.07. Compliance with Laws.

The Company will, and will cause each of its Subsidiaries to, comply with all applicable Federal, state, local, or foreign laws, rules, regulations, or ordinances, including without limitation such laws, rules, regulations, or ordinances relating to pension, environmental, employee, and tax matters, in each case to the extent that the failure so to comply would have a Material Adverse Effect.

Section 6.08. Statement by Officers as to Default.

The Company will deliver to the Trustee, within 120 calendar days after the end of each fiscal year of the Company ending after the date hereof, an Officer's Certificate signed by the principal executive officer, principal financial officer, or principal accounting officer of the Company stating whether or not to the knowledge of such person after due inquiry the Company is in default in the performance and observance of any of the terms, provisions, and conditions of this Indenture (without regard to any period of grace or requirement of notice provided hereunder) and, if the Company is in default, specifying all such defaults and the nature and status thereof of which such person may have such knowledge.

Section 6.09. Waiver of Certain Covenants.

The Company may omit in any particular instance to comply with any term, provision, or condition set forth in Sections 6.04 through 6.07, inclusive, and the provisions of any Supplemental Indenture specified in such Supplemental Indenture, with respect to the Securities of any series if the Holders of a majority in principal amount of the Outstanding Securities of such series shall, by Act of such Holders, either waive such compliance in such instance or generally waive compliance with such term, provision, or condition, but no such waiver will extend to or affect such term, provision, or condition except to the extent so expressly waived, and, until such waiver shall become effective, the obligations of the Company and the duties of the Trustee in respect of any such term, provision, or condition will remain in full force and effect.

Section 6.10. Calculation of Original Issue Discount.

The Company shall file with the Trustee promptly at the end of each calendar year (i) a written notice specifying the amount of original issue discount (including daily rates and accrual periods) accrued on Outstanding Securities as of the end of such year and (ii) such other specific information relating to such original issue discount as may then be relevant under the Internal Revenue Code of 1986, as amended from time to time.

Article VII.

SECURITIES HOLDERS LIST AND

REPORTS BY THE COMPANY AND THE TRUSTEE

Section 7.01. Company to Furnish Trustee Names and Addresses of Holders.

The Company will furnish or cause to be furnished to the Trustee (a) semi-annually, not more than 15 calendar days after the applicable Regular Record Date, a list for each series of Securities, in such form as the Trustee may reasonably require, of the names and addresses of the Holders of Securities of such series as of such Regular Record Date and (b) at such other times as the Trustee may request in writing, within 30 calendar days after the receipt by the Company of any such request, a list of similar form and content as of a date not more than 15 calendar days prior to the time such list is furnished; excluding from any such list names and addresses received by the Trustee in its capacity as Security Registrar.

Section 7.02. Preservation of Information; Communication to Holders.

(a) The Trustee will preserve, in as current a form as is reasonably practicable, the names and addresses of Holders contained in the most recent list furnished to the Trustee as provided in Section 7.01 and the names and addresses of Holders received by the Trustee in its capacity as Security Registrar. The Trustee may destroy any list furnished to it as provided in Section 7.01 upon receipt of a new list so furnished.

(b) The rights of the Holders to communicate with other Holders with respect to their rights under this Indenture or under the Securities, and the corresponding rights and privileges of the Trustee, will be as provided by the Trust Indenture Act.

(c) Every Holder of Securities, by receiving and holding the same, agrees with the Company and the Trustee that neither the Company nor the Trustee nor any agent of either of them will be held accountable by reason of any disclosure of information as to names and addresses of Holders made pursuant to the Trust Indenture Act.

Section 7.03. Reports by Trustee.

(a) The Trustee will transmit to Holders such reports concerning the Trustee and its actions under this Indenture as may be required pursuant to the Trust Indenture Act at the times and in the manner provided pursuant thereto. If required by Section 313 (a) of the Trust Indenture Act, the Trustee shall, no later than each May 15 following the date of this Indenture deliver to Holders a brief report, dated as of a date not more than 60 days prior to the date of transmission, which complies with the provisions of such Section 313 (a).

(b) A copy of each such report will, at the time of such transmission to Holders, be filed by the Trustee with each stock exchange upon which any Securities are listed, with the Commission, and with the Company. The Company will promptly notify the Trustee in writing when any Securities are listed on any stock exchange or of any delisting thereof.

Section 7.04. Reports by Company.

The Company will file with the Trustee and the Commission, and transmit to Holders, such information, documents, and other reports, and such summaries thereof, as may be required pursuant to the Trust Indenture Act at the times and in the manner provided pursuant to such Act; provided that any such information, documents, or reports required to be filed with the Commission pursuant to Section 13 or 15(d) of the Exchange Act will be filed with the Trustee within 15 calendar days after the same is so required to be filed with the Commission.

Delivery of such reports, information and documents to the Trustee is for informational purposes only and the Trustee's receipt of such shall not constitute constructive notice of any information contained therein or determinable from information contained therein, including the Company's compliance with any of its covenants hereunder (as to which the Trustee is entitled to conclusively rely exclusively on Officer's Certificates).

Article VIII.

DEFAULT

Section 8.01. Event of Default.

(a) Event of Default, wherever used herein with respect to Securities of any series, means any one of the following events (whatever the reason for such Event of Default and whether it may be voluntary or involuntary or be effected by operation of law or pursuant to any judgment, decree, or order of any court or any order, rule, or regulation of any administrative or governmental body):

(i) default in the payment of any interest upon any Security of that series when it becomes due and payable, and continuance of such default for a period of 30 calendar days;

(ii) default in the payment of the principal of (or premium, if any, on) any Security of that series when it becomes due and payable;

(iii) default in the making of any sinking fund payment when and as due by the terms of a Security of that series;

(iv) default in the performance, or breach, of any covenant or warranty of the Company in this Indenture (other than a covenant or warranty, a default in the performance or breach of which is elsewhere in this Section 8.01 specifically dealt with or which has expressly been included in this Indenture solely for the benefit of one or more series of Securities other than that series), and continuance of such default or breach for a period of 60 calendar days after there has been given, by registered or certified mail, to the Company by the Trustee or to the Company and the Trustee by the Holders of at least 51% in principal amount of the Outstanding Securities of that series a written notice specifying such default or breach and requiring it to be remedied and stating that such notice is a Notice of Default hereunder;

(v) any nonpayment at maturity or other default is made under any agreement or instrument relating to any other Indebtedness of the Company (the unpaid principal amount of which is not less than \$ 2.5 million), and, in any such case, such default (A) continues beyond any period of grace provided with respect thereto and (B) results in such Indebtedness becoming due prior to its stated maturity or occurs at the final maturity of such Indebtedness; provided, however, that, subject to the provisions of Section 9.01 and 8.08, the Trustee will not be

deemed to have knowledge of such nonpayment or other default unless either (1) a Responsible Officer of the Trustee has actual knowledge of nonpayment or other default or (2) the Trustee has received written notice thereof from the Company, from any Holder, from the holder of any such Indebtedness or from the trustee under the agreement or instrument relating to such Indebtedness;

(vi) the entry by a court having jurisdiction in the premises of (A) a decree or order for relief in respect of the Company in an involuntary case or proceeding under any applicable Federal or state bankruptcy, insolvency, reorganization, or other similar law or (B) a decree or order adjudging the Company a bankrupt or insolvent, or approving as properly filed a petition seeking reorganization, arrangement, adjustment, or composition of or in respect of the Company under any applicable Federal or state law, or appointing a custodian, receiver, liquidator, assignee, trustee, sequestrator, or other similar official of the Company or of any substantial part of its property, or ordering the winding up or liquidation of its affairs, and the continuance of any such decree or order for relief or any such other decree or order unstayed and in effect for a period of 60 consecutive calendar days;

(vii) the commencement by the Company of a voluntary case or proceeding under any applicable Federal or state bankruptcy, insolvency, reorganization, or other similar law or of any other case or proceeding to be adjudicated a bankrupt or insolvent, or the consent by it to the entry of a decree or order for relief in respect of the Company in an involuntary case or proceeding under any applicable Federal or state bankruptcy, insolvency, reorganization, or other similar law or to the commencement of any bankruptcy or insolvency case or proceeding against it, or the filing by it of a petition or answer or consent seeking reorganization or relief with respect to the Company under any applicable Federal or state bankruptcy, insolvency, reorganization, or other similar law, or the consent by it to the filing of such petition or to the appointment of or taking possession by a custodian, receiver, liquidator, assignee, trustee, sequestrator, or other similar official of the Company or of any substantial part of its property pursuant to any such law, or the making by it of an assignment for the benefit of creditors, or the admission by it in writing of its inability to pay its debts generally as they become due, or the taking of corporate action by the Company in furtherance of any such action; or

(viii) any other Event of Default provided with respect to Securities of that series.

(b) If an Event of Default (other than an Event of Default arising under Section 8.01(a)(vi) or (vii)) with respect to Securities of any series at the time Outstanding occurs and is continuing, then in every case the Trustee or the Holders of not less than 51% in principal amount of the Outstanding Securities of that series may declare the principal amount (or, if any of the Securities of that series are Original Issue Discount Securities, such portion of the principal amount of such Securities as may be specified in the terms thereof) of all of the Securities of that series to be due and payable

immediately, by a notice in writing to the Company (and to the Trustee if given by Holders), and upon any such declaration such principal amount (or specified amount) will become immediately due and payable. If an Event of Default under Section 8.01(a)(vi) or (vii) occurs, then the principal of, premium, if any, and accrued interest on the Securities shall become immediately due and payable without any declaration or other act on the part of the Trustee or any Holder.

(c) At any time after such a declaration of acceleration with respect to Securities of any series has been made and before a judgment or decree for payment of the money due has been obtained by the Trustee as hereinafter in this Article VIII provided, the Holders of a majority in principal amount of the outstanding Securities of that series, by written notice to the Company and the Trustee, may rescind and annul such declaration and its consequences if (i) the Company has paid or deposited with the Trustee a sum sufficient to pay (A) all overdue interest on all Securities of that series, (B) the principal of (and premium, if any, on) any Securities of that series which have become due otherwise than by such declaration of acceleration and any interest thereon at the rate or rates prescribed therefor in such Securities, (C) to the extent that payment of such interest is lawful, interest upon overdue interest at the rate or rates prescribed therefor in such Securities, and (D) all sums paid or advanced by the Trustee hereunder and the reasonable compensation, expenses, disbursements, and advances of the Trustee and its agents and counsel and (ii) all Events of Default with respect to Securities of that series, other than the nonpayment of the principal of Securities of that series which have become due solely by such declaration of acceleration, have been cured or waived as provided in Section 8.01(d). No such rescission will affect any subsequent default or impair any right consequent thereon.

(d) The Holders of a majority in principal amount of the Outstanding Securities of any series may on behalf of the Holders of all the Securities of such series waive any past default hereunder with respect to such series and its consequences, except a default (i) in the payment of the principal of or any premium or interest on any Security of such series or (ii) in respect of a covenant or provision hereof which under Article X cannot be modified or amended without the consent of the Holder of each Outstanding Security of such series affected. Upon any such waiver, such default will cease to exist, and any Event of Default arising therefrom will be deemed to have been cured, for every purpose of this Indenture, but no such waiver will extend to any subsequent or other default or impair any right consequent thereon.

Section 8.02. Covenant of Company to Pay to Trustee Whole Amount Due on Securities on Default in Payment of Interest or Principal; Suits for Enforcement by Trustee.

(a) The Company covenants that if (i) default is made in the payment of any interest on any Security when such interest becomes due and payable and such default continues for a period of 30 calendar days or (ii) default is made in the payment of the principal of (or premium, if any, on) any Security when it becomes due and payable, the Company will, upon demand of the Trustee, pay to it, for the benefit of the Holders of such Securities, the whole amount then due and payable on such Securities for

principal and any premium and interest and, to the extent that payment of such interest will be legally enforceable, interest on any overdue principal and premium and on any overdue interest, at the rate or rates prescribed therefor in such Securities, and, in addition thereto, such further amount as will be sufficient to cover the costs and expenses of collection, including the reasonable compensation, expenses, disbursements, and advances of the Trustee and its agents and counsel.

(b) If an Event of Default with respect to Securities of any series occurs and is continuing, the Trustee may in its discretion proceed to protect and enforce its rights and the rights of the Holders of Securities of such series by such appropriate judicial proceedings as the Trustee shall deem most effectual to protect and enforce any such rights, whether for the specific enforcement of any covenant or agreement in this Indenture or in aid of the exercise of any power granted herein, or to enforce any other proper remedy.

(c) In case of any judicial proceeding relative to the Company (or any other obligor upon the Securities), its property or its creditors, the Trustee will be entitled and empowered, by intervention in such proceeding or otherwise, to take any and all actions authorized under the Trust Indenture Act in order to have claims of the Holders and the Trustee allowed in any such proceeding. In particular, the Trustee will be authorized to collect and receive any money or other property payable or deliverable on any such claims and to distribute the same, and any custodian, receiver, assignee, trustee, liquidator, sequestrator, or other similar official in any such judicial proceeding is hereby authorized by each Holder to make such payments to the Trustee and, in the event that the Trustee consents to the making of such payments directly to the Holders, to pay to the Trustee any amount due it for the reasonable compensation, expenses, disbursements, and advances of the Trustee and its agents and counsel, and any other amounts due the Trustee under Section 9.06.

(d) No provision of this Indenture will be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Holder any plan of reorganization, arrangement, adjustment, or composition affecting the Securities or the rights of any Holder thereof or to authorize the Trustee to vote in respect of the claim of any Holder in any such proceeding; provided, however, that the Trustee may, on behalf of the Holders, vote for the election of a trustee in bankruptcy or similar official and be a member of a creditors' or other similar committee.

(e) All rights of action and claims under this Indenture or the Securities may be prosecuted and enforced by the Trustee without the possession of any of the Securities or the production thereof in any proceeding relating thereto, and any such proceeding instituted by the Trustee will be brought in its own name as trustee of an express trust, and any recovery of judgment will, after provision for the payment of the reasonable compensation, expenses, disbursements, and advances of the Trustee and its agents and counsel, be for the ratable benefit of the Holders of the Securities in respect of which such judgment has been recovered.

Section 8.03. Application of Money Collected by Trustee.

Any money collected by the Trustee pursuant to this Article VIII will be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such money on account of principal or any premium or interest, upon presentation of the Securities and the notation thereon of the payment if only partially paid and upon surrender thereof if fully paid:

FIRST: To the payment of all amounts due the Trustee under Section 9.06;

SECOND: To the payment of the amounts then due and unpaid for principal of and any premium and interest on the Securities in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Securities for principal and any premium and interest, respectively; and

THIRD: To the Company.

Section 8.04. Limitation on Suits by Holders of Securities.

No Holder of any Security of any series will have any right to institute any proceeding, judicial or otherwise, with respect to this Indenture, or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless (a) such Holder has previously given written notice to the Trustee of a continuing Event of Default with respect to the Securities of that series, (b) the Holders of not less than 51% in principal amount of the Outstanding Securities of that series shall have made written request to the Trustee to institute proceedings in respect of such Event of Default in its own name as Trustee hereunder, (c) such Holder or Holders have offered to the Trustee indemnity satisfactory to the Trustee against the costs, expenses, and liabilities to be incurred in compliance with such request, (d) the Trustee for 60 calendar days after its receipt of such notice, request, and offer of indemnity has failed to institute any such proceeding, and (e) no direction inconsistent with such written request has been given to the Trustee during such 60-day period by the Holders of a majority in principal amount of the Outstanding Securities of that series, it being understood and intended that no one or more of such Holders will have any right in any manner whatever by virtue of, or by availing of, any provision of this Indenture to affect, disturb, or prejudice the rights of any other of such Holders (it being understood that the Trustee does not have an affirmative duty to ascertain whether or not such actions or forbearances are unduly prejudicial to such Holders), or to obtain or to seek to obtain priority or preference over any other of such Holders or to enforce any right under this Indenture, except in the manner herein provided and for the equal and ratable benefit of all of such Holders.

Section 8.05. Rights and Remedies Cumulative; Delay or Omission in Exercise of Rights not a Waiver of Event of Default.

(a) Except as otherwise provided with respect to the replacement or payment of mutilated, destroyed, lost, or stolen Securities in the last paragraph of Section 2.07, no right or remedy herein conferred upon or reserved to the Trustee or to the Holders is intended to be exclusive of any other right or remedy, and every right and remedy will, to the extent permitted by law, be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, will not prevent the concurrent assertion or employment of any other appropriate right or remedy.

(b) No delay or omission of the Trustee or of any Holder of any Securities to exercise any right or remedy accruing upon any Event of Default will impair any such right or remedy or constitute a waiver of any such Event of Default or an acquiescence therein. Every right and remedy given by this Article VIII or by law to the Trustee or to the Holders may be exercised from time to time, and as often as may be deemed expedient, by the Trustee or by the Holders, as the case may be.

Section 8.06. Rights of Holders of Majority in Principal Amount of Outstanding Securities to Direct Trustee.

The Holders of a majority in principal amount of the Outstanding Securities of any series will have the right to direct the time, method, and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred on the Trustee, with respect to the Securities of such series, provided that (a) such direction will not be in conflict with any rule of law or with this Indenture and (b) the Trustee may take any other action deemed proper by the Trustee which is not inconsistent with such direction.

Section 8.07. Requirement of an Undertaking to Pay Costs in Certain Suits Under the Indenture or Against the Trustee.

In any suit for the enforcement of any right or remedy under this Indenture, or in any suit against the Trustee for any action taken, suffered, or omitted by it as Trustee, a court may require any party litigant in such suit to file undertaking to pay the costs of such suit, and may assess costs, including attorney's fees and expenses, against any such party litigant, in the manner and to the extent provided in the Trust Indenture Act; provided that neither this Section 8.07 nor the Trust Indenture Act will be deemed to authorize any court to require such an undertaking or to make such an assessment in any suit instituted by the Trustee, a suit by a Holder pursuant to Section 8.09 hereof, or a suit by Holders of more than 10% in aggregate principal amount of the then Outstanding Securities.

Section 8.08. Notice of Defaults.

If a Default occurs hereunder with respect to Securities of any series, the Trustee will give the Holders of Securities of such series notice of such Default as and to the extent provided by the Trust Indenture Act; provided, however, that in the case of any Default of the character specified in Section 8.01(a)(iv) with respect to Securities of such series no such notice to Holders will be given until at least 30 calendar days after the occurrence thereof. The Company will give the Trustee notice of any uncured Event of Default within 10 days after any Responsible Officer of the Company becomes aware of or receives actual notice of such Event of Default.

Section 8.09. Unconditional Right of Holders to Receive Principal, Premium, and Interest.

Notwithstanding any other provision in this Indenture, the Holder of any Security will have the right, which is absolute and unconditional, to receive payment of the principal of and any premium and (subject to Section 2.09) interest on such Security on the respective Stated Maturities expressed in such Security (or, in the case of redemption, on the Redemption Date) and to institute suit for the enforcement of any such payment, and such rights may not be impaired without the consent of such Holder.

Section 8.10. Restoration of Rights and Remedies.

If the Trustee or any Holder has instituted any proceeding to enforce any right or remedy under this Indenture and such proceeding has been discontinued or abandoned for any reason, or has been determined adversely to the Trustee or to such Holder, then and in every such case, subject to any determination in such proceeding, the Company, the Trustee, and the Holders will be restored severally and respectively to their former positions hereunder and thereafter all rights and remedies of the Trustee and the Holders will continue as though no such proceeding had been instituted.

Section 8.11. Trustee May File Proofs of Claims.

The Trustee may file such proofs of claim and other papers or documents as may be necessary or advisable in order to have the claims of the Trustee (including any claim for the reasonable compensation, expenses, disbursements, and advances of the Trustee, its agents and counsel) and the Holders allowed in any judicial proceeding relative to the Company or the Subsidiaries (or any other obligor upon the Securities), their creditors or their property and shall be entitled and empowered to collect and receive any monies or other property payable or deliverable on any such claim and to distribute the same, and any custodian in any such judicial proceedings is hereby authorized by each Holder to make such payments to the Trustee and, in the event that the Trustee shall consent to the making of such payments directly to the Holders, to pay to the Trustee any amount due to it for the reasonable compensation, expenses, disbursements, and advances of the Trustee, its agents and counsel, and any other amounts due the Trustee hereunder. Nothing herein contained shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any

Holder any plan of reorganization, arrangement, adjustment or composition affecting the Securities or the rights of any Holder thereof, or to authorize the Trustee to vote in respect of the claim of any Holder in any such proceeding.

Article IX.

CONCERNING THE TRUSTEE

Section 9.01. Certain Duties and Responsibilities.

(a) Except during the continuance of an Event of Default,

- (1) the Trustee undertakes to perform such duties and only such duties as are specifically set forth in this Indenture, and no implied covenants or obligations shall be read into this Indenture against the Trustee; and
- (2) in the absence of bad faith on its part, the Trustee may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions which by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the requirements of this Indenture (but need not confirm or investigate the accuracy of mathematical calculations or other facts stated therein).

(b) In case an Event of Default has occurred and is continuing, the Trustee shall exercise such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent person would exercise or use under the circumstances in the conduct of his or her own affairs.

(c) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own negligent action, its own negligent failure to act, or its own willful misconduct, except that

- (1) this Subsection shall not be construed to limit the effect of Subsection (a) of this Section;
- (2) the Trustee shall not be liable for any error of judgment made in good faith by a Responsible Officer, unless it shall be proved that the Trustee was negligent in ascertaining the pertinent facts;

- (3) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the Holders of a majority in principal amount of the Outstanding Securities of any series, determined as provided in Sections 1.01, 8.06 and 14.11, relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee, under this Indenture with respect to the Securities of such series; and

- (4) no provision of this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder, or in the exercise of any of its rights or powers.

(d) Whether or not therein expressly so provided, every provision of this Indenture relating to the conduct or affecting the liability of or affording protection to the Trustee shall be subject to the provisions of this Section.

Section 9.02. Certain Rights of Trustee.

Subject to the provisions of Section 9.01:

(a) the Trustee may conclusively rely and will be protected in acting or refraining from acting upon, whether in its original or facsimile form, any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note, other evidence of indebtedness, or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;

(b) any request or direction of the Company mentioned herein will be sufficiently evidenced by a Company Request or Company Order and any resolution of the Board will be sufficiently evidenced by a Board Resolution;

(c) whenever in the administration of this Indenture the Trustee shall deem it desirable that a matter be proved or established prior to taking, suffering, or omitting any action hereunder, the Trustee (unless other evidence be herein specifically prescribed) may, in the absence of bad faith on its part, conclusively rely upon an Officer's Certificate;

(d) the Trustee may consult with counsel of its selection and the advice of such counsel or any Opinion of Counsel will be full and complete authorization and protection in respect of any action taken, suffered, or omitted by it hereunder in good faith and in reliance thereon;

(e) the Trustee will be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request or direction of any of the Holders

pursuant to this Indenture, unless such Holders shall have offered to the Trustee security or indemnity reasonably satisfactory to the Trustee against the costs, expenses, and liabilities which might be incurred by it in compliance with such request or direction;

(f) the Trustee will not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note, other evidence of indebtedness, or other paper or document, but the Trustee, in its discretion, may make such further inquiry or investigation into such facts or matters as it may see fit, and, if the Trustee shall determine to make such further inquiry or investigation, it will be entitled to examine the books, records, and premises of the Company, personally or by agent or attorney at the sole cost of the Company and shall incur no liability or additional liability of any kind by reason of such inquiry or investigation;

(g) the Trustee may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee will not be responsible for any misconduct or negligence on the part of any agent or attorney appointed with due care by it hereunder;

(h) the Trustee shall not be liable for any action taken, suffered, or omitted to be taken by it in good faith and reasonably believed by it to be authorized or within the discretion or rights or powers conferred upon it by this Indenture;

(i) in no event shall the Trustee be responsible or liable for special, indirect, or consequential loss or damage of any kind whatsoever (including, but not limited to, loss of profit) irrespective of whether the Trustee has been advised of the likelihood of such loss or damage and regardless of the form of action;

(j) the Trustee shall not be deemed to have notice of any Default or Event of Default unless a Responsible Officer of the Trustee has actual knowledge thereof or unless written notice of any event which is in fact such a default is received by the Trustee at the Corporate Trust Office of the Trustee, and such notice references the Securities and this Indenture;

(k) the rights, privileges, protections, immunities and benefits given to the Trustee, including, without limitation, its right to be indemnified, are extended to, and shall be enforceable by, the Trustee in each of its capacities hereunder, and to each agent, custodian and other Person employed to act hereunder; and

(l) the Trustee may request that the Company deliver a certificate setting forth the names of individuals and/or titles of officers authorized at such time to take specified actions pursuant to this Indenture.

Section 9.03. Not Responsible for Recitals or Issuance of Securities.

The recitals contained herein and in the Securities, except the Trustee's certificates of authentication, may be taken as the statements of the Company, and neither the Trustee nor any Authenticating Agent assumes any responsibility for their

correctness. The Trustee makes no representations as to the validity or sufficiency of this Indenture or of the Securities. The Trustee or any Authenticating Agent will not be accountable for the use or application by the Company of Securities or the proceeds thereof.

Section 9.04. May Hold Securities.

The Trustee, any Authenticating Agent, any Paying Agent, any Security Registrar, or any other agent of the Company, in its individual or any other capacity, may become the owner or pledgee of Securities and, subject to Sections 9.07 and 9.12, may otherwise deal with the Company with the same rights it would have if it were not Trustee, Authenticating Agent, Paying Agent, Security Registrar, or such other agent.

Section 9.05. Money Held in Trust.

Money held by the Trustee in trust hereunder need not be segregated from other funds except to the extent required herein or by law. The Trustee will be under no liability for interest on any money received by it hereunder except as otherwise agreed in writing with the Company.

Section 9.06. Compensation and Reimbursement.

The Company will (a) pay to the Trustee from time to time such compensation for all services rendered by it hereunder as the parties shall agree from time to time (which compensation will not be limited to any provision of law in regard to the compensation of a trustee of an express trust); (b) except as otherwise expressly provided herein, reimburse the Trustee upon its request for all reasonable expenses, disbursements, and advances incurred or made by the Trustee in accordance with provision of this Indenture (including the reasonable compensation and the expenses and disbursements of agents and counsel), except any such expense, disbursement, or advance as may be attributable to its negligence or willful misconduct; and (c) indemnify each of the Trustee and any predecessor Trustee for, and hold it harmless against, any loss, liability or expense, including taxes (other than taxes based upon or measured by or determined by the income of the Trustee) incurred without negligence or willful misconduct on its part arising out of or in connection with the acceptance or administration of the trust or trusts hereunder, including the reasonable costs and expenses of defending itself against any claim (whether asserted by the Company, any Holder or any other Person) or liability in connection with the exercise or performance of any of its powers or duties hereunder or in connection with enforcing the provisions of this Section.

The Trustee shall have a lien prior to the Securities as to all property and funds held by it hereunder for any amount owing it or any predecessor Trustee pursuant to this Section 9.06, except with respect to funds held in trust for the benefit of the Holders of particular Securities.

When the Trustee incurs expenses or renders services in connection with an Event of Default specified in Section 8.01(vi) or Section 8.01(vii), the expenses (including the reasonable charges and expenses of its counsel) and the compensation for

the services are intended to constitute expenses of administration under Title 11 of the US Code or any foreign, federal or state law for the relief of creditors.

The provisions of this Section shall survive the termination of this Indenture.

Section 9.07. Disqualification; Conflicting Interests.

If the Trustee has or acquires a conflicting interest within the meaning of the Trust Indenture Act, the Trustee will either eliminate such interest or resign, to the extent and in the manner provided by, and subject to the provisions of, the Trust Indenture Act and this Indenture.

Section 9.08. Corporate Trustee Required; Eligibility.

There will at all times be one or more Trustees hereunder with respect to the Securities of each series, at least one of which will be a Person that is eligible pursuant to the Trust Indenture Act to act as such and has a combined capital and surplus of at least \$50,000,000 and its Corporate Trust Office or principal office in any major city in the United States that is acceptable to the Company. If such Person publishes reports of condition at least annually, pursuant to law or to the requirements of a supervising or examining state or Federal authority, then for the purposes of this Section 9.08, the combined capital and surplus of such Person shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section 9.08, it will resign immediately in the manner and with the effect hereinafter specified in this Article IX.

Section 9.09. Resignation and Removal; Appointment of Successor.

(a) No resignation or removal of the Trustee and no appointment of a successor Trustee pursuant to this Article IX will become effective until the acceptance of appointment by the successor Trustee in accordance with the applicable requirements of Section 9.10.

(b) The Trustee may resign at any time with respect to the Securities of one or more series by giving written notice thereof to the Company. If the instrument of acceptance by a successor Trustee required by Section 9.10 shall not have been delivered to the Trustee within 30 calendar days after the giving of such notice of resignation, the resigning Trustee may, at the expense of the Company, petition any court of competent jurisdiction for the appointment of a successor Trustee with respect to the Securities of such series.

(c) The Trustee may be removed at any time with respect to the Securities of any series by Act of the Holders of a majority in principal amount of the Outstanding Securities of such series, delivered to the Trustee and to the Company. If the instrument of acceptance by a successor Trustee required by Section 9.10 shall not have been delivered to the Trustee within 30 calendar days after the giving of such notice of

removal, the Trustee being removed may, at the expense of the Company, petition any court of competent jurisdiction for the appointment of a successor Trustee with respect to the Securities of such series.

(d) If, at any time, (i) the Trustee fails to comply with Section 9.07 after written request therefor by the Company or by any Holder who has been a bona fide Holder of a Security for at least six months, (ii) the Trustee ceases to be eligible under Section 9.08 and fails to resign after written request therefor by the Company or by any such Holder, or (iii) the Trustee becomes incapable of acting or is adjudged a bankrupt or insolvent or a receiver of the Trustee or of its property is appointed or any public officer takes charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation, or liquidation, then, in any such case, (A) the Company by a Board Resolution may remove the Trustee with respect to all Securities or (B) subject to Section 8.07, any Holder who has been a bona fide Holder of a Security for at least six months may, on behalf of himself and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee with respect to all Securities and the appointment of a successor Trustee or Trustees.

(e) If the Trustee resigns, is removed, or becomes incapable of acting, or if a vacancy occurs in the office of Trustee for any cause, with respect to the Securities of one or more series, the Company by a Board Resolution will promptly appoint a successor Trustee or Trustees with respect to the Securities of that or those series (it being understood that any such successor Trustee may be appointed with respect to the Securities of one or more or all of such series and that at any time there will be only one Trustee with respect to the Securities of any particular series) and will comply with the applicable requirements of Section 9.10. If, within one year after such resignation, removal, or incapability or the occurrence of such vacancy, a successor Trustee with respect to the Securities of any series is appointed by Act of the Holders of a majority in principal amount of the Outstanding Securities of such series delivered to the Company and the retiring Trustee, the successor Trustee so appointed will, forthwith upon its acceptance of such appointment in accordance with the applicable requirements of Section 9.10, become the successor Trustee with respect to the Securities of such series and to that extent supersede the successor Trustee appointed by the Company. If no successor Trustee with respect to the Securities of any series shall have been so appointed by the Company or the Holders and accepted appointment in the manner required by Section 9.10, any Holder who has been a bona fide Holder of a Security of such series for at least six months may, on behalf of himself and all others similarly situated, at the expense of the Company, petition any court of competent jurisdiction for the appointment of a successor Trustee with respect to the Securities of such series.

(f) The Company will give notice of each resignation and each removal of the Trustee with respect to the Securities of any series and each appointment of a successor Trustee with respect to the Securities of any series to all holders of Securities of such series in the manner provided in Section 13.03. Each notice will include the name of the successor Trustee with respect to the Securities of such series and the address of its Corporate Trust Office.

Section 9.10. Acceptance of Appointment by Successor.

(a) In case of the appointment hereunder of a successor Trustee with respect to all Securities, every such successor Trustee so appointed will execute, acknowledge, and deliver to the Company and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee will become effective and such successor Trustee, without any further act, deed, or conveyance, will become vested with all the rights, powers, trusts, and duties of the retiring Trustee, but, on the request of the Company or the successor Trustee, such retiring Trustee will, upon payment of its charges, execute and deliver an instrument transferring to such successor Trustee all the rights, powers, and duties of the retiring Trustee and will duly assign, transfer, and deliver to such Trustee all property and money held by such retiring Trustee hereunder.

(b) In case of the appointment hereunder of a successor Trustee with respect to the Securities of one or more (but not all) series, the Company, the retiring Trustee, and each successor Trustee with respect to the Securities of one or more series will execute and deliver an indenture supplemental hereto wherein such successor Trustee will accept such appointment and which (i) will contain such provisions as may be necessary or desirable to transfer and confirm to, and to vest in, each successor Trustee all the rights, powers, trusts, and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor Trustee relates, (ii) if the retiring Trustee is not retiring with respect to all Securities, will contain such provisions as may be deemed necessary or desirable to confirm that all the rights, powers, trusts, and duties of the retiring Trustee with respect to the Securities of that or those series as to which the retiring Trustee is not retiring will continue to be vested in the retiring Trustee, and (iii) will add to or change any of the provisions of this Indenture as may be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, it being understood that nothing herein or in such supplemental indenture will constitute such Trustees co-trustees of the same trust and that each such Trustee will be trustee of a trust or trusts hereunder separate and apart from any trust or trusts hereunder administered by any other such Trustees and upon the execution and delivery of such supplemental indenture the resignation or removal of the retiring Trustee will become effective to the extent provided therein and each such successor Trustee, without any further act, deed, or conveyance, will become vested with all the rights, powers, trusts, and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor Trustee relates; but on request of the Company or any successor Trustee, such retiring Trustee will duly assign, transfer, and deliver to such successor Trustee all property and money held by such retiring Trustee hereunder with respect to the Securities of that or those series to which the appointment of such successor Trustee relates.

(c) Upon request of any such successor Trustee, the Company will execute any and all instruments for more fully and certainly vesting in and confirming to such successor Trustee all applicable rights, powers, and trusts referred to in the preceding paragraphs of this Section 9.10.

(d) No successor Trustee will accept its appointment unless at the time of such acceptance such successor Trustee is qualified and eligible under this Article IX.

Section 9.11. Merger, Conversion, Consolidation, or Succession to Business.

Any corporation into which the Trustee may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion, or consolidation to which the Trustee may be a party, or any corporation succeeding to all or substantially all the corporate trust business of the Trustee, will be the successor of the Trustee hereunder, provided such corporation is otherwise qualified and eligible under this Article IX, without the execution or filing of any paper or any further act on the part of any of the parties hereto. In case any Securities shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion, or consolidation to such authenticating Trustee may adopt such authentication and deliver the Securities so authenticated with the same effect as if such successor Trustee had itself authenticated such Securities.

Section 9.12. Preferential Collection of Claims Against Company.

If and when the Trustee is or becomes a creditor of the Company (or any other obligor upon the Securities), the Trustee will be subject to the provisions of the Trust Indenture Act regarding the collection of claims against the Company (or any such other obligor).

Section 9.13. Appointment of Authenticating Agent.

(a) The Trustee may appoint an Authenticating Agent or Agents with respect to one or more series of Securities which will be authorized to act on behalf of the Trustee to authenticate Securities of such series issued upon original issue and upon exchange, registration of transfer, or partial redemption thereof or pursuant to Section 2.07, and Securities so authenticated will be entitled to the benefits of this Indenture and will be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. Wherever reference is made in this Indenture to the authentication and delivery of Securities by the Trustee or the Trustee's certificate of authentication, such reference will be deemed to include authentication and delivery on behalf of the Trustee by an Authenticating Agent and a certificate of authentication executed on behalf of the Trustee by an Authenticating Agent. Each Authenticating Agent shall be acceptable to the Company and shall at all times be a corporation organized and doing business under the laws of the United States of America, any state thereof, or the District of Columbia, authorized under such laws to act as Authenticating Agent, having a combined capital and surplus of not less than \$50,000,000 and subject to supervision or examination by Federal or state authority. If such Authenticating Agent publishes reports of condition at least annually, pursuant to law or to the requirements of said supervising or examining authority, then for the purposes of this Section 9.13, the combined capital and surplus of such Authenticating Agent will be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time an Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section 9.13, such Authenticating Agent will resign immediately in the manner and with the effect specified in this Section 9.13.

(b) Any corporation into which an Authenticating Agent may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion, or consolidation to which such Authenticating Agent may be a party, or any corporation succeeding to all or substantially all the corporate agency or corporate trust business of an Authenticating Agent, will continue to be an Authenticating Agent, provided such corporation is otherwise eligible under this Section 9.13, without the execution or filing of any paper or any further act on the part of the Trustee or the Authenticating Agent.

(c) An Authenticating Agent may resign at any time by giving written notice thereof to the Trustee and to the Company. The Trustee may at any time terminate the agency of an Authenticating Agent by giving written notice thereof to such Authenticating Agent and to the Company. Upon receiving such a notice of resignation or upon such a termination, or in case at any time such Authenticating Agent shall cease to be eligible in accordance with the provisions this Section 9.13, the Trustee may appoint a successor Authenticating Agent which shall be acceptable to the Company and will mail written notice of such appointment by first-class mail, postage prepaid, to all Holders of Securities of the series with respect to which such Authenticating Agent will serve, as their names and addresses appear in the Security Register. Any successor Authenticating Agent upon acceptance of its appointment hereunder will become vested with all the rights, powers, and duties of its predecessor hereunder, with like effect as if originally named as an Authenticating Agent. No successor Authenticating Agent will be appointed unless eligible under the provisions of this Section 9.13.

(d) The Company agrees to pay to each Authenticating Agent from time to time reasonable compensation for its services under this Section 9.13.

(e) If an appointment with respect to one or more series of Securities is made pursuant to this Section 9.13, the Securities of such series may have endorsed thereon, in addition to the Trustee's certificate of authentication, an alternative form of certificate of authentication in the following form:

This is one of the Securities of the series designated therein referred to in the within mentioned Indenture.

The Bank of New York Trust Company, N.A.,

as Trustee

Dated: \_\_\_\_\_

By:

Authorized Signatory

Section 9.14. Trustee's Application for Instructions from the Company.

Any application by the Trustee for written instructions from the Company may, at the option of the Trustee, set forth in writing any action proposed to be taken or omitted by the Trustee under this Indenture and the date on and/or after which such action shall be taken or such omission shall be effective. The Trustee shall not be liable for any action taken by, or omission of, the Trustee in accordance with a proposal included in such application on or after the date specified in such application (which date shall not be less than three Business Days after the date any officer of the Company actually receives such application, unless any such officer shall have consented in writing to any earlier date) unless prior to taking any such action (or the effective date in the case of an omission), the Trustee shall have received written instructions in response to such application specifying the action to be taken or omitted.

Section 9.15 Facsimile Language.

The Trustee agrees to accept and act upon facsimile transmission of written instructions and/or directions pursuant to this Indenture given by the Company, provided, however that: (i) the Company, subsequent to such facsimile transmission of written instructions and/or directions, shall provide the originally executed instructions and/or directions to the Trustee in a timely manner and (ii) such originally executed instructions and/or directions shall be signed by an Authorized Officer of the Company.

Article X.

SUPPLEMENTAL INDENTURES AND CERTAIN ACTIONS

Section 10.01. Purposes for Which Supplemental Indentures May Be Entered Into Without Consent of Holders.

Without the consent of or notice to any Holders, the Company, when authorized by a Board Resolution, and the Trustee, at any time and from time to time, may enter into one or more indentures supplemental hereto, in form satisfactory to the Trustee, for any of the following purposes:

- (a) to evidence the succession of another Person to the Company and the assumption by any such successor of the covenants of the Company herein and in the Securities, all to the extent otherwise permitted hereunder;
- (b) to add to the covenants of the Company for the benefit of the Holders of all or any series of Securities (and if such covenants are to be for the benefit of less than all series of Securities, stating that such covenants are expressly being included solely for the benefit of such series) or to surrender any right or power herein conferred upon the Company;

(c) to add any additional Events of Default;

(d) to add to or change any of the provisions of this Indenture to such extent as may be necessary to permit or facilitate the issuance of Securities in bearer form, registrable or not registrable as to principal, and with or without interest coupons, or to permit or facilitate the issuance of Securities in uncertificated form;

(e) to add to, change, amend, restate, replace or eliminate any of the provisions of this Indenture or add new provisions to this Indenture in respect of one or more series of Securities, provided that any such addition, change, or elimination (i) will neither (A) apply to any Security of any series created prior to the execution of such supplemental indenture and entitled to the benefit of such provision nor (B) modify the rights of the Holder of any such Security with respect to such provision or (ii) will become effective only when there is no such Security Outstanding;

(f) to establish the form or terms of Securities of any series as permitted by Sections 2.01 and 2.02;

(g) to evidence and provide for the acceptance of appointment hereunder by a successor Trustee with respect to the Securities of one or more series and to add to or change any of the provisions of this Indenture as may be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, pursuant to the requirements of Section 9.10; or

(h) to cure any ambiguity, to correct or supplement any provision herein which may be defective or inconsistent with any other provision herein, or to make any other provisions with respect to matters or questions arising under this Indenture, provided that such action pursuant to this clause (h) will not adversely affect the interests of the Holders of Securities of any series in any material respect.

Section 10.02. Modification of Indenture with Consent of Holders of at Least a Majority in Principal Amount of Outstanding Securities.

(a) With the consent of the Holders of a majority in principal amount of the Outstanding Securities of each series affected by such supplemental indenture, by Act of said Holders delivered to the Company and the Trustee, the Company, when authorized by a Board Resolution, and the Trustee may enter into an indenture or indentures supplemental hereto for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture and any Supplemental Indenture applicable to such Outstanding Securities or of modifying in any manner the rights of the Holders of Securities of such series under this Indenture; provided, however that no such supplemental indenture will, without the consent of the Holder of each Outstanding Security affected thereby:

(i) change the Stated Maturity of the principal of, or any installment of principal of or interest on, any Security, or reduce the principal amount thereof or the rate of interest thereon or any premium payable upon the redemption thereof, or reduce the amount of the principal of an Original Issue Discount

Security that would be due and payable upon a declaration of acceleration of the Maturity thereof pursuant to Sections 8.01(b), or change any Place of Payment where, or the coin or currency in which, any Security or any premium or interest thereon is payable, or impair the right to institute suit for the enforcement of any such payment on or after the Stated Maturity thereof (or, in the case of redemption, on or after the Redemption Date);

(ii) reduce the percentage in principal amount of the Outstanding Securities of any series, the consent of the Holders of which is required for any such supplemental indenture, or the consent of the Holders of which is required for any waiver (of compliance with certain provisions of this Indenture or certain defaults hereunder and their consequences) provided for in this Indenture or any Supplemental Indenture applicable to such Outstanding Securities; or

(iii) modify any of the provisions of this Section 10.02, Section 8.01(d) or Section 6.09, except to increase the percentage in principal amount of Holders required under any such Section or to provide that certain other provisions of this Indenture cannot be modified or waived without the consent of the Holder of each Outstanding Security affected thereby, provided, however that this clause (c) will not be deemed to require the consent of any Holder with respect to changes in the references to the Trustee and concomitant changes in this Section 10.02 and Section 6.09, or the deletion of this proviso, in accordance with the requirements of Sections 9.10 and 10.01(g).

(b) A supplemental indenture which changes or eliminates any covenant or other provision of this Indenture which has expressly been included solely for the benefit of one or more particular series of Securities, or which modifies the rights of the Holders of Securities of such series with respect to such covenant or other provision, will be deemed not to affect the rights under this Indenture of the Holders of Securities of any other series.

(c) It will not be necessary for any Act of Holders under this Section 10.02 to approve the particular form of any proposed supplemental indenture, but it will be sufficient if such Act approves the substance thereof.

Section 10.03. Execution of Supplemental Indentures.

In executing, or accepting the additional trusts created by, any supplemental indenture permitted by this Article X or the modifications thereby of the trusts created by this Indenture, the Trustee will receive, and (subject to Section 9.01) will be fully protected in relying upon, an Officer's Certificate and an Opinion of Counsel stating that the execution of such supplemental indenture is authorized or permitted by this Indenture. The Trustee may, but will not be obligated to, enter into any such supplemental indenture which affects the Trustee's own rights, duties, or immunities under this Indenture or otherwise.

Section 10.04. Effect of Supplemental Indentures.

Upon the execution of any supplemental indenture under this Article X, this Indenture will be modified in accordance therewith, and such supplemental indenture will form a part of this Indenture for all purposes; and every Holder of Securities theretofore or thereafter authenticated and delivered hereunder will be bound thereby.

Section 10.05. Conformity with Trust Indenture Act.

Every supplemental indenture executed pursuant to this Article X will conform to the applicable requirements of the Trust Indenture Act.

Section 10.06. Reference in Securities to Supplemental Indentures.

Securities of any series authenticated and delivered after the execution of any supplemental indenture pursuant to this Article X may, and will if required by the Trustee, bear a notation in form approved by the Trustee as to any matter provided for in such supplemental indenture. If the Company shall so determine, new Securities of any series so modified as to conform, in the opinion of the Trustee and the Company, to any such supplemental indenture may be prepared and executed by the Company and authenticated and delivered by the Trustee in exchange for Outstanding Securities of such series.

Article XI.

CONSOLIDATION, MERGER, SALE, OR TRANSFER

Section 11.01. Consolidations and Mergers of Company and Sales Permitted Only on Certain Terms.

(a) The Company shall not consolidate with or merge with or into any other Person, or transfer (by lease, assignment, sale, or otherwise) all or substantially all of its properties and assets to another Person unless (i) either (A) the Company shall be the continuing or surviving Person in such a consolidation or merger or (B) the Person (if other than the Company) formed by such consolidation or into which the Company is merged or to which all or substantially all of the properties and assets of the Company are transferred (the Company or such other Person being referred to as the Surviving Person ) shall be a corporation organized and validly existing under the laws of the United States, any state thereof, or the District of Columbia, and shall expressly assume, by an indenture supplement, all the obligations of the Company under the Securities and the Indenture, (ii) immediately after the transaction and the incurrence or anticipated incurrence of any Indebtedness to be incurred in connection therewith, no Default will exist, and (iii) an Officer's Certificate has been delivered to the Trustee to the effect that the conditions set forth in the preceding clauses (i) and (ii) have been satisfied and an Opinion of Counsel (from a counsel who shall not be an employee of the Company) has been delivered to the Trustee to the effect that the conditions set forth in the preceding clause (i) have been satisfied.

(b) The Surviving Person will succeed to and be substituted for the Company with the same effect as if it had been named herein as a party hereto, and thereafter the predecessor corporation will be relieved of all obligations and covenants under this Indenture and the Securities.

Article XII.

SATISFACTION AND DISCHARGE OF INDENTURE

Section 12.01. Satisfaction and Discharge of Indenture.

This Indenture will upon a Company Request cease to be of further effect (except as to any surviving rights of registration of transfer or exchange of Securities herein expressly provided for), and the Trustee, at the expense of the Company, will execute proper instruments acknowledging satisfaction and discharge of this Indenture, when: (a) either (i) all Securities theretofore authenticated and delivered (other than (A) Securities which have been destroyed, lost, or stolen and which have been replaced or paid as provided in Section 2.07 and (B) Securities for the payment of which money has theretofore been deposited in trust or segregated and held in trust by the Company and thereafter repaid to the Company or discharged from such trust, as provided in Section 6.03) have been delivered to the Trustee for cancellation or (ii) all such Securities not theretofore delivered to the Trustee for cancellation (A) have become due and payable, (B) will become due and payable at their Stated Maturity within one year, or (C) are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of redemption by the Trustee in the name, and at the expense, of the Company, and the Company, in the case of clause (A), (B), or (C) above, has deposited or caused to be deposited with the Trustee as trust funds in trust for such purpose an amount sufficient to pay and discharge the entire indebtedness on such Securities not theretofore delivered to the Trustee for cancellation, for principal and any premium and interest to the date of such deposit (in the case of Securities which have become due and payable) or to the Stated Maturity or Redemption Date, as the case may be; (b) the Company has paid or caused to be paid all other sums payable hereunder by the Company; and (c) the Company has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that all conditions precedent herein provided for relating to the satisfaction and discharge of this Indenture have been satisfied. Notwithstanding the satisfaction and discharge of this Indenture, the obligations of the Company to the Trustee under Section 9.06, the obligations of the Company to any Authenticating Agent under Section 9.13, and, if money shall have been deposited with the Trustee pursuant to subclause (ii) of clause (a) of this Section 12.01, the obligations of the Trustee under Sections 6.03(e) and 12.02, will survive.

Section 12.02. Application of Trust Money.

Subject to provisions of Section 6.03(e), all money deposited with the Trustee pursuant to Section 12.01 will be held in trust and applied by it, in accordance with the provisions of the Securities and this Indenture, to the payment, either directly or through any Paying Agent (including the Company acting as its own Paying Agent) as

the Trustee may determine, to the Persons entitled thereto, of the principal and any premium and interest for whose payment such money has been deposited with the Trustee.

Article XIII.

SUBORDINATION

Sections 13.01 through 13.09. Reserved.

Section 13.10. Notice to Trustee.

The Company shall give prompt written notice to the Trustee of any fact known to the Company which would prohibit the making of any payment to or by the Trustee in respect of the Securities. Failure to give such notice shall not affect the subordination of the Securities to Senior Indebtedness. Notwithstanding the provisions of this or any other provision of this Indenture, the Trustee shall not be charged with knowledge of the existence of any facts which would prohibit the making of any payment to or by the Trustee in respect of the Securities, unless and until the Trustee shall have received written notice thereof at the address specified in Section 14.02 from the Company or a holder of Senior Indebtedness or from any trustee or agent thereof; and, prior to the receipt of any such written notice, the Trustee, subject to the provisions of Section 9.01, shall be entitled in all respects to assume that no such facts exist; provided, however, that if a Responsible Officer of the Trustee shall not have received, at least three Business Days prior to the date upon which by the terms hereof any such money may become payable for any purpose (including, without limitation, the payment of the Principal Amount, Issue Price, accrued Original Issue Discount, Redemption Price, Purchase Price, Change in Control Purchase Price or interest, if any, as the case may be, in respect of any Security), the notice with respect to such money provided for in this Section 1010, then, anything herein contained to the contrary notwithstanding, the Trustee shall have full power and authority to receive such money and to apply the same to the purpose for which such money was received and shall not be affected by any notice to the contrary which may be received by it within three Business Days prior to such date.

Subject to the provisions of Section 9.01, the Trustee shall be entitled to rely on the delivery to it of a written notice by a person representing himself to be a holder of Senior Indebtedness (or a trustee or agent on behalf of such holder) to establish that such notice has been given by a holder of Senior Indebtedness (or a trustee or agent on behalf of any such holder). In the event that the Trustee determines in good faith that further evidence is required with respect to the right of any person as a holder of Senior Indebtedness to participate in any payment or distribution pursuant to this Article, the Trustee may request such person to furnish evidence to the reasonable satisfaction of the Trustee as to the amount of Senior Indebtedness held by such person, the extent to which such person is entitled to participate in such payment or distribution and any other facts pertinent to the rights of such person under this Article, and if such evidence is not furnished, the Trustee may defer any payment which it may be required to make for the

benefit of such person pursuant to the terms of this Indenture pending judicial determination as to the rights of such person to receive such payment.

Section 13.11. Reliance on Judicial Order or Certificate of Liquidating Agent.

Upon any payment or distribution of assets of the Company referred to in this Article, the Trustee, subject to the provisions of Section 9.01, and the Holders of the Securities shall be entitled to conclusively rely upon any order or decree entered by any court of competent jurisdiction in which such insolvency, bankruptcy, receivership, liquidation, reorganization, dissolution, winding up or similar case or proceeding is pending, or a certificate of the trustee in bankruptcy, liquidating trustee, Custodian, receiver, assignee for the benefit of creditors, agent or other person making such payment or distribution, delivered to the Trustee or to the Holders of Securities, for the purpose of ascertaining the persons entitled to participate in such payment or distribution, the holders of Senior Indebtedness and other indebtedness of the Company, the amount thereof or payable thereon, the amount or amounts paid or distributed thereon and all other facts pertinent thereto or to this Article.

Section 13.12. Trustee Not Fiduciary for Holders of Senior Indebtedness.

The Trustee shall not be deemed to owe any fiduciary duty to the holders of Senior Indebtedness and shall not be liable to any such holders if the Trustee shall in good faith mistakenly pay over or distribute to Holders of Securities or to the Company or to any other person cash, property or securities to which any holders of Senior Indebtedness shall be entitled by virtue of this Article or otherwise. With respect to the holders of Senior Indebtedness, the Trustee undertakes to perform or to observe only such of its covenants or obligations as are specifically set forth in this Article and no implied covenants or obligations with respect to holders of Senior Indebtedness shall be read into this Indenture against the Trustee.

Section 13.13. Rights of Trustee as Holder of Senior Indebtedness: Preservation of Trustee's Rights.

The Trustee or any Authenticating Agent in its individual capacity shall be entitled to all the rights set forth in this Article with respect to any Senior Indebtedness which may at any time be held by it, to the same extent as any other holder of Senior Indebtedness, and nothing in this Indenture shall deprive the Trustee or any Authenticating Agent of any of its rights as such holder.

Nothing in this Article shall apply to claims of, or payments to, the Trustee under or pursuant to Section 9.06.

Article XIV.

MISCELLANEOUS PROVISIONS

Section 14.01. Successors and Assigns of Company Bound by Indenture.

All the covenants, stipulations, promises, and agreements in this Indenture contained by or on behalf of the Company will bind its successors and assigns, whether so expressed or not.

Section 14.02. Service of Required Notice to Trustee and Company.

Any request, demand, authorization, direction, notice, consent, waiver, Act of Holders or other document provided or permitted by this Indenture to be made upon, given or furnished to, or filed with (a) the Trustee by any Holder or by the Company will be sufficient for every purpose hereunder if made, given, furnished, or filed in writing (including facsimile) to or with the Trustee at its Corporate Trust Office, Attention: Corporate Trust Administration or (b) the Company by the Trustee or by any Holder will be sufficient for every purpose hereunder (unless otherwise herein expressly provided) if in writing and mailed, first-class postage prepaid, or sent by overnight mail or sent by facsimile to the Company addressed to it at 10398 Pacific Center Court, San Diego, California 92121, Attention: Chief Financial Officer, or at any other address previously furnished in writing to the Trustee by the Company.

Section 14.03. Service of Required Notice to Holders: Waiver.

Unless specifically provided in this Indenture, where this Indenture provides for notice to Holders of any event, such notice will be sufficiently given (unless otherwise herein expressly provided) if in writing and mailed, first-class postage prepaid, to each Holder affected by such event, at his address as it appears in the Security Register, not later than the latest date (if any, and not earlier than the earliest date (if any), prescribed for the giving of such notice. In any case where notice to Holders is given by mail, neither the failure to mail such notice, nor any defect in any notice so mailed, to any particular Holder will affect the sufficiency of such notice with respect to other Holders. Where this Indenture provides for notice in any manner, such notice may be waived in writing by the Person entitled to receive such notice, either before or after the event, and such waiver will be the equivalent of such notice. Waivers of notice by Holders will be filed with the Trustee, but such filing will not be a condition precedent to the validity of any action taken in reliance upon such waiver. In case by reason of the suspension of regular mail service or by reason of any other cause it will be impracticable to give such notice by mail, then such notification as may be made with the approval of the Trustee will constitute a sufficient notification for every purpose hereunder. Whenever under this Indenture the Trustee is required to provide any notice by mail, in all cases the Trustee may alternatively provide notice by overnight courier or by facsimile, with confirmation of transmission.

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Section 14.04. Indenture and Securities to be Construed in Accordance with the Laws of the State of New York; WAIVER OF JURY TRIAL.

This Indenture and the Securities will be deemed to be a contract made under the laws of the State of New York, and for all purposes will be construed in accordance with the laws of said State without giving effect to principles of conflicts of laws of such State.

EACH OF THE COMPANY AND THE TRUSTEE HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THE INDENTURE, THE NOTES OR THE TRANSACTION CONTEMPLATED HEREBY.

Section 14.05. Compliance Certificates and Opinions.

Upon any application or demand by the Company to the Trustee to take any action under any of the provisions of this Indenture, the Company shall furnish to the Trustee an Officer's Certificate stating that all conditions precedent provided for in this Indenture relating to the proposed action have been complied with and an Opinion of Counsel stating that in the opinion of such counsel all such conditions precedent have been complied with, except that in the case of any such application or demand as to which the furnishing of such document is specifically required by any provision of this Indenture relating to such particular application or demand, no additional certificate or opinion need be furnished.

Each certificate or opinion provided for in this Indenture and delivered to the Trustee with respect to compliance with a condition or covenant provided for in this Indenture shall include: (1) a statement that the person making such certificate or opinion has read such covenant or condition; (2) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based; (3) a statement that, in the opinion of such person, he or she has made such examination or investigation as is necessary to enable him or her to express an informed opinion as to whether or not such covenant or condition has been complied with; and (4) a statement as to whether or not, in the opinion of such person, such condition or covenant has been complied with.

Section 14.06. Form of Documents Delivered to Trustee.

In any case where several matters are required to be certified by, or covered by an opinion of, any specified Person, it is not necessary that all such matters be certified by, or covered by the opinion of, only one such Person, or that they be so certified or covered by only one document, but one such Person may certify or give an opinion with respect to some matters and one or more other such Persons as to other matters, and any such Person may certify or give an opinion as to such matters in one or several documents. Where any Person is required to make, give, or execute two or more applications, requests, consents, certificates, statements, opinions, or other instruments

under this Indenture, they may, but need not, be consolidated and form one instrument. Any certificate or opinion of an officer of the Company may be based, insofar as it relates to legal matters, upon a certificate or opinion of, or representations by, counsel, unless such officer knows, or in the exercise of reasonable care should know, that the certificate or opinion or representations in respect of the matters upon which his certificate or opinion is based are erroneous. Any such certificate or Opinion of Counsel may be based, insofar as it relates to factual matters, upon a certificate or opinion of, or representations by, an officer or officers of the Company stating that the information in respect of such factual matters is in the possession of the Company, unless such counsel knows, or in the exercise of reasonable care should know, that the certificate or opinion or representations in respect of such matters are erroneous.

Section 14.07. Payments Due on Non-Business Days.

In any case where any Interest Payment Date, Redemption Date, or Stated Maturity of any Security shall not be a Business Day at any Place of Payment, then (notwithstanding any other provision of this Indenture or of the Securities (other than a provision of the Securities of any series which specifically states that such provision will apply in lieu of this Section 14.07)) payment of interest or principal (and premium, if any) need not be made at such Place of Payment on such date, but may be made on the next succeeding Business Day at such Place of Payment with the same force and effect as if made on the Interest Payment Date or Redemption Date, or at the Stated Maturity, provided that no interest will accrue for the period from and after such Interest Payment Date, Redemption Date, or Stated Maturity, as the case may be.

Section 14.08. Provisions Required by Trust Indenture Act to Control.

If any provision hereof limits, qualifies or conflicts with a provision of the Trust Indenture Act that is required hereunder to be a part of and govern this Indenture, the provision of the Trust Indenture Act shall control. If any provision of this Indenture modifies or excludes any provision of the Trust Indenture Act that may be so modified or excluded, the provision of the Trust Indenture Act shall be deemed to apply to this Indenture as so modified or to be excluded, as the case may be.

Section 14.09. Invalidity of Particular Provisions.

In case any one or more of the provisions contained in this Indenture or in the Securities is for any reason held to be invalid, illegal, or unenforceable in any respect, such provisions shall be deemed inoperative and such invalidity, illegality, or unenforceability will not affect any other provision of this Indenture or of the Securities, but this Indenture and such Securities will be construed as if such invalid or illegal or unenforceable provision had never been contained herein or therein.

Section 14.10. Indenture May be Executed In Counterparts.

This instrument may be executed in any number of counterparts, each of which will be an original, but such counterparts will together constitute but one and the same instrument; provided that a facsimile signature shall be considered due execution and shall be binding upon the signatory thereto with the same force and effect as if the signature were an original, not a facsimile signature.

Section 14.11. Acts of Holders; Record Dates.

(a) Any request, demand, authorization, direction, notice, consent, waiver, or other action provided by this Indenture to be given or taken by Holders may be embodied in and evidenced by one or more instruments of substantially similar tenor signed by such Holders in person or by agent duly appointed in writing; and, except as herein otherwise expressly provided, such action will become effective when such instrument or instruments are delivered to the Trustee and, where it is hereby expressly required, to the Company. Such instrument or instruments (and the action embodied therein and evidenced thereby) are herein sometimes referred to as the Act of the Holders signing such instrument or instruments. Proof of execution of any such instrument or of a writing appointing any such agent will be sufficient for any purpose of this Indenture and conclusive in favor of the Trustee and the Company, if made in the manner provided in this Section 14.11.

(b) The fact and date of the execution by any Person of any such instrument or writing may be proved by the affidavit of a witness of such execution or by a certificate of a notary public or other officer authorized by law to take acknowledgments of deeds, certifying that the individual signing such instrument or writing acknowledged to him the execution thereof. Where such execution is by a signer acting in a capacity other than his individual capacity, such certificate or affidavit will also constitute sufficient proof of his authority. The fact and date of the execution of any such instrument or writing, or the authority of the Person executing the same, may also be proved in any other manner which the Trustee deems sufficient.

(c) The ownership of Securities will be proved by the Security Register.

(d) Any request, demand, authorization, direction, notice, consent, waiver, or other Act of the Holder of any Security will bind every future Holder of the same Security and the Holder of every Security issued upon the registration of transfer thereof or in exchange thereof or in lieu thereof in respect of anything done, omitted, or suffered to be done by the Trustee or the Company in reliance thereon, whether or not notation of such action is made upon such Security.

(e) The Company may, in the circumstances permitted by the Trust Indenture Act, set any day as the record date for the purpose of determining the Holders of Outstanding Securities of any series entitled to give or take any request, demand, authorization, direction, notice, consent, waiver, or other action provided or permitted by this Indenture to be given or taken by Holders of Securities of such series. With regard to any record date set pursuant to this paragraph, the Holders of Outstanding Securities of the relevant series on such record date (or their duly appointed agents), and only such Persons, will be entitled to give or take the relevant action, whether or not such Holders remain Holders after such record date. With regard to any action that may be given or

taken hereunder only by Holders of a requisite principal amount of Outstanding Securities of any series (or their duly appointed agents) and for which a record date is set pursuant to this paragraph, the Company may, at its option, set an expiration date after which no such action purported to be given or taken by any Holder will be effective hereunder unless given or taken on or prior to such expiration date by Holders of the requisite principal amount of Outstanding Securities of such series on such record date (or their duly appointed agents). On or prior to any expiration date set pursuant to this paragraph, the Company may, on one or more occasions at its option, extend such date to any later date. Nothing in this paragraph will prevent any Holder (or any duly appointed agent thereof) from giving or taking, after any such expiration date, any action identical to, or, at any time, contrary to or different from, the action or purported action to which such expiration date relates, in which event the Company may set a record date in respect thereof pursuant to this paragraph. Nothing in this Section 14.11(e) will be construed to render ineffective any action taken at any time by the Holders (or their duly appointed agents) of the requisite principal amount of Outstanding Securities of the relevant series on the date such action is so taken. Notwithstanding the foregoing or the Trust Indenture Act, the Company will not set a record date for, and the provisions of this Section 14.11(e) will not apply with respect to, any notice, declaration, or direction referred to in the next paragraph.

(f) Upon receipt by the Trustee from any Holder of Securities of a particular series of (a) any notice of default or breach referred to in Section 8.01(a)(iv) or 8.01(a)(v) with respect to Securities of such series, if such default or breach has occurred and is continuing and the Trustee shall not have given such notice to the Company, (b) any declaration of acceleration referred to in Section 8.01(b), if an Event of Default with respect to Securities of such series has occurred and is continuing and the Trustee shall not have given such a declaration to the Company, or (c) any direction referred to in Section 8.06 with respect to Securities of such series, if the Trustee shall not have taken the action specified in such direction, then a record date will automatically and without any action by the Company or the Trustee be set for determining the Holders of Outstanding Securities of such series entitled to join in such notice, declaration, or direction, which record date will be the close of business on the tenth calendar day following the day on which the Trustee receives such notice, declaration, or direction. Promptly after such receipt by the Trustee, and in any case not later than the fifth calendar day thereafter, the Trustee will notify the Company and the Holders of Outstanding Securities of such series of any such record date so fixed. The Holders of Outstanding Securities of such series on such record date (or their duly appointed agents), and only such Persons, will be entitled to join in such notice, declaration, or direction, whether or not such Holders remain Holders after such record date; provided that, unless such notice, declaration, or direction shall have become effective by virtue of Holders of the requisite principal amount of Outstanding Securities of such series on such record date (or their duly appointed agents) having joined therein on or prior to the 90th calendar day after such record date, such notice, declaration, or direction will automatically and without any action by any Person be cancelled and of no further effect. Nothing in this Section 14.11(f) will be construed to prevent a Holder (or a duly appointed agent thereof) from giving, before or after the expiration of such 90-day period, a notice, declaration, or direction contrary to or different from, or, after the expiration of such period, identical to,

the notice, declaration, or direction to which such record date relates, in which event a new record date in respect thereof will be set pursuant to this Section 14.11(f). Nothing in this Section 14.11(f) will be construed to render ineffective any notice, declaration, or direction of the type referred to in this Section 14.11(f) given at any time to the Trustee and the Company by Holders (or their duly appointed agents) of the requisite principal amount of Outstanding Securities of the relevant series on the date such notice, declaration, or direction is so given.

(g) Without limiting the foregoing, a Holder entitled hereunder to give or take any action hereunder with regard to any particular Security may do so with regard to all or any part of the principal amount of such Security or by one or more duly appointed agents each of which may do so pursuant to such appointment with regard to all or any different part of such principal amount.

Section 14.12. Effect of Headings and Table of Contents.

The Article and Section headings herein and the Table of Contents are for convenience only and will not form part of or affect the interpretation or construction hereof.

Section 14.13. Benefits of Indenture.

Nothing in this Indenture or in the Securities, express or implied, will give to any Person, other than the parties hereto and their successors hereunder and the Holders any benefit or any legal or equitable right, remedy, or claim under this Indenture.

Section 14.14. Force Majeure.

In no event shall the Trustee be responsible or liable for any failure or delay in the performance of its obligations hereunder arising out of or caused by, directly or indirectly, forces beyond its control, including, without limitation strikes, work stoppages, accidents, acts of war or terrorism, civil or military disturbances, nuclear or natural catastrophes or acts of God, and interruptions, loss or malfunctions of utilities, communications or computer (software and hardware) services; it being understood that the Trustee shall use reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances.

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed, all as of the day and year first above written.

NANOGEN, INC.

By: /s/ Robert Saltmarsh

Name: Robert Saltmarsh

Title: Chief Financial Officer

THE BANK OF NEW YORK TRUST

COMPANY, N.A., AS TRUSTEE

By: /s/ Teresa Petta

Name: Teresa Petta

Title: Vice President

**NANOGEN, INC.**

**as Issuer**

**and**

**THE BANK OF NEW YORK TRUST COMPANY, N.A.**

**as Trustee**

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**FIRST SUPPLEMENTAL INDENTURE**

**Dated as of August 27, 2007**

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**6.25% Senior Convertible Notes Due 2010**

TABLE OF CONTENTS

|                                                                                                      | Page |
|------------------------------------------------------------------------------------------------------|------|
| RECITALS OF THE COMPANY                                                                              | 1    |
| <b>ARTICLE I</b> Definitions and Other Provisions of General Application                             | 2    |
| Section 1.01. Definitions                                                                            | 2    |
| Section 1.02. Notice in Connection with Redemption Notice                                            | 17   |
| Section 1.03. Legal Holidays                                                                         | 17   |
| Section 1.04. Indenture and Securities Solely Corporate Obligations                                  | 17   |
| Section 1.05. Initial Indenture                                                                      | 17   |
| <b>ARTICLE II</b> Security Forms                                                                     | 18   |
| Section 2.01. Forms Generally                                                                        | 18   |
| Section 2.02. Form of Security                                                                       | 18   |
| Section 2.03. Form of Trustee's Certificate of Authentication                                        | 18   |
| Section 2.04. No Legend on Securities                                                                | 18   |
| Section 2.05. Replacement Securities                                                                 | 18   |
| <b>ARTICLE III</b> The Securities                                                                    | 18   |
| Section 3.01. Title and Terms                                                                        | 18   |
| Section 3.02. Issuance of Securities; Denominations                                                  | 19   |
| Section 3.03. Execution, Authentication, Delivery                                                    | 19   |
| Section 3.04. Temporary Securities                                                                   | 19   |
| Section 3.05. Registration; Registration of Transfer and Exchange; Restrictions on Transfer          | 19   |
| Section 3.06. Persons Deemed Owners                                                                  | 20   |
| Section 3.07. Cancellation and Transfer Provisions                                                   | 20   |
| <b>ARTICLE IV</b> Satisfaction And Discharge                                                         | 21   |
| Section 4.01. Satisfaction and Discharge of Indenture                                                | 21   |
| Section 4.02. Application of Trust Money                                                             | 21   |
| <b>ARTICLE V</b> Remedies                                                                            | 22   |
| Section 5.01. Events of Default                                                                      | 22   |
| Section 5.02. Acceleration of Maturity; Rescission and Annulment                                     | 23   |
| Section 5.03. Collection of Indebtedness and Suits for Enforcement by Trustee; Enforcement of Rights | 24   |
| Section 5.04. Trustee May File Proofs of Claim                                                       | 24   |
| Section 5.05. Application of Money Collected                                                         | 25   |
| Section 5.06. Limitation on Suits                                                                    | 25   |
| Section 5.07. Unconditional Right of Holders to Receive Payment                                      | 26   |
| Section 5.08. Restoration of Rights and Remedies                                                     | 26   |
| Section 5.09. Rights and Remedies Cumulative                                                         | 26   |
| Section 5.10. Delay or Omission Not Waiver                                                           | 26   |

|                                                                                    |    |
|------------------------------------------------------------------------------------|----|
| Section 5.11. Control by Holders                                                   | 26 |
| Section 5.12. Waiver of Past Defaults                                              | 27 |
| Section 5.13. Undertaking for Costs                                                | 27 |
| Section 5.14. Waiver of Stay or Extension Laws                                     | 27 |
| Section 5.15. Letter of Credit                                                     | 27 |
| <b>ARTICLE VI</b> The Trustee                                                      | 28 |
| Section 6.01. Article IX of Initial Indenture                                      | 28 |
| Section 6.02. Notice of Defaults                                                   | 28 |
| <b>ARTICLE VII</b> [Reserved]                                                      | 28 |
| <b>ARTICLE VIII</b> Rights Upon Fundamental Transaction and Change of Control      | 28 |
| Section 8.01. Reaffirmation                                                        | 28 |
| Section 8.02. Change of Control Redemption Right                                   | 29 |
| Section 8.03. Change of Control Redemptions                                        | 29 |
| <b>ARTICLE IX</b> Supplemental Indentures                                          | 29 |
| Section 9.01. Supplemental Indentures Without Consent of Holders                   | 29 |
| Section 9.02. Supplemental Indentures With Consent of Holders                      | 30 |
| Section 9.03. Waivers; Revocation and Effect of Consents and Waivers               | 32 |
| <b>ARTICLE X</b> Covenants                                                         | 32 |
| Section 10.01. Payments                                                            | 32 |
| Section 10.02. Maintenance of Office or Agency                                     | 33 |
| Section 10.03. Money for Security Payments to be Held in Trust                     | 33 |
| Section 10.04. Statement by Officers as to Default                                 | 34 |
| Section 10.05. Existence                                                           | 35 |
| Section 10.06. Further Instruments and Acts                                        | 35 |
| Section 10.07. Reports and Delivery of Certain Information                         | 35 |
| Section 10.08. Book-Entry System                                                   | 36 |
| Section 10.09. Rank                                                                | 36 |
| Section 10.10. Incurrence of Indebtedness                                          | 36 |
| Section 10.11. Existence of Liens                                                  | 36 |
| Section 10.12. Intellectual Property                                               | 36 |
| Section 10.13. Restricted Payments                                                 | 36 |
| Section 10.14. Restriction on Redemption and Cash Dividends                        | 37 |
| Section 10.15. Reservation of Authorized Shares                                    | 37 |
| Section 10.16. Article VI of Initial Indenture                                     | 37 |
| <b>ARTICLE XI</b> Optional Redemptions and Mandatory Redemptions Prior to Maturity | 38 |
| Section 11.01. No Optional Redemption by the Company                               | 38 |
| Section 11.02. Optional Redemption of Each Holder Upon Event of Default            | 38 |
| Section 11.03. Optional Redemption of Each Holder Upon Change of Control           | 39 |
| Section 11.04. Optional Company Change of Control Redemption                       | 41 |
| Section 11.05. Effect of Redemption Notice                                         | 41 |
| Section 11.06. Other Redemptions                                                   | 42 |

|                                                                                               |    |
|-----------------------------------------------------------------------------------------------|----|
| Section 11.07. Procedure Upon Redemption                                                      | 42 |
| Section 11.08. Securities Redeemed in Whole or in Part                                        | 42 |
| Section 11.09. Covenant to Comply With Securities Laws Upon Redemption of Securities          | 43 |
| Section 11.10. Repayment to the Company                                                       | 43 |
| Section 11.11. Redemptions Deemed Voluntary Prepayments                                       | 43 |
| Section 11.12. Deposit of Redemption Price                                                    | 43 |
| Section 11.13. Mechanics                                                                      | 44 |
| Section 11.14. Notices for Redemptions                                                        | 44 |
| <b>ARTICLE XII Interest Payments on the Securities</b>                                        | 44 |
| Section 12.01. Interest Rate                                                                  | 44 |
| <b>ARTICLE XIII Conversion</b>                                                                | 46 |
| Section 13.01. Conversion Privilege of Holder                                                 | 46 |
| Section 13.02. Procedure for Optional Conversion                                              | 47 |
| Section 13.03. Company's Failure to Timely Convert                                            | 48 |
| Section 13.04. Conversion Limitations                                                         | 49 |
| Section 13.05. Company's Right to Require Conversion; Notices to Trustee                      | 50 |
| Section 13.06. No Fractional Shares                                                           | 52 |
| Section 13.07. Taxes on Conversion                                                            | 52 |
| Section 13.08. Company to Provide Stock                                                       | 52 |
| Section 13.09. Adjustment of Conversion Price Upon Issuance of Common Stock                   | 52 |
| Section 13.10. Participation                                                                  | 56 |
| Section 13.11. No Adjustment                                                                  | 56 |
| Section 13.12. Notice of Conversion Price Adjustment                                          | 57 |
| Section 13.13. Notice of Certain Transactions                                                 | 57 |
| Section 13.14. Other Corporate Events                                                         | 57 |
| Section 13.15. Trustee's Disclaimer                                                           | 58 |
| Section 13.16. Voluntary Decrease                                                             | 58 |
| <b>ARTICLE XIV Miscellaneous</b>                                                              | 58 |
| Section 14.01. Governing Law; Jurisdiction; Jury Trial                                        | 58 |
| Section 14.02. Counterparts                                                                   | 59 |
| Section 14.03. Effect of Headings and Table of Contents                                       | 59 |
| Section 14.04. Successors and Assigns                                                         | 59 |
| Section 14.05. Severability                                                                   | 59 |
| Section 14.06. Benefits of Indenture                                                          | 59 |
| Section 14.07. Further Assurances                                                             | 60 |
| Section 14.08. No Strict Construction                                                         | 60 |
| Section 14.09. Failure Or Indulgence Not Waiver                                               | 60 |
| Section 14.10. Remedies, Characterizations, Other Obligations, Breaches and Injunctive Relief | 60 |
| Section 14.11. Payment Of Collection, Enforcement And Other Costs                             | 60 |
| Section 14.12. Dispute Resolution for Certain Calculations                                    | 60 |
| Section 14.13. Disclosure                                                                     | 61 |

---

|                                                  |    |
|--------------------------------------------------|----|
| Section 14.14. Ratification of Initial Indenture | 61 |
| Section 14.15. Statements of Company             | 61 |

EXHIBITS:

|           |                                                    |
|-----------|----------------------------------------------------|
| Exhibit A | Form of Security                                   |
| Exhibit B | Form of Trustee Certificate of Authentication      |
| Exhibit C | Form of Event of Default Redemption Notice         |
| Exhibit D | Form of Holder Change of Control Redemption Notice |
| Exhibit E | Form of Conversion Notice                          |

**FIRST SUPPLEMENTAL INDENTURE**, dated as of August 27, 2007, ("**First Supplemental Indenture**") between Nanogen, Inc., a corporation duly organized and existing under the laws of the State of Delaware, as Issuer (the "**Company**"), having its principal office at 10398 Pacific Center Court, San Diego, California 92121, and The Bank of New York Trust Company, N.A., a national banking association, as Trustee (in such capacity, the "**Trustee**").

#### **RECITALS OF THE COMPANY**

The Company and the Trustee executed and delivered that certain Indenture, dated as of August 27, 2007 (the "**Initial Indenture**") to provide for the issuance from time to time of securities as provided in the Initial Indenture.

The Company and Trustee are entering into this First Supplemental Indenture (this "**First Supplemental Indenture**" and the Initial Indenture as supplemented by this First Supplemental Indenture, the "**Indenture**"), to provide for the issuance of the Company's 6.25% Senior Convertible Notes Due 2010 (each a "**Security**" and collectively, the "**Securities**"). The Securities are the first series of securities to be authorized under the Initial Indenture.

Section 10.01 of the Initial Indenture permits the Company and the Trustee to enter into an indenture or indentures supplemental to the Initial Indenture for the purpose of establishing the form and terms of any series of Securities and to add to, change, amend, restate, replace or eliminate any of the provisions of the Initial Indenture or add new provisions to the Initial Indenture in respect of one or more series of Securities, provided that any such addition, change, or elimination (i) will neither (A) apply to any Security of any series created prior to the execution of such supplemental indenture and entitled to the benefit of such provision nor (B) modify the rights of the Holder of any such Security with respect to such provision or (ii) will become effective only when there is no such Security Outstanding.

There are currently no Securities outstanding under the Initial Indenture or this First Supplemental Indenture. The Company desires to issue a series of convertible debt securities under the Initial Indenture, and has duly authorized the execution and delivery of this First Supplemental Indenture and requests that the Trustee execute this First Supplemental Indenture pursuant to Section 10.01. to provide for the terms of such series of securities and to modify the Initial Indenture to provide certain additional provisions in respect thereof as hereinafter described.

NOW, THEREFORE, THIS FIRST SUPPLEMENTAL INDENTURE WITNESSETH:

For and in consideration of the premises and the purchases of the Securities by the Holders thereof, it is mutually agreed, for the benefit of the Company and the equal and proportionate benefit of all Holders of the Securities, as follows:

## ARTICLE I

### Definitions and Other Provisions of General Application

Section 1.01. Definitions. For all purposes of this Indenture, except as otherwise expressly provided or unless the context otherwise requires:

- (a) capitalized terms not otherwise defined herein shall have the meanings ascribed to them in the Initial Indenture;
- (b) to the extent a capitalized term is defined both in this First Supplemental Indenture and the Initial Indenture the definition in this First Supplemental Indenture shall apply herein;
- (c) the terms defined in this Article have the meanings assigned to them in this Article and include the plural as well as the singular;
- (d) all other terms used herein and not otherwise defined that are defined in the Trust Indenture Act, either directly or by reference therein, have the meanings assigned to them therein;
- (e) all accounting terms not otherwise defined herein have the meanings assigned to them in accordance with GAAP; and
- (f) the words "herein," "hereof" and "hereunder" and other words of similar import refer to this Indenture as a whole and not to any particular Article, Section or other subdivision.

**"Applicable Law"** means as to any Person: (i) all statutes, rules, regulations, orders, or other requirements having the force of law and (ii) all court orders and injunctions, and/or similar rulings, in each instance ((i) and (ii)) of or by any Governmental Authority which has jurisdiction over such Person, or any property of such Person, or of any other Person for whose conduct such Person would be responsible.

**"Applicable Price"** has the meaning specified in Section 13.09(a).

**"Approved Stock Plan"** means any employee benefit plan which has been approved by the Board of Directors of the Company, pursuant to which the Company's securities may be issued to any employee, consultant, officer or director for services provided to the Company.

**"Authorized Share Allocation"** has the meaning specified in Section 10.15(a).

**"Authorized Share Failure"** has the meaning specified in Section 10.15(b).

**"Average Share Volume"** means on any date of determination the arithmetic average of the daily trading volume as reported by Bloomberg for the twenty (20) Trading Days immediately preceding such date of determination.

**"Bankruptcy Law"** has the meaning specified in Section 5.01(a)(vi).

**"Bloomberg"** means Bloomberg Financial Markets, or any successor thereto.

**"Business Day"** means any day other than a Saturday, a Sunday or a day on which banking institutions in The City of New York or the city in which the Corporate Trust Office is located are authorized or obligated by law, or executive order or governmental decree to be closed.

**"Buy-In Price"** has the meaning specified in Section 13.03.

**"Capital Stock"** means any and all shares, interests, participations, rights or other equivalents (however designated) of corporate stock, including, without limitation, in respect of partnerships, partnership interests (whether general or limited) and any other interest or participation that confers on a Person the right to receive a share of the profits and losses of, or distributions of assets of, such partnership.

**"Cash Interest"** has the meaning specified in Section 12.01(b).

**"Change of Control"** means any Fundamental Transaction other than (i) a Fundamental Transaction in which holders of the Company's voting power immediately prior to the Fundamental Transaction continue after the Fundamental Transaction to hold publicly traded securities and, directly or indirectly, the voting power of the surviving entity or entities necessary to elect a majority of the members of the board of directors (or their equivalent if other than a corporation) of such entity or entities, or (ii) pursuant to a migratory merger effected solely for the purpose of changing the jurisdiction of incorporation of the Company.

**"Change of Control Notice"** has the meaning specified in Section 11.03(a).

**"Change of Control Redemption"** means a Holder Change of Control Redemption or Company Change of Control Redemption, as applicable.

**"Change of Control Redemption Date"** means a Holder Change of Control Redemption Date or Company Change of Control Redemption Date, as applicable

**"Change of Control Redemption Notice"** means a Holder Change of Control Redemption Notice or Company Change of Control Redemption Notice, as applicable.

**"Change of Control Redemption Period"** means, the period beginning upon receipt of the Change of Control Notice and ending on the consummation of such Change of Control or, in the event a Change of Control Notice is not delivered at least 10 days prior to a Change of Control, at any time, on or after the date which is 10 days prior to a Change of Control and ending 10 days after the consummation of such Change of Control.

**"Change of Control Redemption Price"** means the price equal to the sum of (i) accrued and unpaid Late Charges, (ii) accrued and unpaid Interest and (iii) the greater of (a) the product of (x) the Conversion Amount (which solely for purposes of this definition does not include accrued and unpaid Interest or Late Charges) being redeemed, and (y) the quotient

determined by dividing (1) the greater of the Closing Sale Price of the Common Stock immediately prior to the consummation of the Change of Control, the Closing Sale Price immediately following the public announcement of such proposed Change of Control and the Closing Sale Price of the Common Stock immediately prior to the public announcement of such proposed Change of Control by (2) the Conversion Price, or (b) (x) 120% of the Conversion Amount (which solely for purposes of this definition does not include accrued and unpaid Interest or Late Charges) being redeemed or (y) 140% of the Conversion Amount (which solely for purposes of this definition does not include accrued and unpaid Interest or Late Charges) being redeemed in the case of a Company Change of Control Redemption with respect to a Public Acquirer Change of Control; provided, however, that in the event that any Unconverted Amount is being redeemed pursuant to Sections 11.03 and 11.04, with respect to any such Unconverted Amount, clause (b)(x) or (b)(y) of the foregoing shall be calculated as 100% of such amount. The Change of Control Redemption Price shall be determined by the Company, provided, that such determination shall be subject to dispute as provided in Section 14.12 hereof.

**"Closing Bid Price"** and **"Closing Sale Price"** means, for any security as of any date, the last closing bid price and last closing trade price, respectively, for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing bid price or the closing trade price, as the case may be, then the last bid price or last trade price, respectively, of such security prior to 4:00:00 p.m., New York Time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last closing bid price or last trade price, respectively, of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing do not apply, the last closing bid price or last trade price, respectively, of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no closing bid price or last trade price, respectively, is reported for such security by Bloomberg, the average of the bid prices, or the ask prices, respectively, of any market makers for such security as reported in the "pink sheets" by Pink Sheets LLC (formerly the National Quotation Bureau, Inc.). If the Closing Bid Price or the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Bid Price or the Closing Sale Price, as the case may be, of such security on such date shall be the fair market value as mutually determined by the Company and the Required Holders.

**"Common Stock"** means the shares of common stock, par value \$0.001 per share, of the Company as it exists on the date of this Indenture or any other shares of Capital Stock of the Company into which the common stock shall be reclassified or changed or, in the event of a merger, consolidation or other similar transaction involving the Company that is otherwise permitted hereunder in which the Company is not the surviving corporation, the common stock, common equity interests, ordinary shares or depositary shares or other certificates representing common equity interests of such surviving corporation or its direct or indirect parent corporation.

**"Company"** means the Person named as the "Company" in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture, and thereafter "Company" shall mean such successor Person.

"**Company Change of Control Redemption**" has the meaning specified in Section 11.04.

"**Company Change of Control Redemption Date**" has the meaning specified in Section 11.04.

"**Company Change of Control Redemption Notice**" has the meaning specified in Section 11.04.

"**Conversion Agent**" means the Trustee or such other office or agency designated by the Company with notice provided to each Holder where Securities may be presented for conversion.

"**Conversion Allocation Percentage**" has the meaning specified in Section 13.05(e).

"**Conversion Amount**" has the meaning specified in Section 13.01(b)(i).

"**Conversion Date**" has the meaning specified in Section 13.02(a).

"**Conversion Failure**" has the meaning specified in Section 13.03.

"**Conversion Floor Price**" has the meaning specified in Section 13.09(a)(vi).

"**Conversion Limitation**" has the meaning specified in Section 13.04(a).

"**Conversion Notice**" has the meaning specified in Section 13.02(a).

"**Conversion Price**" has the meaning specified in Section 13.01(b)(ii).

"**Conversion Rate**" has the meaning specified in Section 13.01(b).

"**Conversion Shares**" means the shares of Common Stock into which the Securities are convertible.

"**Convertible Securities**" means any stock or securities (other than Options) directly or indirectly convertible into or exercisable or exchangeable for Common Stock.

"**Corporate Event**" has the meaning specified in Section 13.14.

"**Corporate Trust Office**" means the designated office of the Trustee at which at any time its corporate trust business shall be administered, which office at the date hereof is located at 700 South Flower Street, Suite 500, Los Angeles, California 90017, Attention: Corporate Trust Administration, or such other address as the Trustee may designate from time to time by notice to the Holders and the Company, or the principal corporate trust office of any successor Trustee (or such other address as such successor Trustee may designate from time to time by notice to the Holders and the Company). "**Custodian**" has the meaning specified in Section 5.01(a)(vi).

**"Default"** means an Event of Default or any event that is or with the passage of time or the giving of notice or both would become an Event of Default.

**"Dilutive Issuance"** has the meaning specified in Section 13.09(a).

**"Draw Down Amount"** has the meaning specified in Section 5.15.

**"DTC"** has the meaning specified in Section 12.01(c).

**"Eligible Market"** means the Principal Market, The New York Stock Exchange, Inc., the American Stock Exchange, The NASDAQ Global Select Market or The NASDAQ Capital Market.

**"Epoch Biosciences"** means Epoch Biosciences, Inc., a Delaware corporation and a Subsidiary of the Company.

**"Equity Conditions"** means each of the following conditions: (i) on each day during the period beginning sixty (60) days prior to the applicable date of determination and ending on and including the applicable date of determination (the **"Equity Conditions Measuring Period"**), all shares of Common Stock issuable upon conversion of the Securities and exercise of the Warrants and as Interest Shares shall be eligible for sale without restriction and without the need for registration under any applicable federal or state securities laws, other than any restrictions on sale imposed on any Holder by virtue of such Holder being an affiliate of the Company; (ii) during the Equity Conditions Measuring Period, the Common Stock is designated for quotation on the Principal Market or any other Eligible Market and shall not have been suspended from trading on such exchange or market (other than suspensions of not more than two (2) days and occurring prior to the applicable date of determination due to business announcements by the Company) nor shall delisting or suspension by such exchange or market been threatened or pending either (A) in writing by such exchange or market or (B) by falling below the then effective minimum listing maintenance requirements of such exchange or market; (iii) during the Equity Conditions Measuring Period, the Company shall have delivered Conversion Shares upon conversion of the Securities and Warrant Shares upon exercise of the Warrants to the holders on a timely basis as set forth in Section 13.02 hereof and Section 2(a) of the Warrants; (iv) any applicable shares of Common Stock to be issued in connection with the event requiring determination may be issued in full without violating Section 13.04 hereof and the rules or regulations of the Principal Market or any other applicable Eligible Market; provided, however, that in the event that such shares of Common Stock cannot be issued in full, the Company shall be permitted to issue to the Holders the maximum amount of shares of Common Stock without causing any such violation; (v) during the six (6) month period ending on and including the date immediately preceding the applicable date of determination, the Company shall not have failed to timely make any payments within five (5) Business Days of when such payment is due pursuant to any Transaction Document; (vi) during the Equity Conditions Measuring Period, there shall not have occurred either (A) the public announcement of a pending, proposed or intended Fundamental Transaction which has not been abandoned, terminated or consummated, or (B) an Event of Default, unless waived or cured by an applicable Holder, or (C) a Default, unless waived or cured by each Holder; (vii) the Company shall have no knowledge of any fact that would cause any shares of Common Stock issuable upon

conversion of the Securities or as Interest Shares and shares of Common Stock issuable upon exercise of the Warrants not to be eligible for sale without restriction without the need for registration under any applicable federal or state securities laws, other than any restrictions on sale imposed on a Holder by virtue of such Holder being an affiliate of the Company; and (viii) the Company otherwise shall have been in material compliance with and shall not have materially breached any provision, covenant, representation or warranty of any Transaction Document.

**"Equity Conditions Failure"** means that (i) on any day during the period commencing ten (10) Trading Days prior to the applicable Interest Notice Date through the applicable Interest Date, or (ii) on any day during the period commencing ten (10) Trading Days prior to the applicable Mandatory Conversion Notice Date through the applicable Mandatory Conversion Date, the Equity Conditions have not been satisfied (or waived in writing by each Holder).

**"Event of Default"** has the meaning specified in Section 5.01(a).

**"Event of Default Notice"** has the meaning specified in Section 11.02(a).

**"Event of Default Redemption Date"** means the date the Event of Default Redemption Price is required to be paid pursuant to Section 11.13 hereof.

**"Event of Default Redemption Notice"** has the meaning specified in Section 11.02(b)(i).

**"Event of Default Redemption Price"** has the meaning specified in Section 11.02(a).

**"Exchange Cap"** has the meaning specified in Section 13.04(b).

**"Exchange Cap Allocation"** has the meaning specified in Section 13.04(b).

**"Excluded Securities"** means any Capital Stock issued or issuable: (i) (x) in connection with any Approved Stock Plan to the extent such Capital Stock would not result in a Dilutive Issuance or (y) in connection with any Approved Stock Plan, which Capital Stock would result in a Dilutive Issuance, provided, that such Capital Stock does not exceed 3% of the shares of Common Stock in the aggregate outstanding; (ii) upon conversion of the Securities or the exercise of the Warrants; (iii) pursuant to a bona fide firm commitment underwritten public offering with a nationally recognized underwriter which generates gross proceeds to the Company in excess of \$25,000,000 (other than an "at-the-market offering" as defined in Rule 415(a)(4) under the 1933 Act and "equity lines"); (iv) upon conversion of any Options or Convertible Securities which are outstanding on the day immediately preceding the Subscription Date, provided that the terms of such Options or Convertible Securities are not amended, modified or changed on or after the Subscription Date to increase the shares issuable thereunder or reduce the price per share payable thereunder; and (v) in connection with mergers, acquisitions, strategic business partnerships or joint ventures, in each case with non-affiliated third parties and otherwise on an arm's-length basis, the primary purpose of which, in the reasonable judgment of the Board of Directors, is not to raise additional capital.

**"Existing Indebtedness"** means the Indebtedness of the Company and its Subsidiaries (i) pursuant to that certain General Conditions for Future Factoring Operations, dated December 12, 2006, executed by Nanogen Advanced in favor of GE Capital Finance S.p.A, not to exceed Four Million Euros ( 4,000,000) at any one time outstanding, (ii) at any time prior to December 31, 2011, pursuant to that certain Royalty Interest Assignment Agreement entered into between the Company, Epoch Biosciences and Drug Royalty Trust 9, dated as of September 29, 2006, pursuant to which Epoch Biosciences sold certain of its rights to receive royalty payments and related reports under the Second Amended and Restated Collaboration, License and Supply Agreement, dated as of August 17, 2000, as amended by the First Side Agreement dated October 31, 2001, the Amendment No. 1 to the Second Amended and Restated Collaboration, License and Supply Agreement dated July 26, 2002 and Amendment No. 2 to the Second Amended and Restated Collaboration, License and Supply Agreement dated as of December 31, 2005, with Applera Corporation, and (iii) Indebtedness pursuant to those certain non recourse sales of receivables by Nanogen Advanced sponsored by regional governments in Italy in an aggregate principal amount not to exceed One Million Euros ( 1,000,000) at any one time outstanding.

**"Fiscal Quarter"** means each of the fiscal quarters adopted by the Company for financial reporting purposes that correspond to the Company's fiscal year that ends on December 31, or such other fiscal quarter adopted by the Company for financial reporting purposes in accordance with GAAP.

**"Fundamental Transaction"** means that the Company shall, directly or indirectly, in one or more related transactions, (i) consolidate or merge with or into (whether or not the Company is the surviving corporation) another Person or Persons, if the holders of the Voting Stock (not including any shares of Voting Stock held by the Person or Persons making or party to, or associated or affiliated with the Persons making or party to, such consolidation or merger) immediately prior to such consolidation or merger shall hold or have the right to direct the voting of less than 50% of the Voting Stock or such voting securities of such other surviving Person immediately following such transaction, or (ii) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Company to another Person, or (iii) allow another Person to make a purchase, tender or exchange offer that is accepted by the holders of more than the 50% of the outstanding shares of Voting Stock (not including any shares of Voting Stock held by the Person or Persons making or party to, or associated or affiliated with the Persons making or party to, such purchase, tender or exchange offer), or (iv) consummate a stock purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person whereby such other Person acquires more than the 50% of the outstanding shares of Voting Stock (not including any shares of Voting Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock purchase agreement or other business combination), (v) reorganize, recapitalize or reclassify its Common Stock or (vi) any "person" or "group" is or shall become the "beneficial owner", directly or indirectly, of 50% of the aggregate ordinary voting power represented by issued and outstanding Common Stock.

For purposes of the definition of Fundamental Transaction: (i) **"person"** or **"group"** have the meanings given to them for purposes of Sections 13(d) and 14(d) of the Exchange Act or any

successor provisions, and the term "group" includes any group acting for the purpose of acquiring, holding or disposing of securities within the meaning of Rule 13d-5(b)(1) under the Exchange Act (or any successor provision); (ii) a **"beneficial owner"** will be determined in accordance with Rule 13d-3 under the Exchange Act, as in effect on the date of this Indenture; and (iii) **"beneficially owned"** and **"beneficially own"** have meanings correlative to that of beneficial owner.

**"Governmental Authority"** means the government of the United States of America, any other nation or any political subdivision thereof, whether state or local, and any agency, authority, instrumentality, regulatory body, court, tribunal, central bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative powers or functions of or pertaining to government.

**"Holder"** or **"Securityholder"** means a Person in whose name a Security is registered in the Security Register.

**"Holder Change of Control Redemption"** has the meaning specified in Section 11.03(a).

**"Holder Change of Control Redemption Date"** has the meaning specified in Section 11.03(b)(iii).

**"Holder Change of Control Redemption Notice"** has the meaning specified in Section 11.03(a).

**"Holder Pro Rata Amount"** with respect to any Holder means a fraction (i) the numerator of which is the Principal Amount of such Holder's Securities on the Original Issue Date and (ii) the denominator of which is the aggregate Principal Amount of all Securities issued to the Initial Purchasers pursuant to the Securities Purchase Agreement on the Original Issue Date.

**"Indebtedness"** of any Person means, without duplication (i) all indebtedness for borrowed money, (ii) all obligations issued, undertaken or assumed as the deferred purchase price of property or services, including (without limitation) "capital leases" in accordance with generally accepted accounting principles (other than trade payables, expense accruals and deferred compensation arrangements entered into in the ordinary course of business), (iii) all reimbursement or payment obligations with respect to letters of credit, surety bonds and other similar instruments, (iv) all obligations evidenced by notes, bonds, debentures or similar instruments, including obligations so evidenced incurred in connection with the acquisition of property, assets or businesses, (v) all indebtedness created or arising under any conditional sale or other title retention agreement, or incurred as financing, in either case with respect to any property or assets acquired with the proceeds of such indebtedness provided that, any obligations for which recourse is limited to an identified asset or assets of such Person shall be equal to the lesser of (x) the amount of such Indebtedness or (y) the fair market value of such asset or assets, (vi) all monetary obligations under any leasing or similar arrangement which, in connection with GAAP, consistently applied for the periods covered thereby, is classified as a capital lease, (vii) all indebtedness referred to in clauses (i) through (vi) above to the extent secured by (or to the

extent that the holder of such Indebtedness has an existing right, contingent or otherwise, to be secured by) any mortgage, lien, pledge, charge, security interest or other encumbrance upon or in any property or assets (including accounts and contract rights) owned by any Person, even though the Person which owns such assets or property has not assumed or become liable for the payment of such indebtedness, and (viii) all Contingent Obligations in respect of indebtedness or obligations of others of the kinds referred to in clauses (i) through (vii) above.

**"Indenture"** has the meaning ascribed to such term in the Recitals and as it may from time to time be supplemented or amended by one or more indentures supplemental hereto entered into pursuant to the applicable provisions hereof, including, for all purposes of this instrument and any such supplemental indenture, the provisions of the Trust Indenture Act that are deemed to be a part of and govern this instrument and any such supplemental indenture, respectively.

**"Initial Purchasers"** means Portside Growth and Opportunity Fund, Capital Ventures International, LLC, Enable Opportunity Partners LP, Pierce Diversified Strategy Master Fund LLC, ena, Enable Growth Partners LP, Fort Mason Master, LP, Fort Mason Partner, LP, Highbridge International LLC and Castlerigg Master Investments Ltd..

**"Interest"** means, when used with reference to the Securities, any interest payable under the terms of the Securities, including Late Charges and contingent interest, if any.

**"Interest Conversion Price"** means, with respect to any Interest Date that price which shall be the lower of (i) the applicable Conversion Price and (ii) the price computed as ninety percent (90%) of the arithmetic average of the Weighted Average Price for the Common Stock for the Interest Measuring Period. All such determinations to be appropriately adjusted for any stock split, stock dividend, stock combination or other similar transaction that proportionately decreases or increases the Common Stock during the applicable Interest Measuring Period.

**"Interest Date"** means each of the last day of each Calendar Quarter during the period beginning on the Issuance Date and ending on, and including, the Stated Maturity, commencing September 30, 2007.

**"Interest Election Notice"** has the meaning specified in Section 12.01(b).

**"Interest Measuring Period"** means the five (5) Trading Days ending on the Trading Day immediately preceding the Interest Date.

**"Interest Notice Date"** has the meaning specified in Section 12.01(b).

**"Interest Rate"** means the rate of 6.25% per annum, subject to adjustment as provided in Section 12.01(d).

**"Interest Shares"** has the meaning specified in Section 12.01(b).

**"Irrevocable Transfer Agent Instructions"** has the meaning ascribed to such term in the Securities Purchase Agreement.

**"Issuance Date"** means the date the Securities are originally issued as set forth on the face of the Security under this Indenture.

**"Late Charge"** has the meaning specified in Section 10.01(c).

**"Letter of Credit"** has the meaning ascribed to such term in the Securities Purchase Agreement.

**"Letter of Credit Allocation"** has the meaning ascribed to such term in the Securities Purchase Agreement.

**"Letter of Credit Bank"** has the meaning ascribed to such term in the Securities Purchase Agreement.

**"LC Agent"** has the meaning ascribed to such term in the Securities Purchase Agreement.

**"Liens"** has the meaning ascribed to such term in Section 10.11.

**"Mandatory Conversion"** has the meaning specified in Section 13.05(a).

**"Mandatory Conversion Date"** has the meaning specified in Section 13.05(a).

**"Mandatory Conversion Eligibility Date"** has the meaning specified in Section 13.05(a).

**"Mandatory Conversion Measuring Period"** has the meaning specified in Section 13.05(a).

**"Mandatory Conversion Notice"** has the meaning specified in Section 13.05(a).

**"Mandatory Conversion Notice Date"** has the meaning specified in Section 13.05(a).

**"Maturity,"** when used in respect of any Security, means the date on which the Principal Amount, the Event of Default Redemption Price or the Change of Control Redemption Price of such Security becomes due and payable as therein or herein provided, whether at the Stated Maturity, on an Event of Default Redemption Date or a Change of Control Redemption Date, as applicable, or by declaration of acceleration or otherwise.

**"Nanogen Advanced"** means Nanogen Advanced Diagnostics, S.r.L., a company organized under the laws of Italy and a Subsidiary of the Company.

**"New Securities Issuance Price"** has the meaning specified in Section 13.09(a).

**"Officers' Certificate"** means a certificate signed by the Chairman of the Board, the President or any Vice President, and by the Treasurer, an Assistant Treasurer, the Secretary or an Assistant Secretary, of the Company, and delivered to the Trustee. One of the officers signing an Officers' Certificate given pursuant to Section 10.04 shall be the principal executive, financial or accounting officer of the Company.

**"Options"** means any rights, warrants or options to subscribe for or purchase Common Stock or Convertible Securities.

**"Original Issue Date"** means August 27, 2007.

**"Outstanding"** when used in respect of Securities, means, as of the date of determination, all Securities theretofore authenticated and delivered under this Indenture, except: (i) Securities theretofore cancelled by the Trustee or delivered to the Trustee for cancellation; (ii) Securities, or portions thereof, for whose payment or redemption money in the necessary amount has been theretofore deposited with the Trustee or any Paying Agent (other than the Company) in trust or set aside and segregated in trust by the Company (if the Company shall act as its own Paying Agent) for the Holders of such Securities; provided that if such Securities are to be redeemed prior to the maturity thereof, notice of such redemption shall have been given to the Holders as herein provided, or provision satisfactory to a Responsible Officer of the Trustee shall have been made for giving such notice; and (iii) Securities that have been paid or in exchange for or in lieu of which other Securities have been authenticated and delivered pursuant to this Indenture; provided, however, that, in determining whether the Holders of the requisite Principal Amount of the Outstanding Securities have given any request, demand, authorization, direction, notice, consent or waiver hereunder, Securities owned by the Company or any other obligor upon the Securities or any Affiliate of the Company or of such other obligor shall be disregarded and deemed not to be Outstanding, except that, in determining whether the Trustee shall be protected in relying upon any such request, demand, authorization, direction, notice, consent or waiver, only Securities which a Responsible Officer of the Trustee actually knows to be so owned shall be so disregarded. Securities so owned which have been pledged in good faith may be regarded as Outstanding if the pledgee establishes to the satisfaction of the Trustee the pledgee's right so to act in respect of such Securities and that the pledgee is not the Company or any other obligor upon the Securities or any Affiliate of the Company or of such other obligor.

**"Paying Agent"** means any Person (including the Company) authorized by the Company to pay the Principal Amount of, Interest and Late Charges on the Securities to the Holders, including any Event of Default Redemption Price or Change of Control Redemption Price, on behalf of the Company. The Company hereby appoints the Trustee to be the Paying Agent and the Company shall provide written notice to each of the Holders of any change in the Paying Agent hereafter.

**"Permitted Indebtedness"** means (i) Existing Indebtedness; (ii) other Indebtedness approved in writing by the Required Holders; (iii) Permitted Subordinated Indebtedness; (iv) the Securities pursuant to this Indenture and other Transaction Documents; (v) Indebtedness to finance the purchase price of personal property, provided that such Indebtedness does not exceed the lesser of the cost or fair market value of such property financed with such Indebtedness and does not exceed \$1,250,000 in the aggregate outstanding at any time; (vi) Indebtedness of the Company to any Subsidiary of the Company and Indebtedness of any Subsidiary of the Company to the Company or any other such Subsidiary; (vii) Indebtedness in respect of taxes and other governmental charges incurred in the ordinary course of business and

which are not due or are being contested in good faith by appropriate proceedings and for which adequate reserves have been provided for in accordance with GAAP; (viii) Indebtedness resulting from the endorsement of negotiable instruments in the ordinary course of business; (ix) Indebtedness in respect of hedging arrangements entered in the ordinary course of business designed to manage interest rates or interest rate risk or to protect against fluctuations in currency exchange rates, and not for purposes of speculations; (x) letters of credit, and reimbursement obligations in respect thereof, in support of trade debt or statutory obligations and lease or similar obligations incurred in the ordinary course of business and the Letter of Credit and reimbursement obligations in respect thereof; (xi) Indebtedness incurred in the ordinary course of business of the Company and its Subsidiaries, in respect of performance bonds, bid bonds, appeal bonds, completion bonds, surety bonds, completion guarantees and similar obligations; (xii) Indebtedness of a Person that becomes a Subsidiary, which Indebtedness existed at the time such Person became a Subsidiary and was not incurred in contemplation of such Person becoming a Subsidiary; and (xiii) extensions, refinancing and renewals of Existing Indebtedness, provided that (a) any such refinancing Existing Indebtedness is in an aggregate principal amount not greater than the aggregate principal amount of the Existing Indebtedness being renewed or refinanced, plus the amount of any premiums required to be paid thereon and reasonable fees and expenses associated therewith, (b) such refinancing of Existing Indebtedness has a later or equal final maturity and longer or equal weighted average life than the Existing Indebtedness being renewed or refinanced, and (c) the covenants, events of default, subordination and other provisions thereof (including any guarantees thereof) shall be, in the aggregate, no less favorable to the Holders than those contained in the Existing Indebtedness being renewed or refinanced.

**"Permitted Liens"** means (i) any Lien for taxes not yet due or delinquent or being contested in good faith by appropriate proceedings for which adequate reserves have been established in accordance with GAAP, (ii) any statutory Lien arising in the ordinary course of business by operation of law with respect to a liability that is not yet due or delinquent, (iii) any Lien created by operation of law, such as materialmen's liens, mechanics' liens and other similar liens, arising in the ordinary course of business with respect to a liability that is not yet due or delinquent or that are being contested in good faith by appropriate proceedings, (iv) Liens (A) upon or in any equipment acquired or held by the Company or any of its Subsidiaries to secure the purchase price of such equipment or indebtedness incurred solely for the purpose of financing the acquisition or lease of such equipment, or (B) existing on such equipment at the time of its acquisition, provided that the Lien is confined solely to the property so acquired and improvements thereon, and the proceeds of such equipment, (v) Liens incurred in connection with the extension, renewal or refinancing of the indebtedness secured by Liens of the type described in clauses (i) and (iv) above, provided that any extension, renewal or replacement Lien shall be limited to the property encumbered by the existing Lien and the principal amount of the Indebtedness being extended, renewed or refinanced does not increase, (vi) leases or subleases and licenses and sublicenses granted to others in the ordinary course of the Company's business, not interfering in any material respect with the business of the Company and its Subsidiaries taken as a whole, (vii) Liens in favor of customs and revenue authorities arising as a matter of law to secure payments of custom duties in connection with the importation of goods, (viii) Liens arising from judgments, decrees or attachments in circumstances not constituting an Event of Default under Section 4(a)(vii), and (viii) Liens securing Existing Indebtedness and reimbursement obligations in respect of Permitted Indebtedness described in subparagraphs (x) and (xi) of the Permitted Indebtedness definition.

**"Permitted Subordinated Indebtedness"** means unsecured Indebtedness incurred by the Company or any of its Subsidiaries that is made expressly subordinate in right of payment to the Indebtedness evidenced by the Securities, as reflected in a written agreement reasonably acceptable to the Required Holders (as evidenced by the written consent of such Required Holders (such consent not to be unreasonably withheld, conditioned or delayed), and which Indebtedness does not provide at any time for (i) the payment, prepayment, repayment, repurchase or defeasance, directly or indirectly, of any principal or premium, if any, thereon until ninety-one (91) days after the Stated Maturity or later and (ii) total interest and fees at a rate in excess of the interest rate hereunder.

**"Physical Securities"** means permanent certificated Securities in registered form issued in denomination of \$1,000 Principal Amount and integral multiples thereof.

**"Present Value of Interest"** means the amount of any interest that, but for (i) the Holder's exercise of its conversion right pursuant to Section 13.01, (ii) the Company's exercise of a Mandatory Conversion pursuant to Section 13.05, (iii) a Holder Change of Control Redemption pursuant to Section 11.03, or (iv) a Company Change of Control Redemption pursuant to Section 11.04, as applicable, would have accrued under the Securities at the Interest Rate for the period from the applicable Conversion Date or Redemption Date, as the case may be, through the Stated Maturity discounted to the present value of such interest using a discount rate equal to 6.25%.

**"Principal Amount"** of a Security means the principal amount as set forth on the face of the Security, as may be reduced by any conversions, redemptions or otherwise pursuant hereto.

**"Principal Market"** means The NASDAQ Global Market.

**"Pro Rata Conversion Amount"** has the meaning specified in Section 13.05(e).

**"Public Acquirer Change of Control"** means a Change of Control in which the acquirer or the parent of such acquirer (the **"Public Acquirer"**) has a class of common stock traded on an Eligible Market which will be so traded when issued or exchanged in connection with such Change of Control.

**"Record Date"** for the interest payable on any Interest Date means a date no more than fifteen (15) Trading Days prior to such Interest Date.

**"Redemption Date"** means any Event of Default Redemption Date or Change of Control Redemption Date.

**"Redemption Notices"** means, collectively, the Event of Default Redemption Notices and the Change of Control Redemption Notices, each of the foregoing, individually, a Redemption Notice.

**"Redemption Premium"** means (i) in the case of the Events of Default described in Section 5.01(a)(i) (v) and (viii) (x), 120% or (ii) in the case of the Events of Default described in Section 5.01(a)(vi) (vii), 100%.

**"Redemption Prices"** means, collectively, the Event of Default Redemption Price and the Change of Control Redemption Price, and each of the foregoing, individually, a **"Redemption Price"**.

**"Required Holders"** means the Holders representing a majority of the aggregate Principal Amount of the Securities then Outstanding.

**"Register"** has the meaning specified in Section 3.07.

**"Required Reserve Amount"** has the meaning specified in Section 10.15(a).

**"Required Stockholder Approval"** has the meaning specified in Section 13.09(a)(vi).

**"Responsible Officer"** shall mean when used with respect to the Trustee, any officer within the corporate trust department of the Trustee, including any vice president, assistant vice president, assistant treasurer, trust officer or any other officer of the Trustee who customarily performs functions similar to those performed by the Persons who at the time shall be such officers, respectively, or to whom any corporate trust matter is referred because of such person's knowledge of and familiarity with the particular subject and who shall have direct responsibility for the administration of this Indenture.

**"Rule 144"** means Rule 144 under the Securities Act (including any successor rule thereto), as the same may be amended from time to time.

**"Rule 144A"** means Rule 144A under the Securities Act (including any successor rule thereto), as the same may be amended from time to time.

**"Rule 144A Information"** has the meaning specified in the Section 10.07(b).

**"Securities Act"** means the U.S. Securities Act of 1933, as amended, and the rules and regulations of the Commission promulgated thereunder.

**"Securities Purchase Agreement"** means the Securities Purchase Agreement, dated as of August 24, 2007, entered into by and among the Company and the Initial Purchasers in connection with the sale of the Securities.

**"Share Delivery Date"** has the meaning specified in Section 13.02(b).

**"Shelf Registration Statement"** has the meaning ascribed to such term in the Securities Purchase Agreement.

**"Stated Maturity,"** has the meaning ascribed to such term in Section 10.01(a).

**"Subscription Date"** means August 24, 2007.

**"Successor Entity"** has the meaning specified in Section 8.01.

**"Termination of Trading"** means that the Common Stock or other securities into which the Securities are convertible are not listed for trading on an Eligible Market.

**"Trading Day"** means (a) if the applicable security is listed or admitted for trading on an Eligible Market, a day on such Eligible Market is open for business or (b) if the applicable security is not so listed, admitted for trading or quoted, any Business Day.

**"Transaction Documents"** means the Securities Purchase Agreement, the Securities, the Warrants, the Letter of Credit, this Indenture, the Warrant Agreement, if any, the Irrevocable Transfer Agent Instructions and any other certificate, instrument or document executed and delivered pursuant hereby or thereby.

**"Unconverted Amount"** has the meaning specified in Section 13.05(b).

**"United States"** means the United States of America (including the States and the District of Columbia), its territories, its possessions and other areas subject to its jurisdiction (its "possessions" including Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, Wake Island and the Northern Mariana Islands).

**"Valuation Event"** has the meaning specified in the Section 13.09(a)(iv).

**"Voting Stock"** of a Person means Capital Stock of such Person of the class or classes pursuant to which the holders thereof have the general voting power to elect, or the general power to appoint, at least a majority of the board of directors, managers or trustees of such Person (irrespective of whether or not at the time capital stock of any other class or classes shall have or might have voting power by reason of the happening of any contingency).

**"Warrants"** has the meaning ascribed to such term in the Securities Purchase Agreement, and shall include all warrants issued in exchange therefore or replacement thereof.

**"Weighted Average Price"** means, for any security as of any date, the dollar volume-weighted average price for such security on the principal market or exchange on which such security is traded during the period beginning at 9:30:01 a.m., New York City time (or such other time as such principal market or exchange publicly announces is the official open of trading), and ending at 4:00:00 p.m., New York City time (or such other time as such principal market or exchange publicly announces is the official close of trading) as reported by Bloomberg through its "Volume at Price" functions, or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York City time (or such other time as such market publicly announces is the official open of trading), and ending at 4:00:00 p.m., New York City time (or such other time as such market publicly announces is the official close of trading) as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest closing bid price and the lowest closing ask price of any of the market makers for such security

as reported in the "pink sheets" by Pink Sheets LLC (formerly the National Quotation Bureau, Inc.). If the Weighted Average Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Weighted Average Price of such security on such date shall be the fair market value as mutually determined by the Company and the Required Holders. All such determinations are to be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during the applicable calculation period. For the avoidance of doubt in no event shall the Trustee or Conversion Agent have any responsibility to either obtain or monitor such prices.

Section 1.02. Notice in Connection with Redemption Notice.

(a) Notwithstanding anything herein, in connection with any Redemption Notice required to be given by any Holder under this Indenture, each Holder shall provide such notice to the Company, with a copy to the Trustee and shall be sufficiently given if in writing and mailed, first-class postage prepaid, by overnight courier or by facsimile, with confirmation of transmission, not later than the latest date (if any), and not earlier than the earliest date (if any), prescribed for the giving of such notice.

(b) Upon receipt by the Company of any Redemption Notice by any Holder, the Company shall provide prompt notice to all other Holders of the receipt of such Redemption Notice.

Section 1.03. Legal Holidays. In any case where any Interest Date, Stated Maturity, Redemption Date or Conversion Date of any Security shall not be a Business Day, then (notwithstanding any other provision of this Indenture or of the Securities) payments or conversion otherwise required to be made on such date need not be made on such date, but may be made on the next succeeding Business Day with the same force and effect as if made on the Interest Date, at the Stated Maturity or on the Redemption Date; provided, that no interest shall accrue in respect of such payment for the period from and after such Interest Date, Stated Maturity or Redemption Date, as the case may be.

Section 1.04. Indenture and Securities Solely Corporate Obligations. No recourse for payment of principle or premium, if any, or interest on any Security or any claim based on any Security or in respect thereof, and no recourse under or upon any obligation or covenant or agreement of the Company in the Indenture or any supplemental indenture or in any security, or by virtue of the creation of any indebtedness represented thereby shall be had against any incorporator, stockholder, employee, agent, officer, director or subsidiary of the Company either directly or through the Company or a successor corporation; it being expressly understood that all such liability is hereby expressly waived and released as a condition of and as consideration of the execution of this Supplemental Indenture and issuance of the securities.

Section 1.05. Initial Indenture. Sections 2.05(g), 2.09(b), 10.02, and Articles III, IV, V, VI, VIII, XI, XII, XIII and Article XIV (other than Sections 14.01, 14.02, 14.03, 14.05, 14.06, and 14.08 to 14.14 inclusive) of the Initial Indenture shall not be applicable to the Securities and such provisions are superceded by the terms of this First Supplemental Indenture. In the event of any conflict between the terms of the Initial Indenture and the terms of this First Supplemental Indenture, the terms of this First Supplemental Indenture shall prevail with respect to the Securities.

## ARTICLE II

### Security Forms

Section 2.01. Forms Generally. The Securities and the Trustee's certificates of authentication shall be in substantially the forms set forth in this Article, with such appropriate insertions, omissions, substitutions and other variations as are required or permitted by this Indenture, and may have such letters, numbers or other marks of identification and such legends or endorsements placed thereon as may be required to comply with the rules of any securities exchange or Depositary therefor, the Internal Revenue Code of 1986, as amended, and regulations thereunder, or as may, consistently herewith, be determined by the officers executing such Securities, as evidenced by their execution thereof.

Section 2.02. Form of Security. Each Security shall be prepared by the Company substantially in the form of Exhibit A attached hereto. Upon issuance there shall be notated on each Security by the Company the portion of the Conversion Allocation Percentage, Authorized Share Allocation and Exchange Cap Allocation attributable to such Security upon issuance. Upon transfer Securities shall be surrendered and there shall be annotated by the Company on any replacement Security issued in respect thereof pursuant to this Indenture the original Conversion Allocation Percentage, Authorized Share Allocation and Exchange Cap Allocation attributable to such replacement Security.

Section 2.03. Form of Trustee's Certificate of Authentication. No Security shall be entitled to any benefit under this Indenture or be valid or obligatory for any purpose unless there appears on such Security a certificate of authentication substantially in the form of Exhibit B attached hereto.

Section 2.04. No Legend on Securities. No Security shall be "restricted" by any legends.

Section 2.05. Replacement Securities. In the event any Security is mutilated, destroyed, lost or stolen, a replacement Security shall be issued in exchange for any such Security in accordance with Section 2.07 of the Initial Indenture.

## ARTICLE III

### The Securities

Section 3.01. Title and Terms. The Securities shall be known and designated as the "**6.25% Senior Convertible Notes Due 2010**" of the Company. The Principal Amount shall be payable at the Stated Maturity, or on a Redemption Date as provided for under this Indenture.

The aggregate Principal Amount of Securities that may be authenticated and delivered under this First Supplemental Indenture is initially limited to \$20,000,000, except for Securities authenticated and delivered upon registration or transfer of, or in exchange for, or in lieu of, other Securities pursuant to Sections 3.03, 3.04, 3.05 or 11.08 of this First Supplemental Indenture or Section 10.06 of the Initial Indenture. Other than as set forth in the preceding sentence, the Company shall not issue any Securities under this Indenture.

The Principal Amount and accrued Interest on the Securities shall be payable at the office or agency of the Company in The City of New York maintained for such purpose and at any other office or agency maintained by the Company for such purpose; provided, however, that at the option of the Company payments may be made by wire transfer or by check mailed to the address of the Person entitled thereto as such address shall appear in the Security Register.

The Securities shall not have the benefit of a sinking fund.

Section 3.02. Issuance of Securities; Denominations. The Securities shall be issuable only in registered form without coupons. The Securities issued upon any exchange, transfer, replacement, redemption or conversion of Securities shall be issuable in denominations of \$1,000 and any integral multiple of \$1,000 above that amount; provided that any Security in a denomination that is not an integral multiple of \$1,000 or is in a denomination less than \$1,000 may be exchanged, transferred, replaced, redeemed or converted in whole.

Section 3.03. Execution, Authentication, Delivery. At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver Securities executed by the Company to the Trustee for authentication, together with a Company Order for the authentication and delivery of such Securities. The Company Order shall specify the amount of Securities to be authenticated, and shall further specify the amount of such Securities to be issued as a Global Security or as Physical Securities. The Trustee in accordance with such Company Order shall authenticate and deliver such Securities as in this Indenture provided and not otherwise.

Section 3.04. Temporary Securities. If temporary Securities are issued, the Company will cause definitive Securities to be prepared without unreasonable delay.

Section 3.05. Registration; Registration of Transfer and Exchange; Restrictions on Transfer. The Company shall not be required to exchange or register a transfer of any Security (i) that has been surrendered for conversion in full or (ii) as to which a Change of Control Redemption Notice has been delivered and not withdrawn, except, where such Change of Control Redemption Notice provides that such Security is to be purchased only in part, the Company shall be required to exchange or register a transfer of the portion thereof not to be purchased.

The Company shall inform the Trustee in writing of the effective date of any Shelf Registration Statement registering the Securities under the Securities Act. The Trustee shall not be liable for any action taken or omitted to be taken by it in good faith in accordance with the aforementioned Shelf Registration Statement.

Section 3.06. Persons Deemed Owners. The Company, the Trustee and any agent of the Company or the Trustee may treat the Person in whose name such Security is registered as the owner of such Security for the purpose of receiving payment of the Principal Amount of and Interest, on such Security and for all other purposes whatsoever, whether or not such Security be overdue, and neither the Company, the Trustee nor any agent of the Company or the Trustee shall be affected by notice to the contrary.

Section 3.07. Cancellation and Transfer Provisions. The Company at any time may deliver to the Trustee for cancellation any Securities previously authenticated and delivered hereunder which the Company may have acquired in any manner whatsoever, and may deliver to the Trustee for cancellation any Securities previously authenticated hereunder which the Company has not issued and sold. The Trustee shall cancel and dispose of all Securities surrendered for registration of transfer, exchange, payment, purchase, repurchase, redemption, conversion (pursuant to Article XIII hereof) or cancellation in accordance with its customary practices. If the Company shall acquire any of the Securities, such acquisition shall not operate as a redemption or satisfaction of the indebtedness represented by such Securities unless and until the same are delivered to the Trustee for cancellation. The Company may not issue new Securities to replace Securities it has paid in full or delivered to the Trustee for cancellation.

The Security Registrar shall retain, in accordance with its customary procedures, copies of all letters, notices and other written communications received pursuant to this Section 3.07. The Company shall have the right to inspect and make copies of all such letters, notices or other written communications at any reasonable time upon the giving of reasonable written notice to the Security Registrar.

The Trustee shall have no obligation or duty to monitor, determine or inquire as to compliance with any restrictions on transfer imposed under this Indenture or under applicable law in respect of any transfer of any interest in any Security other than to require delivery of such certificates and other documentation or evidence as are expressly required by the terms of this Indenture, and to examine the same to determine substantial compliance as to form with the express requirements hereof.

Notwithstanding anything herein to the contrary, the Security Registrar shall, on behalf of and acting solely for this purpose as the non-fiduciary agent of the Issuer, maintain a register on which it records the names and addresses of the Holders and the principal amount held by such Holders (the "**Register**"). The Register shall be available for inspection by the Issuer at any reasonable time and from time to time upon reasonable prior notice. Each Physical Security may be transferred in whole or in part only by registration of such transfer on the Register.

## ARTICLE IV

### Satisfaction And Discharge

Section 4.01. Satisfaction and Discharge of Indenture. This First Supplemental Indenture shall cease to be of further effect (except as to any surviving rights of registration of transfer or exchange of Securities herein expressly provided for) and the Trustee, on demand of and at the expense of the Company, shall execute proper instruments acknowledging satisfaction and discharge of this Indenture, when

(a) either

(i) all Securities theretofore authenticated and delivered (other than (A) Securities which have been destroyed, lost or stolen and which have been replaced or paid as provided in Section 3.07 and (B) Securities for whose payment money has theretofore been deposited with the Trustee in trust or segregated and held in trust by the Company and thereafter repaid to the Company or discharged from such trust as provided in Section 10.03) have been delivered to the Trustee for cancellation; or

(ii) all such Securities not theretofore delivered to the Trustee for cancellation have become due and payable and the Company has deposited or caused to be deposited with the Trustee as trust funds in trust for the purpose an amount sufficient to pay and discharge the entire indebtedness evidenced by such Securities not theretofore delivered to the Trustee for cancellation;

(b) the Company has paid or caused to be paid all other sums payable hereunder by the Company; and

(c) the Company has delivered to the Trustee an Officers' Certificate and an Opinion of Counsel, each stating that all conditions precedent herein provided for relating to the satisfaction and discharge of this Indenture have been complied with.

Notwithstanding the satisfaction and discharge of this Indenture, the obligations of the Company to the Trustee under Section 9.06 of the Initial Indenture and, if money shall have been deposited with the Trustee pursuant to clause (a)(ii) of Section 4.01, the obligations of the Trustee under Section 4.02 and the last paragraph of Section 10.03 shall survive such satisfaction and discharge.

Section 4.02. Application of Trust Money. Subject to the provisions of the last paragraph of Section 10.03, all money deposited with the Trustee pursuant to Section 4.01 shall be held in trust and applied by it, in accordance with the provisions of the Securities and this Indenture, to the payment, either directly or through any Paying Agent (including the Company acting as its own Paying Agent) as the Trustee may determine, to the Persons entitled thereto, of the Principal Amount and Interest for whose payment such money has been deposited with the Trustee.

## ARTICLE V

### Remedies

Section 5.01. Events of Default. (a) "**Event of Default**" wherever used herein, means any one of the following events (whatever the reason for such Event of Default and whether it shall be voluntary or involuntary or be effected by operation of law or pursuant to any judgment, decree or order of any court or any order, rule or regulation of any administrative or governmental body):

(i) the suspension from trading (other than closing of the Principal Market generally) or failure of the Common Stock to be listed on an Eligible Market for a period of ten (10) consecutive Trading Days or for more than an aggregate of twenty (20) Trading Days in any 365-day period;

(ii) the Company's (A) failure to cure a Conversion Failure by delivery of the required number of shares of Common Stock within ten (10) Business Days after the applicable Conversion Date or (B) notice, written or oral, to any Holder of the Securities, including by way of public announcement or through any of its agents, at any time, of its intention not to comply with a request for conversion of any Securities into shares of Common Stock that is tendered in accordance with the provisions of the Securities;

(iii) at any time following the tenth (10th) consecutive Business Day that any Holder's Authorized Share Allocation is less than the number of shares of Common Stock that such Holder would be entitled to receive upon a conversion of the full Conversion Amount of its Securities (without regard to any limitations on conversion set forth in Sections 13.04 or otherwise);

(iv) the Company's failure to pay to any Holder any cash amount of the Principal Amount (including, without limitation, any redemption payments), Interest due in cash or other amounts due in cash when and as due under the Securities or any other Transaction Document (as defined in the Securities Purchase Agreement), except, in the case of a failure to pay Interest and Late Charges when and as due, in which case only if such failure continues for a period of at least five (5) Business Days after notice of such failure;

(v) the Company shall either (i) fail to pay, when due, or within any applicable grace period, any payment in respect of any Indebtedness in excess of \$250,000, individually or in the aggregate, due to any third party, other than, with respect to unsecured Indebtedness only, payments contested by the Company in good faith by proper proceedings and with respect to which adequate reserves have been set aside for the payment thereof in accordance with GAAP, or otherwise be in breach or violation of any agreement for monies owed or owing in respect of any Indebtedness in an amount in excess of \$250,000, individually or in the aggregate, which breach or violation permits the other party thereto to declare a default or otherwise accelerate amounts due thereunder, or (ii) suffer to exist any other circumstance or event that would, with or without the passage of time or the giving of notice, result in a default or event of default under any agreement binding the Company, which default or event of default would or is likely to have a material adverse effect on the business, operations, properties, prospects of financial condition of the Company or any of its Subsidiaries, individually or in the aggregate;

(vi) the Company or any of its Subsidiaries, pursuant to or within the meaning of Title 11, U.S. Code, or any similar Federal, foreign or state law for the relief of debtors generally (collectively, "**Bankruptcy Law**"), (A) commences a voluntary case, (B) consents to the entry of an order for relief against it in an involuntary case, (C) consents to the appointment of a receiver, trustee, assignee, liquidator or similar official for substantially all of its assets (a "**Custodian**"), (D) makes a general assignment for the benefit of its creditors or (E) admits in writing that it is generally unable to pay its debts as they become due;

(vii) a court of competent jurisdiction enters an order or decree under any Bankruptcy Law that (A) is for relief against the Company or any of its Subsidiaries in an involuntary case, (B) appoints a Custodian of the Company or any of its Subsidiaries for substantially all of its assets, or (C) orders the liquidation of the Company or any of its Subsidiaries;

(viii) a final judgment or judgments for the payment of money aggregating in excess of \$500,000 are rendered against the Company or any of its Subsidiaries and which judgments are not, within sixty (60) days after the entry thereof, bonded, discharged or stayed pending appeal, or are not discharged within sixty (60) days after the expiration of such stay; provided, however, that any judgment which is covered by insurance or an indemnity from a credit worthy party shall not be included in calculating the \$500,000 amount set forth above;

(ix) the Company breaches any covenant or other term or condition or any material representation or warranty of any Transaction Document, except, in the case of a breach of a covenant which is curable, only if such breach continues for a period of at least ten (10) consecutive Business Days; or

(x) any breach or failure in any respect to comply with Sections 10.09 through (and including) 10.15 hereof.

(b) Event of Default Redemption Right. Upon the occurrence of an Event of Default, each Holder shall have an optional right of redemption of its Securities pursuant to Section 11.02.

Section 5.02. Acceleration of Maturity; Rescission and Annulment. (a) If an Event of Default occurs and is continuing, then and in every such case each Holder of a Security may declare its Principal Amount plus accrued and unpaid Interest in respect of the Securities held by such Holder to be due and payable immediately, by a notice in writing to the Company and to the Trustee pursuant to Section 11.02, and upon any such declaration such Principal Amount plus accrued and unpaid Interest, shall become immediately due and payable.

(b) At any time after delivery of an Event of Default Redemption Notice by any Holder and before a judgment or decree for payment of the money due has been obtained by such Holder or the Trustee as hereinafter in this Article V provided, such Holder, by written notice to the Company and the Trustee, may rescind and annul such Event of Default Redemption Notice and its consequences if such rescission and annulment will not conflict with

any judgment or decree of a court of competent jurisdiction. The Company shall, in accordance with Section 9.06 of the Initial Indenture, reimburse the Trustee for all sums paid or advanced by the Trustee hereunder in respect of such Event of Default Redemption Notice and the reasonable compensation, expenses and disbursements of the Trustee, its agents and counsel in respect thereof and any other amounts due to the Trustee under Section 9.06 of the Initial Indenture in respect of such Event of Default Redemption Notice.

No such rescission shall affect any other Holder or subsequent default or impair any right consequent thereon.

Section 5.03. Collection of Indebtedness and Suits for Enforcement by Trustee; Enforcement of Rights. The Company covenants that if a default is made in the payment of the Principal Amount plus accrued and unpaid Interest, if any, at the Maturity thereof or in the payment of any Redemption Price in respect of any Security, the Company will, upon demand of the Trustee, pay to it, for the benefit of the Holders of such Securities, the whole amount then due and payable on such Securities, and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses of collection, including the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel. If an Event of Default occurs and is continuing, the Trustee may, but shall not be obligated to, pursue any available remedy to collect the payment of the Principal Amount plus accrued but unpaid Interest, on the Outstanding Securities or to enforce the performance of any provision of the Securities or this Indenture. The Trustee may maintain a proceeding even if the Trustee does not possess any of the Securities or does not produce any of the Securities in the proceeding. A delay or omission by the Trustee or any Holder in exercising any right or remedy accruing upon an Event of Default shall not impair the right or remedy or constitute a waiver of, or acquiescence in, the Event of Default. No remedy is exclusive of any other remedy. All available remedies are cumulative.

Section 5.04. Trustee May File Proofs of Claim. In case of any judicial proceeding relative to the Company (or any other obligor upon the Securities), its property or its creditors, the Trustee shall be entitled and empowered, by intervention in such proceeding or otherwise, to take any and all actions authorized under the Trust Indenture Act in order to have claims of the Holders and the Trustee allowed in any such proceeding. In particular, the Trustee shall be authorized to collect and receive any moneys or other property payable or deliverable on any such claims and to distribute the same; and any custodian, receiver, assignee, trustee, liquidator, sequestrator or other similar official in any such judicial proceeding is hereby authorized by each Holder to make such payments to the Trustee and, in the event that the Trustee shall consent to the making of such payments directly to the Holders, to pay to the Trustee any amount due it for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel and any other amounts due the Trustee under Section 9.06 of the Initial Indenture.

No provision of this Indenture shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Holder any plan of reorganization, arrangement, adjustment or composition affecting the Securities or the rights of any Holder thereof or to authorize the Trustee to vote in respect of the claim of any Holder in any such proceeding.

The Trustee shall be entitled to participate as a member of any official committee of creditors of the Company as it deems necessary or advisable.

Section 5.05. Application of Money Collected. Any money collected by the Trustee pursuant to this Article shall be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such money to Holders, upon presentation of the Securities and the notation thereon of the payment if only partially paid and upon surrender thereof if fully paid:

FIRST: To the payment of all amounts due the Trustee under Section 9.06 of the Initial Indenture;

SECOND: To the payment of the amounts then due and unpaid on the Securities for the Principal Amount, any Redemption Price or Interest, as the case may be, in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Securities; and

THIRD: To the Company.

Section 5.06. Limitation on Suits. Other than as specified in Section 5.07, no Holder shall have any right to institute any proceeding, judicial or otherwise, in respect of this Indenture, or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless, but in any such event subject to Sections 5.11 and 5.12:

(a) the Holders of not less than 25% in aggregate Principal Amount of the Outstanding Securities shall have previously given written notice to the Trustee of a continuing Event of Default;

(b) the Holders of not less than 25% in aggregate Principal Amount of the Outstanding Securities shall have made written request to the Trustee to institute proceedings in respect of such Event of Default as Trustee in its own name as Trustee hereunder, and such Holder or Holders have offered to the Trustee indemnity reasonably satisfactory to the Trustee against the costs, expenses, and liabilities to be incurred in compliance with such request;

(c) the Trustee for 15 days after its receipt of such notice, request and offer of security or indemnity has failed to institute any such proceeding;

(d) no direction, in the opinion of the Trustee, inconsistent with such written request has been given to the Trustee during such 15-day period by the Required Holders; and

(e) it being understood and intended that no one or more Holders shall have any right in any manner whatever by virtue of, or by availing itself of, any provision of this Indenture to affect, disturb or prejudice the rights of any other Holders, or to obtain or to seek to obtain priority or preference over any other Holders or to enforce any right under this Indenture, except in the manner herein provided and for the equal and ratable benefit of all the Holders.

Section 5.07. Unconditional Right of Holders to Receive Payment. Notwithstanding any other provision of this Indenture, the right of any Holder to receive payment of the Principal Amount, any Redemption Price or Interest, in respect of the Securities held by such Holder, on or after the respective due dates expressed in the Securities or any Redemption Date, as applicable, and to convert the Securities in accordance with Article XIII, or to redeem pursuant to Article XI, or to bring suit (which right is unconditional notwithstanding any other provision of the Indenture, including Section 5.06 hereof) for the enforcement of any such payment on or after such respective dates or the right to convert, shall not be impaired or affected adversely without the consent of such Holder.

Section 5.08. Restoration of Rights and Remedies. If the Trustee or any Holder has instituted any proceeding to enforce any right or remedy under this Indenture and such proceeding has been discontinued or abandoned for any reason, or has been determined adversely to the Trustee or to such Holder, then and in every such case, subject to any determination in such proceeding, the Company, the Trustee and the Holders shall be restored severally and respectively to their former positions hereunder and thereafter all rights and remedies of the Trustee and the Holders shall continue as though no such proceeding had been instituted.

Section 5.09. Rights and Remedies Cumulative. Except as otherwise provided in respect of the replacement or payment of mutilated, destroyed, lost or stolen Securities, no right or remedy herein conferred upon or reserved to the Trustee or to the Holders is intended to be exclusive of any other right or remedy, and every right and remedy shall, to the extent permitted by law, be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder shall not prevent the concurrent assertion or employment of any other appropriate right or remedy.

Section 5.10. Delay or Omission Not Waiver. No delay or omission of the Trustee or of any Holder to exercise any right or remedy accruing upon any Event of Default shall impair any such right or remedy or constitute a waiver of any such Event of Default or an acquiescence therein. Every right and remedy given by this Article or by law to the Trustee or to the Holders may be exercised from time to time, and as often as may be deemed expedient, by the Trustee or by the Holders, as the case may be.

Section 5.11. Control by Holders. Only the Holders of not less than 25% in aggregate Principal Amount of the Outstanding Securities shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee or exercising any trust or power conferred on the Trustee, provided that:

- (a) such direction shall not be in conflict with any rule of law or with this Indenture;
- (b) no direction, in the opinion of the Trustee, inconsistent with such directions has been given to the Trustee by the Required Holders;

(c) the Trustee may take any other action deemed proper by the Trustee which is not inconsistent with such direction; and

(d) the Trustee may refuse to follow any direction that may involve the Trustee in personal liability for which the Trustee would not otherwise be entitled to indemnification pursuant to the terms of this Indenture.

Section 5.12. Waiver of Past Defaults. No Holder may on behalf of any other Holder of Securities waive any past Default hereunder and its consequences.

Upon any such waiver with respect to such Holder waiving any past Default, such Default shall cease to exist, and any Event of Default arising therefrom shall be deemed to have been cured, for every purpose of this Indenture; but no such waiver shall extend to any subsequent or other Default or impair any right consequent thereon.

Section 5.13. Undertaking for Costs. In any suit for the enforcement of any right or remedy under this Indenture or in any suit against the Trustee for any action taken or omitted by it as Trustee, in either case in respect of the Securities, a court may require any party litigant in such suit to file an undertaking to pay the costs of the suit, and the court may assess reasonable costs, including reasonable attorney's fees, and expenses, against any party litigant in the suit having due regard to the merits and good faith of the claims or defenses made by the party litigant; but the provisions of this Section 5.13 shall not apply to any suit instituted by the Company, to any suit instituted by the Trustee, to any suit instituted by any Holder, or group of Holders, holding in the aggregate more than 10% in aggregate Principal Amount of the Outstanding Securities, or to any suit instituted by any Holder for the enforcement of the payment of the Principal Amount and Interest, on any Security on or after Maturity of such Security, the Event of Default Redemption Price or the Change of Control Redemption Price. This Section 5.13 shall be in lieu of Section 315(e) of the Trust Indenture Act and such Section 315(e) is hereby expressly excluded from this Indenture, as permitted by the Trust Indenture Act.

Section 5.14. Waiver of Stay or Extension Laws. The Company covenants (to the extent that it may lawfully do so) that it will not at any time insist upon, or plead, or in any manner whatsoever claim or take the benefit or advantage of, any stay, or extension law wherever enacted, now or at any time hereafter in force, which may affect the covenants or the performance of this Indenture; and the Company (to the extent that it may lawfully do so) hereby expressly waives all benefit or advantage of any such law and covenants that it will not hinder, delay or impede the execution of any power herein granted to the Trustee or any Holder, but will suffer and permit the execution of every such power as though no such law had been enacted.

Section 5.15. Letter of Credit. If at any time the LC Agent has drawn down on the Letter of Credit for the benefit of any Holder pursuant to the terms of the Securities Purchase Agreement and the LC Agent has received the amount drawn down from the Letter of Credit Bank (the "**Draw Down Amount**"), then on the 2nd Business Day following the receipt of such amount, such amount will be applied to reduce the Redemption Amount or the Principal Amount, as applicable, in an amount equal to the applicable Holder's pro rata portion of the Draw Down Amount based on such Holder's Letter of Credit Allocation. The Company shall provide the Trustee prompt notice of any draw down of the Letter of Credit, with a copy to each Holder.

## ARTICLE VI

### The Trustee

Section 6.01. Article IX of Initial Indenture. In acting under and by virtue of this First Supplemental Indenture, the Trustee shall be entitled to all of the protections and immunities provided to it in the Initial Indenture, all of which provisions are incorporated by reference herein *mutatis mutandis*, provided, however, that if such protection or immunity is expressly modified hereunder, then such modification hereunder shall control. For the avoidance of doubt, it is intended that no provision in Article IX of the Initial Indenture is to be modified by this First Supplemental Indenture, and all such provisions shall apply to the Trustee with respect to the Securities.

Section 6.02. Notice of Defaults. If a Default or Event of Default occurs and is continuing, the Trustee shall mail to each Holder a notice of the Default or Event of Default within 30 days after such Default or Event of Default becomes known to the Trustee. Except in the case of a Default in payment on any Security (including the failure to make a mandatory repurchase pursuant hereto), the Trustee may withhold the notice if and so long as a committee of its Responsible Officers in good faith determines that withholding the notice is in the interests of the Holders of the Securities.

## ARTICLE VII

[Reserved]

## ARTICLE VIII

### Rights Upon Fundamental Transaction and Change of Control

Section 8.01. Reaffirmation. If the Company enters into or is a party to a Fundamental Transaction the surviving entity of such Fundamental Transaction (the "**Successor Entity**"), shall deliver to each of the Holders, with a copy to the Trustee, (a) an affirmation that this Indenture and the Securities shall be a continuing obligation of the Successor Entity, and a reaffirmation of Successor Entity's obligations under the Transaction Documents following such Fundamental Transaction and (b) a confirmation that there shall be issuable upon conversion of the Securities at any time after the consummation of the Fundamental Transaction, (i) Common Stock or such other shares of publicly traded common stock (or their equivalent) of the Successor Entity or (ii) if the Successor Entity is not a publicly traded entity following such Fundamental Transaction, in lieu of the shares of the Company's Common Stock (or other securities, cash, assets or other property) issuable upon the conversion of the Securities prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holders

would have been entitled to receive upon the happening of such Fundamental Transaction had the Securities been converted immediately prior to such Fundamental Transaction, in each case as adjusted in accordance with the provisions of this Indenture. The provisions of this Section 8.01 shall apply similarly and equally to successive Fundamental Transactions and shall be applied without regard to any limitations on the conversion or redemption of the Securities. In accordance with Article IX such Successor Entity shall, where appropriate, enter into a supplemental indenture to evidence its succession to the Company and assumption of the obligations of the Company under this Indenture and shall deliver to the Trustee an Officer's Certificate or Opinion of Counsel to the effect that such Person is a Successor Entity.

Section 8.02. Change of Control Redemption Right. Each of the Holders and the Company shall have the redemption rights as described in Article XI hereof in connection with a Change of Control.

Section 8.03. Change of Control Redemptions. Redemptions required by this Article VIII (and as further set forth in Article XI hereof) shall have priority to payments to shareholders in connection with a Change of Control. Notwithstanding anything to the contrary in this Article VIII or Article XI, but subject to the Conversion Limitation, until the Change of Control Redemption Price (together with any interest thereon) is paid in full, the Conversion Amount submitted for redemption under this Article VIII and Article XI may be converted, in whole or in part, by each Holder into, (i) in the event of any conversion occurring prior to the consummation of such Change of Control, shares of Common Stock pursuant to Article XIII and Article XI, or (ii) in the event of any conversion occurring following consummation of such Change of Control, (A) shares of Common Stock pursuant to Article XIII and Article XI if the Company's Common Stock is still outstanding after such Change of Control or (B) such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holders would have been entitled to receive upon the happening of such Change of Control had such Conversion Amount been converted into Common Stock immediately prior to such Change of Control.

## ARTICLE IX

### Supplemental Indentures

Section 9.01. Supplemental Indentures Without Consent of Holders. Without the consent of any of the Holders, the Company, when authorized by a Board Resolution, and the Trustee, at any time and from time to time, may enter into one or more indentures supplemental hereto or amend the Securities, in form satisfactory to the Trustee, for any of the following purposes:

(a) to evidence the succession of another Person to the Company and the assumption by any such successor of the covenants of the Company herein and in the Securities; or

(b) to add to the covenants of the Company for the benefit of the Holders, or to surrender any right or power herein conferred upon the Company; or

(c) to provide for a successor Trustee in respect of the Securities; or

(d) to cure any ambiguity or defect, to correct or supplement any provision herein which may be inconsistent with any other provision herein, or to make any other provisions in respect of matters or questions arising under this Indenture which shall not be inconsistent with the provisions of this Indenture; provided that such action pursuant to this clause (d) shall not adversely affect the interests of the Holders in any material respect; or

(e) to add any additional Events of Default for the benefit of the Holders; or

(f) to convey, transfer, assign, mortgage or pledge to the Trustee as security for the Securities any property or assets; or

(g) to decrease the Conversion Price of the Securities; provided, however, that such decrease shall be in accordance with the terms of this Indenture and shall not adversely affect the interests of the Holders; or

(h) to supplement any provision of this Indenture to such extent as shall be necessary to permit or facilitate the discharge of the Securities; provided that such change or modification does not adversely affect the interests of the Holders; or

(i) to make any change or modification necessary in connection with the registration of the Securities under the Securities Act as contemplated in the Registration Rights Agreement; provided that such change or modification does not adversely affect the interests of the Holders; or

(j) to add or modify any other provision herein in respect of matters or questions arising hereunder which the Company and the Trustee may deem necessary or desirable and which would not reasonably be expected to adversely affect the interests of the Holders.

Section 9.02. Supplemental Indentures With Consent of Holders. With the consent of the Required Holders, by Act of said Required Holders delivered to the Company and the Trustee, the Company, when authorized by a Board Resolution, and the Trustee may enter into an indenture or indentures supplemental hereto for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of modifying in any manner the rights of the Holders under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of each Holder of the Outstanding Securities affected thereby:

(a) reduce the rate of or extend the time for payment of Interest, if any, on the Security; or

- (b) reduce the Principal Amount of, or extend the Stated Maturity of, any Security; or
- (c) make any change that impairs or adversely affects the conversion rights of any Securities; or
- (d) reduce any Redemption Price of any Security or amend or modify in any manner adverse to the Holders the Company's obligation to make such payments, whether through an amendment or waiver of provisions in the covenants, definitions or otherwise; or
- (e) modify the provisions in respect of the right of Holders to cause the Company to redeem Securities on the Redemption Date or to repurchase Securities upon a Change of Control in a manner adverse to Holders; or
- (f) make any Interest or Principal Amount on a Security payable in money other than that stated in the Security or other than in accordance with the provisions of this Indenture; or
- (g) impair the right of any Holder to receive payment of the Principal Amount of or Interest, on a Holder's Securities on or after the due dates therefor or to institute suit for the enforcement of any payment on or in respect of such Holder's Securities; or
- (h) reduce the quorum or voting requirements under this Indenture; or
- (i) change the ranking of the Securities in a manner adverse to the Holders; or
- (j) make any change in the amendment provisions which require each Holder's consent or in the waiver provisions; or
- (k) reduce the percentage in Principal Amount of the Outstanding Securities, the consent of whose Holders is required for any such supplemental indenture, or the consent of whose Holders is required for any waiver (of compliance with certain provisions of this Indenture or certain defaults hereunder and their consequences) provided for in this Indenture; or
- (l) modify any of the provisions of this Section 9.02 or Section 5.12, except to increase any such percentage or to provide that certain other provisions of this Indenture cannot be modified or waived without the consent of the Holder of each Outstanding Security affected thereby; or
- (m) modify the provisions of the Indenture in a manner adverse to the Holders in any material respect; or
- (n) modify the Conversion Limitation with respect to such Holder; or
- (o) as otherwise provided in this Indenture.

It shall not be necessary for any Act of Required Holders under this Section 9.02 to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such Act shall approve the substance thereof.

Section 9.03. Waivers; Revocation and Effect of Consents and Waivers. (a) Subject to Sections 5.07, 5.12 and 9.02, each Holder, as to itself and the Required Holders, as to all Holders, as applicable, may waive compliance by the Company with any provision in this Indenture or the Securities. Upon the granting of any such waiver, the Trustee shall provide notice to all other Holders thereof.

(b) A consent to an amendment, supplement or a waiver by a Holder, as to itself and the Required Holders, as to all Holders, as applicable, shall bind such Holder and every subsequent Holder of such Security or portion of such Security, even if notation of the consent or waiver is not made on such Security; provided that a Holder or the Required Holders as applicable, may revoke the consent or waiver given pursuant to 9.03(a) above if the Trustee receives the notice of revocation before the date the amendment, supplement or waiver becomes effective. After an amendment, supplement or waiver becomes effective pursuant to this Article IX, it shall bind every Holder.

(c) No consideration shall be offered or paid to any Person to amend or consent to any amendment, supplement or waiver of, or relating to, any provision of this Indenture or the Securities unless the same consideration also is offered to all of the Holders.

## ARTICLE X

### Covenants

#### Section 10.01. Payments.

(a) On the date of the Stated Maturity, the Company shall pay to each Holder an amount in cash representing all outstanding Principal Amount and accrued and unpaid Interest (including any Late Charges). The initial maturity date shall be August 27, 2010, as may be extended at the option of each Holder (such date, the "**Stated Maturity**") in respect of the Securities owned by such Holder (i) in the event that, and for so long as, an Event of Default shall have occurred and be continuing on the Stated Maturity (as may be extended pursuant to terms hereof) or any event that shall have occurred and be continuing that with the passage of time and the failure to cure would result in an Event of Default, (ii) through the date that is ten (10) Business Days after the consummation of a Change of Control in the event that a Change of Control is publicly announced or a Change of Control Notice is delivered prior to the Stated Maturity, but subject to the rights of the Company in Section 11.04, and (iii) through August 27, 2012 in the event that the Company cannot effect a Mandatory Conversion of any Unconverted Amount due to any Conversion Limitation. The Company shall duly and punctually make all payments in respect of the Securities in accordance with the terms of the Securities and this Indenture.

(b) Any payments made or due pursuant to this Indenture shall be considered paid on the applicable date due if by 10:00 a.m., New York City time, on such date

the Paying Agent holds, in accordance with this Indenture, cash sufficient to pay all such amounts then due. Payment of the Principal Amount and Interest, including any Redemption Price, on the Securities shall be in such coin or currency of the United States of America as at the time of payment is legal tender for payment of public and private debts.

(c) Any amount of Principal, Interest or other amounts due in cash under the Transaction Documents which is not paid when due shall result in a late charge being incurred and payable by the Company in an amount equal to interest on such amount at the rate of fifteen percent (15%) per annum from the date such amount was due until the same is paid in full ("**Late Charge**").

Section 10.02. Maintenance of Office or Agency. The Company shall maintain in the Borough of Manhattan, The City of New York, an office or agency where Securities may be presented or surrendered for payment, where Securities may be surrendered for registration of transfer or exchange and where notices and demands to or upon the Company in respect of the Securities and this Indenture may be served, which shall initially be a trust office of the Trustee located at c/o The Bank of New York, 101 Barclay Street, 8W, New York, New York 10286, Attention Corporate Trust Administration- Nanogen Inc. The Company shall give prompt written notice to the Trustee of any change in the location, of such office or agency. If at any time the Company shall fail to maintain any such required office or agency or shall fail to furnish the Trustee with the address thereof, such presentations, surrenders, notices and demands may be made or served at the Corporate Trust Office of the Trustee, and the Company hereby appoints the Trustee as its agent to receive all such presentations, surrenders, notices and demands.

The Company may also from time to time designate one or more other offices or agencies (in or outside the Borough of Manhattan, The City of New York) where the Securities may be presented or surrendered for any or all such purposes and may from time to time rescind such designations; provided, however, that no such designation or rescission shall in any manner relieve the Company of its obligation to maintain an office or agency in the Borough of Manhattan, The City of New York, for such purposes. The Company shall give prompt written notice to the Trustee of any such designation or rescission and of any change in the location of any such other office or agency.

Section 10.03. Money for Security Payments to be Held in Trust. If the Company shall at any time act as its own Paying Agent, it shall, on or before each due date of any payment in respect of any of the Securities, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to make the payment so becoming due until such sums shall be paid to such Persons or otherwise disposed of as herein provided and shall promptly notify the Trustee of its action or failure so to act.

Whenever the Company shall have one or more Paying Agents, it will, prior to each due date of any payment in respect of any Securities, deposit with a Paying Agent a sum sufficient to pay such amount, such sum to be held as provided by the Trust Indenture Act, and (unless such Paying Agent is the Trustee) the Company will promptly notify the Trustee of its action or failure so to act.

The Company shall cause each Paying Agent other than the Trustee to execute and deliver to the Trustee an instrument in which such Paying Agent shall agree with the Trustee, subject to the provisions of this Section 10.03, that such Paying Agent will (i) comply with the provisions of the Trust Indenture Act applicable to it as a Paying Agent and (ii) during the continuance of any default by the Company (or any other obligor upon the Securities) in the making of any payment in respect of the Securities, upon the written request of the Trustee, forthwith pay to the Trustee all sums held in trust by such Paying Agent as such.

The Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or by Company Order direct any Paying Agent to pay, to the Trustee all sums held in trust by the Company or such Paying Agent, such sums to be held by the Trustee upon the same trusts as those upon which such sums were held by the Company or such Paying Agent; and, upon such payment by any Paying Agent to the Trustee, such Paying Agent shall be released from all further liability in respect of such money.

Any money deposited with the Trustee or any Paying Agent, or then held by the Company, in trust for the making of payments in respect of any Security and remaining unclaimed for two years after such payment has become due shall be paid to the Company on Company Request, or (if then held by the Company) shall be discharged from such trust; and the Holder of such Security shall thereafter, as an unsecured general creditor, look only to the Company for payment thereof, and all liability of the Trustee or such Paying Agent in respect of such trust money, and all liability of the Company as trustee thereof, shall thereupon cease; provided, however, that the Trustee or such Paying Agent, before being required to make any such repayment, may at the expense of the Company cause to be published once, in a newspaper published in the English language, customarily published on each Business Day and of general circulation in The City of New York, notice that such money remains unclaimed and that, after a date specified therein, which shall not be less than 30 days from the date of such publication, any unclaimed balance of such money then remaining shall be repaid to the Company. In the absence of a written request from the Company to return funds remaining unclaimed for two years after such payment has become due to the Company, the Trustee shall from time to time deliver all unclaimed payments to or as directed by applicable escheat authorities, as determined by the Trustee in its sole discretion, in accordance with the customary practices and procedures of the Trustee. Any such unclaimed funds held by the Trustee pursuant to this Section 10.03 shall be held uninvested and without any liability for interest.

Section 10.04. Statement by Officers as to Default. The Company will deliver to the Trustee, within 120 days after the end of each fiscal year of the Company ending after the date hereof, an Officers' Certificate, stating whether or not to the knowledge of the Company there is a Default or Event of Default and, if so, specifying all such Defaults and the nature and status thereof.

The Company shall deliver to each of the Holders with a copy to the Trustee, as soon as possible and in any event within two (2) Business Days after the Company has actual knowledge of any Default or Event of Default, an Officers' Certificate setting forth the details of such Default or Event of Default and the action which the Company is taking or proposes to take in respect thereof.

Section 10.05. Existence. Subject to Article VIII, the Company shall do or cause to be done all things necessary to preserve and keep in full force and effect its existence, rights (charter and statutory) and franchises; provided, however, that the Company shall not be required to preserve any such right or franchise if the Board of Directors of the Company shall determine that the preservation thereof is no longer desirable in the conduct of the business of the Company and that the loss thereof is not disadvantageous in any material respect to the Holders.

Section 10.06. Further Instruments and Acts. Upon request of the Trustee, the Company will execute and deliver such further instruments and do such further acts as may be reasonably necessary or proper to give effect to this Indenture.

Section 10.07. Reports and Delivery of Certain Information. (a) The Company shall file with the Trustee and the Commission, and transmit to Holders, such information, documents and other reports, and such summaries thereof, as may be required pursuant to the Trust Indenture Act at the times and in the manner provided pursuant to the Trust Indenture Act; provided that any such information, documents or reports required to be filed with the Commission pursuant to Section 13 or 15(d) of the Exchange Act shall be filed with the Trustee within 15 days after the same is so required to be filed with the Commission (whether or not the Company actually makes the filing with the Commission). The Company also shall comply with Trust Indenture Act Section 314(a), whether or not the Securities are governed by the Trust Indenture Act. Delivery of such reports, information and documents to the Trustee is for informational purposes only and the Trustee's receipt of such shall not constitute constructive notice of any information contained therein or determinable from information contained therein, including the Company's compliance with any of its covenants hereunder (as to which the Trustee is entitled to rely conclusively on Officers' Certificates). At any time when the Company is not subject to Section 13 or 15(d) of the Exchange Act, the Company shall furnish to the Trustee (i) quarterly financial statements within 45 days after the end of each fiscal quarter that are substantially equivalent to those the Company would be required to file with the Commission in a Quarterly Report on Form 10-Q, (ii) annual financial statements within 90 days after the end of each fiscal year that are substantially equivalent to those the Company would be required to file with the Commission in an Annual Report on Form 10-K, including a report thereon by the Company's certified independent accountants, and (iii) accompanying each of the financial statements required by (i) and (ii) above, information substantially equivalent to that required by Regulation S-K Item 303, "Management Discussion and Analysis of Financial Condition and Results of Operations;" provided, that in each case the delivery of materials to the Trustee by electronic means shall be deemed "furnished" to the Trustee for purposes of this Section 10.07; provided, further, that the Company shall be deemed to have satisfied its obligations under each of (i), (ii) and (iii) above if it files such information with the Commission (if the Commission will accept such filing) or otherwise makes such financial statements and other information available on or through its web site.

(b) At any time when the Company is not subject to Section 13 or 15(d) of the Exchange Act, upon the request of a Holder or any beneficial owner of Securities or holder or beneficial owner of shares of Common Stock issued upon conversion thereof, the Company will promptly furnish or cause to be furnished Rule 144A Information (as defined below) and any reports required to be filed by them under the Exchange Act or the Securities Act to such Holder or any beneficial owner of Securities or holder or beneficial owner of shares of

Common Stock, or to a prospective purchaser of any such security designated by any such holder, as the case may be, to the extent required to permit compliance by such Holder or holder with Rule 144A under the Securities Act in connection with the resale of any such security. **"Rule 144A Information"** shall be such information as is specified pursuant to Rule 144A(d)(4) and Rule 144(c) under the Securities Act.

Section 10.08. Book-Entry System. Unless specified by the Company, the Securities shall not be held in book entry form.

Section 10.09. Rank. The Securities will constitute senior unsecured general obligations of the Company ranking equally with other senior unsecured Indebtedness of the Company and ranking senior in right of payment to any future Indebtedness of the Company that is expressly subordinated in right of payment to the Securities.

Section 10.10. Incurrence of Indebtedness. So long as any Security is outstanding, the Company shall not, and the Company shall not permit any of its Subsidiaries to, directly or indirectly, incur or guarantee, assume or suffer to exist any Indebtedness other than (a) the Indebtedness evidenced by the Securities and (b) Permitted Indebtedness.

Section 10.11. Existence of Liens. So long as this Security is outstanding, the Company shall not, and the Company shall not permit any of its Subsidiaries to, directly or indirectly, allow or suffer to exist any mortgage, lien, pledge, charge, security interest or other encumbrance upon or in any property or assets (including accounts, intellectual property and contract rights) owned by the Company or any of its Subsidiaries (collectively, **"Liens"**) other than Permitted Liens.

Section 10.12. Intellectual Property. The Company shall not, and the Company shall not permit any of its Subsidiaries to, directly or indirectly, to encumber or allow any Liens on, any of its copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work, whether published or unpublished, any patents, patent applications and like protections, including improvements, divisions, continuations, renewals, reissues, extensions, and continuations-in-part of the same, trademarks, service marks and, to the extent permitted under applicable law, any applications therefor, whether registered or not, and the goodwill of the business of the Company and its Subsidiaries connected with and symbolized thereby, know-how, operating manuals, trade secret rights, rights to unpatented inventions, and any claims for damage by way of any past, present, or future infringement of any of the foregoing, other than Permitted Liens.

Section 10.13. Restricted Payments. The Company shall not, and the Company shall not permit any of its Subsidiaries to, directly or indirectly, redeem, defease, repurchase, repay or make any payments in respect of, by the payment of cash or cash equivalents (in whole or in part, whether by way of open market purchases, tender offers, private transactions or otherwise), all or any portion of any Permitted Indebtedness (other than this Security and the Other Securities), whether by way of payment in respect of principal of (or premium, if any) or interest on such Indebtedness, if at the time such payment is due or is otherwise made or, after giving effect to such payment, an event constituting, or that with the passage of time and without being cured would constitute, an Event of Default has occurred and is continuing; provided that

notwithstanding the foregoing, no principal (or any portion thereof) of any Subordinated Indebtedness may be paid (whether upon maturity, redemption, acceleration or otherwise) so long as any Security is outstanding.

Section 10.14. Restriction on Redemption and Cash Dividends. So long as any Security is outstanding, the Company shall not, directly or indirectly, redeem, repurchase or declare or pay any cash dividend or distribution on its capital stock without the prior express written consent of the Required Holders, except for repurchases of capital stock pursuant to arrangements entered into in connection with grants of equity compensation under any Approved Stock Plan.

Section 10.15. Reservation of Authorized Shares.

(a) Reservation. The Company initially shall reserve out of its authorized and unissued Common Stock a number of shares of Common Stock for each Security equal to 120% of the Conversion Rate with respect to the Conversion Amount of each such Security as of the Issuance Date. So long as any Securities are outstanding, the Company shall take all action necessary to reserve and keep available out of its authorized and unissued Common Stock, solely for the purpose of effecting the conversion of the Securities, 120% of the number of shares of Common Stock as shall from time to time be necessary to effect the conversion of all of the Outstanding Securities (without regard to any limitations on conversions) (the "**Required Reserve Amount**"). The initial number of shares of Common Stock reserved for conversions of the Securities and each increase in the number of shares so reserved shall be allocated pro rata among the Holders based on the Principal Amount of the Securities held by each holder on the Issuance Date or increase in the number of reserved shares, as the case may be (the "**Authorized Share Allocation**"). In the event that a holder shall sell or otherwise transfer any of such holder's interests in any Securities, each transferee shall be allocated a pro rata portion of such holder's Authorized Share Allocation.

(b) Insufficient Authorized Shares. If at any time while any of the Securities remain Outstanding the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve for issuance upon conversion of the Securities at least a number of shares of Common Stock equal to the Required Reserve Amount (an "**Authorized Share Failure**"), then the Company shall immediately take all action necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for the Outstanding Securities. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than 60 days after the occurrence of such Authorized Share Failure, the Company shall call a meeting of its shareholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each shareholder with a proxy statement and shall use its reasonable best efforts to solicit its shareholders' approval of such increase in authorized shares of Common Stock and to cause its Board of Directors to recommend to the shareholders that they approve such proposal.

Section 10.16. Article VI of Initial Indenture. The provisions of this Article IX shall supercede and replace in their entirety the provisions of Article VI of the Initial Indenture.

ARTICLE XI

**Optional Redemptions and Mandatory Redemptions Prior to Maturity**

Section 11.01. No Optional Redemption by the Company. Except as provided in Section 11.04, the Securities are not redeemable at the option of the Company at any time prior to the Stated Maturity.

Section 11.02. Optional Redemption of Each Holder Upon Event of Default.

(a) General. Upon the occurrence of an Event of Default, the Company shall within one (1) Business Day deliver written notice in the form of an Officers' Certificate specified in Section 10.04 by facsimile (with confirmation of transmission) and by overnight courier (an "Event of Default Notice") to each of the Holders and to the Trustee. At any time after the earlier of (i) a Holder's receipt of an Event of Default Notice and (ii) with respect to a Holder, such Holder becoming aware of an Event of Default, such Holder may require the Company to redeem all or any portion of the Securities owned by such Holder by the Event of Default Redemption Notice. The Securities subject to redemption by the Company pursuant to this Section 11.02 shall be redeemed by the Company at a price equal to the greater of (i) the product of (x) the Conversion Amount to be redeemed, and (y) the Redemption Premium and (ii) the product of (A) the Conversion Rate with respect to such Conversion Amount in effect at the time of delivery of an Event of Default Redemption Notice and (B) the greater of (1) the Closing Sale Price of the Common Stock on the date immediately preceding such Event of Default, (2) the Closing Sale Price of the Common Stock on the date immediately after such Event of Default and (3) the Closing Sale Price of the Common Stock on the date a Holder delivers the Event of Default Redemption Notice (the "**Event of Default Redemption Price**"). In no event shall the Event of Default Redemption Price be determined by the Trustee and in each such instance the Event of Default Redemption Price shall be determined by the Holder as set forth in Section 11.02(b), provided, that such determination shall be subject to dispute as provided in Section 14.12 hereof.

(b) Event of Default Redemption Notice. In order to exercise its rights under this Section 11.02 hereof, a Holder must deliver to the Paying Agent (with a copy to the Company):

(i) a written notice of redemption (a "**Event of Default Redemption Notice**"), substantially in the form of Exhibit C hereto:

(A) the certificate number (if such Security is held other than in global form) of the Securities which will be redeemed;

(B) the portion of the Conversion Amount of the Securities which will be redeemed, which portion must be in a Conversion Amount of \$1,000 or integral multiples thereof;

(C) that such Security shall be redeemed as of the Event of Default Redemption Date pursuant to the terms and conditions specified in the Securities and in this Indenture; and

(D) the Event of Default Redemption Price.

(ii) the Securities (if such Securities are held other than in global form) for cancellation prior to, on or after the Event of Default Redemption Date (together with all necessary endorsements) at the offices of the Paying Agent, such delivery being a condition to receipt by the Holder of the Event of Default Redemption Price therefor; provided that such Event of Default Redemption Price shall be so paid pursuant to this Section 11.02 only if the Security so delivered to the Paying Agent shall conform in all respects to the description thereof in the related Event of Default Redemption Notice.

Section 11.03. Optional Redemption of Each Holder Upon Change of Control.

(a) General. No sooner than fifteen (15) days nor later than ten (10) days prior to the consummation of a Change of Control, but not prior to the public announcement of such Change of Control, the Company shall deliver written notice thereof via facsimile (with confirmation of transmission) and overnight courier to each of the Holders and the Trustee (a **"Change of Control Notice"**). At any time during the period beginning on the date of a Holder's receipt of a Change of Control Notice and ending twenty (20) Trading Days after the consummation of such Change of Control, such Holder may require the Company to redeem (a **"Holder Change of Control Redemption"**) all or any portion of the Securities (which portion must be in a Principal Amount of \$1,000 or integral multiples thereof) of its Securities at the Change of Control Redemption Price on the Change of Control Redemption Date by delivering written notice thereof (**"Holder Change of Control Redemption Notice"**) to the Company, which Holder Change of Control Redemption Notice shall indicate the Conversion Amount such Holder is electing to redeem. The portion of the Securities subject to redemption pursuant to this Section 11.03 shall be redeemed by the Company in cash at a price equal to the Change of Control Redemption Price. Redemptions required by this Section 11.03 shall be made in accordance with the provisions of Section 11.13 hereof.

(b) Company Change of Control Notice. The Company shall prepare the Change of Control Notice which shall include a form of Holder Change of Control Redemption Notice to be completed by the Securityholder and shall state:

(i) the events causing a Change of Control and the date of such Change of Control;

(ii) the date of the last day of the Change of Control Redemption Period by which a Holder must deliver a Change of Control Redemption Notice to elect the redemption option pursuant to this Section 11.03;

(iii) that the Company shall deliver the applicable Change of Control Redemption Price concurrently with the consummation of the Change of Control if a Change of Control Redemption Notice is received prior to the consummation of such Change of Control and within five Business Days after the receipt of such notice otherwise (such date, the **"Holder Change of Control Redemption Date"**);

(iv) the Change of Control Redemption Price;

- (v) the Conversion Price applicable on the date of the Change of Control Notice;
  - (vi) that Securities may be converted in connection with a Change of Control and any Securities as to which a Change of Control Redemption Notice has been given may be converted pursuant to Article XIII hereof;
  - (vii) that the Change of Control Redemption Price for any Security as to which a Change of Control Redemption Notice has been duly given and not withdrawn will be paid promptly following the later of the Change of Control Redemption Date and the time of surrender of such Security as described in clause (iii) above;
  - (viii) the procedures the Holder must follow to exercise its rights under this Section 11.03;
  - (ix) the procedures for withdrawing a Holder Change of Control Redemption Notice;
  - (x) that, unless the Company defaults in making payment of such Change of Control Redemption Price, Securities covered by any Change of Control Redemption Notice will cease to be outstanding and Interest will cease to accrue on and after the Change of Control Redemption Date;
  - (xi) the CUSIP number of the Securities, if any; and
  - (xii) if there is a Company Change of Control Redemption, then the additional information described in Section 11.04 below.
- (c) Holder Change of Control Redemption Notice. In order to exercise its rights under this Section 11.03 hereof, such Holder must deliver to the Paying Agent (with a copy to the Company):
- (i) a Holder Change of Control Redemption Notice substantially in the form of Exhibit D hereto, at any time during the Change of Control Redemption Period:
- (A) the certificate number (if such Security is held other than in global form) of the Security which the Holder will deliver to be purchased;
  - (B) the portion of the Conversion Amount of the Security which the Holder will deliver to be purchased, which portion must be in a Principal Amount of \$1,000 or integral multiples thereof;
  - (C) that such Security shall be purchased as of the Change of Control Redemption Date pursuant to the terms and conditions specified in the Securities and in this Indenture; and

(ii) the Security (if such Security is held other than in global form) for cancellation prior to, on or after the Change of Control Redemption Date (together with all necessary endorsements) at the offices of the Paying Agent, such delivery being a condition to receipt by the Holder of the Change of Control Redemption Price therefor; provided that such Change of Control Redemption Price shall be so paid pursuant to this Section 11.03 only if the Security so delivered to the Paying Agent shall conform in all respects to the description thereof in the related Change of Control Redemption Notice.

(d) Provisions of this Indenture that apply to the redemption of all of a Security also apply to the redemption of such portion of such Security.

(e) The Paying Agent shall promptly notify the Company of the receipt by it of any Redemption Notice or written notice of withdrawal thereof.

Section 11.04. Optional Company Change of Control Redemption. Notwithstanding Section 8.01, in the event of a Change of Control, the Company shall have the right to redeem the Securities (a "**Company Change of Control Redemption**"), in whole and not in part, at a price equal to the Change of Control Redemption Price. The Company shall exercise its right pursuant to this Section 11.04 by delivery of a Change of Control Notice (the "**Company Change of Control Redemption Notice**") in writing to each of the Holders and the Trustee, which notice shall additionally state (i) that, following the consummation of the Change of Control, the Company shall redeem all of the outstanding Securities on the Company Change of Control Redemption Date, (ii) that the Company shall consummate the Company Change of Control Redemption on the twentieth (20th) day following the consummation of such Change of Control (the "**Company Change of Control Redemption Date**"), (iii) the aggregate outstanding Conversion Amount of the Securities subject to redemption from all the Holders of the Securities pursuant to this Section 11.04, and (iv) the Change of Control Redemption Price that is to be paid to each Holder on the Company Change of Control Redemption Date.

Section 11.05. Effect of Redemption Notice.

(a) The Holder of the Security in respect of which such Redemption Notice was given shall be paid the applicable Redemption Price by the Paying Agent in accordance with Sections 11.07 and 11.15, subject to receipt of funds by the Paying Agent.

(b) A Holder Change of Control Redemption Notice may be withdrawn only by means of a written notice of withdrawal delivered to the office of the Paying Agent in accordance with the procedures set forth in the Change of Control Notice at any time prior to the close of business on the last day of the Change of Control Redemption Period specifying:

(i) the Conversion Amount of the Security with respect to which such notice of withdrawal is being submitted;

(ii) the certificate number (if such Security is held in other than global form) of the Security in respect of which such notice of withdrawal is being submitted; and

(iii) the Conversion Amount, if any, of such Security which remains subject to the original Change of Control Redemption Notice and which has been or will be delivered for purchase or redemption by the Company.

(c) There shall be no redemption of any Securities pursuant to Section 11.03 if there has occurred (prior to, on or after, as the case may be, the giving, by the Holders of such Securities, of the required Change of Control Redemption Notice) and is continuing an Event of Default (other than a default in the payment of the Change of Control Redemption Price with respect to such Securities). Unless waived by a Holder, the Paying Agent will promptly return to the respective Holders thereof any Securities (x) with respect to which a Change of Control Redemption Notice has been withdrawn in compliance with this Indenture, or (y) held by it during the continuance of an Event of Default (other than a default in the payment of the Change of Control Redemption Price with respect to such Securities) in which case, upon such return, the Change of Control Redemption Notice with respect thereto shall be deemed to have been withdrawn.

Section 11.06. Other Redemptions. Upon the receipt of notice by the Company from the Paying Agent or any Holder that a Holder has elected an Event of Default Redemption or a Holder Change of Control Redemption, the Company shall promptly, but no later than two (2) Business Days of its receipt thereof, forward to all other Holders by facsimile (with confirmation of transmission) a copy of such notice. Upon receipt of such notice or issuance of such press release, each other Holder shall have, in the event the Change of Control Redemption Period shall have expired, five (5) days from such notification or issuance to elect a Holder Change of Control Redemption. If the Company receives more than one Redemption Notice, during the seven (7) Business Day period beginning on and including the date which is three (3) Business Days prior to the Company's receipt of the first Redemption Notice and ending on and including the date which is three (3) Business Days after the Company's receipt of the first Redemption Notice and the Company is unable to redeem all principal, interest and other amounts designated in all Redemption Notices during such seven (7) Business Day period, then the Company shall redeem a pro rata amount from each Holder of the Securities based on the aggregate Principal Amount of the Securities submitted for redemption pursuant to the Redemption Notices received by the Company during such seven (7) Business Day period.

Section 11.07. Procedure Upon Redemption. The Securities to be redeemed pursuant to Sections 11.02, 11.03 or 11.04 shall be paid for in cash. The Company shall deposit cash at the time and in the manner as provided in Section 11.12, sufficient to pay the aggregate Event of Default Redemption Price or Change of Control Redemption Price, as applicable, of all Securities to be purchased pursuant to this Section 11.07. Notwithstanding anything to the contrary in this Article XI, but subject to Section 13.04(a), until the Event of Default Redemption Price or Change of Control Redemption Price, as applicable, is paid in full, the Conversion Amount submitted for redemption under Sections 11.02, 11.03 or 11.04 may be converted, in whole or in part, by the Holder into Common Stock pursuant to Section 13.01.

Section 11.08. Securities Redeemed in Whole or in Part. Any Physical Security which is to be redeemed, whether in whole or in part, shall be surrendered at the office of the Paying Agent (with, if the Company or the Trustee so requires, due endorsement by, or a written instrument of transfer in form satisfactory to the Company and the Trustee duly executed by, the

Holder thereof or such Holder's attorney duly authorized in writing) and the Company shall execute and the Trustee shall authenticate and deliver to the Holder of such Security, without service charge, a new Security or Securities, of any authorized denomination as requested by such Holder in aggregate Principal Amount equal to, and in exchange for, the portion of the Principal Amount of the Security so surrendered which is not redeemed.

Section 11.09. Covenant to Comply With Securities Laws Upon Redemption of Securities. In connection with any offer to redeem Securities under Sections 11.02, 11.03 or 11.04 provided that such offer or redemption constitutes an "issuer tender offer" for purposes of Rule 13e-4 (which term, as used herein, includes any successor provision thereto) under the Exchange Act at the time of such offer or redemption), the Company shall (a) comply with Rule 13e-4 and Rule 14e-1 under the Exchange Act, (b) file the related Schedule TO (or any successor schedule, form or report) under the Exchange Act, and (c) otherwise comply with all Federal and state securities laws so as to permit the rights and obligations under Sections 11.02, 11.03 or 11.04 to be exercised in the time and in the manner specified in Sections 11.02, 11.03 or 11.04, as applicable.

Section 11.10. Repayment to the Company. The Trustee and the Paying Agent, upon Company Request, shall promptly return to the Company any cash that remains unclaimed, together with interest or dividends, if any, thereon, held by them for the payment of the Event of Default Redemption Price or the Change of Control Redemption Price; provided that to the extent that the aggregate amount of cash deposited by the Company pursuant to Section 11.12 exceeds the aggregate Event of Default Redemption Price or Change of Control Redemption Price of the Securities or portions thereof which the Company is obligated to redeem as of the Redemption Date, then as soon as practicable following the Redemption Date, the Trustee or the Paying Agent, as the case may be, shall return any such excess to the Company.

Section 11.11. Redemptions Deemed Voluntary Prepayments. To the extent redemptions required by Sections 11.02, 11.03 or 11.04 hereof are deemed or determined by a court of competent jurisdiction to be prepayments of the Securities by the Company, such redemptions shall be deemed to be voluntary prepayments. The Company agrees that in the event of the Company's redemption of any portion of the Securities under Sections 11.02, 11.03 or 11.04, such Holder's damages would be uncertain and difficult to estimate because of the parties' inability to predict future interest rates and the uncertainty of the availability of a suitable substitute investment opportunity for such Holder. Accordingly, any premiums due under Sections 11.02, 11.03 or 11.04 are intended by the parties to be, and shall be deemed, a reasonable estimate of such Holder's actual loss of its investment opportunity and not as a penalty.

Section 11.12. Deposit of Redemption Price. Prior to 10:00 a.m., New York City time, on any Redemption Date, the Company shall deposit with the Paying Agent (or if the Company or a Subsidiary or an Affiliate of either of them is the Paying Agent, shall segregate and hold in trust) money sufficient to pay the Redemption Price of all Securities to be redeemed on that date other than Securities or portions of Securities presented for redemption which on or prior thereto have been delivered by the Company to the Trustee for cancellation or have been converted. The Paying Agent shall as promptly as practicable upon Company Request, but without prejudice to Section 11.10, return to the Company any money not required for that

purpose because of conversion of Securities pursuant to Article XIII. If such money is then held by the Company in trust and is not required for such purpose it shall be discharged from such trust.

Section 11.13. **Mechanics.** The Company shall deliver the applicable Event of Default Redemption Price, with a copy to the Trustee, to the applicable Holder within five (5) Business Days after the Company's receipt of such Holder's applicable Event of Default Redemption Notice. If a Holder has submitted a Holder Change of Control Redemption Notice in accordance with Section 11.03, the Company shall deliver the applicable Change of Control Redemption Price to such Holder concurrently with the consummation of such Change of Control if such notice is received prior to the consummation of such Change of Control and within five (5) Business Days after the Company's receipt of such notice otherwise. With respect to any Company Change of Control Redemption, the Company shall deliver the applicable Change of Control Redemption Price to the Holders on the Company Change of Control Redemption Date. In the event that the Company does not pay the applicable Redemption Price to the Holder within the time period required, at any time thereafter and until the Company pays such unpaid Redemption Price in full, the Holder shall have the option, in lieu of redemption, to require the Company to promptly return to the Holder all or any portion of its Securities representing the Conversion Amount that was submitted for redemption and for which the applicable Redemption Price (together with any Late Charges thereon) has not been paid. Upon the Company's receipt of such notice, (x) the Redemption Notice shall be null and void with respect to such Conversion Amount, (y) the Company shall immediately return any Security, or execute, and the Trustee shall authenticate and deliver to the Holder, a new Security to the applicable Holder representing such Conversion Amount and (z) the Conversion Price of the Securities or such new Securities shall be adjusted to the lesser of (A) the Conversion Price as in effect on the date on which the Redemption Notice is voided and (B) the lowest Closing Bid Price of the Common Stock during the period beginning on and including the date on which the Redemption Notice is delivered to the Company and ending on and including the date on which the Redemption Notice is voided. A Holder's delivery of a notice voiding a Redemption Notice and exercise of its rights following such notice shall not affect the Company's obligations to make any payments of Late Charges which have accrued prior to the date of such notice with respect to the Conversion Amount subject to such notice.

Section 11.14. **Notices for Redemptions.** All notices required to be made to any Holder, the Company or the Paying Agent pursuant to this Article XI shall be made by facsimile (with confirmation of transmission) and overnight courier, unless otherwise specifically provided therein.

## **ARTICLE XII**

### **Interest Payments on the Securities**

Section 12.01. **Interest Rate.** (a) Interest on the Outstanding Securities shall be payable quarterly in arrears on each Interest Date to Holders of record on the Record Date immediately preceding such Interest Date. Interest on the Outstanding Securities shall accrue at

the Interest Rate. Interest will be computed on the basis of a 360-day year comprised of twelve 30-day months. Interest on the Outstanding Securities shall accrue from the most recent date to which interest has been paid, or if no interest has been paid, from August 27, 2007, until the applicable Principal Amount is paid or duly made available for payment.

(b) Interest shall be payable on each Interest Date, to each Holder on the applicable Interest Date, in shares of Common Stock ("**Interest Shares**"), so long as (i) there has been no Equity Conditions Failure (unless the applicable Holder has waived such Equity Conditions Failure) and (ii) the calculation of the applicable Interest Conversion Price does not result in a price that is less than the amount resulting from the Conversion Floor Price minus \$0.1375 ; provided, however, that the Company may, at its option, as indicated on the Interest Election Notice, pay Interest on any Interest Date in cash ("**Cash Interest**") or in a combination of Cash Interest and Interest Shares. The Company shall deliver a written notice (each, an "**Interest Election Notice**") to each Holder and the Trustee on or prior to the tenth (10th) Trading Day prior to the Interest Date (the date such notice is delivered to all of the Holders, the "**Interest Notice Date**") which notice (A) either (x) confirms that Interest to be paid on such Interest Date shall be paid entirely in Interest Shares or (y) elects to pay Interest as Cash Interest or a combination of Cash Interest and Interest Shares and specifies the amount of Interest that shall be paid as Cash Interest and the amount of Interest, if any, that shall be paid in Interest Shares and (B) certifies that there has been no Equity Conditions Failure. If any portion of Interest for a particular Interest Date shall be paid in Interest Shares, then the Company shall pay to each Holder, in accordance with Section 12.01(c), a number of shares of Common Stock equal to (I) the amount of Interest payable on the applicable Interest Date in Interest Shares divided by (II) the applicable Interest Conversion Price. Interest to be paid on an Interest Date in Interest Shares shall be paid in a number of fully paid and nonassessable shares of Common Stock (rounded up to the nearest whole share). If the Equity Conditions are not satisfied as of the Interest Notice Date, then unless the Company has elected to pay such Interest in cash, the Interest Notice shall indicate that unless such Holder waives the Equity Conditions, the Interest shall be paid in cash. If the Equity Conditions were satisfied as of the Interest Notice Date but the Equity Conditions are no longer satisfied at any time prior to the Interest Date, the Company shall provide each Holder a subsequent notice to that effect indicating that unless such Holder waives the Equity Conditions, the Interest shall be paid in cash.

(c) When any Interest Shares are to be issued on an Interest Date, then the Company shall (i) (X) provided that the transfer agent is participating in the Fast Automated Securities Transfer Program of the Depository Trust Company ("DTC") and such action is not prohibited by applicable law or regulation or any applicable policy of DTC, credit such aggregate number of Interest Shares to which each Holder shall be entitled to such Holder's or its designee's balance account with DTC through its Deposit Withdrawal Agent Commission system, or (Y) if the foregoing shall not apply, issue and deliver on the applicable Interest Date to the address set forth in the Security Register or to such address as specified by such Holder in writing to the Company at least two (2) Business Days prior to the applicable Interest Date, an unlegended certificate, registered in the name of such Holder or its designee, for the number of Interest Shares to which such Holder shall be entitled and (ii) with respect to each Interest Date, pay to such Holder, in cash by wire transfer of immediately available funds, the amount of any Cash Interest. Notwithstanding the foregoing, the Company shall not be entitled to pay Interest in Interest Shares and shall be required to pay all such Interest in cash as Cash Interest on the

applicable Interest Date if, unless payment in Interest Shares is consented to in writing by such Holder, there has been an Equity Conditions Failure. If an Event of Default or Equity Conditions Failure occurs during the Interest Measuring Period, then on the Interest Date, at each Holder's option, such Holder may require the Company to pay all or any specified portion of the Interest due on the applicable Interest Date as Cash Interest.

(d) Prior to the payment of Interest on an Interest Date, Interest on the Securities shall accrue at the Interest Rate and be payable by way of inclusion of the Interest in the Conversion Amount in accordance with Section 13.01(b). From and after the occurrence and during the continuance of an Event of Default, the Interest Rate shall be increased to twelve percent (12.0%). In the event that such Event of Default is subsequently cured, the adjustment referred to in the preceding sentence shall cease to be effective as of the date of such cure; provided that the Interest as calculated at such increased rate during the continuance of such Event of Default shall continue to apply to the extent relating to the days after the occurrence of such Event of Default through and including the date of cure of such Event of Default.

(e) Cash Interest on any Security that is payable, and is punctually paid or duly provided for, on any Interest Date shall be paid to the Holder of such Security on the Record Date for such interest at the office or agency of the Company maintained for such purpose. Each installment of Cash Interest on any Security shall be made by check mailed to the address of the Holder specified in the Securities Register; provided, however, that, in respect of any Holder of Securities with an aggregate Principal Amount in excess of \$2,000,000, at the request of such Holder in writing to the Company, interest on such Holder's Securities shall be paid by wire transfer in immediately available funds in accordance with the written wire transfer instruction supplied by such Holder from time to time to the Trustee and Paying Agent (if different from the Trustee) at least ten days prior to the applicable Interest Date. In the case of a permanent Global Security, interest payable on any Interest Payment Date will be paid to the Depositary, in respect of that portion of such permanent Global Security held for its account by Cede & Co. for the purpose of permitting such party to credit the interest received by it in respect of such permanent Global Security to the accounts of the beneficial owners thereof.

## ARTICLE XIII

### Conversion

Section 13.01. Conversion Privilege of Holder. (a) Subject to the further provisions of Section 13.04, at any time or times after the Issuance Date, a Holder of an Outstanding Security may convert the Conversion Amount of such Security (or any portion thereof equal to \$1,000 or any integral multiple of \$1,000 in excess thereof) into shares of Common Stock at any time prior to the close of business on the Business Day immediately preceding the Stated Maturity.

(b) Conversion Rate. The number of shares of Common Stock issuable upon conversion of any Conversion Amount pursuant to this Section 13.01 shall be determined by dividing (x) such Conversion Amount by (y) the Conversion Price (the "**Conversion Rate**").

(i) "**Conversion Amount**" means the sum of (A) the portion of the Principal Amount to be converted, redeemed or otherwise with respect to which this determination is being made, (B) accrued and unpaid Interest with respect to such Principal Amount, (C) accrued and unpaid Late Charges with respect to such Principal Amount and Interest, and (D) the applicable Present Value of Interest, in connection with (i) the Holder's exercise of its conversion right pursuant to Section 13.01, (ii) the Company's exercise of a Mandatory Conversion pursuant to Section 13.05, (iii) a Holder Change of Control Redemption pursuant to Section 11.03, or (iv) a Company Change of Control Redemption pursuant to Section 11.04, as applicable.

(ii) "**Conversion Price**" means, as of any Conversion Date (as defined below) or other date of determination, \$1.27, subject to adjustment as provided herein.

(c) Securities Converted in Whole or in Part. Provisions of this Indenture that apply to conversion of all of a Security also apply to conversion of a portion of a Security.

(d) Pro Rata Conversion; Disputes. In the event that the Company receives a Conversion Notice from more than one Holder for the same Conversion Date and the Company can convert some, but not all, of such portions of the Securities submitted for conversion, the Company, subject to Section 13.04, shall convert from each Holder electing to have Securities converted on such date a pro rata amount of such Holder's portion of its Securities submitted for conversion based on the principal amount of Securities submitted for conversion on such date by such Holder relative to the aggregate principal amount of all Securities submitted for conversion on such date. In the event of a dispute as to the number of shares of Common Stock issuable to the Holder in connection with a conversion of its Securities, the Company shall issue to the Holder the number of shares of Common Stock not in dispute and resolve such dispute in accordance with Section 14.12.

Section 13.02. Procedure for Optional Conversion. (a) To convert a Security (or any portion thereof) into shares of Common Stock on any date (the "**Conversion Date**"), a Holder must (i) transmit by facsimile (or otherwise deliver) to a Conversion Agent, and a Conversion Agent shall have received, on or prior to 5:00 p.m., New York City time, on such date, a copy of an executed Notice of Conversion in the form attached to the Securities as Exhibit E (the "**Conversion Notice**"), (ii) surrender the Securities to be converted to the Conversion Agent, as soon as practicable on or following such date (or an indemnification undertaking with respect to any such Securities in the case of its loss, theft or destruction), (iii) furnish appropriate endorsements and transfer documents if required by a Registrar or a Conversion Agent and (iv) pay any transfer or similar tax, if required. Notwithstanding the foregoing, in the case this Security is a Global Security, a beneficial owner (as identified by the Agent Member) of an interest in such security must complete, or cause to be completed, during such time the Depositary is the Holder of this Security, the appropriate instruction form for conversion (such form, also for purposes of this Security, a "Conversion Notice") pursuant to the Depositary's book-entry conversion program, and deliver, or cause to be delivered, by book-entry delivery an interest in such Global Security, all in accordance with the rules and procedures of the Depositary.

(b) The Company will, as soon as practicable after the Conversion Date, but in no event later than two (2) Trading Days following the delivery of a Conversion Notice (the "**Share Delivery Date**") (x) provided the Company's transfer agent is participating in The DTC's Fast Automated Securities Transfer Program, cause its transfer agent to credit such aggregate number of shares of Common Stock to which each such Holder shall be entitled to the Holder's or its designee's balance account with DTC through its Deposit Withdrawal Agent Commission system or (y) if such transfer agent is not participating in DTC's Fast Automated Securities Transfer Program, execute, and shall deliver, to the address as specified in the Conversion Notice, a certificate, registered in the name of the converting holder or its designee, for the number of shares of Common Stock to which such holder shall be entitled. The Person or Persons entitled to receive such Common Stock upon such conversion shall be treated for all purposes as the holder or holders of such Common Stock, as of the close of business on the applicable Conversion Date; provided, however, that no surrender of a Security on any date when the stock transfer books of the Company shall be closed shall be effective to constitute the Person or Persons entitled to receive the shares of Common Stock upon such conversion as the holder or holders of such shares of Common Stock on such date, but such surrender shall be effective to constitute the Person or Persons entitled to receive such shares of Common Stock as the holder or holders thereof for all purposes at the close of business on the next succeeding day on which such stock transfer books are open; provided further that such conversion shall be at the Conversion Price in effect on the Conversion Date as if the stock transfer books of the Company had not been closed. Upon conversion in full of a Security, such Person shall no longer be a Holder of such Security.

(c) If a Holder converts more than one Security at the same time, the number of shares of Common Stock issuable upon the conversion shall be based on the aggregate Principal Amount of Securities converted.

(d) Upon surrender of a Security that is converted in part, the Company shall execute, and the Trustee shall authenticate and deliver to the Holder, as soon as practicable, a new Security equal in Principal Amount to the unconverted portion of the Security surrendered.

(e) If the last day on which Security may be converted is not a Business Day in a place where a Conversion Agent is located, the Securities may be surrendered to that Conversion Agent on the next succeeding Business Day.

Section 13.03. Company's Failure to Timely Convert. If the Company shall fail to issue, or cause to be issued, and deliver to the Conversion Agent or to a Holder, or such Holder's nominee or nominees, certificates for the number of full shares of Common Stock, if any, to which such Holder shall be entitled upon conversion of any Securities on or prior to the date which is three (3) Trading Days after the Conversion Date (a "**Conversion Failure**"), then and if on or after such Trading Day such Holder purchases (in an open market transaction or otherwise) Common Stock to deliver in satisfaction of a sale by such Holder of Common Stock issuable upon such conversion that such Holder anticipated receiving from the Company, then the

Company shall, within three Business Days after such Holder's request and in such Holder's discretion, either (i) pay cash to such Holder in an amount equal to such Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased (the "**Buy-In Price**"), at which point the Company's obligation to deliver such certificate (and to issue such Common Stock) shall terminate, or (ii) promptly honor its obligation to deliver to such Holder a certificate or certificates representing such Common Stock and pay cash to such Holder in an amount equal to the excess (if any) of the Buy-In Price over the product of (A) such number of shares of Common Stock, times (B) the Closing Bid Price on the Conversion Date.

Section 13.04. Conversion Limitations.

(a) Beneficial Ownership Limitation. The Company shall not effect any conversion of a Security, and no Holder shall have the right to convert any portion of such Security, to the extent that after giving effect to such conversion, the Holder (together with the Holder's affiliates) would beneficially own in excess of 4.99% of the number of shares of Common Stock outstanding immediately after giving effect to such conversion (the "**Conversion Limitation**"). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its affiliates shall include the number of shares of Common Stock issuable upon conversion of a Security in respect of which the determination of such sentence is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (A) conversion of the remaining, nonconverted portion of any Security beneficially owned by the Holder or any of its affiliates and (B) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its affiliates. Except as set forth in the preceding sentence, for purposes of this Section, beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act. For purposes of this Section 13.04, in determining the number of outstanding shares of Common Stock, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (x) the Company's most recent Form 10-K, 10-Q or Form 8-K, as the case may be (y) a more recent public announcement by the Company or (z) any other notice by the Company setting forth the number of shares of Common Stock outstanding. For any reason at any time, upon the written or oral request of any Holder, the Company shall within one Business Day confirm orally and in writing to such Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including any Security, by the Holder or its affiliates since the date as of which such number of outstanding shares of Common Stock was reported. By written notice to the Company, any Holder may increase or decrease the Conversion Limitation to any other percentage not in excess of 9.99% specified in such notice; provided that (i) any such increase will not be effective until the 61st day after such notice is delivered to the Company, and (ii) any such increase or decrease will apply only to the Holder sending such notice and not to any other Holder of Securities.

(b) Principal Market Regulation. The Company shall not be obligated to issue any shares of Common Stock upon conversion of the Securities, and the Holders shall not have the right to receive upon conversion of their Securities any shares of Common Stock, if the issuance of such shares of Common Stock would exceed the aggregate number of shares of Common Stock which the Company may issue upon conversion or exercise, as applicable, of the

Securities and Warrants without breaching the Company's obligations under the rules or regulations of the Principal Market (the "**Exchange Cap**"), except that such limitation shall not apply in the event that the Company (A) obtains the approval of its stockholders as required by the applicable rules of the Principal Market for issuances of Common Stock in excess of such amount or (B) obtains a written opinion from outside counsel to the Company that such approval is not required, which opinion shall be reasonably satisfactory to the Required Holders. Until such approval or written opinion is obtained, no Initial Purchaser shall be issued in the aggregate, upon conversion or exercise, as applicable, of the Securities or Warrants, shares of Common Stock in an amount greater than the product of the Exchange Cap multiplied by a fraction, the numerator of which is the principal amount of Securities issued to such Initial Purchaser pursuant to the Securities Purchase Agreement on the Closing Date and the denominator of which is the aggregate principal amount of all Securities issued to all of the Initial Purchasers pursuant to the Securities Purchase Agreement on the Closing Date (with respect to each Initial Purchaser, the "**Exchange Cap Allocation**"). In the event that any Initial Purchaser shall sell or otherwise transfer any of such Initial Purchaser's Securities, the transferee shall be allocated a pro rata portion of such Initial Purchaser's Exchange Cap Allocation, and the restrictions of the prior sentence shall apply to such transferee with respect to the portion of the Exchange Cap Allocation allocated to such transferee. In the event that any Holder shall convert all of such Holder's Securities into a number of shares of Common Stock which, in the aggregate, is less than such Holder's Exchange Cap Allocation, then the difference between such Holder's Exchange Cap Allocation and the number of shares of Common Stock actually issued to such Holder shall be allocated to the respective Exchange Cap Allocations of the remaining Holders on a pro rata basis in proportion to the aggregate principal amount of the Securities then held by each such Holder.

Section 13.05. Company's Right to Require Conversion; Notices to Trustee. (a) The Company may, at its option, automatically convert all or a portion of the Securities (a "**Mandatory Conversion**") from and after the twenty-four (24) month anniversary of the Issuance Date (the "**Mandatory Conversion Eligibility Date**") if: (i) the Closing Sale Price of the Common Stock equals or exceeds, for each of any twenty (20) out of thirty (30) consecutive Trading Days following the Mandatory Conversion Eligibility Date (the "**Mandatory Conversion Measuring Period**"), \$2.2225 (as adjusted for any stock splits, stock dividends, recapitalizations, combinations, reverse stock splits or other similar events, including any occurring during such Mandatory Conversion Measuring Period) and (ii) there shall not have been any Equity Conditions Failure. The Company shall exercise its right of Mandatory Conversion by delivering, within not more than three (3) Trading Days following the end of any such Mandatory Conversion Measuring Period, a written notice thereof by facsimile and overnight courier to all, but not less than all, of the Holders and the Trustee (the "**Mandatory Conversion Notice**" and the Business Day immediately following the date the Company sends out a Mandatory Conversion Notice to all recipients, the "**Mandatory Conversion Notice Date**"). The Mandatory Conversion Notice shall be irrevocable. The Mandatory Conversion Notice shall state (1) the Trading Day selected for the Mandatory Conversion in accordance herewith, which Trading Day shall be at least twenty (20) Trading Days but not more than sixty (60) Trading Days following the Mandatory Conversion Notice Date (the "**Mandatory Conversion Date**"), (2) the aggregate Conversion Amount of the Securities subject to mandatory conversion from all of the Holders pursuant hereto and (3) the number of shares of Common Stock to be issued to the Holder on the Mandatory Conversion Date. The Mandatory Conversion

Notice shall be irrevocable. Notwithstanding anything herein to the contrary, if at any time during the Mandatory Conversion Period, the Equity Conditions are no longer satisfied, the Company shall provide a notice to the Trustee and each Holder of such failure and, unless the Holders of not less than a majority in aggregate Principal Amount of the Outstanding Securities waive such failure, the Company shall be required to withdraw the Mandatory Conversion Notice. No such withdrawal shall prejudice the right of the Company to issue a further Mandatory Conversion Notice following a further Mandatory Conversion Measuring Period.

(b) All Conversion Amounts converted by the Holder after the Mandatory Conversion Notice Date shall reduce the Conversion Amount of such Holder's Securities required to be converted on the Mandatory Conversion Date. The mechanics of conversion set forth in Section 13.02 shall apply to any Mandatory Conversion as if the Company and the transfer agent had received from the Holder on the Mandatory Conversion Date a Conversion Notice with respect to the Conversion Amount being converted pursuant to the Mandatory Conversion. Notwithstanding the foregoing, if the Company cannot effect a Mandatory Conversion, in whole or in part, of the Conversion Amount of the Securities (such portion, the "**Unconverted Amount**") as contemplated in any Mandatory Conversion Notice due to the Conversion Limitation, then, as of the applicable Mandatory Conversion Date, (w) Interest on such Unconverted Amount shall cease to accrue, (x) the Holders shall have no right to require an Event of Default Redemption with respect to such Unconverted Amount for Events of Default described in Sections 5.01(a)(iv), (v), (viii), and (x) and, with respect to Section 5.01(a)(ix), for any covenant breaches that do not affect the issuance of the Conversion Shares or the Warrant Shares, (y) the Holder shall not be entitled to receive the 20% or 40% premium, as applicable, in any Change of Control Redemption Price paid by the Company with respect to such Unconverted Amount as set forth in Section 8.02(b) hereof and (z) such Unconverted Amount shall be converted in accordance with Section 13.05(e) on the date such conversion is permitted under Section 13.02(g) hereof.

(c) Notwithstanding anything to the contrary herein, the Company shall not effect any Mandatory Conversion (or give any Mandatory Conversion Notice) to the extent that effecting such conversion or paying any Interest required in connection therewith would conflict with applicable law binding on the Company.

(d) During the period beginning on the Mandatory Conversion Date and ending on the date thirty (30) days thereafter, the Company shall not publicly offer to sell any Capital Stock (or securities convertible into, or exchangeable for, Capital Stock) of the Company (other than Common Stock issued pursuant to Approved Stock Plans existing prior to such Mandatory Conversion Date or pursuant to then outstanding options, warrants or rights), or publicly offer to sell or grant options, rights or warrants with respect to any Capital Stock or securities convertible into or exchangeable for Capital Stock (other than the grant of options pursuant to option plans existing prior to such Mandatory Conversion Date).

(e) If the Company elects a Mandatory Conversion of the Securities pursuant to Section 13.05 with respect to less than all of the Conversion Amounts of the Securities then Outstanding, then the Company shall require conversion of a Conversion Amount from each of the Holders equal to the product of (I) the aggregate Conversion Amount of Securities which the Company has elected to cause to be converted pursuant to Section 13.05(a),

multiplied by (II) the fraction, the numerator of which is the sum of the aggregate Original Principal Amount of the Securities purchased by such Holder of Outstanding Securities and the denominator of which is the sum of the aggregate Original Principal Amount of the Securities purchased by all Holders holding Outstanding Securities (such fraction with respect to each Holder is referred to as such Holder's "**Conversion Allocation Percentage**," and such amount with respect to each Holder is referred to as its "**Pro Rata Conversion Amount**"); provided, however, that in the event that any Holder's Pro Rata Conversion Amount exceeds the outstanding Principal Amount of such Holder's Security, then such excess Pro Rata Conversion Amount shall be allocated amongst the remaining Holders in accordance with the foregoing formula. In the event that the initial Holder of any Securities shall sell or otherwise transfer any of such Holder's Securities, the transferee shall be allocated a pro rata portion of such Holder's Conversion Allocation Percentage and Pro Rata Conversion Amount.

Section 13.06. No Fractional Shares. The Company shall not issue any fraction of a share of Common Stock upon any conversion. If the issuance would result in the issuance of a fraction of a share of Common Stock, the Company shall round such fraction of a share of Common Stock up to the nearest whole share. The Company shall pay any and all taxes that may be payable in respect of the issuance and delivery of Common Stock upon conversion of any Conversion Amount.

Section 13.07. Taxes on Conversion. Except as provided in the next sentence, the Company shall pay all documentary, stamp or similar issue or transfer tax due that may be payable in respect of the issue or delivery of shares of Common Stock on conversion of Notes pursuant hereto. The Company shall not, however, be required, and the Holder shall instead be required, to pay any tax or duty that may be payable in respect of (i) income of the Holder, or (ii) any transfer involved in the issue and delivery of shares of Common Stock in a name other than that of the Holder of the Note or Notes to be converted, and no such issue or delivery shall be made unless and until the Person requesting such issue has paid to the Company the amount of any such tax or duty, or has established to the satisfaction of the Company that such tax or duty has been paid.

Section 13.08. Company to Provide Stock. (a) All shares of Common Stock delivered upon conversion of the Securities shall be newly issued shares, shall be duly authorized, validly issued, fully paid and nonassessable and shall be free from preemptive rights and free of any Lien or adverse claim.

(b) The Company will endeavor promptly to comply with all federal and state securities laws regulating the offer and delivery of shares of Common Stock upon conversion of Securities, if any, and will list or cause to have quoted such shares of Common Stock on any Eligible Market.

Section 13.09. Adjustment of Conversion Price Upon Issuance of Common Stock. (a) If and whenever on or after the Subscription Date through the eighteen (18) month anniversary of the Issuance Date, the Company issues or sells, or in accordance with this Section 13.09(a) is deemed to have issued or sold, any shares of Common Stock (including the issuance or sale of shares of Common Stock owned or held by or for the account of the Company, but excluding shares of Common Stock deemed to have been issued or sold by the Company in

connection with any Excluded Security) for a consideration per share (the "**New Securities Issuance Price**") less than a price (the "**Applicable Price**") equal to the Conversion Price in effect immediately prior to such issue or sale (the foregoing a "**Dilutive Issuance**"), then immediately after such Dilutive Issuance, the Conversion Price then in effect shall be reduced to an amount equal to the New Securities Issuance Price. If and whenever after the eighteen (18) month anniversary of the Issuance Date, the Company issues or sells, or in accordance with this Section 13.09(a) is deemed to have issued or sold, any shares of Common Stock (including the issuance or sale of shares of Common Stock owned or held by or for the account of the Company, but excluding shares of Common Stock deemed to have been issued or sold by the Company in connection with any Excluded Security) in a Dilutive Issuance, then immediately after such Dilutive Issuance, the Conversion Price then in effect shall be reduced to an amount equal to the product of (A) the Conversion Price in effect immediately prior to such Dilutive Issuance and (B) the quotient determined by dividing (1) the sum of (I) the product derived by multiplying the Conversion Price in effect immediately prior to such Dilutive Issuance and the number of shares of Common Stock Deemed Outstanding immediately prior to such Dilutive Issuance plus (II) the consideration, if any, received by the Company upon such Dilutive Issuance, by (2) the product derived by multiplying (I) the Applicable Price in effect immediately prior to such Dilutive Issuance by (II) the number of shares of Common Stock Deemed Outstanding immediately after such Dilutive Issuance. For purposes of determining the adjusted Conversion Price under this Section 13.09(a), the following shall be applicable:

(i) Issuance of Options. If the Company in any manner grants or sells any Options and the lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Option or upon conversion or exchange or exercise of any Convertible Securities issuable upon exercise of such Option is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the granting or sale of such Option for such price per share. For purposes of this Section 13.09(a)(i), the "lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Option or upon conversion or exchange or exercise of any Convertible Securities issuable upon exercise of such Option" shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon granting or sale of the Option, upon exercise of the Option and upon conversion or exchange or exercise of any Convertible Security issuable upon exercise of such Option. No further adjustment of the Conversion Price shall be made upon the actual issuance of such share of Common Stock or of such Convertible Securities upon the exercise of such Options or upon the actual issuance of such Common Stock upon conversion or exchange or exercise of such Convertible Securities.

(ii) Issuance of Convertible Securities. If the Company in any manner issues or sells any Convertible Securities and the lowest price per share for which one share of Common Stock is issuable upon such conversion or exchange or exercise thereof is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the issuance or sale of such Convertible Securities for such price per share. For the purposes of this Section 13.09(a)(ii), the "price per share for which one share of Common Stock is issuable upon such conversion or exchange or exercise" shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon the

issuance or sale of the Convertible Security and upon the conversion or exchange or exercise of such Convertible Security. No further adjustment of the Conversion Price shall be made upon the actual issuance of such share of Common Stock upon conversion or exchange or exercise of such Convertible Securities, and if any such issue or sale of such Convertible Securities is made upon exercise of any Options for which adjustment of the Conversion Price had been or are to be made pursuant to other provisions of this Section 13.09(a), no further adjustment of the Conversion Price shall be made by reason of such issue or sale.

(iii) Change in Option Price or Rate of Conversion. If the purchase price provided for in any Options, the additional consideration, if any, payable upon the issue, conversion, exchange or exercise of any Convertible Securities, or the rate at which any Convertible Securities are convertible into or exchangeable or exercisable for Common Stock changes at any time, the Conversion Price in effect at the time of such change shall be adjusted to the Conversion Price which would have been in effect at such time had such Options or Convertible Securities provided for such changed purchase price, additional consideration or changed conversion rate, as the case may be, at the time initially granted, issued or sold. For purposes of this Section 13.09(a)(iii), if the terms of any Option or Convertible Security that was outstanding as of the Subscription Date are changed in the manner described in the immediately preceding sentence, then such Option or Convertible Security and the Common Stock deemed issuable upon exercise, conversion or exchange thereof shall be deemed to have been issued as of the date of such change. No adjustment shall be made if such adjustment would result in an increase of the Conversion Price then in effect.

(iv) Calculation of Consideration Received. In case any Option is issued in connection with the issue or sale of other securities of the Company, together comprising one integrated transaction in which no specific consideration is allocated to such Options by the parties thereto, the Options will be deemed to have been issued for a consideration of \$.01. If any Common Stock, Options or Convertible Securities are issued or sold or deemed to have been issued or sold for cash, the consideration received therefor will be deemed to be the net amount received by the Company therefor. If any Common Stock, Options or Convertible Securities are issued or sold for a consideration other than cash, the amount of the consideration other than cash received by the Company will be the fair value of such consideration, except where such consideration consists of securities, in which case the amount of consideration received by the Company will be the Closing Sale Price of such securities on the date of receipt. If any Common Stock, Options or Convertible Securities are issued to the owners of the non-surviving entity in connection with any merger in which the Company is the surviving entity, the amount of consideration therefor will be deemed to be the fair value of such portion of the net assets and business of the non-surviving entity as is attributable to such Common Stock, Options or Convertible Securities, as the case may be. The fair value of any consideration other than cash or securities will be determined jointly by the Company and the Required Holders. If such parties are unable to reach agreement within ten (10) days after the occurrence of an event requiring valuation (the "**Valuation Event**"), the fair value of such consideration will be determined within five (5) Business Days after the tenth day following the Valuation Event by an independent, reputable appraiser jointly selected by the Company and the Required Holders. The determination of such appraiser shall be deemed binding upon all parties absent manifest error and the fees and expenses of such appraiser shall be borne by the Company.

(v) **Record Date.** If the Company takes a record of the holders of Common Stock for the purpose of entitling them (A) to receive a dividend or other distribution payable in Common Stock, Options or in Convertible Securities or (B) to subscribe for or purchase Common Stock, Options or Convertible Securities, then such record date will be deemed to be the date of the issue or sale of the Common Stock deemed to have been issued or sold upon the declaration of such dividend or the making of such other distribution or the date of the granting of such right of subscription or purchase, as the case may be.

(vi) **Conversion Floor Price.** Until such time as the Company receives any stockholder approval that may be required under any applicable stockholder approval provisions in order to allow the Conversion Price to be less than the Conversion Floor Price (as defined below), including, without limitation, under the rules and regulations of any exchange or automated quotation system on which any of the securities of the Company are listed or designated (the "**Required Stockholder Approval**"), no adjustment pursuant to Sections 11.13, 13.10(a), 13.10(b) or 13.16 shall cause the Conversion Price to be less than \$1.2675, as adjusted for any stock dividend, stock split, stock combination, reclassification or similar transaction (the "**Conversion Floor Price**").

(b) In case the Company shall issue rights, options or warrants (other than pursuant to a stockholder rights plan) to all or substantially all holders of its Common Stock entitling them (for a period commencing no earlier than the record date described below and expiring not more than 60 days after such record date) to subscribe for or purchase shares of Common Stock (or securities convertible into Common Stock) at a price per share (or having a conversion price per share) less than the Closing Sale Price per share of Common Stock on the Business Day immediately prior to the date of announcement of such issuance (treating the conversion or exercise price per share of the securities convertible into or exercisable for Common Stock as equal to (x) the sum of (i) the price for a unit of the security convertible into or exercisable for Common Stock and (ii) any additional consideration initially payable upon the conversion of such security into or exercise of such security for Common Stock divided by (y) the number of shares of Common Stock initially underlying such security), the Conversion Price in effect shall be adjusted so that the same shall equal the price determined by multiplying the Conversion Price by a fraction of which:

(1) the numerator of which shall be the number of shares of Common Stock outstanding on the close of business on the date of announcement, plus the number of shares which the aggregate offering price of the total number of shares so offered for subscription or purchase (or the aggregate conversion or exercise price of the securities so offered) would purchase at such Current Market Value of the Common Stock; and

(2) the denominator of which shall be the number of shares of Common Stock outstanding at the close of business on the date of announcement, plus the total number of additional shares of Common Stock so offered for subscription or purchase (or into which the securities so offered are convertible or exercisable).

Such adjustment shall be made successively whenever any such rights, options or warrants are issued, and shall become effective on the date following the date of announcement of such issuance. If at the end of the period during which such rights, options

or warrants are exercisable and not all rights, options or warrants shall have been exercised, the adjusted Conversion Price shall be immediately readjusted to what it would have been based upon the number of additional shares of Common Stock actually issued (or the number of shares of Common Stock issuable upon conversion of convertible securities actually issued).

(c) If the Company at any time on or after the Subscription Date subdivides (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of its outstanding shares of Common Stock into a greater number of shares, the Conversion Price in effect immediately prior to such subdivision will be proportionately reduced. If the Company at any time on or after the Subscription Date combines (by combination, reverse stock split or otherwise) one or more classes of its outstanding shares of Common Stock into a smaller number of shares, the Conversion Price in effect immediately prior to such combination will be proportionately increased.

(d) If the Company takes an action which would permit an entity to acquire common stock in a dilutive issuance contemplated by the provisions of this Section 13.09 but not expressly provided for by such provisions (including, without limitation, the granting of stock appreciation rights, phantom stock rights or other rights with equity features) then the Board of Directors will make an appropriate adjustment in the Conversion Price so as to protect the rights of the Holders, provided that no such adjustment will increase the Conversion Price as otherwise determined pursuant to this Section 13.09.

(e) If during the period beginning on and including the Subscription Date and ending on the date immediately preceding the Issuance Date, the Company entered into, or in accordance with Section 13.09(a) would have been deemed to have entered into (had any Security been Outstanding at such time), any Dilutive Issuance or if any of the events or actions contemplated by Section 13.09(c) shall have occurred, then solely for purposes of determining any adjustment under this Section 13.09 as a result of such Dilutive Issuance, deemed Dilutive Issuance, action or event, the Securities shall be deemed to have been Outstanding at the time of each such Dilutive Issuance, deemed Dilutive Issuance, action or event.

Section 13.10. Participation. Each Holder shall be entitled to such dividends paid and distributions made to the holders of Common Stock (including, without limitation, any distribution of shares of Capital Stock of the Company, evidences of indebtedness or other non assets or securities of any Person other than the Company) to the same extent as if such Holder had converted a Security into Common Stock (without regard to any limitations on conversion herein, in the Security or elsewhere) and had held such shares of Common Stock on the record date for such dividends and distributions. Payments under the preceding sentence shall be made concurrently with the dividend or distribution to the holders of Common Stock.

Section 13.11. No Adjustment. (a) No adjustment need be made for (i) issuances of Common Stock pursuant to a Company plan for reinvestment of dividends or interest or (ii) a change in the par value or a change to no par of the Common Stock.

(b) To the extent that the Securities become convertible into the right to receive cash, no adjustment need be made thereafter as to the cash. Interest will not accrue on the cash due.

Section 13.12. Notice of Conversion Price Adjustment. Whenever the Conversion Price is adjusted, the Company shall promptly mail, but in no event later than three (3) Business Days, to each Holder a notice of the adjustment and file with the Trustee an Officers' Certificate briefly stating the facts requiring the adjustment and the manner of computing it, which computation shall have been made by the Company. Unless and until the Trustee shall receive an Officers' Certificate setting forth an adjustment of the Conversion Price, the Trustee may assume without inquiry that the Conversion Price has not been adjusted and that the last Conversion Price of which it has knowledge remains in effect.

Section 13.13. Notice of Certain Transactions. In the event that:

(a) the Company takes any action which would require an adjustment in the Conversion Price;

(b) the Company consolidates or merges with, or transfers all or substantially all of its property and assets to, another corporation and stockholders of the Company must approve the transaction; or

(c) there is a dissolution or liquidation of the Company,

the Company shall mail to each Holder and file with the Trustee a notice stating the proposed record or effective date, as the case may be. The Company shall mail the notice at least twenty days before such date. Failure to mail such notice or any defect therein shall not affect the validity of any transaction referred to in clause (a), (b) or (c) of this Section 13.13.

Section 13.14. Other Corporate Events. Without duplication of any other rights or adjustments under this Indenture, prior to the consummation of any Fundamental Transaction pursuant to which holders of shares of Common Stock are entitled to receive securities or other assets with respect to or in exchange for shares of Common Stock (a "**Corporate Event**"), the Company shall make appropriate provision to insure that the Holders will thereafter have the right to receive upon a conversion of their Securities, in lieu of the shares of Common Stock otherwise receivable upon such conversion, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscriptions rights) which the Holders would have been entitled to receive upon the happening of such Corporate Event had the Securities been converted immediately prior to such Corporate Event (without taking into account any restrictions or limitations on the convertibility of the Securities). The provisions of this Section shall apply similarly and equally to successive Corporate Events and shall be applied without regard to any limitations on the conversion or redemption of the Securities.

In the event the Company shall execute a supplemental indenture pursuant to this Section 13.14, the Company shall promptly file with the Trustee (x) an Officers' Certificate briefly stating the reasons therefor, the kind or amount of shares of stock or other securities or

property (including cash) receivable by Holders upon the conversion of their Securities after any such reclassification, change, combination, consolidation, merger, sale or conveyance, any adjustment to be made in respect thereof and that all conditions precedent have been complied with and (y) an Opinion of Counsel that all conditions precedent have been complied with, and shall promptly mail notice thereof to all Holders.

Section 13.15. Trustee's Disclaimer. The Trustee shall have no duty to determine when an adjustment under this Article XIII should be made, how it should be made or what such adjustment should be, but may accept as conclusive evidence of that fact or the correctness of any such adjustment, and shall be protected in relying upon, an Officers' Certificate including the Officers' Certificate in respect thereof which the Company is obligated to file with the Trustee pursuant to Section 13.12. The Trustee makes no representation as to the validity or value of any securities or assets issued upon conversion of Securities and the Trustee shall not be responsible for the Company's failure to comply with any provisions of this Article XIII. Neither the Trustee nor the Conversion Agent shall be responsible for doing any calculations whatsoever under this Indenture, or for monitoring or determining the price of the Company's stock, any stock price thresholds, conversion rates or ratios, conversion amounts or installment amounts, all of which shall be determined or calculated by the Company, and, when applicable, provided to the Trustee or Conversion Agent in the form of an Officers' Certificate.

The Trustee shall not be under any responsibility to determine the correctness of any provisions contained in any supplemental indenture executed pursuant to Section 13.10, but may accept as conclusive evidence of the correctness thereof, and shall be fully protected in relying upon, the Officers' Certificate in respect thereof which the Company is obligated to file with the Trustee pursuant to Section 13.12.

Section 13.16. Voluntary Decrease. The Company from time to time may decrease the Conversion Price by any amount for any period of time if the period is at least 20 days and if the decrease is irrevocable during the period if the Board of Directors determines that such decrease would be in the best interest of the Company or the Board of Directors deems it advisable to avoid or diminish income tax to holders of shares of Common Stock in connection with any stock or rights dividend or distribution or similar event, and the Company provides 15 days prior notice of any increase in the Conversion Price. In addition, the Company may at any time during the term of this Indenture reduce the then current Conversion Price to any amount and for any period of time deemed appropriate by the Board of Directors.

#### ARTICLE XIV

##### Miscellaneous

Section 14.01. Governing Law; Jurisdiction; Jury Trial. All questions concerning the construction, validity, enforcement and interpretation of this Indenture shall be governed by the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York. Each

party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in The City of New York, Borough of Manhattan, for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof to such party at the address for such notices to it under this Indenture and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law. **EACH PARTY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION WITH OR ARISING OUT OF THIS INDENTURE.**

Section 14.02. Counterparts. This First Supplemental Indenture may be executed in two or more identical counterparts, all of which shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to the other party; provided that a facsimile signature shall be considered due execution and shall be binding upon the signatory thereto with the same force and effect as if the signature were an original, not a facsimile signature.

Section 14.03. Effect of Headings and Table of Contents. The Article and Section headings in this First Supplemental Indenture and the Table of Contents of this First Supplemental Indenture are for convenience only and shall not form part of, or affect the interpretation or the construction of this First Supplemental Indenture. All Article and Section references are to Articles and Sections, respectively, of this First Supplemental Indenture unless otherwise expressly stated.

Section 14.04. Successors and Assigns. All covenants and agreements in this First Supplemental Indenture by the Company shall bind its successors and assigns, whether so expressed or not.

Section 14.05. Severability. In the event that any provision of this First Supplemental Indenture is invalid or unenforceable under any applicable statute or rule of law, then such provision shall be deemed inoperative to the extent that it may conflict therewith and shall be deemed modified to conform with such statute or rule of law. Any such provision which may prove invalid or unenforceable under any law shall not affect the validity or enforceability of any other provision of this First Supplemental Indenture.

Section 14.06. Benefits of Indenture. Nothing in this First Supplemental Indenture or in the Securities, express or implied, shall give to any Person, other than the parties hereto and their respective successors hereunder and the Holders, any benefit or any legal or equitable right, remedy or claim under this First Supplemental Indenture.

Section 14.07. Further Assurances. Each party shall do and perform, or cause to be done and performed, all such further acts and things, and shall execute and deliver all such other agreements, certificates, instruments and documents, as any other party may reasonably request in order to carry out the intent and accomplish the purposes of this Indenture and consummate the terms of this Indenture.

Section 14.08. No Strict Construction. The language used in this Indenture will be deemed to be the language chosen by the parties to express their mutual intent, and no rules of strict construction will be applied against any party.

Section 14.09. Failure Or Indulgence Not Waiver. No failure or delay on the part of any Holder in the exercise of any power, right or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any such power, right or privilege preclude other or further exercise thereof or of any other right, power or privilege.

Section 14.10. Remedies, Characterizations, Other Obligations, Breaches and Injunctive Relief. The remedies provided in this Indenture shall be cumulative and in addition to all other remedies available under this Indenture and any of the other Transaction Documents at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit any Holder's right to pursue actual and consequential damages for any failure by the Company to comply with the terms of this Indenture. Amounts set forth or provided for herein with respect to payments, conversion and the like (and the computation thereof) shall be the amounts to be received by the Holders and shall not, except as expressly provided herein, be subject to any other obligation of the Company (or the performance thereof). The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Holders and that the remedy at law for any such breach may be inadequate. The Company therefore agrees that, in the event of any such breach or threatened breach, each Holder shall be entitled, in addition to all other available remedies, to an injunction restraining any breach, without the necessity of showing economic loss and without any bond or other security being required.

Section 14.11. Payment Of Collection, Enforcement And Other Costs. If, subject to the terms of this Indenture, (a) any Security is placed in the hands of an attorney for collection or enforcement or is collected or enforced through any legal proceeding or any Holder otherwise takes action to collect amounts due under the Securities or to enforce the provisions of this Indenture or (b) there occurs any bankruptcy, reorganization, receivership of the Company or other proceedings affecting Company creditors' rights and involving a claim under this Indenture, then the Company shall pay the actual costs incurred by the Holders for such collection, enforcement or action or in connection with such bankruptcy, reorganization, receivership or other proceeding, including, but not limited to, financial advisory fees and reasonable attorneys' fees and disbursements.

Section 14.12. Dispute Resolution for Certain Calculations. Notwithstanding anything in this Indenture to the contrary, in the case of a dispute as to the determination of the Closing Bid Price, the Closing Sale Price or the Weighted Average Price or the arithmetic calculation of the Conversion Rate or any Redemption Price, the Company shall submit the disputed determinations or arithmetic calculations via facsimile within two (2) Business Days of

receipt, or deemed receipt, of the Conversion Notice or Redemption Notice or other event giving rise to such dispute, as the case may be, to each Holder. If any of the Holders and the Company are unable to agree upon such determination or calculation within two (2) Business Days of such disputed determination or arithmetic calculation being submitted to each of the Holders, then the Company shall, within one (1) Business Day submit via facsimile (a) the disputed determination of the Closing Bid Price, the Closing Sale Price or the Weighted Average Price to an independent, reputable investment bank selected by the Company and approved by the Required Holders or (b) the disputed arithmetic calculation of the Conversion Rate or any Redemption Price to the Company's independent, outside accountant. The Company, at the Company's expense, shall cause the investment bank or the accountant, as the case may be, to perform the determinations or calculations and notify the Company and each of the Holders of the results no later than five (5) Business Days from the time it receives the disputed determinations or calculations. Such investment bank's or accountant's determination or calculation, as the case may be, shall be binding upon all parties absent demonstrable error.

Section 14.13. Disclosure. Upon receipt or delivery by the Company of any notice in accordance with the terms of this Indenture, unless the Company has in good faith determined that the matters relating to such notice do not constitute material, nonpublic information relating to the Company or its Subsidiaries, the Company shall within one (1) Business Day after any such receipt or delivery publicly disclose such material, nonpublic information on a Current Report on Form 8-K or otherwise. In the event that the Company believes that a notice contains material, nonpublic information, relating to the Company or its Subsidiaries, the Company shall indicate in writing to each of the Holders and the Trustee contemporaneously with delivery of such notice, and in the absence of any such indication, the Holders and the Trustee shall be allowed to presume that all matters relating to such notice do not constitute material, nonpublic information relating to the Company or its Subsidiaries.

Section 14.14. Ratification of Initial Indenture. Except as hereby otherwise expressly provided, the Initial Indenture is in all respects ratified and confirmed, and all the terms, provisions and conditions thereof shall be and remain in full force and effect.

Section 14.15. Statements of Company. The Trustee is not responsible for the validity or the sufficiency of this First Supplemental Indenture, nor for the recitals contained herein, which are to be taken as statements of the Company.

*[Signature Page to First Supplemental Indenture Follows]*

IN WITNESS WHEREOF, the parties hereto have caused this First Supplemental Indenture to be duly executed as of the day and year first above written.

NANOGEN, INC.

By: /s/ Robert Saltmarsh

Name: Robert Saltmarsh

Title: Chief Financial Officer

THE BANK OF NEW YORK TRUST COMPANY,  
N.A., as Trustee

By: /s/ Teresa Petta

Name: Teresa Petta

Title: Vice President

NANOGEN, INC.

6.25% SENIOR CONVERTIBLE NOTES DUE 2010

No. [ ]

U.S. \$[ ]

CUSIP NO. [ ]

Nanogen, Inc., a corporation duly organized and validly existing under the laws of the State of Delaware (herein called the Company), which term includes any successor corporation under the Indenture referred to on the reverse hereof, for value received hereby promises to pay to \_\_\_\_\_, or registered assigns, the principal sum of [ ] United States Dollars (\$) on August 27, 2010 (subject to extension by the holder pursuant to the terms of the Indenture) and to pay interest at the rate of 6.25% per annum in accordance with the terms of the Indenture. Payment of the principal of, and other amounts on, this Security shall be made at the office or agency of the Company in the city and state of New York, maintained for that purpose, which shall be the Corporate Trust Office of the Trustee, or at any other office or agency permitted by the Indenture, in such lawful money of the United States of America as at the time of payment shall be legal tender for the payment of public and private debts. All capitalized terms used herein without definition shall have their respective meanings set forth in the Indenture.

The Issue Date of this Security is August 27, 2007.

Reference is made to the further provisions of this Security set forth on the reverse hereof, including, without limitation, provisions giving the Holder of the Security the right to convert this Security into Common Stock of the Company, the right of the Holder of this Security to require the Company to repurchase this Security, and the right of the Company to pay interest in Common Stock of the Company, in each case, on the terms and subject to the limitations referred to on the reverse hereof and as more fully specified in the Indenture. Such further provisions shall for all purposes have the same effect as though fully set forth at this place.

This Security shall be deemed to be a contract made under the laws of the State of New York, and for all purposes shall be construed in accordance with and governed by the laws of said State.

This Security shall not be valid or become obligatory for any purpose until the certificate of authentication hereon shall have been manually signed by the Trustee or a duly authorized authenticating agent under the Indenture.

**THIS NOTE HAS BEEN ISSUED WITH ORIGINAL ISSUE DISCOUNT FOR UNITED STATES FEDERAL INCOME TAX PURPOSES. HOLDERS MAY OBTAIN THE INFORMATION REQUIRED UNDER TREASURY REGULATIONS SECTION 1.1275-3(B) WITH RESPECT TO THIS NOTE BY CALLING THE COMPANY'S CORPORATE CONTROLLER AT (858) 410-4600.**

**ANY TRANSFER OF ALL OR PART OF A SECURITY MAY BE EFFECTED ONLY BY REGISTRATION OF SUCH TRANSFER ON THE REGISTER KEPT BY THE SECURITY REGISTRAR.**

The following information applies to this Security as of the issue date:

Conversion Allocation Percentage  
Exchange Cap Allocation

Authorized Share Allocation

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IN WITNESS WHEREOF, the Company has caused this instrument to be duly executed.

NANOGEN, INC.

By:

Authorized Signatory

The Bank of New York Trust Company, N.A., as Trustee, certifies that this is one of the Securities referred to in the within-mentioned Indenture.

Date: \_\_\_\_\_

THE BANK OF NEW YORK TRUST  
COMPANY, N.A., as Trustee

By:

Authorized Signatory

[REVERSE OF SECURITY]

This Security is one of a duly authorized issue of Securities of the Company, designated as its 6.25% Senior Convertible Notes Due 2010 (the Securities ), all issued or to be issued under and pursuant to an Indenture, dated as of August 27, 2007, as supplemented by the First Supplemental Indenture dated as of August 27, 2007 (as supplemented, the Indenture ), between the Company and The Bank of New York Trust Company, N.A. (the Trustee which term includes any successor trustee under the Indenture), to which Indenture and all indentures supplemental thereto reference is hereby made for a description of the rights, limitations of rights, obligations, duties and immunities thereunder of the Trustee, the Company and the Holders of the Securities. All capitalized terms used herein without definition shall have their respective meanings set forth in the Indenture.

1. Interest Rate. Interest on the Securities shall be payable quarterly in arrears on each Interest Date to Holders of record on the Record Date immediately preceding such Interest Payment Date. Interest on the Securities shall accrue at a rate of 6.25% per annum, subject to adjustment as provided in the Indenture. Interest will be computed on the basis of a 360-day year comprised of twelve 30-day months. Interest on the Securities shall accrue from the most recent date to which interest has been paid, or if no interest has been paid, from August 27, 2007, until the Principal Amount is paid or duly made available for payment. Interest shall be payable on each Interest Date, at the option of the Company, in shares of Common Stock at the Interest Conversion Price or in cash, subject to certain conditions having been satisfied.

2. Redemption by the Company at the Option of the Holder Upon an Event of Default. In case an Event of Default, as defined in the Indenture, shall have occurred, the Principal Amount, accrued and unpaid Interest and Late Charges, if any, on the Securities may be declared, and upon said declaration shall become, due and payable, in the manner, with the effect and subject to the conditions provided in the Indenture. Subject to the terms and conditions of the Indenture, the Company shall become obligated, at the option of the Holder following an Event of Default, to redeem the Securities at the Event of Default Redemption Price.

3. Redemption by the Company at the Option of the Holder Upon a Change of Control. Subject to the terms and conditions of the Indenture, the Company shall become obligated, at the option of the Holder, to redeem the Securities if a Change of Control occurs at any time prior to the Stated Maturity at the Change of Control Redemption Price.

4. Withdrawal of Change of Control Redemption Notice. Holders have the right to withdraw, in whole or in part, any Change of Control Redemption Notice, by delivering to the Paying Agent a written notice of withdrawal in accordance with the provisions of the Indenture.

5. Redemption by the Company at the Option of the Company. Subject to the terms and conditions of the Indenture, the Company has the right to redeem the Securities if a Change of Control occurs at any time prior to the Stated Maturity at the Change of Control Redemption Price.

6. Securities Redeemed in Part. In the event of redemption of this Security in part only, a new Security or Securities of the Company representing the unredeemed portion hereof will be issued in the name of the Holder hereof upon cancellation hereof in accordance with the terms of the Indenture.

7. Payment of Event of Default Redemption Price and Change of Control Redemption Price. If cash sufficient to pay the Redemption Price or Change of Control Redemption Price, as the case may be, of all Securities or portions thereof to be redeemed or repurchased on an Event of Default or on a Change of Control, as the case may be, is deposited with the Paying Agent on the Business Day following the Event of Default Redemption Date or the Change of Control Redemption Date, as the case may be, the Securities to be redeemed or repurchased will cease to be outstanding and interest will cease to accrue on such Securities (or portions thereof) immediately after such Event of Default Redemption Date or the Change of Control Redemption Date, as the case may be, and the Holder thereof shall have no other rights as such (other than the right to receive the Event of Default Redemption Price or Change of Control Redemption Price, as the case may be) upon surrender of such Security.

8. Conversion. Subject to the terms and conditions of the Indenture, a Holder may convert at any time any of its Securities into shares of the Company's common stock at the Conversion Price. The Conversion Price in effect at any given time is subject to adjustment in accordance with the Indenture. A Holder may convert fewer than all of such Holder's Securities so long as the Securities converted are an integral multiple of \$1,000 principal amount.

The Indenture permits, with certain exceptions as therein provided, the amendment thereof and the modification of the rights and obligations of the Company and the rights of the Holders of the Securities under the Indenture at any time by the Company and the Trustee with the consent of the Holders of not less than a majority in aggregate Principal Amount of the Outstanding Securities. The Indenture contains provisions permitting, in certain instances, the waiver of compliance with certain provisions of the Indenture with the consent of a majority in aggregate Principal Amount of the Outstanding Securities.

As provided in and subject to the provisions of the Indenture, the Holder of this Security shall have the right in certain circumstances to institute any proceeding in respect of the Indenture or for the appointment of a receiver or trustee or other remedy thereunder.

No reference herein to the Indenture and no provision of this Security or of the Indenture shall alter or impair the obligation of the Company, which is absolute and unconditional, to pay the Principal Amount or interest on, or Redemption Price of, this Security at the times, place and rate, and in the coin or currency, herein prescribed.

As provided in the Indenture and subject to certain limitations therein set forth, the transfer of this Security is registrable in the Security Register, upon surrender of this Security for registration of transfer at the office or agency of the Company in The City of New York, duly endorsed by, or accompanied by a written instrument of transfer in form satisfactory to the Company and the Security Registrar duly executed by, the Holder hereof or his attorney duly authorized in writing, and thereupon one or more new Securities, of authorized denominations and for the same aggregate Principal Amount, will be issued to the designated transferee or transferees.

The Securities are issuable only in registered form in denominations of \$1,000 and any integral multiple of \$1,000 above that amount, as provided in the Indenture and subject to certain limitations therein set forth. The Securities are exchangeable for a like aggregate Principal Amount of Securities of a different authorized denomination, as requested by the Holder surrendering the same.

No service charge shall be made for any such registration of transfer or exchange, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith.

The Company, the Trustee and any agent of the Company or the Trustee may treat the Person in whose name this Security is registered as the owner hereof for all purposes, whether or not this Security be overdue, and none of the Company, the Trustee or any such agent shall be affected by notice to the contrary.

This Security shall be governed by and construed in accordance with the laws of the State of New York.

ASSIGNMENT FORM

If you want to assign this Security, fill in the form below and have your signature guaranteed:

I or we assign and transfer this Security to:

(Print or type name, address and zip code and social security or tax ID number of assignee) and irrevocably appoint \_\_\_\_\_ agent to transfer this Security on the books of the Company. The agent may substitute another to act for him.

Date: \_\_\_\_\_

Signed:

(Sign exactly as your name appears on the other side of this Security)

Signature Guarantee:

Security: Signatures must be guaranteed by an eligible guarantor institution meeting the requirements of the Security Registrar, which requirements include membership or participation in the Security Transfer Agent Medallion Program ( STAMP ) or such other signature guarantee program as may be determined by the Security Registrar in addition to, or in substitution for, STAMP, all in accordance with the Securities Exchange Act of 1934, as amended.

CONVERSION NOTICE

Reference is made to the Indenture, dated as of August 27, 2007, as supplemented by the First Supplemental Indenture dated as of August 27, 2007 (as supplemented, the **Indenture** ) between Nanogen, Inc. (the **Company** ) and The Bank of New York Trust Company, N.A., as Trustee. In accordance with and pursuant to the Indenture, the undersigned hereby elects to convert the Conversion Amount (as defined in the Indenture) of the Security issued pursuant to the Indenture indicated below into shares of Common Stock par value \$0.001 per share (the **Common Stock** ) of the Company, as of the date specified below.

Date of Conversion:

Aggregate Conversion Amount to be converted:

Please confirm the following information:

Conversion Price:

Number of shares of Common Stock to be issued:

Please issue the Common Stock into which the Security is being converted in the following name and to the following address:

Issued to:

Facsimile Number:

Authorization:

By:

Title:

Dated:

Account Number:

(if electronic book entry transfer)

Transaction Code Number:

(if electronic book entry transfer)

**EXHIBIT B**

**FORM OF TRUSTEE S CERTIFICATE OF AUTHENTICATION**

The Bank of New York Trust Company, N.A., as Trustee, certifies that this is one of the Securities referred to in the within-mentioned Indenture.

Date: \_\_\_\_\_

THE BANK OF NEW YORK TRUST COMPANY, N.A., as Trustee

By:  
Authorized Signatory

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**EXHIBIT C**

**FORM OF EVENT OF DEFAULT REDEMPTION NOTICE**

\_\_\_\_\_, 20\_\_\_\_

Nanogen, Inc.

10398 Pacific Center Court

San Diego, California 92121

Attention: Robert Saltmarsh

Telephone: (858) 410-4600

Facsimile: (858) 410-4949

The Bank of New York Trust Company, N.A.

700 South Flower Street, Suite 500

Los Angeles, California 90017

Attention: Corporate Trust Administration Nanogen, Inc.

Telephone (213) 630-6256

Facsimile: (213) 630-6298

Re: Nanogen, Inc. (the Company ) 6.25% Senior Convertible Notes Due 2010

This is an Event of Default Redemption Notice as defined in Section 11.02(b) of the Indenture dated as of August 27, 2007 (the Indenture ) between the Company and The Bank of New York Trust Company, N.A., as Trustee. Terms used but not defined herein shall have the meanings ascribed to them in the Indenture.

Certificate No(s). of Securities: \_\_\_\_\_

I intend to deliver the following aggregate Conversion Amount of Securities for redemption by the Company pursuant to terms and conditions specified in the Indenture (in multiples of \$1,000):

\$ \_\_\_\_\_

I confirm that the Event of Default Redemption Price with respect to such Conversion Amount being redeemed is as follows:

\$ \_\_\_\_\_

I hereby agree that the Securities will be redeemed as of the Event of Default Redemption Date pursuant to the terms and conditions of the Indenture.

Signed:



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**EXHIBIT D**

**FORM OF CHANGE OF CONTROL REDEMPTION NOTICE**

\_\_\_\_\_, 20\_\_\_\_

Nanogen, Inc.

10398 Pacific Center Court

San Diego, California 92121

Attention: Robert Saltmarsh

Telephone: (858) 410-4600

Facsimile: (858) 410-4949

The Bank of New York Trust Company, N.A.

700 South Flower Street, Suite 500

Los Angeles, California 90017

Attention: Corporate Trust Administration Nanogen, Inc.

Telephone (213) 630-6256

Facsimile: (213) 630-6298

Re: Nanogen, Inc. (the Company ) 6.25% Senior Convertible Notes Due 2010

This is a Holder Change of Control Redemption Notice as defined in Section 11.03(a) of the Indenture dated as of August 27, 2007 (the Indenture ) between the Company and The Bank of New York Trust Company, N.A., as Trustee. Terms used but not defined herein shall have the meanings ascribed to them in the Indenture.

Certificate No(s). of Securities: \_\_\_\_\_

I intend to deliver the following aggregate Conversion Amount of Securities for redemption by the Company pursuant to the terms and conditions of the Indenture (in multiples of \$1,000):

\$ \_\_\_\_\_

I confirm that the Change of Control Redemption Price with respect to such Conversion Amount being redeemed is as follows:

\$ \_\_\_\_\_

I hereby agree that the Securities will be redeemed as of the Change of Control Redemption Date pursuant to the terms and conditions specified in the Indenture.

Signed:



**EXHIBIT E**

**CONVERSION NOTICE**

Reference is made to the Indenture dated as of August 27, 2007, as supplemented by the First Supplemental Indenture dated as of August 27, 2007 (as supplemented, the **Indenture** ) between Nanogen, Inc. (the **Company** ) and The Bank of New York Trust Company, N.A., as Trustee. In accordance with and pursuant to the Indenture, the undersigned hereby elects to convert the Conversion Amount (as defined in the Indenture) of the Security issued pursuant to the Indenture indicated below into shares of Common Stock par value \$0.001 per share (the **Common Stock** ) of the Company, as of the date specified below.

Date of Conversion:

Aggregate Conversion Amount to be converted:

Please confirm the following information:

Conversion Price:

Number of shares of Common Stock to be issued:

Please issue the Common Stock into which the Security is being converted in the following name and to the following address:

Issue to:

Facsimile Number:

Authorization:

By:

Title:

Dated:

Account Number:  
(if electronic book entry transfer)

Transaction Code Number:  
(if electronic book entry transfer)

[FORM OF SERIES A WARRANT]

NANOGEN, INC.

WARRANT TO PURCHASE COMMON STOCK

Warrant No.: \_\_\_\_\_

Number of Shares of Common Stock: \_\_\_\_\_.

Date of Issuance: August \_\_, 2007 ( **Issuance Date** )

Nanogen, Inc., a Delaware corporation (the **Company** ), hereby certifies that, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, [ \_\_\_\_\_ ], the registered holder hereof or its permitted assigns (the **Holder** ), is entitled, subject to the terms set forth below, to purchase from the Company, at the Exercise Price (as defined below) then in effect, upon surrender of this Warrant to Purchase Common Stock (including any Warrants to Purchase Common Stock issued in exchange, transfer or replacement hereof, the **Warrant** ), at any time or times on or after the Initial Exercise Eligibility Date (as defined below), but not after 11:59 p.m., New York time, on the Expiration Date (as defined below), [ \_\_\_\_\_ ] ([ \_\_\_\_\_ ]) fully paid nonassessable shares of Common Stock (as defined below) (the **Warrant Shares** ). This Warrant is one of the Warrants to purchase Common Stock (the **SPA Warrants** ) issued pursuant to Section 1 of that certain Securities Purchase Agreement, dated as of August \_\_, 2007 (the **Subscription Date** ), by and among the Company and the investors (the **Buyers** ) referred to therein (the **Securities Purchase Agreement** ). Except as otherwise defined herein, capitalized terms in this Warrant shall have the meanings set forth in Section 15.

1. EXERCISE OF WARRANT.

(a) Mechanics of Exercise. Subject to the terms and conditions hereof (including, without limitation, the limitations set forth in Section 1(f)), this Warrant may be exercised by the Holder at any time or times on or after the Initial Exercise Eligibility Date, in whole or in part, by (i) delivery of a written notice, in the form attached hereto as Exhibit A (the **Exercise Notice** ), of the Holder's election to exercise this Warrant and (ii) (A) payment to the Company of an amount equal to the applicable Exercise Price multiplied by the number of Warrant Shares as to which this Warrant is being exercised (the **Aggregate Exercise Price** ) in cash or by wire transfer of immediately available funds or (B) by notifying the Company that this Warrant is being exercised pursuant to a Cashless Exercise (as defined in Section 1(d)). The Holder shall not be required to deliver the original Warrant in order to effect an exercise hereunder. Execution and delivery of the Exercise Notice with respect to less than all of the Warrant Shares shall have the same effect as cancellation of the original Warrant and issuance of a new Warrant evidencing the right to purchase the remaining number of Warrant Shares. On or before the second (2<sup>nd</sup>) Business Day following the date on which the Company has received each of the Exercise Notice and the Aggregate Exercise Price (or notice of a Cashless Exercise) (the **Exercise Delivery Documents** ), the Company shall transmit by

facsimile an acknowledgment of confirmation of receipt of the Exercise Delivery Documents to the Holder and the Company's transfer agent (the **Transfer Agent**). On or before the third<sup>rd</sup> Trading Day following the date on which the Company has received all of the Exercise Delivery Documents (the **Share Delivery Date**), the Company shall (X) provided that the Transfer Agent is participating in The Depository Trust Company ( **DTC** ) Fast Automated Securities Transfer Program, upon the request of the Holder, credit such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit Withdrawal Agent Commission system, or (Y) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and dispatch by overnight courier to the address as specified in the Exercise Notice, a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder is entitled pursuant to such exercise. Upon delivery of the Exercise Delivery Documents, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date such Warrant Shares are credited to the Holder's DTC account or the date of delivery of the certificates evidencing such Warrant Shares, as the case may be. If this Warrant is submitted in connection with any exercise pursuant to this Section 1(a) and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the number of Warrant Shares being acquired upon an exercise, then the Company shall as soon as practicable and in no event later than three (3) Business Days after any exercise and at its own expense, issue a new Warrant (in accordance with Section 7(d)) representing the right to purchase the number of Warrant Shares purchasable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised. No fractional shares of Common Stock are to be issued upon the exercise of this Warrant, but rather the number of shares of Common Stock to be issued shall be rounded up to the nearest whole number. The Company shall pay any and all transfer and similar taxes (other than income and similar taxes) which may be payable with respect to the issuance and delivery of Warrant Shares upon exercise of this Warrant.

(b) Exercise Price. For purposes of this Warrant, **Exercise Price** means \$[ ].

(c) Company's Failure to Timely Deliver Securities. If the Company shall fail for any reason or for no reason to issue to the Holder within five (5) Business Days of receipt of the Exercise Delivery Documents, a certificate for the number of shares of Common Stock to which the Holder is entitled and register such shares of Common Stock on the Company's share register or to credit the Holder's balance account with DTC for such number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise of this Warrant, then, in addition to all other remedies available to the Holder, the Company shall pay in cash to the Holder on each day after such fifth (5<sup>th</sup>) Business Day that the issuance of such

shares of Common Stock is not timely effected an amount equal to 1.0% of the product of (A) the sum of the number of shares of Common Stock not issued to the Holder on a timely basis and to which the Holder is entitled and (B) the Weighted Average Price of the shares of Common Stock on the Trading Day immediately preceding the last possible date which the Company could have issued such shares of Common Stock to the Holder without violating Section 1(a). In addition to the foregoing, if within three (3) Trading Days after the Company's receipt of the facsimile copy of the Exercise Delivery Documents the Company shall fail to issue and deliver a certificate to the Holder and register such shares of Common Stock on the Company's share register or credit the Holder's balance account with DTC for the number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise hereunder, and if on or after such Trading Day the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of shares of Common Stock issuable upon such exercise that the Holder anticipated receiving from the Company (a **Buy-In**), then the Company shall, within five (5) Business Days after the Holder's request and in the Holder's discretion, either (i) pay cash to the Holder in an amount equal to the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased (the **Buy-In Price**), at which point the Company's obligation to deliver such certificate (and to issue such Warrant Shares) shall terminate, or (ii) promptly honor its obligation to deliver to the Holder a certificate or certificates representing such Warrant Shares and pay cash to the Holder in an amount equal to the excess (if any) of the Buy-In Price over the product of (A) such number of shares of Common Stock, times (B) the Weighted Average Price on the date of exercise.

(d) Cashless Exercise. Notwithstanding anything contained herein to the contrary, if a registration statement covering the issuance of the Warrant Shares that are the subject of the Exercise Notice by the Holder pursuant to the 1933 Act (the **Unavailable Warrant Shares**) is not available for the issuance of such Unavailable Warrant Shares, the Holder may, in its sole discretion, exercise this Warrant in whole or in part and, in lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the Aggregate Exercise Price, elect instead to receive upon such exercise the Net Number of shares of Common Stock determined according to the following formula (a **Cashless Exercise**):

$$\text{Net Number} = \frac{(A \times B) - (A \times C)}{B}$$

For purposes of the foregoing formula:

A = the total number of shares with respect to which this Warrant is then being exercised.

B = the Weighted Average Price of the shares of Common Stock on the date immediately preceding the date of the Exercise Notice.

C = the Exercise Price then in effect for the applicable Warrant Shares at the time of such exercise.

(e) Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall promptly issue to the Holder the number of Warrant Shares that are not disputed and resolve such dispute in accordance with Section 12.

(f) Limitations on Exercises: Beneficial Ownership.

(i) The Company shall not effect the exercise of this Warrant, and the Holder shall not have the right to exercise this Warrant, to the extent that after giving effect to such exercise, such Person (together with such Person's affiliates) would beneficially own in excess of 4.99% the

**Maximum Percentage** ) of the shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned by such Person and its affiliates shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which the determination of such sentence is being made, but shall exclude shares of Common Stock which would be issuable upon (x) exercise of the remaining, unexercised portion of this Warrant beneficially owned by such Person and its affiliates and (y) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company beneficially owned by such Person and its affiliates (including, without limitation, any convertible notes or convertible preferred stock or warrants) subject to a limitation on conversion or exercise analogous to the limitation contained herein. Except as set forth in the preceding sentence, for purposes of this paragraph, beneficial ownership shall be calculated in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended. For purposes of this Warrant, in determining the number of outstanding shares of Common Stock, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (1) the Company's most recent Form 10-K, Form 10-KSB, Form 10-Q, Form 10-QSB, Current Report on Form 8-K or other public filing with the Securities and Exchange Commission ( **SEC** ) as the case may be, (2) a more recent public announcement by the Company or (3) any other notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. For any reason at any time, upon the written request of the Holder, the Company shall within two (2) Business Days confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company by the Holder and its affiliates since the date as of which such number of outstanding shares of Common Stock was reported. By written notice to the Company, the Holder may from time to time increase or decrease the Maximum Percentage to any other percentage not in excess of 9.99% specified in such notice; provided that any such increase will not be effective until the sixty-first (61<sup>st</sup>) day after such notice is delivered to the Company.

(ii) Principal Market Regulation. The Company shall not be obligated to issue any shares of Common Stock upon exercise of this Warrant

and the Holder shall not have the right to receive upon exercise of this Warrant any shares of Common Stock, if the issuance of such shares of Common Stock would exceed the aggregate number of shares of Common Stock which the Company may issue upon exercise of this Warrant (including, as applicable, any shares of Common Stock issued upon conversion of the SPA Securities) without breaching the Company's obligations under the rules or regulations of the Principal Market (the **Exchange Cap**), except that such limitation shall not apply in the event that the Company (A) obtains the approval of its stockholders as required by the applicable rules of the Principal Market for issuances of shares of Common Stock in excess of such amount or (B) obtains a written opinion from outside counsel to the Company that such approval is not required, which opinion shall be reasonably satisfactory to the Required Holders. Until such approval or written opinion is obtained, no Holder shall be issued, upon exercise or conversion, as applicable, of any SPA Warrants or SPA Securities, shares of Common Stock in an amount greater than the product of the Exchange Cap multiplied by a fraction, the numerator of which is the total number of shares of Common Stock issued to such Holder pursuant to the Securities Purchase Agreement on the Issuance Date and the denominator of which is the aggregate number of shares of Common Stock issued to the Holders pursuant to the Securities Purchase Agreement on the Issuance Date (with respect to each Holder, the **Exchange Cap Allocation**). In the event that any Holder shall sell or otherwise transfer any of such Holder's SPA Warrants, the transferee shall be allocated a pro rata portion of such Holder's Exchange Cap Allocation, and the restrictions of the prior sentence shall apply to such transferee with respect to the portion of the Exchange Cap Allocation allocated to such transferee. In the event that any Holder of SPA Warrants shall exercise all of such Holder's SPA Warrants into a number of shares of Common Stock which, in the aggregate, is less than such Holder's Exchange Cap Allocation, then the difference between such Holder's Exchange Cap Allocation and the number of shares of Common Stock actually issued to such Holder shall be allocated to the respective Exchange Cap Allocations of the remaining Holders of SPA Warrants on a pro rata basis in proportion to the shares of Common Stock underlying the SPA Warrants then held by each such Holder. In the event that the Company is prohibited from issuing any Warrant Shares for which an Exercise Notice has been received as a result of the operation of this Section 1(f)(ii), the Company shall pay cash in exchange for cancellation of such Warrant Shares, at a price per Warrant Share equal to the difference between the Closing Sale Price and the Exercise Price as of the date of the attempted exercise.

(g) **Insufficient Authorized Shares.** If at any time while this Warrant remain outstanding the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve for issuance upon exercise of this Warrant at least a number of shares of Common Stock equal to 120% (the **Required Reserve Amount**) of the number of shares of Common Stock as shall from time to time be necessary to effect the exercise of all of this Warrant then outstanding

(an **Authorized Share Failure** ), then the Company shall immediately take all action necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for this Warrant then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than ninety (90) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its stockholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each stockholder with a proxy statement and shall use its best efforts to solicit its stockholders' approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the stockholders that they approve such proposal.

(h) **Mandatory Exercise.** (i) Notwithstanding the foregoing, at any time after the LC Termination Date (as defined in the Securities Purchase Agreement), in the event that the Conditions to Mandatory Exercise (as defined below) are satisfied, then the Company shall have the right to require the Holder to exercise this Warrant in full (a **Mandatory Exercise** ) by sending a written notice (the **Mandatory Exercise Notice** ) to all, but not less than all, of the holders of SPA Warrants and the Transfer Agent on the Business Day immediately after the Measuring Period (as defined below) (the **Mandatory Exercise Notice Date** ). The Mandatory Exercise Notice shall state (i) the Trading Day selected for the Mandatory Exercise, which Trading Date shall be at least thirty (30) Business Days but not more than sixty (60) Business Days following the Mandatory Exercise Notice Date (the **Mandatory Exercise Date** ) and (ii) the number of Warrant Shares issuable upon such exercise. Notwithstanding the foregoing, nothing in this subsection shall prevent the Holder from exercising this Warrant, in whole or part, prior to such Mandatory Exercise Date. The Mandatory Exercise Notice shall be irrevocable. **Conditions to Mandatory Exercise** means the following conditions: (i) on each day during the period beginning on the first day of the Measuring Period (as defined below) and ending on the Mandatory Exercise Date, all of the Warrant Shares are freely tradable, without restriction other than restrictions related to Holder's status as an affiliate of the Company, on the Principal Market; (ii) on each day during the period beginning on the Issuance Date and ending on and including the Mandatory Exercise Date, the Warrant Shares are designated for listing on the Principal Market and shall not have been suspended from trading on such exchange; (iii) on each day during the period beginning on the Issuance Date and ending on and including the Mandatory Exercise Date, the Company shall have delivered unrestricted Warrant Shares upon exercise of the SPA Warrants to the holders on a timely basis; (iv) at any time during any thirty (30) consecutive Trading Day period (the **Measuring Period** ) after the LC Termination Date, the Closing Sale Price of the Common Stock equals or exceeds 135% of the Exercise Price in effect on the Issuance Date (as adjusted for stock splits, stock dividends, reverse stock splits, stock combinations, reclassifications, recapitalizations and similar events) for twenty (20) Trading Days; (v) any applicable shares of Common Stock that may be issuable upon exercise of this Warrant after the Mandatory Exercise Notice Date (without regard to any limitation on exercise of the Warrants) may be issued in full without violating Section 1(f) hereof and the rules or regulations of the Principal Market or any applicable Eligible Market; and (vi) the Company otherwise shall have been in material compliance with and shall not have materially breached any provision, covenant, representation or warranty of any Transaction Document (as defined in the Securities Purchase Agreement).

(ii) Pro Rata Exercise Requirement. If the Company elects to cause an exercise of this Warrant pursuant to Section 1(h)(i), then it must simultaneously take the same action in the same proportion with respect to the other SPA Warrants that are Series A Warrants. All Warrant Shares acquired by the Holder upon exercise of this Warrant after the Mandatory Exercise Notice Date shall reduce the number of Warrant Shares to be acquired by the Holder on the Mandatory Exercise Date. If the Company has elected a Mandatory Exercise, the mechanics of exercise set forth in Section 1(a) shall apply, to the extent applicable, as if the Company and the Transfer Agent had received from the Holder, on the Mandatory Exercise Date, an Exercise Notice with respect to Warrants being exercised pursuant to the Mandatory Exercise.

2. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF WARRANT SHARES. The Exercise Price and the number of Warrant Shares shall be adjusted from time to time as follows:

(a) Adjustment upon Issuance of shares of Common Stock. If and whenever on or after the Subscription Date and through the eighteen (18) month anniversary of the Issuance Date, the Company issues or sells, or in accordance with this Section 2 is deemed to have issued or sold, any shares of Common Stock (including the issuance or sale of shares of Common Stock owned or held by or for the account of the Company, but excluding shares of Common Stock deemed to have been issued by the Company in connection with any Excluded Securities (as defined in the SPA Securities) for a consideration per share (the **New Issuance Price**) less than a price (the **Applicable Price**) equal to the Exercise Price in effect immediately prior to such issue or sale or deemed issuance or sale (the foregoing a **Dilutive Issuance**), then immediately after such Dilutive Issuance, the Exercise Price then in effect shall be reduced to an amount equal to the New Issuance Price. In the event of any Dilutive Issuance after the eighteen (18) month anniversary of the Issuance Date, then immediately after such Dilutive Issuance, the Exercise Price then in effect shall be reduced to an amount equal to the product of (A) the Exercise Price in effect immediately prior to such Dilutive Issuance and (B) the quotient determined by dividing (1) the sum of (I) the product derived by multiplying the Exercise Price in effect immediately prior to such Dilutive Issuance and the number of shares of Common Stock Deemed Outstanding immediately prior to such Dilutive Issuance plus (II) the consideration, if any, received by the Company upon such Dilutive Issuance, by (2) the product derived by multiplying (I) the Exercise Price in effect immediately prior to such Dilutive Issuance by (II) the number of shares of Common Stock Deemed Outstanding immediately after such Dilutive Issuance. Upon each such adjustment of the Exercise Price hereunder, the number of Warrant Shares shall be adjusted to the number of shares of Common Stock determined by multiplying the Exercise Price in effect immediately prior to such adjustment by the number of Warrant Shares acquirable upon exercise of this Warrant immediately prior to such adjustment and dividing the product thereof by the Exercise Price resulting from such adjustment. For purposes of determining the adjusted Exercise Price under this Section 2(a), the following shall be applicable:

(i) Issuance of Options. If the Company in any manner grants any Options and the lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Option or upon conversion, exercise or exchange of any Convertible Securities issuable upon exercise of any such Option is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the granting or sale of such Option for such price per share. For purposes of this Section 2(a)(i), the lowest price per share for which one share of Common Stock is issuable upon exercise of such Options or upon conversion, exercise or exchange of such Convertible Securities issuable upon exercise of any such Option shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon the granting or sale of the Option, upon exercise of the Option and upon conversion, exercise or exchange of any Convertible Security issuable upon exercise of such Option. No further adjustment of the Exercise Price or number of Warrant Shares shall be made upon the actual issuance of such shares of Common Stock or of such Convertible Securities upon the exercise of such Options or upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities.

(ii) Issuance of Convertible Securities. If the Company in any manner issues or sells any Convertible Securities and the lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the issuance or sale of such Convertible Securities for such price per share. For the purposes of this Section 2(a)(ii), the lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to one share of Common Stock upon the issuance or sale of the Convertible Security and upon conversion, exercise or exchange of such Convertible Security. No further adjustment of the Exercise Price or number of Warrant Shares shall be made upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities, and if any such issue or sale of such Convertible Securities is made upon exercise of any Options for which adjustment of this Warrant has been or is to be made pursuant to other provisions of this Section 2(a), no further adjustment of the Exercise Price or number of Warrant Shares shall be made by reason of such issue or sale.

(iii) Change in Option Price or Rate of Conversion. If the purchase price provided for in any Options, the additional consideration, if any, payable upon the issue, conversion, exercise or exchange of any

Convertible Securities, or the rate at which any Convertible Securities are convertible into or exercisable or exchangeable for shares of Common Stock increases or decreases at any time, then the Exercise Price and the number of Warrant Shares in effect at the time of such increase or decrease shall be adjusted to the Exercise Price and the number of Warrant Shares which would have been in effect at such time had such Options or Convertible Securities provided for such increased or decreased purchase price, additional consideration or increased or decreased conversion rate, as the case may be, at the time initially granted, issued or sold. For purposes of this Section 2(a)(iii), if the terms of any Option or Convertible Security that was outstanding as of the date of issuance of this Warrant are increased or decreased in the manner described in the immediately preceding sentence, then such Option or Convertible Security and the shares of Common Stock deemed issuable upon exercise, conversion or exchange thereof shall be deemed to have been issued as of the date of such increase or decrease. No adjustment pursuant to this Section 2(a) shall be made if such adjustment would result in an increase of the Exercise Price then in effect or a decrease in the number of Warrant Shares.

(iv) Calculation of Consideration Received. In case any Option is issued in connection with the issue or sale of other securities of the Company, together comprising one integrated transaction in which no specific consideration is allocated to such Options by the parties thereto, the Options will be deemed to have been issued for a consideration of \$0.01. If any shares of Common Stock, Options or Convertible Securities are issued or sold or deemed to have been issued or sold for cash, the consideration received therefor will be deemed to be the net amount received by the Company therefor. If any shares of Common Stock, Options or Convertible Securities are issued or sold for a consideration other than cash, the amount of such consideration received by the Company will be the fair value of such consideration, except where such consideration consists of securities, in which case the amount of consideration received by the Company will be the Weighted Average Price of such security on the date of receipt. If any shares of Common Stock, Options or Convertible Securities are issued to the owners of the non-surviving entity in connection with any merger in which the Company is the surviving entity, the amount of consideration therefor will be deemed to be the fair value of such portion of the net assets and business of the non-surviving entity as is attributable to such shares of Common Stock, Options or Convertible Securities, as the case may be. The fair value of any consideration other than cash or securities will be determined jointly by the Company and the Required Holders. If such parties are unable to reach agreement within ten (10) days after the occurrence of an event requiring valuation (the **Valuation Event**), the fair value of such consideration will be determined within five (5) Business Days after the tenth (10) day following the Valuation Event by an independent,

reputable appraiser jointly selected by the Company and the Required Holders. The determination of such appraiser shall be final and binding upon all parties absent manifest error and the fees and expenses of such appraiser shall be borne by the Company.

(v) Record Date. If the Company takes a record of the holders of shares of Common Stock for the purpose of entitling them (A) to receive a dividend or other distribution payable in shares of Common Stock, Options or in Convertible Securities or (B) to subscribe for or purchase shares of Common Stock, Options or Convertible Securities, then such record date will be deemed to be the date of the issue or sale of the shares of Common Stock deemed to have been issued or sold upon the declaration of such dividend or the making of such other distribution or the date of the granting of such right of subscription or purchase, as the case may be.

(vi) Unless and until such time as the Company receives any stockholder approval that may be required under any applicable stockholder approval provisions in order to allow the Exercise Price to be less than the Exercise Floor Price (as defined below), including, without limitation, under the rules and regulations of any exchange or automated quotation system on which any of the securities of the Company are listed or designated (the **Required Stockholder Approval**), no adjustment pursuant to Sections 2(a) and 3(a) shall cause the Exercise Price to be less than \$[ ], as adjusted for any stock dividend, stock split, stock combination, reclassification or similar transaction (the **Exercise Floor Price**).

(b) Adjustment upon Subdivision or Combination of Common Stock. If the Company at any time on or after the Subscription Date subdivides (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of its outstanding shares of Common Stock into a greater number of shares, the Exercise Price in effect immediately prior to such subdivision will be proportionately reduced and the number of Warrant Shares will be proportionately increased. If the Company at any time on or after the Subscription Date combines (by combination, reverse stock split or otherwise) one or more classes of its outstanding shares of Common Stock into a smaller number of shares, the Exercise Price in effect immediately prior to such combination will be proportionately increased and the number of Warrant Shares will be proportionately decreased. Any adjustment under this Section 2(b) shall become effective at the close of business on the date the subdivision or combination becomes effective.

(c) Other Events. If any event occurs of the type contemplated by the provisions of this Section 2 but not expressly provided for by such provisions (including, without limitation, the granting of stock appreciation rights, phantom stock rights or other rights with equity features), then the Company's Board of Directors will make an appropriate adjustment in the Exercise Price and the number of Warrant Shares so as to protect the rights of the Holder; provided that no such adjustment pursuant to this Section 2(c) will increase the Exercise Price then in effect or decrease the number of Warrant Shares as otherwise determined pursuant to this Section 2.

(d) De Minimis Adjustments. No adjustment in the Exercise Price shall be required unless such adjustment would require an increase or decrease of at least \$0.01 in such price; provided, however, that any adjustment which by reason of this Section 2(d) is not required to be made shall be carried forward and taken into account in any subsequent adjustments under this Section 2. All calculations under this Section 2 shall be made by the Company in good faith and shall be made to the nearest cent or to the nearest one hundredth of a share, as applicable. No adjustment need be made for a change in the par value or no par value of the Company's Common Stock.

3. RIGHTS UPON DISTRIBUTION OF ASSETS. If the Company shall declare or make any dividend (other than a dividend issued under Section 2(b) herein) or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a **Distribution**), at any time after the issuance of this Warrant, then, in each such case any Exercise Price in effect immediately prior to the close of business on the record date fixed for the determination of holders of shares of Common Stock entitled to receive the Distribution shall be reduced, effective as of the close of business on such record date, to a price determined by multiplying such Exercise Price by a fraction of which (i) the numerator shall be the Weighted Average Price of the shares of Common Stock on the Trading Day immediately preceding such record date minus the value of the Distribution (as determined in good faith by the Company's Board of Directors) applicable to one share of Common Stock, and (ii) the denominator shall be the Weighted Average Price of the shares of Common Stock on the Trading Day immediately preceding such record date.

4. PURCHASE RIGHTS; FUNDAMENTAL TRANSACTIONS.

(a) Purchase Rights. In addition to any adjustments pursuant to Section 2 above, if at any time the Company grants, issues or sells any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the **Purchase Rights**), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights.

(b) Fundamental Transactions. No sooner than fifteen (15) days and nor later than ten (10) days prior to the consummation of a Fundamental Transaction, but not prior to the public announcement of such Fundamental Transaction, the Company shall deliver written notice thereof via facsimile and overnight courier to the Holder (a **Fundamental Transaction Notice**).

(1) **Reaffirmation.** If the Company enters into or is a party to a Fundamental Transaction in which it is the Successor Entity, the Company shall deliver to the Holder (i) an affirmation that this Warrant shall be a continuing obligation of the Company, or the Company as the Successor Entity, and a reaffirmation of the Company's, or the Company's as the Successor Entity, obligations under the Transaction Documents following such Fundamental Transaction and (ii) a confirmation that there shall be issued upon exercise of this Warrant at any time after the consummation of the Fundamental Transaction (the **Fundamental Transaction Closing Date**), (A) Common Stock or such other shares of publicly traded common stock (or their equivalent) of the Company, or the Company as the Successor Entity, or (B) if the Company is not a publicly traded entity following such Fundamental Transaction, in lieu of the shares of the Company's Common Stock (or other securities, cash, assets or other property) issuable upon exercise of the Warrants prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of such Fundamental Transaction had this Warrant been exercised immediately prior to such Fundamental Transaction, in each case as adjusted in accordance with the provisions of this Warrant. In addition to and not in substitution for any other rights hereunder, prior to the consummation of any Fundamental Transaction in which the Company is the Successor Entity, pursuant to which holders of shares of Common Stock are entitled to receive securities or other assets with respect to or in exchange for shares of Common Stock (a **Corporate Event**), the Company shall make appropriate provision to insure that the Holder will thereafter have the right to receive upon an exercise of this Warrant at any time after the Fundamental Transaction Closing Date but prior to the Expiration Date, in lieu of the shares of the Common Stock (or other securities, cash, assets or other property) issuable upon the exercise of this Warrant prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of such Fundamental Transaction had this Warrant been exercised immediately prior to such Fundamental Transaction. Provision made pursuant to the preceding sentence shall be in a form and substance reasonably satisfactory to the Holder. The provisions of this Section shall apply similarly and equally to successive Fundamental Transactions and Corporate Events and shall be applied without regard to any limitations on the exercise of this Warrant. Notwithstanding the foregoing, the Holder acknowledges that in connection with any Fundamental Transaction in which the Company is not the Successor Entity, the Holder shall only have the rights set forth in Sections 4(b)(2) and 4(b)(3) hereof.

(2) **Fundamental Transaction Exchange.** At any time during the period beginning on the date of the Holder's receipt of a Fundamental

Transaction Notice and ending on the thirtieth (30<sup>th</sup>) day (the **Automatic Exchange Date** ) after the Fundamental Transaction Closing Date, the Holder may require the Company to exchange this Warrant (a **Fundamental Transaction Exchange** ), within ten (10) Business Days after such request (or, if later, on the Fundamental Transaction Closing Date), in lieu of the shares of the Common Stock (or other securities, cash, assets or other property) issuable upon the exercise of this Warrant prior to such Fundamental Transaction, for such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of such Fundamental Transaction had this Warrant been exercised immediately prior to such Fundamental Transaction. If the Fundamental Transaction Exchange has not occurred prior to the Automatic Exchange Date and the Holder has not delivered a Black Scholes Notice (as defined below) prior to the Automatic Exchange Date, the Fundamental Transaction Exchange automatically shall occur on the Automatic Exchange Date.

(3) **Black Scholes Value.** Notwithstanding the foregoing, in the event of a Fundamental Transaction, at the request of the Holder delivered before the Automatic Exchange Date (a **Black Scholes Notice** ), the Company (or the Successor Entity) shall purchase this Warrant from the Holder by paying to the Holder, within ten (10) Business Days after such request (or, if later, on the effective date of the Fundamental Transaction), cash in an amount equal to the Black Scholes Value of the remaining unexercised portion of this Warrant on the date of such Fundamental Transaction.

5. **NONCIRCUMVENTION.** The Company hereby covenants and agrees that the Company will not, by amendment of its Certificate of Incorporation, Bylaws or through any reorganization, transfer of assets, consolidation, merger, scheme of arrangement, dissolution, issue or sale of securities, or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, and will at all times in good faith carry out all the provisions of this Warrant and take all action as may be required to protect the rights of the Holder. Without limiting the generality of the foregoing, the Company (i) shall not increase the par value of any shares of Common Stock receivable upon the exercise of this Warrant above the Exercise Price then in effect, (ii) shall take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of Common Stock upon the exercise of this Warrant and (iii) shall, so long as any of the SPA Warrants are outstanding, take all action necessary to reserve and keep available out of its authorized and unissued shares of Common Stock, solely for the purpose of effecting the exercise of the SPA Warrants, 120% of the number of shares of Common Stock as shall from time to time be necessary to effect the exercise of the SPA Warrants then outstanding (without regard to any limitations on exercise.

6. **WARRANT HOLDER NOT DEEMED A STOCKHOLDER.** Except as otherwise specifically provided herein, the Holder, solely in such Person's capacity as a holder of this Warrant, shall not be entitled to vote or receive dividends or be deemed the holder of share capital of the Company for any purpose, nor shall anything contained in this Warrant be

construed to confer upon the Holder, solely in such Person's capacity as the Holder of this Warrant, any of the rights of a shareholder of the Company or any right to vote, give or withhold consent to any corporate action (whether any reorganization, issue of stock, reclassification of stock, consolidation, merger, conveyance or otherwise), receive notice of meetings, receive dividends or subscription rights, or otherwise, prior to the issuance to the Holder of the Warrant Shares which such Person is then entitled to receive upon the due exercise of this Warrant. Except as set forth in Section 1(h), nothing contained in this Warrant shall be construed as imposing any liabilities on the Holder to purchase any securities (upon exercise of this Warrant or otherwise) or as a shareholder of the Company, whether such liabilities are asserted by the Company or by creditors of the Company. Notwithstanding this Section 6, the Company shall provide the Holder with copies of the same notices and other information given to the shareholders of the Company generally, contemporaneously with the giving thereof to the shareholders.

7. REISSUANCE OF WARRANTS.

(a) Transfer of Warrant. If this Warrant is to be transferred, the Holder shall surrender this Warrant to the Company, whereupon the Company will forthwith issue and deliver upon the order of the Holder a new Warrant (in accordance with Section 7(d)), registered as the Holder may request, representing the right to purchase the number of Warrant Shares being transferred by the Holder and, if less than the total number of Warrant Shares then underlying this Warrant is being transferred, a new Warrant (in accordance with Section 7(d)) to the Holder representing the right to purchase the number of Warrant Shares not being transferred; provided, that prior to any transfer of this Warrant, each transferee of this Warrant shall acknowledge and agree to its obligations under Section 1(h) hereof.

(b) Lost, Stolen or Mutilated Warrant. Upon receipt by the Company of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant, and, in the case of loss, theft or destruction, of any indemnification undertaking by the Holder to the Company in customary form and, in the case of mutilation, upon surrender and cancellation of this Warrant, the Company shall execute and deliver to the Holder a new Warrant (in accordance with Section 7(d)) representing the right to purchase the Warrant Shares then underlying this Warrant.

(c) Exchangeable for Multiple Warrants. This Warrant is exchangeable, upon the surrender hereof by the Holder at the principal office of the Company, for a new Warrant or Warrants (in accordance with Section 7(d)) representing in the aggregate the right to purchase the number of Warrant Shares then underlying this Warrant, and each such new Warrant will represent the right to purchase such portion of such Warrant Shares as is designated by the Holder at the time of such surrender; provided, however, that no Warrants for fractional shares of Common Stock shall be given.

(d) Issuance of New Warrants. Whenever the Company is required to issue a new Warrant pursuant to the terms of this Warrant, such new Warrant (i) shall be of like tenor with this Warrant, (ii) shall represent, as indicated on the face of such new Warrant, the right to purchase the Warrant Shares then underlying this Warrant (or in

the case of a new Warrant being issued pursuant to Section 7(a) or Section 7(c), the Warrant Shares designated by the Holder which, when added to the number of shares of Common Stock underlying the other new Warrants issued in connection with such issuance, does not exceed the number of Warrant Shares then underlying this Warrant), (iii) shall have an issuance date, as indicated on the face of such new Warrant which is the same as the Issuance Date, and (iv) shall have the same rights and conditions as this Warrant.

8. NOTICES. Whenever notice is required to be given under this Warrant, unless otherwise provided herein, such notice shall be given in accordance with Section 9(f) of the Securities Purchase Agreement. The Company shall provide the Holder with prompt written notice of all actions taken pursuant to this Warrant, including in reasonable detail a description of such action and the reason therefore. Without limiting the generality of the foregoing, the Company will give written notice to the Holder (i) immediately upon any adjustment of the Exercise Price, setting forth in reasonable detail, within one (1) Business Day certifying, the calculation of such adjustment and (ii) at least fifteen (15) days prior to the date on which the Company closes its books or takes a record (A) with respect to any dividend or distribution upon the shares of Common Stock, (B) with respect to any grants, issuances or sales of any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property to holders of shares of Common Stock (other than Excluded Securities) or (C) for determining rights to vote with respect to any Fundamental Transaction, dissolution or liquidation, provided in each case that such information shall be made known to the public prior to or in conjunction with such notice being provided to the Holder.

9. AMENDMENT AND WAIVER. Except as otherwise provided herein, the provisions of this Warrant may be amended and the Company may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Company has obtained the written consent of the Required Holders; provided that no such action may increase the exercise price of any SPA Warrant or decrease the number of shares or class of stock obtainable upon exercise of any SPA Warrant without the written consent of the Holder. No such amendment shall be effective to the extent that it applies to less than all of the holders of the SPA Warrants then outstanding.

10. GOVERNING LAW. This Warrant shall be governed by and construed and enforced in accordance with, and all questions concerning the construction, validity, interpretation and performance of this Warrant shall be governed by, the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York.

11. CONSTRUCTION; HEADINGS. This Warrant shall be deemed to be jointly drafted by the Company and all the Buyers and shall not be construed against any person as the drafter hereof. The headings of this Warrant are for convenience of reference and shall not form part of, or affect the interpretation of, this Warrant.

12. DISPUTE RESOLUTION. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall submit the disputed determinations or arithmetic calculations via facsimile within two (2)

Business Days of receipt of the Exercise Notice giving rise to such dispute, as the case may be, to the Holder. If the Holder and the Company are unable to agree upon such determination or calculation of the Exercise Price or the Warrant Shares within three Business Days of such disputed determination or arithmetic calculation being submitted to the Holder, then the Company shall, within two (2) Business Days submit via facsimile (a) the disputed determination of the Exercise Price to an independent, reputable investment bank selected by the Company and approved by the Holder or (b) the disputed arithmetic calculation of the Warrant Shares to the Company's independent, outside accountant. The Company shall cause at its expense the investment bank or the accountant, as the case may be, to perform the determinations or calculations and notify the Company and the Holder of the results no later than ten Business Days from the time it receives the disputed determinations or calculations. Such investment bank's or accountant's determination or calculation, as the case may be, shall be binding upon all parties absent demonstrable error.

13. REMEDIES, OTHER OBLIGATIONS, BREACHES AND INJUNCTIVE RELIEF. The remedies provided in this Warrant shall be cumulative and in addition to all other remedies available under this Warrant and the other Transaction Documents, at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit the right of the Holder right to pursue actual damages for any failure by the Company to comply with the terms of this Warrant. The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Holder and that the remedy at law for any such breach may be inadequate. The Company therefore agrees that, in the event of any such breach or threatened breach, the holder of this Warrant shall be entitled, in addition to all other available remedies, to an injunction restraining any breach, without the necessity of showing economic loss and without any bond or other security being required.

14. TRANSFER. This Warrant may be offered for sale, sold, transferred or assigned in accordance with applicable law without the consent of the Company.

15. CERTAIN DEFINITIONS. For purposes of this Warrant, the following terms shall have the following meanings:

(a) **1933 Act** means the Securities Act of 1933, as amended.

(b) **Black Scholes Value** means the value of this Warrant based on the Black and Scholes Option Pricing Model obtained from the **OV** function on Bloomberg determined as of the day of closing of the applicable Fundamental Transaction for pricing purposes and reflecting (i) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the remaining term of this Warrant as of such date of request, (ii) an expected volatility equal to the greater of 60% and the 100 day volatility obtained from the HVT function on Bloomberg as of the day immediately following the public announcement of the applicable Fundamental Transaction and (iii) the underlying price per share used in such calculation shall be the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in the Fundamental Transaction.

(c) **Bloomberg** means Bloomberg Financial Markets.

(d) **Business Day** means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed.

(e) **Closing Sale Price** means, for any security as of any date, the last closing trade price for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing trade price then the last trade price of such security prior to 4:00:00 p.m., New York time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last trade price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing do not apply, the last trade price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no last trade price is reported for such security by Bloomberg, the average of the bid prices, or the ask prices, respectively, of any market makers for such security as reported in the pink sheets by Pink Sheets LLC (formerly the National Quotation Bureau, Inc.). If the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Sale Price of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 12. All such determinations to be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during the applicable calculation period.

(f) **Common Stock** means (i) the Company's shares of Common Stock, par value \$0.001 per share, and (ii) any share capital into which such Common Stock shall have been changed or any share capital resulting from a reclassification of such Common Stock.

(g) **Common Stock Deemed Outstanding** means, at any given time, the number of shares of Common Stock actually outstanding at such time, plus the number of shares of Common Stock deemed to be outstanding pursuant to Sections 2(a)(i) and 2(a)(ii) hereof regardless of whether the Options or Convertible Securities are actually exercisable at such time, but excluding any shares of Common Stock owned or held by or for the account of the Company or issuable upon exercise of the SPA Warrants.

(h) **Convertible Securities** means any stock or securities (other than Options) directly or indirectly convertible into or exercisable or exchangeable for shares of Common Stock.

(i) **Eligible Market** means the Principal Market, The New York Stock Exchange, Inc., The NASDAQ Global Select Market or The NASDAQ Capital Market.

(j) **Expiration Date** means the date sixty (60) months after the Initial Exercise Eligibility Date or, if such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a **Holiday**), the next date that is not a Holiday.

(k) **Fundamental Transaction** means that the Company shall, directly or indirectly, in one or more related transactions, (i) consolidate or merge with or into (whether or not the Company is the surviving corporation) another Person or Persons, if the holders of the Voting Stock (not including any shares of Voting Stock held by the Person or Persons making or party to, or associated or affiliated with the Persons making or party to, such consolidation or merger) immediately prior to such consolidation or merger shall hold or have the right to direct the voting of less than 50% of the Voting Stock or such voting securities of such other surviving Person immediately following such transaction, or (ii) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Company to another Person, or (iii) allow another Person to make a purchase, tender or exchange offer that is accepted by the holders of more than the 50% of the outstanding shares of Voting Stock (not including any shares of Voting Stock held by the Person or Persons making or party to, or associated or affiliated with the Persons making or party to, such purchase, tender or exchange offer), or (iv) consummate a stock purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person whereby such other Person acquires more than the 50% of the outstanding shares of Voting Stock (not including any shares of Voting Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock purchase agreement or other business combination), (v) reorganize, recapitalize or reclassify its Common Stock or (vi) any person or group (as these terms are used for purposes of Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended) is or shall become the beneficial owner (as defined in Rule 13d-3 under the Securities Exchange Act of 1934, as amended), directly or indirectly, of 50% of the aggregate ordinary voting power represented by issued and outstanding Common Stock.

(l) **Initial Exercise Eligibility Date** means the Issuance Date.

(m) **Options** means any rights, warrants or options to subscribe for or purchase shares of Common Stock or Convertible Securities.

(n) **Parent Entity** of a Person means an entity that, directly or indirectly, controls the applicable Person and whose common stock or equivalent equity security is quoted or listed on an Eligible Market, or, if there is more than one such Person or Parent Entity, the Person or Parent Entity with the largest public market capitalization as of the date of consummation of the Fundamental Transaction.

(o) **Person** means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization, any other entity and a government or any department or agency thereof.

(p) **Principal Market** means The NASDAQ Global Market.

- (q) **Required Holders** means the holders of the SPA Warrants representing at least a majority of shares of Common Stock underlying the SPA Warrants then outstanding.
- (r) **Series A Warrants** means the Series A Warrants issued pursuant to the Securities Purchase Agreement.
- (s) **SPA Securities** means the Notes issued pursuant to the Securities Purchase Agreement.
- (t) **Successor Entity** means the Person (or, if so elected by the Required Holders, the Parent Entity) formed by, resulting from or surviving any Fundamental Transaction or the Person (or, if so elected by the Required Holders, the Parent Entity) with which such Fundamental Transaction shall have been entered into.
- (u) **Trading Day** means any day on which the Common Stock are traded on the Principal Market, or, if the Principal Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities market on which the Common Stock are then traded; provided that Trading Day shall not include any day on which the Common Stock are scheduled to trade on such exchange or market for less than 4.5 hours or any day that the Common Stock are suspended from trading during the final hour of trading on such exchange or market (or if such exchange or market does not designate in advance the closing time of trading on such exchange or market, then during the hour ending at 4:00:00 p.m., New York time).
- (v) **Voting Stock** of a Person means capital stock of such Person of the class or classes pursuant to which the holders thereof have the general voting power to elect, or the general power to appoint, at least a majority of the board of directors, managers or trustees of such Person (irrespective of whether or not at the time capital stock of any other class or classes shall have or might have voting power by reason of the happening of any contingency).
- (w) **Weighted Average Price** means, for any security as of any date, the dollar volume-weighted average price for such security on the Principal Market during the period beginning at 9:30:01 a.m., New York City time, and ending at 4:00:00 p.m., New York City time, as reported by Bloomberg through its Volume at Price function or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York City time, and ending at 4:00:00 p.m., New York City time, as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest closing bid price and the lowest closing ask price of any of the market makers for such security as reported in the pink sheets by Pink Sheets LLC (formerly the National Quotation Bureau, Inc.). If the Weighted Average Price cannot be calculated for such security on such date on any of the foregoing bases, the Weighted Average Price of such security on such date shall be the fair market value as mutually determined by the Company and the Required Holders. If the Company and the Required

Holders are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 12 with the term Weighted Average Price being substituted for the term Exercise Price. All such determinations shall be appropriately adjusted for any share dividend, share split or other similar transaction during such period.

**[Signature Page Follows]**

- 20 -

**IN WITNESS WHEREOF**, the Company has caused this Warrant to Purchase Common Stock to be duly executed as of the Issuance Date set out above.

**NANOGEN, INC.**

By:

Name:

Title:

Acknowledged and agreed with respect to Section 1(h):

[HOLDER]

By:

Name:

Title:

EXERCISE NOTICE

TO BE EXECUTED BY THE REGISTERED HOLDER TO EXERCISE THIS

WARRANT TO PURCHASE COMMON STOCK

NANOGEN, INC.

The undersigned holder hereby exercises the right to purchase \_\_\_\_\_ of the shares of Common Stock ( **Warrant Shares** ) of Nanogen, Inc., a Delaware corporation (the **Company** ), evidenced by the attached Warrant to Purchase Common Stock (the **Warrant** ). Capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Warrant.

1. Form of Exercise Price. The Holder intends that payment of the Exercise Price shall be made as:

\_\_\_\_\_ a Cash Exercise with respect to \_\_\_\_\_ Warrant Shares; and/or

\_\_\_\_\_ a Cashless Exercise with respect to \_\_\_\_\_ Warrant Shares.

2. Payment of Exercise Price. In the event that the holder has elected a Cash Exercise with respect to some or all of the Warrant Shares to be issued pursuant hereto, the holder shall pay the Aggregate Exercise Price in the sum of \$ \_\_\_\_\_ to the Company in accordance with the terms of the Warrant.

3. Delivery of Warrant Shares. The Company shall deliver to the holder \_\_\_\_\_ Warrant Shares in accordance with the terms of the Warrant.

Date: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Name of Registered Holder

By:

Name:

Title:

**ACKNOWLEDGMENT**

The Company hereby acknowledges this Exercise Notice and hereby directs Computershare Investor Services to issue the above indicated number of shares of Common Stock in accordance with the Transfer Agent Instructions dated August \_\_, 2007 from the Company and acknowledged and agreed to by Computershare Investor Services.

**NANOGEN, INC.**

By:

Name:

Title:

[FORM OF SERIES B WARRANT]

NANOGEN, INC.

WARRANT TO PURCHASE COMMON STOCK

Warrant No.: \_\_\_\_\_

Date of Issuance: August \_\_, 2007 ( **Issuance Date** )

Nanogen, Inc., a Delaware corporation (the **Company** ), hereby certifies that, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, [ \_\_\_\_\_ ], the registered holder hereof or its permitted assigns (the **Holder** ), is entitled, subject to the terms set forth below, to purchase from the Company, at the Exercise Price (as defined below) then in effect, upon surrender of this Warrant to Purchase Common Stock (including any Warrants to Purchase Common Stock issued in exchange, transfer or replacement hereof, the **Warrant** ), at any time or times on or after the Initial Exercise Eligibility Date (as defined below), but not after 11:59 p.m., New York time, on the Expiration Date (as defined below), a number of fully paid nonassessable shares of Common Stock (as defined below) equal to the number of shares of Common Stock issued upon exercise of the Holder's Series A Warrants from and after the Initial Exercise Eligibility Date (the **Warrant Shares** ). This Warrant is one of the Warrants to purchase Common Stock (the **SPA Warrants** ) issued pursuant to Section 1 of that certain Securities Purchase Agreement, dated as of August \_\_, 2007 (the **Subscription Date** ), by and among the Company and the investors (the **Buyers** ) referred to therein (the **Securities Purchase Agreement** ). Except as otherwise defined herein, capitalized terms in this Warrant shall have the meanings set forth in Section 15.

1. EXERCISE OF WARRANT.

(a) Mechanics of Exercise. Subject to the terms and conditions hereof (including, without limitation, the limitations set forth in Section 1(f)), this Warrant may be exercised by the Holder at any time or times on or after the Initial Exercise Eligibility Date, in whole or in part, by (i) delivery of a written notice, in the form attached hereto as Exhibit A (the **Exercise Notice** ), of the Holder's election to exercise this Warrant and (ii) (A) payment to the Company of an amount equal to the applicable Exercise Price multiplied by the number of Warrant Shares as to which this Warrant is being exercised (the **Aggregate Exercise Price** ) in cash or by wire transfer of immediately available funds or (B) by notifying the Company that this Warrant is being exercised pursuant to a Cashless Exercise (as defined in Section 1(d)). The Holder shall not be required to deliver the original Warrant in order to effect an exercise hereunder. Execution and delivery of the Exercise Notice with respect to less than all of the Warrant Shares shall have the same effect as cancellation of the original Warrant and issuance of a new Warrant evidencing the right to purchase the remaining number of Warrant Shares. On or before the second (2<sup>nd</sup>) Business Day following the date on which the Company has received each of the Exercise Notice and the Aggregate Exercise Price (or notice of a

Cashless Exercise) (the **Exercise Delivery Documents** ), the Company shall transmit by facsimile an acknowledgment of confirmation of receipt of the Exercise Delivery Documents to the Holder and the Company's transfer agent (the **Transfer Agent** ). On or before the third (3) Business Day following the date on which the Company has received all of the Exercise Delivery Documents (the **Share Delivery Date** ), the Company shall (X) provided that the Transfer Agent is participating in The Depository Trust Company ( **DTC** ) Fast Automated Securities Transfer Program, upon the request of the Holder, credit such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit Withdrawal Agent Commission system, or (Y) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and dispatch by overnight courier to the address as specified in the Exercise Notice, a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder is entitled pursuant to such exercise. Upon delivery of the Exercise Delivery Documents, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date such Warrant Shares are credited to the Holder's DTC account or the date of delivery of the certificates evidencing such Warrant Shares, as the case may be. If this Warrant is submitted in connection with any exercise pursuant to this Section 1(a) and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the number of Warrant Shares being acquired upon an exercise, then the Company shall as soon as practicable and in no event later than three (3) Business Days after any exercise and at its own expense, issue a new Warrant (in accordance with Section 7(d)) representing the right to purchase the number of Warrant Shares purchasable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised. No fractional shares of Common Stock are to be issued upon the exercise of this Warrant, but rather the number of shares of Common Stock to be issued shall be rounded up to the nearest whole number. The Company shall pay any and all transfer and similar taxes (other than income and similar taxes) which may be payable with respect to the issuance and delivery of Warrant Shares upon exercise of this Warrant. **NOTWITHSTANDING ANY PROVISION OF THIS WARRANT TO THE CONTRARY, NO MORE THAN THE MAXIMUM ELIGIBILITY NUMBER OF WARRANT SHARES SHALL BE EXERCISABLE HEREUNDER.**

(b) Exercise Price. For purposes of this Warrant, **Exercise Price** means (1) with respect to the number of Warrant Shares that become exercisable in any calendar quarter, as set forth in column (2) of Schedule I hereto, the Exercise Price listed in column (4) to Schedule I opposite such number of Warrant Shares and (2) with respect to any portion of this Warrant not previously exercisable on the date when all Series A Warrants have been exercised, 110% of the Closing Sale Price on such date, in each case subject to adjustment as provided herein, provided that unless and until such time as the Company receives the Required Stockholder Approval (as defined below), the Exercise Price shall not be less than the Exercise Floor Price.

(c) Company's Failure to Timely Deliver Securities. If the Company shall fail for any reason or for no reason to issue to the Holder within five (5) Business Days of receipt of the Exercise Delivery Documents, a certificate for the number of shares of Common Stock to which the Holder is entitled and register such shares of Common Stock on the Company's share register or to credit the Holder's balance account with DTC for such number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise of this Warrant, then, in addition to all other remedies available to the Holder, the Company shall pay in cash to the Holder on each day after such fifth (5<sup>th</sup>) Business Day that the issuance of such shares of Common Stock is not timely effected an amount equal to 1.0% of the product of (A) the sum of the number of shares of Common Stock not issued to the Holder on a timely basis and to which the Holder is entitled and (B) the Weighted Average Price of the shares of Common Stock on the Trading Day immediately preceding the last possible date which the Company could have issued such shares of Common Stock to the Holder without violating Section 1(a). In addition to the foregoing, if within three (3) Trading Days after the Company's receipt of the facsimile copy of the Exercise Delivery Documents the Company shall fail to issue and deliver a certificate to the Holder and register such shares of Common Stock on the Company's share register or credit the Holder's balance account with DTC for the number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise hereunder, and if on or after such Trading Day the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of shares of Common Stock issuable upon such exercise that the Holder anticipated receiving from the Company (a **Buy-In**), then the Company shall, within five (5) Business Days after the Holder's request and in the Holder's discretion, either (i) pay cash to the Holder in an amount equal to the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased (the **Buy-In Price**), at which point the Company's obligation to deliver such certificate (and to issue such Warrant Shares) shall terminate, or (ii) promptly honor its obligation to deliver to the Holder a certificate or certificates representing such Warrant Shares and pay cash to the Holder in an amount equal to the excess (if any) of the Buy-In Price over the product of (A) such number of shares of Common Stock, times (B) the Weighted Average Price on the date of exercise.

(d) Cashless Exercise. Notwithstanding anything contained herein to the contrary, if a registration statement covering the issuance of the Warrant Shares that are the subject of the Exercise Notice by the Holder pursuant to the 1933 Act (the **Unavailable Warrant Shares**) is not available for the issuance of such Unavailable Warrant Shares, the Holder may, in its sole discretion, exercise this Warrant in whole or in part and, in lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the Aggregate Exercise Price, elect instead to receive upon such exercise the Net Number of shares of Common Stock determined according to the following formula (a **Cashless Exercise**):

$$\text{Net Number} = \frac{(A \times B) - (A \times C)}{B}$$

For purposes of the foregoing formula:

A = the total number of shares with respect to which this Warrant is then being exercised.

B = the Weighted Average Price of the shares of Common Stock on the date immediately preceding the date of the Exercise Notice.

C = the Exercise Price then in effect for the applicable Warrant Shares at the time of such exercise.

(e) Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall promptly issue to the Holder the number of Warrant Shares that are not disputed and resolve such dispute in accordance with Section 12.

(f) Limitations on Exercises: Beneficial Ownership.

(i) The Company shall not effect the exercise of this Warrant, and the Holder shall not have the right to exercise this Warrant, to the extent that after giving effect to such exercise, such Person (together with such Person's affiliates) would beneficially own in excess of 4.99% the

**Maximum Percentage** ) of the shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned by such Person and its affiliates shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which the determination of such sentence is being made, but shall exclude shares of Common Stock which would be issuable upon (x) exercise of the remaining, unexercised portion of this Warrant beneficially owned by such Person and its affiliates and (y) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company beneficially owned by such Person and its affiliates (including, without limitation, any convertible notes or convertible preferred stock or warrants) subject to a limitation on conversion or exercise analogous to the limitation contained herein. Except as set forth in the preceding sentence, for purposes of this paragraph, beneficial ownership shall be calculated in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended. For purposes of this Warrant, in determining the number of outstanding shares of Common Stock, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (1) the Company's most recent Form 10-K, Form 10-KSB, Form 10-Q, Form 10-QSB, Current Report on Form 8-K or other public filing with the Securities and Exchange Commission ( SEC ) as the case may be, (2) a more recent public announcement by the Company or (3) any other notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. For any reason at any time, upon the written request of the

Holder, the Company shall within two (2) Business Days confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company by the Holder and its affiliates since the date as of which such number of outstanding shares of Common Stock was reported. By written notice to the Company, the Holder may from time to time increase or decrease the Maximum Percentage to any other percentage not in excess of 9.99% specified in such notice; provided that any such increase will not be effective until the sixty-first (61<sup>st</sup>) day after such notice is delivered to the Company.

(ii) **Principal Market Regulation.** The Company shall not be obligated to issue any shares of Common Stock upon exercise of this Warrant and the Holder shall not have the right to receive upon exercise of this Warrant any shares of Common Stock, if the issuance of such shares of Common Stock would exceed the aggregate number of shares of Common Stock which the Company may issue upon exercise of this Warrant (including, as applicable, any shares of Common Stock issued upon conversion of the SPA Securities) without breaching the Company's obligations under the rules or regulations of the Principal Market (the **Exchange Cap**), except that such limitation shall not apply in the event that the Company (A) obtains the approval of its stockholders as required by the applicable rules of the Principal Market for issuances of shares of Common Stock in excess of such amount or (B) obtains a written opinion from outside counsel to the Company that such approval is not required, which opinion shall be reasonably satisfactory to the Required Holders. Until such approval or written opinion is obtained, no Holder shall be issued, upon exercise or conversion, as applicable, of any SPA Warrants or SPA Securities, shares of Common Stock in an amount greater than the product of the Exchange Cap multiplied by a fraction, the numerator of which is the total number of shares of Common Stock issued to such Holder pursuant to the Securities Purchase Agreement on the Issuance Date and the denominator of which is the aggregate number of shares of Common Stock issued to the Holders pursuant to the Securities Purchase Agreement on the Issuance Date (with respect to each Holder, the **Exchange Cap Allocation**). In the event that any Holder shall sell or otherwise transfer any of such Holder's SPA Warrants, the transferee shall be allocated a pro rata portion of such Holder's Exchange Cap Allocation, and the restrictions of the prior sentence shall apply to such transferee with respect to the portion of the Exchange Cap Allocation allocated to such transferee. In the event that any Holder of SPA Warrants shall exercise all of such Holder's SPA Warrants into a number of shares of Common Stock which, in the aggregate, is less than such Holder's Exchange Cap Allocation, then the difference between such Holder's Exchange Cap Allocation and the number of shares of Common Stock actually issued to such Holder shall

be allocated to the respective Exchange Cap Allocations of the remaining Holders of SPA Warrants on a pro rata basis in proportion to the shares of Common Stock underlying the SPA Warrants then held by each such Holder. In the event that the Company is prohibited from issuing any Warrant Shares for which an Exercise Notice has been received as a result of the operation of this Section 1(f)(ii), the Company shall pay cash in exchange for cancellation of such Warrant Shares, at a price per Warrant Share equal to the difference between the Closing Sale Price and the Exercise Price as of the date of the attempted exercise.

(g) Insufficient Authorized Shares. If at any time while this Warrant remain outstanding the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve for issuance upon exercise of this Warrant at least a number of shares of Common Stock equal to 120% (the **Required Reserve Amount**) of the number of shares of Common Stock as shall from time to time be necessary to effect the exercise of all of this Warrant then outstanding (an **Authorized Share Failure**), then the Company shall immediately take all action necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for this Warrant then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than ninety (90) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its stockholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each stockholder with a proxy statement and shall use its best efforts to solicit its stockholders' approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the stockholders that they approve such proposal.

(h) Scheduling of Warrant Shares. Within 30 days after the end of each calendar quarter after the Issuance Date while this Warrant is outstanding, as set forth in column (1) on Schedule I attached hereto, the Holder shall record on Schedule I attached hereto and provide a copy to the Company (i) in column (2), the number of the Holder's Series A Warrants exercised (or deemed exercised as determined below) during such calendar quarter; provided, that if less than 100,000 of the Holder's Series A Warrants are exercised in such calendar quarter, for purposes hereof such Series A Warrants so exercised will be carried forward successively until the earliest calendar quarter in which at least 100,000 of the Holder's Series A Warrants have been exercised (or so deemed exercised) in the aggregate since the last calendar quarter in which any portion of this Warrant has become exercisable and such Series A Warrants will be deemed to have been exercised in the applicable subsequent calendar quarter, (ii) in column (3), the Maximum Eligibility Number for each calendar quarter, which shall equal the Maximum Eligibility Number from the prior calendar quarter plus the number of Warrant Shares indicated in column (2) for such calendar quarter, and (iii) in column (4), the Exercise Price for the Warrant Shares specified in column (2) of such schedule, which shall equal 110% of the Closing Sale Price on the last Trading Day of such calendar quarter. Notwithstanding the

foregoing, on the date when all of the Series A Warrants are exercised, the entire amount of this Warrant shall immediately become exercisable, the Maximum Eligibility Amount shall be [\_\_\_\_\_], as adjusted for any stock dividend, stock split, stock combination, reclassification or similar transaction and the Exercise Price for any previously unexercisable portion of this Warrant shall be equal to 110% of the Closing Sale Price, on such date.

2. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF WARRANT SHARES. The Exercise Price and the number of Warrant Shares shall be adjusted from time to time as follows:

(a) Adjustment upon Issuance of shares of Common Stock. If and whenever on or after the Subscription Date and through the eighteen (18) month anniversary of the Issuance Date, the Company issues or sells, or in accordance with this Section 2 is deemed to have issued or sold, any shares of Common Stock (including the issuance or sale of shares of Common Stock owned or held by or for the account of the Company, but excluding shares of Common Stock deemed to have been issued by the Company in connection with any Excluded Securities (as defined in the SPA Securities) for a consideration per share (the **New Issuance Price**) less than a price (the **Applicable Price**) equal to the Exercise Price in effect immediately prior to such issue or sale or deemed issuance or sale (the foregoing a **Dilutive Issuance**), then immediately after such Dilutive Issuance, the Exercise Price then in effect shall be reduced to an amount equal to the New Issuance Price. In the event of any Dilutive Issuance after the eighteen (18) month anniversary of the Issuance Date, then immediately after such Dilutive Issuance, the Exercise Price then in effect shall be reduced to an amount equal to the product of (A) the Exercise Price in effect immediately prior to such Dilutive Issuance and (B) the quotient determined by dividing (1) the sum of (I) the product derived by multiplying the Exercise Price in effect immediately prior to such Dilutive Issuance and the number of shares of Common Stock Deemed Outstanding immediately prior to such Dilutive Issuance plus (II) the consideration, if any, received by the Company upon such Dilutive Issuance, by (2) the product derived by multiplying (I) the Exercise Price in effect immediately prior to such Dilutive Issuance by (II) the number of shares of Common Stock Deemed Outstanding immediately after such Dilutive Issuance. Upon each such adjustment of the Exercise Price hereunder, the number of Warrant Shares shall be adjusted to the number of shares of Common Stock determined by multiplying the Exercise Price in effect immediately prior to such adjustment by the number of Warrant Shares acquirable upon exercise of this Warrant immediately prior to such adjustment and dividing the product thereof by the Exercise Price resulting from such adjustment. For purposes of determining the adjusted Exercise Price under this Section 2(a), the following shall be applicable:

(i) Issuance of Options. If the Company in any manner grants any Options and the lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Option or upon conversion, exercise or exchange of any Convertible Securities issuable upon exercise of any such Option is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the granting or

sale of such Option for such price per share. For purposes of this Section 2(a)(i), the lowest price per share for which one share of Common Stock is issuable upon exercise of such Options or upon conversion, exercise or exchange of such Convertible Securities issuable upon exercise of any such Option shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon the granting or sale of the Option, upon exercise of the Option and upon conversion, exercise or exchange of any Convertible Security issuable upon exercise of such Option. No further adjustment of the Exercise Price or number of Warrant Shares shall be made upon the actual issuance of such shares of Common Stock or of such Convertible Securities upon the exercise of such Options or upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities.

(ii) Issuance of Convertible Securities. If the Company in any manner issues or sells any Convertible Securities and the lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the issuance or sale of such Convertible Securities for such price per share. For the purposes of this Section 2(a)(ii), the lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to one share of Common Stock upon the issuance or sale of the Convertible Security and upon conversion, exercise or exchange of such Convertible Security. No further adjustment of the Exercise Price or number of Warrant Shares shall be made upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities, and if any such issue or sale of such Convertible Securities is made upon exercise of any Options for which adjustment of this Warrant has been or is to be made pursuant to other provisions of this Section 2(a), no further adjustment of the Exercise Price or number of Warrant Shares shall be made by reason of such issue or sale.

(iii) Change in Option Price or Rate of Conversion. If the purchase price provided for in any Options, the additional consideration, if any, payable upon the issue, conversion, exercise or exchange of any Convertible Securities, or the rate at which any Convertible Securities are convertible into or exercisable or exchangeable for shares of Common Stock increases or decreases at any time, then the Exercise Price and the number of Warrant Shares in effect at the time of such increase or decrease shall be adjusted to the Exercise Price and the number of Warrant Shares which would have been in effect at such time had such Options or

Convertible Securities provided for such increased or decreased purchase price, additional consideration or increased or decreased conversion rate, as the case may be, at the time initially granted, issued or sold. For purposes of this Section 2(a)(iii), if the terms of any Option or Convertible Security that was outstanding as of the date of issuance of this Warrant are increased or decreased in the manner described in the immediately preceding sentence, then such Option or Convertible Security and the shares of Common Stock deemed issuable upon exercise, conversion or exchange thereof shall be deemed to have been issued as of the date of such increase or decrease. No adjustment pursuant to this Section 2(a) shall be made if such adjustment would result in an increase of the Exercise Price then in effect or a decrease in the number of Warrant Shares.

(iv) Calculation of Consideration Received. In case any Option is issued in connection with the issue or sale of other securities of the Company, together comprising one integrated transaction in which no specific consideration is allocated to such Options by the parties thereto, the Options will be deemed to have been issued for a consideration of \$0.01. If any shares of Common Stock, Options or Convertible Securities are issued or sold or deemed to have been issued or sold for cash, the consideration received therefor will be deemed to be the net amount received by the Company therefor. If any shares of Common Stock, Options or Convertible Securities are issued or sold for a consideration other than cash, the amount of such consideration received by the Company will be the fair value of such consideration, except where such consideration consists of securities, in which case the amount of consideration received by the Company will be the Weighted Average Price of such security on the date of receipt. If any shares of Common Stock, Options or Convertible Securities are issued to the owners of the non-surviving entity in connection with any merger in which the Company is the surviving entity, the amount of consideration therefor will be deemed to be the fair value of such portion of the net assets and business of the non-surviving entity as is attributable to such shares of Common Stock, Options or Convertible Securities, as the case may be. The fair value of any consideration other than cash or securities will be determined jointly by the Company and the Required Holders. If such parties are unable to reach agreement within ten (10) days after the occurrence of an event requiring valuation (the

**Valuation Event**), the fair value of such consideration will be determined within five (5) Business Days after the tenth (10) day following the Valuation Event by an independent, reputable appraiser jointly selected by the Company and the Required Holders. The determination of such appraiser shall be final and binding upon all parties absent manifest error and the fees and expenses of such appraiser shall be borne by the Company.

(v) **Record Date.** If the Company takes a record of the holders of shares of Common Stock for the purpose of entitling them (A) to receive a dividend or other distribution payable in shares of Common Stock, Options or in Convertible Securities or (B) to subscribe for or purchase shares of Common Stock, Options or Convertible Securities, then such record date will be deemed to be the date of the issue or sale of the shares of Common Stock deemed to have been issued or sold upon the declaration of such dividend or the making of such other distribution or the date of the granting of such right of subscription or purchase, as the case may be.

(vi) Unless and until such time as the Company receives any stockholder approval that may be required under any applicable stockholder approval provisions in order to allow the Exercise Price to be less than the Exercise Floor Price (as defined below), including, without limitation, under the rules and regulations of any exchange or automated quotation system on which any of the securities of the Company are listed or designated (the **Required Stockholder Approval**), no adjustment pursuant to Sections 2(a) and 3(a) shall cause the Exercise Price to be less than \$[ ], as adjusted for any stock dividend, stock split, stock combination, reclassification or similar transaction (the **Exercise Floor Price**).

(b) **Adjustment upon Subdivision or Combination of Common Stock.** If the Company at any time on or after the Subscription Date subdivides (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of its outstanding shares of Common Stock into a greater number of shares, the Exercise Price in effect immediately prior to such subdivision will be proportionately reduced and the number of Warrant Shares will be proportionately increased. If the Company at any time on or after the Subscription Date combines (by combination, reverse stock split or otherwise) one or more classes of its outstanding shares of Common Stock into a smaller number of shares, the Exercise Price in effect immediately prior to such combination will be proportionately increased and the number of Warrant Shares will be proportionately decreased. Any adjustment under this Section 2(b) shall become effective at the close of business on the date the subdivision or combination becomes effective.

(c) **Other Events.** If any event occurs of the type contemplated by the provisions of this Section 2 but not expressly provided for by such provisions (including, without limitation, the granting of stock appreciation rights, phantom stock rights or other rights with equity features), then the Company's Board of Directors will make an appropriate adjustment in the Exercise Price and the number of Warrant Shares so as to protect the rights of the Holder; provided that no such adjustment pursuant to this Section 2(c) will increase the Exercise Price then in effect or decrease the number of Warrant Shares as otherwise determined pursuant to this Section 2.

(d) De Minimis Adjustments. No adjustment in the Exercise Price shall be required unless such adjustment would require an increase or decrease of at least \$0.01 in such price; provided, however, that any adjustment which by reason of this Section 2(d) is not required to be made shall be carried forward and taken into account in any subsequent adjustments under this Section 2. All calculations under this Section 2 shall be made by the Company in good faith and shall be made to the nearest cent or to the nearest one hundredth of a share, as applicable. No adjustment need be made for a change in the par value or no par value of the Company's Common Stock.

3. RIGHTS UPON DISTRIBUTION OF ASSETS. If the Company shall declare or make any dividend (other than a dividend issued under Section 2(b) herein) or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a **Distribution**), at any time after the issuance of this Warrant, then, in each such case any Exercise Price in effect immediately prior to the close of business on the record date fixed for the determination of holders of shares of Common Stock entitled to receive the Distribution shall be reduced, effective as of the close of business on such record date, to a price determined by multiplying such Exercise Price by a fraction of which (i) the numerator shall be the Weighted Average Price of the shares of Common Stock on the Trading Day immediately preceding such record date minus the value of the Distribution (as determined in good faith by the Company's Board of Directors) applicable to one share of Common Stock, and (ii) the denominator shall be the Weighted Average Price of the shares of Common Stock on the Trading Day immediately preceding such record date.

4. PURCHASE RIGHTS; FUNDAMENTAL TRANSACTIONS.

(a) Purchase Rights. In addition to any adjustments pursuant to Section 2 above, if at any time the Company grants, issues or sells any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the **Purchase Rights**), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights.

(b) Fundamental Transactions. No sooner than fifteen (15) days and nor later than ten (10) days prior to the consummation of a Fundamental Transaction, but not prior to the public announcement of such Fundamental Transaction, the Company shall deliver written notice thereof via facsimile and overnight courier to the Holder (a **Fundamental Transaction Notice**).

(1) **Reaffirmation.** If the Company enters into or is a party to a Fundamental Transaction in which it is the Successor Entity, the Company shall deliver to the Holder (i) an affirmation that this Warrant shall be a continuing obligation of the Company, or the Company as the Successor Entity, and a reaffirmation of the Company's, or the Company's as the Successor Entity, obligations under the Transaction Documents following such Fundamental Transaction and (ii) a confirmation that there shall be issued upon exercise of this Warrant at any time after the consummation of the Fundamental Transaction (the **Fundamental Transaction Closing Date**), (A) Common Stock or such other shares of publicly traded common stock (or their equivalent) of the Company, or the Company as the Successor Entity, or (B) if the Company is not a publicly traded entity following such Fundamental Transaction, in lieu of the shares of the Company's Common Stock (or other securities, cash, assets or other property) issuable upon exercise of the Warrants prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of such Fundamental Transaction had this Warrant been exercised immediately prior to such Fundamental Transaction, in each case as adjusted in accordance with the provisions of this Warrant. In addition to and not in substitution for any other rights hereunder, prior to the consummation of any Fundamental Transaction in which the Company is the Successor Entity, pursuant to which holders of shares of Common Stock are entitled to receive securities or other assets with respect to or in exchange for shares of Common Stock (a **Corporate Event**), the Company shall make appropriate provision to insure that the Holder will thereafter have the right to receive upon an exercise of this Warrant at any time after the Fundamental Transaction Closing Date but prior to the Expiration Date, in lieu of the shares of the Common Stock (or other securities, cash, assets or other property) issuable upon the exercise of this Warrant prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of such Fundamental Transaction had this Warrant been exercised immediately prior to such Fundamental Transaction. Provision made pursuant to the preceding sentence shall be in a form and substance reasonably satisfactory to the Holder. The provisions of this Section shall apply similarly and equally to successive Fundamental Transactions and Corporate Events and shall be applied without regard to any limitations on the exercise of this Warrant. Notwithstanding the foregoing, the Holder acknowledges that in connection with any Fundamental Transaction in which the Company is not the Successor Entity, the Holder shall only have the rights set forth in Sections 4(b)(2) and 4(b)(3) hereof.

(2) **Fundamental Transaction Exchange.** At any time during the period beginning on the date of the Holder's receipt of a Fundamental Transaction Notice and ending on the thirtieth (30<sup>th</sup>) day (the **Automatic Exchange Date**) after the Fundamental Transaction Closing Date, the Holder

may require the Company to exchange this Warrant (a **Fundamental Transaction Exchange** ), within ten (10) Business Days after such request (or, if later, on the Fundamental Transaction Closing Date), in lieu of the shares of the Common Stock (or other securities, cash, assets or other property) issuable upon the exercise of this Warrant prior to such Fundamental Transaction, for such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of such Fundamental Transaction had this Warrant been exercised immediately prior to such Fundamental Transaction. If the Fundamental Transaction Exchange has not occurred prior to the Automatic Exchange Date and the Holder has not delivered a Black Scholes Notice (as defined below) prior to the Automatic Exchange Date, the Fundamental Transaction Exchange automatically shall occur on the Automatic Exchange Date.

(3) **Black Scholes Value.** Notwithstanding the foregoing, in the event of a Fundamental Transaction, at the request of the Holder delivered before the Automatic Exchange Date (a **Black Scholes Notice** ), the Company (or the Successor Entity) shall purchase this Warrant from the Holder by paying to the Holder, within ten (10) Business Days after such request (or, if later, on the effective date of the Fundamental Transaction), cash in an amount equal to the Black Scholes Value of the remaining unexercised portion of this Warrant on the date of such Fundamental Transaction.

5. **NONCIRCUMVENTION.** The Company hereby covenants and agrees that the Company will not, by amendment of its Certificate of Incorporation, Bylaws or through any reorganization, transfer of assets, consolidation, merger, scheme of arrangement, dissolution, issue or sale of securities, or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, and will at all times in good faith carry out all the provisions of this Warrant and take all action as may be required to protect the rights of the Holder. Without limiting the generality of the foregoing, the Company (i) shall not increase the par value of any shares of Common Stock receivable upon the exercise of this Warrant above the Exercise Price then in effect, (ii) shall take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of Common Stock upon the exercise of this Warrant and (iii) shall, so long as any of the SPA Warrants are outstanding, take all action necessary to reserve and keep available out of its authorized and unissued shares of Common Stock, solely for the purpose of effecting the exercise of the SPA Warrants, 120% of the number of shares of Common Stock as shall from time to time be necessary to effect the exercise of the SPA Warrants then outstanding (without regard to any limitations on exercise.

6. **WARRANT HOLDER NOT DEEMED A STOCKHOLDER.** Except as otherwise specifically provided herein, the Holder, solely in such Person's capacity as a holder of this Warrant, shall not be entitled to vote or receive dividends or be deemed the holder of share capital of the Company for any purpose, nor shall anything contained in this Warrant be construed to confer upon the Holder, solely in such Person's capacity as the Holder of this

Warrant, any of the rights of a shareholder of the Company or any right to vote, give or withhold consent to any corporate action (whether any reorganization, issue of stock, reclassification of stock, consolidation, merger, conveyance or otherwise), receive notice of meetings, receive dividends or subscription rights, or otherwise, prior to the issuance to the Holder of the Warrant Shares which such Person is then entitled to receive upon the due exercise of this Warrant. Except as set forth in Section 1(h), nothing contained in this Warrant shall be construed as imposing any liabilities on the Holder to purchase any securities (upon exercise of this Warrant or otherwise) or as a shareholder of the Company, whether such liabilities are asserted by the Company or by creditors of the Company. Notwithstanding this Section 6, the Company shall provide the Holder with copies of the same notices and other information given to the shareholders of the Company generally, contemporaneously with the giving thereof to the shareholders.

7. REISSUANCE OF WARRANTS.

(a) Transfer of Warrant. If this Warrant is to be transferred, the Holder shall surrender this Warrant to the Company, whereupon the Company will forthwith issue and deliver upon the order of the Holder a new Warrant (in accordance with Section 7(d)), registered as the Holder may request, representing the right to purchase the number of Warrant Shares being transferred by the Holder and, if less than the total number of Warrant Shares then underlying this Warrant is being transferred, a new Warrant (in accordance with Section 7(d)) to the Holder representing the right to purchase the number of Warrant Shares not being transferred; provided, that prior to any transfer of this Warrant, each transferee of this Warrant shall acknowledge and agree to its obligations under Section 1(h) hereof.

(b) Lost, Stolen or Mutilated Warrant. Upon receipt by the Company of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant, and, in the case of loss, theft or destruction, of any indemnification undertaking by the Holder to the Company in customary form and, in the case of mutilation, upon surrender and cancellation of this Warrant, the Company shall execute and deliver to the Holder a new Warrant (in accordance with Section 7(d)) representing the right to purchase the Warrant Shares then underlying this Warrant.

(c) Exchangeable for Multiple Warrants. This Warrant is exchangeable, upon the surrender hereof by the Holder at the principal office of the Company, for a new Warrant or Warrants (in accordance with Section 7(d)) representing in the aggregate the right to purchase the number of Warrant Shares then underlying this Warrant, and each such new Warrant will represent the right to purchase such portion of such Warrant Shares as is designated by the Holder at the time of such surrender; provided, however, that no Warrants for fractional shares of Common Stock shall be given.

(d) Issuance of New Warrants. Whenever the Company is required to issue a new Warrant pursuant to the terms of this Warrant, such new Warrant (i) shall be of like tenor with this Warrant, (ii) shall represent, as indicated on the face of such new Warrant, the right to purchase the Warrant Shares then underlying this Warrant (or in

the case of a new Warrant being issued pursuant to Section 7(a) or Section 7(c), the Warrant Shares designated by the Holder which, when added to the number of shares of Common Stock underlying the other new Warrants issued in connection with such issuance, does not exceed the number of Warrant Shares then underlying this Warrant), (iii) shall have an issuance date, as indicated on the face of such new Warrant which is the same as the Issuance Date, and (iv) shall have the same rights and conditions as this Warrant.

8. NOTICES. Whenever notice is required to be given under this Warrant, unless otherwise provided herein, such notice shall be given in accordance with Section 9(f) of the Securities Purchase Agreement. The Company shall provide the Holder with prompt written notice of all actions taken pursuant to this Warrant, including in reasonable detail a description of such action and the reason therefore. Without limiting the generality of the foregoing, the Company will give written notice to the Holder (i) immediately upon any adjustment of the Exercise Price, setting forth in reasonable detail, within one (1) Business Day certifying, the calculation of such adjustment and (ii) at least fifteen (15) days prior to the date on which the Company closes its books or takes a record (A) with respect to any dividend or distribution upon the shares of Common Stock, (B) with respect to any grants, issuances or sales of any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property to holders of shares of Common Stock (other than Excluded Securities) or (C) for determining rights to vote with respect to any Fundamental Transaction, dissolution or liquidation, provided in each case that such information shall be made known to the public prior to or in conjunction with such notice being provided to the Holder.

9. AMENDMENT AND WAIVER. Except as otherwise provided herein, the provisions of this Warrant may be amended and the Company may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Company has obtained the written consent of the Required Holders; provided that no such action may increase the exercise price of any SPA Warrant or decrease the number of shares or class of stock obtainable upon exercise of any SPA Warrant without the written consent of the Holder. No such amendment shall be effective to the extent that it applies to less than all of the holders of the SPA Warrants then outstanding.

10. GOVERNING LAW. This Warrant shall be governed by and construed and enforced in accordance with, and all questions concerning the construction, validity, interpretation and performance of this Warrant shall be governed by, the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York.

11. CONSTRUCTION; HEADINGS. This Warrant shall be deemed to be jointly drafted by the Company and all the Buyers and shall not be construed against any person as the drafter hereof. The headings of this Warrant are for convenience of reference and shall not form part of, or affect the interpretation of, this Warrant.

12. DISPUTE RESOLUTION. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall

submit the disputed determinations or arithmetic calculations via facsimile within two (2) Business Days of receipt of the Exercise Notice giving rise to such dispute, as the case may be, to the Holder. If the Holder and the Company are unable to agree upon such determination or calculation of the Exercise Price or the Warrant Shares within three Business Days of such disputed determination or arithmetic calculation being submitted to the Holder, then the Company shall, within two (2) Business Days submit via facsimile (a) the disputed determination of the Exercise Price to an independent, reputable investment bank selected by the Company and approved by the Holder or (b) the disputed arithmetic calculation of the Warrant Shares to the Company's independent, outside accountant. The Company shall cause at its expense the investment bank or the accountant, as the case may be, to perform the determinations or calculations and notify the Company and the Holder of the results no later than ten Business Days from the time it receives the disputed determinations or calculations. Such investment bank's or accountant's determination or calculation, as the case may be, shall be binding upon all parties absent demonstrable error.

13. REMEDIES, OTHER OBLIGATIONS, BREACHES AND INJUNCTIVE RELIEF. The remedies provided in this Warrant shall be cumulative and in addition to all other remedies available under this Warrant and the other Transaction Documents, at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit the right of the Holder right to pursue actual damages for any failure by the Company to comply with the terms of this Warrant. The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Holder and that the remedy at law for any such breach may be inadequate. The Company therefore agrees that, in the event of any such breach or threatened breach, the holder of this Warrant shall be entitled, in addition to all other available remedies, to an injunction restraining any breach, without the necessity of showing economic loss and without any bond or other security being required.

14. TRANSFER. This Warrant may be offered for sale, sold, transferred or assigned in accordance with applicable law without the consent of the Company.

15. CERTAIN DEFINITIONS. For purposes of this Warrant, the following terms shall have the following meanings:

(a) **1933 Act** means the Securities Act of 1933, as amended.

(b) **Black Scholes Value** means the value of this Warrant based on the Black and Scholes Option Pricing Model obtained from the `OV` function on Bloomberg determined as of the day of closing of the applicable Fundamental Transaction for pricing purposes and reflecting (i) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the remaining term of this Warrant as of such date of request, (ii) an expected volatility equal to the greater of 60% and the 100 day volatility obtained from the HVT function on Bloomberg as of the day immediately following the public announcement of the applicable Fundamental Transaction and (iii) the underlying price per share used in such calculation shall be the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in the Fundamental Transaction.

(c) **Bloomberg** means Bloomberg Financial Markets.

(d) **Business Day** means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed.

(e) **Closing Sale Price** means, for any security as of any date, the last closing trade price for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing trade price then the last trade price of such security prior to 4:00:00 p.m., New York time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last trade price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing do not apply, the last trade price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no last trade price is reported for such security by Bloomberg, the average of the bid prices, or the ask prices, respectively, of any market makers for such security as reported in the pink sheets by Pink Sheets LLC (formerly the National Quotation Bureau, Inc.). If the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Sale Price of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 12. All such determinations to be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during the applicable calculation period.

(f) **Common Stock** means (i) the Company's shares of Common Stock, par value \$0.001 per share, and (ii) any share capital into which such Common Stock shall have been changed or any share capital resulting from a reclassification of such Common Stock.

(g) **Common Stock Deemed Outstanding** means, at any given time, the number of shares of Common Stock actually outstanding at such time, plus the number of shares of Common Stock deemed to be outstanding pursuant to Sections 2(a)(i) and 2(a)(ii) hereof regardless of whether the Options or Convertible Securities are actually exercisable at such time, but excluding any shares of Common Stock owned or held by or for the account of the Company or issuable upon exercise of the SPA Warrants.

(h) **Convertible Securities** means any stock or securities (other than Options) directly or indirectly convertible into or exercisable or exchangeable for shares of Common Stock.

(i) **Eligible Market** means the Principal Market, The New York Stock Exchange, Inc., The NASDAQ Global Select Market or The NASDAQ Capital Market.

(j) **Expiration Date** means thirty six (36) months after the applicable Initial Exercise Eligibility Date or, if such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a **Holiday**), the next date that is not a Holiday.

(k) **Fundamental Transaction** means that the Company shall, directly or indirectly, in one or more related transactions, (i) consolidate or merge with or into (whether or not the Company is the surviving corporation) another Person or Persons, if the holders of the Voting Stock (not including any shares of Voting Stock held by the Person or Persons making or party to, or associated or affiliated with the Persons making or party to, such consolidation or merger) immediately prior to such consolidation or merger shall hold or have the right to direct the voting of less than 50% of the Voting Stock or such voting securities of such other surviving Person immediately following such transaction, or (ii) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Company to another Person, or (iii) allow another Person to make a purchase, tender or exchange offer that is accepted by the holders of more than the 50% of the outstanding shares of Voting Stock (not including any shares of Voting Stock held by the Person or Persons making or party to, or associated or affiliated with the Persons making or party to, such purchase, tender or exchange offer), or (iv) consummate a stock purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person whereby such other Person acquires more than the 50% of the outstanding shares of Voting Stock (not including any shares of Voting Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock purchase agreement or other business combination), (v) reorganize, recapitalize or reclassify its Common Stock or (vi) any person or group (as these terms are used for purposes of Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended) is or shall become the beneficial owner (as defined in Rule 13d-3 under the Securities Exchange Act of 1934, as amended), directly or indirectly, of 50% of the aggregate ordinary voting power represented by issued and outstanding Common Stock.

(l) **Initial Exercise Eligibility Date** means (i) with respect to the number of Warrant Shares specified in column (2) of Schedule I attached hereto, the date specified in column (1) opposite such number of Warrant Shares and (ii) with respect to any portion of this Warrant not previously exercisable, the date when all Series A Warrants have been exercised.

(m) **Maximum Eligibility Number** means initially zero and shall be increased by an amount equal to the aggregate number of the Holder's Series A Warrants exercised during the period from and after the Issuance Date as indicated in column (2) of Schedule I attached hereto, such that the Maximum Eligibility Number at any given time shall be as set forth in column (3) of such Schedule I; provided; that the Maximum Eligibility Number shall be [\_\_\_\_\_] on the date when all Series A Warrants have been exercised as adjusted for any stock dividend, stock split, stock combination, reclassification or similar transactions.

- (n) **Options** means any rights, warrants or options to subscribe for or purchase shares of Common Stock or Convertible Securities.
- (o) **Parent Entity** of a Person means an entity that, directly or indirectly, controls the applicable Person and whose common stock or equivalent equity security is quoted or listed on an Eligible Market, or, if there is more than one such Person or Parent Entity, the Person or Parent Entity with the largest public market capitalization as of the date of consummation of the Fundamental Transaction.
- (p) **Person** means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization, any other entity and a government or any department or agency thereof.
- (q) **Principal Market** means The NASDAQ Global Market.
- (r) **Required Holders** means the holders of the SPA Warrants representing at least a majority of shares of Common Stock underlying the SPA Warrants then outstanding.
- (s) **Series A Warrants** means the Series A Warrants issued pursuant to the Securities Purchase Agreement.
- (t) **SPA Securities** means the Notes issued pursuant to the Securities Purchase Agreement.
- (u) **Successor Entity** means the Person (or, if so elected by the Required Holders, the Parent Entity) formed by, resulting from or surviving any Fundamental Transaction or the Person (or, if so elected by the Required Holders, the Parent Entity) with which such Fundamental Transaction shall have been entered into.
- (v) **Trading Day** means any day on which the Common Stock are traded on the Principal Market, or, if the Principal Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities market on which the Common Stock are then traded; provided that Trading Day shall not include any day on which the Common Stock are scheduled to trade on such exchange or market for less than 4.5 hours or any day that the Common Stock are suspended from trading during the final hour of trading on such exchange or market (or if such exchange or market does not designate in advance the closing time of trading on such exchange or market, then during the hour ending at 4:00:00 p.m., New York time).
- (w) **Voting Stock** of a Person means capital stock of such Person of the class or classes pursuant to which the holders thereof have the general voting power to elect, or the general power to appoint, at least a majority of the board of directors, managers or trustees of such Person (irrespective of whether or not at the time capital stock of any other class or classes shall have or might have voting power by reason of the happening of any contingency).

(x) **Weighted Average Price** means, for any security as of any date, the dollar volume-weighted average price for such security on the Principal Market during the period beginning at 9:30:01 a.m., New York City time, and ending at 4:00:00 p.m., New York City time, as reported by Bloomberg through its **Volume at Price** function or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York City time, and ending at 4:00:00 p.m., New York City time, as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest closing bid price and the lowest closing ask price of any of the market makers for such security as reported in the **pink sheets** by Pink Sheets LLC (formerly the National Quotation Bureau, Inc.). If the Weighted Average Price cannot be calculated for such security on such date on any of the foregoing bases, the Weighted Average Price of such security on such date shall be the fair market value as mutually determined by the Company and the Required Holders. If the Company and the Required Holders are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 12 with the term **Weighted Average Price** being substituted for the term **Exercise Price**. All such determinations shall be appropriately adjusted for any share dividend, share split or other similar transaction during such period.

**[Signature Page Follows]**

**IN WITNESS WHEREOF**, the Company has caused this Warrant to Purchase Common Stock to be duly executed as of the Issuance Date set out above.

**NANOGEN, INC.**

By:

Name:

Title:

Acknowledged and agreed with respect to Section 1(h):

[HOLDER]

By:

Name:

Title:

EXERCISE NOTICE

TO BE EXECUTED BY THE REGISTERED HOLDER TO EXERCISE THIS

WARRANT TO PURCHASE COMMON STOCK

NANOGEN, INC.

The undersigned holder hereby exercises the right to purchase \_\_\_\_\_ of the shares of Common Stock ( **Warrant Shares** ) of Nanogen, Inc., a Delaware corporation (the **Company** ), evidenced by the attached Warrant to Purchase Common Stock (the **Warrant** ). Capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Warrant.

1. Form of Exercise Price. The Holder intends that payment of the Exercise Price shall be made as:

\_\_\_\_\_ a Cash Exercise with respect to \_\_\_\_\_ Warrant Shares; and/or

\_\_\_\_\_ a Cashless Exercise with respect to \_\_\_\_\_ Warrant Shares.

2. Payment of Exercise Price. In the event that the holder has elected a Cash Exercise with respect to some or all of the Warrant Shares to be issued pursuant hereto, the holder shall pay the Aggregate Exercise Price in the sum of \$ \_\_\_\_\_ to the Company in accordance with the terms of the Warrant.

3. Delivery of Warrant Shares. The Company shall deliver to the holder \_\_\_\_\_ Warrant Shares in accordance with the terms of the Warrant.

Date: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Name of Registered Holder

By:

Name:

Title:

**ACKNOWLEDGMENT**

The Company hereby acknowledges this Exercise Notice and hereby directs Computershare Investor Services to issue the above indicated number of shares of Common Stock in accordance with the Transfer Agent Instructions dated August \_\_, 2007 from the Company and acknowledged and agreed to by Computershare Investor Services.

**NANOGEN, INC.**

By:  
Name:  
Title:

**SCHEDULE I**

| <b>Column (1)</b>                        | <b>Column (2)</b>                                                                        | <b>Column (3)</b>                 | <b>Column (4)</b>                                                    |
|------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------|
| <b>Initial Exercise Eligibility Date</b> | <b>Number of Warrant Shares That<br/>Became Exercisable in Such<br/>Calendar Quarter</b> | <b>Maximum Eligibility Number</b> | <b>Exercise Price for Warrant Shares<br/>Specified in Column (2)</b> |
| September 30, 2007                       |                                                                                          |                                   |                                                                      |
| December 31, 2007                        |                                                                                          |                                   |                                                                      |
| March 31, 2008                           |                                                                                          |                                   |                                                                      |
| June 30, 2008                            |                                                                                          |                                   |                                                                      |
| September 30, 2008                       |                                                                                          |                                   |                                                                      |
| December 31, 2008                        |                                                                                          |                                   |                                                                      |
| March 31, 2009                           |                                                                                          |                                   |                                                                      |
| June 30, 2009                            |                                                                                          |                                   |                                                                      |
| September 30, 2009                       |                                                                                          |                                   |                                                                      |
| December 31, 2009                        |                                                                                          |                                   |                                                                      |
| March 31, 2010                           |                                                                                          |                                   |                                                                      |
| June 30, 2010                            |                                                                                          |                                   |                                                                      |
| September 30, 2010                       |                                                                                          |                                   |                                                                      |
| December 31, 2010                        |                                                                                          |                                   |                                                                      |
| March 31, 2011                           |                                                                                          |                                   |                                                                      |
| June 30, 2011                            |                                                                                          |                                   |                                                                      |
| September 30, 2011                       |                                                                                          |                                   |                                                                      |
| December 31, 2011                        |                                                                                          |                                   |                                                                      |
| March 31, 2012                           |                                                                                          |                                   |                                                                      |
| June 30, 2012                            |                                                                                          |                                   |                                                                      |
| September 30, 2012                       |                                                                                          |                                   |                                                                      |

[FORM OF SERIES C WARRANT]

NANOGEN, INC.

WARRANT TO PURCHASE COMMON STOCK

Warrant No.: \_\_\_\_\_

Number of Shares of Common Stock: \_\_\_\_\_

Date of Issuance: August \_\_, 2007 ( **Issuance Date** )

Nanogen, Inc., a Delaware corporation (the **Company** ), hereby certifies that, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, [ \_\_\_\_\_ ], the registered holder hereof or its permitted assigns (the **Holder** ), is entitled, subject to the terms set forth below, to purchase from the Company, at the Exercise Price (as defined below) then in effect, upon surrender of this Warrant to Purchase Common Stock (including any Warrants to Purchase Common Stock issued in exchange, transfer or replacement hereof, the **Warrant** ), at any time or times on or after the Initial Exercise Eligibility Date (as defined below), but not after 11:59 p.m., New York time, on the Expiration Date (as defined below), [ \_\_\_\_\_ ] ([ \_\_\_\_\_ ]) fully paid nonassessable shares of Common Stock (as defined below) (the **Warrant Shares** ). This Warrant is one of the Warrants to purchase Common Stock (the **SPA Warrants** ) issued pursuant to Section 1 of that certain Securities Purchase Agreement, dated as of August \_\_, 2007 (the **Subscription Date** ), by and among the Company and the investors (the **Buyers** ) referred to therein (the **Securities Purchase Agreement** ). Except as otherwise defined herein, capitalized terms in this Warrant shall have the meanings set forth in Section 15.

1. EXERCISE OF WARRANT.

(a) Mechanics of Exercise. Subject to the terms and conditions hereof (including, without limitation, the limitations set forth in Section 1(f)), this Warrant may be exercised by the Holder at any time or times on or after the Initial Exercise Eligibility Date, in whole or in part, by (i) delivery of a written notice, in the form attached hereto as Exhibit A (the **Exercise Notice** ), of the Holder's election to exercise this Warrant and (ii) (A) payment to the Company of an amount equal to the applicable Exercise Price multiplied by the number of Warrant Shares as to which this Warrant is being exercised (the **Aggregate Exercise Price** ) in cash or by wire transfer of immediately available funds or (B) by notifying the Company that this Warrant is being exercised pursuant to a Cashless Exercise (as defined in Section 1(d)). The Holder shall not be required to deliver the original Warrant in order to effect an exercise hereunder. Execution and delivery of the Exercise Notice with respect to less than all of the Warrant Shares shall have the same effect as cancellation of the original Warrant and issuance of a new Warrant evidencing the right to purchase the remaining number of Warrant Shares. On or before the second (2<sup>nd</sup>) Business Day following the date on which the Company has received each of the Exercise Notice and the Aggregate Exercise Price (or notice of a

Cashless Exercise) (the **Exercise Delivery Documents** ), the Company shall transmit by facsimile an acknowledgment of confirmation of receipt of the Exercise Delivery Documents to the Holder and the Company's transfer agent (the **Transfer Agent** ). On or before the third (3rd) Business Day following the date on which the Company has received all of the Exercise Delivery Documents (the **Share Delivery Date** ), the Company shall (X) provided that the Transfer Agent is participating in The Depository Trust Company ( **DTC** ) Fast Automated Securities Transfer Program, upon the request of the Holder, credit such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit Withdrawal Agent Commission system, or (Y) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and dispatch by overnight courier to the address as specified in the Exercise Notice, a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder is entitled pursuant to such exercise. Upon delivery of the Exercise Delivery Documents, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date such Warrant Shares are credited to the Holder's DTC account or the date of delivery of the certificates evidencing such Warrant Shares, as the case may be. If this Warrant is submitted in connection with any exercise pursuant to this Section 1(a) and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the number of Warrant Shares being acquired upon an exercise, then the Company shall as soon as practicable and in no event later than three (3) Business Days after any exercise and at its own expense, issue a new Warrant (in accordance with Section 7(d)) representing the right to purchase the number of Warrant Shares purchasable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised. No fractional shares of Common Stock are to be issued upon the exercise of this Warrant, but rather the number of shares of Common Stock to be issued shall be rounded up to the nearest whole number. The Company shall pay any and all transfer and similar taxes (other than income and similar taxes) which may be payable with respect to the issuance and delivery of Warrant Shares upon exercise of this Warrant.

(b) Exercise Price. For purposes of this Warrant, **Exercise Price** means \$[ ], subject to adjustment as provided herein, provided that unless and until such time as the Company receives the Required Stockholder Approval (as defined below), the Exercise Price shall not be less than the Exercise Floor Price.

(c) Company's Failure to Timely Deliver Securities. If the Company shall fail for any reason or for no reason to issue to the Holder within five (5) Business Days of receipt of the Exercise Delivery Documents, a certificate for the number of shares of Common Stock to which the Holder is entitled and register such shares of Common Stock on the Company's share register or to credit the Holder's balance account with DTC for such number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise of this Warrant, then, in addition to all other remedies available to the Holder, the Company shall pay in cash to the Holder on each day after such fifth (5<sup>th</sup>) Business Day that the issuance of such shares of Common Stock is not timely effected an

amount equal to 1.0% of the product of (A) the sum of the number of shares of Common Stock not issued to the Holder on a timely basis and to which the Holder is entitled and (B) the Weighted Average Price of the shares of Common Stock on the Trading Day immediately preceding the last possible date which the Company could have issued such shares of Common Stock to the Holder without violating Section 1(a). In addition to the foregoing, if within three (3) Trading Days after the Company's receipt of the facsimile copy of the Exercise Delivery Documents the Company shall fail to issue and deliver a certificate to the Holder and register such shares of Common Stock on the Company's share register or credit the Holder's balance account with DTC for the number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise hereunder, and if on or after such Trading Day the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of shares of Common Stock issuable upon such exercise that the Holder anticipated receiving from the Company (a **Buy-In**), then the Company shall, within five (5) Business Days after the Holder's request and in the Holder's discretion, either (i) pay cash to the Holder in an amount equal to the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased (the **Buy-In Price**), at which point the Company's obligation to deliver such certificate (and to issue such Warrant Shares) shall terminate, or (ii) promptly honor its obligation to deliver to the Holder a certificate or certificates representing such Warrant Shares and pay cash to the Holder in an amount equal to the excess (if any) of the Buy-In Price over the product of (A) such number of shares of Common Stock, times (B) the Weighted Average Price on the date of exercise.

(d) Cashless Exercise. Notwithstanding anything contained herein to the contrary, if a registration statement covering the issuance of the Warrant Shares that are the subject of the Exercise Notice by the Holder pursuant to the 1933 Act (the **Unavailable Warrant Shares**) is not available for the issuance of such Unavailable Warrant Shares, the Holder may, in its sole discretion, exercise this Warrant in whole or in part and, in lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the Aggregate Exercise Price, elect instead to receive upon such exercise the Net Number of shares of Common Stock determined according to the following formula (a **Cashless Exercise**):

$$\text{Net Number} = \frac{(A \times B) - (A \times C)}{B}$$

For purposes of the foregoing formula:

A = the total number of shares with respect to which this Warrant is then being exercised.

B = the Weighted Average Price of the shares of Common Stock on the date immediately preceding the date of the Exercise Notice.

C = the Exercise Price then in effect for the applicable Warrant Shares at the time of such exercise.

(e) Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall promptly issue to the Holder the number of Warrant Shares that are not disputed and resolve such dispute in accordance with Section 12.

(f) Limitations on Exercises: Beneficial Ownership.

(i) The Company shall not effect the exercise of this Warrant, and the Holder shall not have the right to exercise this Warrant, to the extent that after giving effect to such exercise, such Person (together with such Person's affiliates) would beneficially own in excess of 4.99% the

**Maximum Percentage** ) of the shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned by such Person and its affiliates shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which the determination of such sentence is being made, but shall exclude shares of Common Stock which would be issuable upon (x) exercise of the remaining, unexercised portion of this Warrant beneficially owned by such Person and its affiliates and (y) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company beneficially owned by such Person and its affiliates (including, without limitation, any convertible notes or convertible preferred stock or warrants) subject to a limitation on conversion or exercise analogous to the limitation contained herein. Except as set forth in the preceding sentence, for purposes of this paragraph, beneficial ownership shall be calculated in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended. For purposes of this Warrant, in determining the number of outstanding shares of Common Stock, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (1) the Company's most recent Form 10-K, Form 10-KSB, Form 10-Q, Form 10-QSB, Current Report on Form 8-K or other public filing with the Securities and Exchange Commission ( **SEC** ) as the case may be, (2) a more recent public announcement by the Company or (3) any other notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. For any reason at any time, upon the written request of the Holder, the Company shall within two (2) Business Days confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company by the Holder and its affiliates since the date as of which such number of outstanding shares of Common Stock was reported. By written notice to the Company, the Holder may from time to time increase or decrease the Maximum Percentage to any other

percentage not in excess of 9.99% specified in such notice; provided that any such increase will not be effective until the sixty-first (61<sup>st</sup>) day after such notice is delivered to the Company.

(ii) **Principal Market Regulation.** The Company shall not be obligated to issue any shares of Common Stock upon exercise of this Warrant and the Holder shall not have the right to receive upon exercise of this Warrant any shares of Common Stock, if the issuance of such shares of Common Stock would exceed the aggregate number of shares of Common Stock which the Company may issue upon exercise of this Warrant (including, as applicable, any shares of Common Stock issued upon conversion of the SPA Securities) without breaching the Company's obligations under the rules or regulations of the Principal Market (the **Exchange Cap**), except that such limitation shall not apply in the event that the Company (A) obtains the approval of its stockholders as required by the applicable rules of the Principal Market for issuances of shares of Common Stock in excess of such amount or (B) obtains a written opinion from outside counsel to the Company that such approval is not required, which opinion shall be reasonably satisfactory to the Required Holders. Until such approval or written opinion is obtained, no Holder shall be issued, upon exercise or conversion, as applicable, of any SPA Warrants or SPA Securities, shares of Common Stock in an amount greater than the product of the Exchange Cap multiplied by a fraction, the numerator of which is the total number of shares of Common Stock issued to such Holder pursuant to the Securities Purchase Agreement on the Issuance Date and the denominator of which is the aggregate number of shares of Common Stock issued to the Holders pursuant to the Securities Purchase Agreement on the Issuance Date (with respect to each Holder, the **Exchange Cap Allocation**). In the event that any Holder shall sell or otherwise transfer any of such Holder's SPA Warrants, the transferee shall be allocated a pro rata portion of such Holder's Exchange Cap Allocation, and the restrictions of the prior sentence shall apply to such transferee with respect to the portion of the Exchange Cap Allocation allocated to such transferee. In the event that any Holder of SPA Warrants shall exercise all of such Holder's SPA Warrants into a number of shares of Common Stock which, in the aggregate, is less than such Holder's Exchange Cap Allocation, then the difference between such Holder's Exchange Cap Allocation and the number of shares of Common Stock actually issued to such Holder shall be allocated to the respective Exchange Cap Allocations of the remaining Holders of SPA Warrants on a pro rata basis in proportion to the shares of Common Stock underlying the SPA Warrants then held by each such Holder. In the event that the Company is prohibited from issuing any Warrant Shares for which an Exercise Notice has been received as a result of the operation of this Section 1(f)(ii), the Company shall pay cash in exchange for cancellation of such Warrant Shares, at a price per Warrant Share equal to the difference between the Closing Sale Price and the Exercise Price as of the date of the attempted exercise.

(g) **Insufficient Authorized Shares.** If at any time while this Warrant remain outstanding the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve for issuance upon exercise of this Warrant at least a number of shares of Common Stock equal to 120% (the **Required Reserve Amount**) of the number of shares of Common Stock as shall from time to time be necessary to effect the exercise of all of this Warrant then outstanding (an **Authorized Share Failure**), then the Company shall immediately take all action necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for this Warrant then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than ninety (90) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its stockholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each stockholder with a proxy statement and shall use its best efforts to solicit its stockholders' approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the stockholders that they approve such proposal.

(h) **Mandatory Exercise.** (1) Notwithstanding the foregoing, at any time after the latest to occur of (i) the six (6) month anniversary of the Initial Exercise Eligibility Date, (ii) thirty days after the date when all Series A Warrants of the Holder have been exercised and (iii) thirty days after the LC Termination Date (as defined in the Securities Purchase Agreement) (the **Mandatory Exercise Eligibility Date**), in the event that the Conditions to Mandatory Exercise (as defined below) are satisfied, then the Company shall have the right to require the Holder to exercise this Warrant in full (a **Mandatory Exercise**) by sending a written notice (the **Mandatory Exercise Notice**) to all, but not less than all, of the holders of SPA Warrants and the Transfer Agent on the Business Day immediately after the Measuring Period (as defined below) (the **Mandatory Exercise Notice Date**). The Mandatory Exercise Notice shall state (i) the Trading Day selected for the Mandatory Exercise, which Trading Date shall be at least thirty (30) Business Days but not more than sixty (60) Business Days following the Mandatory Exercise Notice Date (the **Mandatory Exercise Date**) and (ii) the number of Warrant Shares issuable upon such exercise. Notwithstanding the foregoing, nothing in this subsection shall prevent the Holder from exercising this Warrant, in whole or part, prior to such Mandatory Exercise Date. The Mandatory Exercise Notice shall be irrevocable. **Conditions to Mandatory Exercise** means the following conditions: (i) on each day during the period beginning on the first day of the Measuring Period (as defined below) and ending on the Mandatory Exercise Date, all of the Warrant Shares are freely tradable, without restriction other than restrictions related to Holder's status as an affiliate of the Company, on the Principal Market; (ii) on each day during the period beginning on the Issuance Date and ending on and including the Mandatory Exercise Date, the Warrants Shares are designated for listing on the Principal Market and shall not have been suspended

from trading on such exchange; (iii) on each day during the period beginning on the Issuance Date and ending on and including the Mandatory Exercise Date, the Company shall have delivered unrestricted Warrant Shares upon exercise of the SPA Warrants to the holders on a timely basis; (iv) at any time during any thirty (30) consecutive Trading Day period (the **Measuring Period**) after the Mandatory Exercise Eligibility Date, the Closing Sale Price of the Common Stock equals or exceeds 125% of the Exercise Price in effect on the Issuance Date (as adjusted for stock splits, stock dividends, reverse stock splits, stock combinations, reclassifications, recapitalizations and similar events) for twenty (20) Trading Days; (v) any applicable shares of Common Stock that may be issuable upon exercise of this Warrant after the Mandatory Exercise Notice Date (without regard to any limitation on exercise of the Warrants) may be issued in full without violating Section 1(f) hereof and the rules or regulations of the Principal Market or any applicable Eligible Market; and (vi) the Company otherwise shall have been in material compliance with and shall not have materially breached any provision, covenant, representation or warranty of any Transaction Document (as defined in the Securities Purchase Agreement).

(ii) **Pro Rata Exercise Requirement.** If the Company elects to cause an exercise of this Warrant pursuant to Section 1(h)(i), then it must simultaneously take the same action in the same proportion with respect to the other SPA Warrants that are Series C Warrants. All Warrant Shares acquired by the Holder upon exercise of this Warrant after the Mandatory Exercise Notice Date shall reduce the number of Warrant Shares to be acquired by the Holder on the Mandatory Exercise Date. If the Company has elected a Mandatory Exercise, the mechanics of exercise set forth in Section 1(a) shall apply, to the extent applicable, as if the Company and the Transfer Agent had received from the Holder on the Mandatory Exercise Date an Exercise Notice with respect to Warrants being exercised pursuant to the Mandatory Exercise.

2. **ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF WARRANT SHARES.** The Exercise Price and the number of Warrant Shares shall be adjusted from time to time as follows:

(a) **Adjustment upon Issuance of shares of Common Stock.** If and whenever on or after the Subscription Date and through the eighteen (18) month anniversary of the Issuance Date, the Company issues or sells, or in accordance with this Section 2 is deemed to have issued or sold, any shares of Common Stock (including the issuance or sale of shares of Common Stock owned or held by or for the account of the Company, but excluding shares of Common Stock deemed to have been issued by the Company in connection with any Excluded Securities (as defined in the SPA Securities) for a consideration per share (the **New Issuance Price**) less than a price (the **Applicable Price**) equal to the Exercise Price in effect immediately prior to such issue or sale or deemed issuance or sale (the foregoing a **Dilutive Issuance**), then immediately after such Dilutive Issuance, the Exercise Price then in effect shall be reduced to an amount equal to the New Issuance Price. In the event of any Dilutive Issuance after the eighteen (18) month anniversary of the Issuance Date, then immediately after such Dilutive Issuance, the Exercise Price then in effect shall be reduced to an amount equal to the product of (A) the Exercise Price in effect immediately prior to such Dilutive Issuance and (B) the quotient

determined by dividing (1) the sum of (I) the product derived by multiplying the Exercise Price in effect immediately prior to such Dilutive Issuance and the number of shares of Common Stock Deemed Outstanding immediately prior to such Dilutive Issuance plus (II) the consideration, if any, received by the Company upon such Dilutive Issuance, by (2) the product derived by multiplying (I) the Exercise Price in effect immediately prior to such Dilutive Issuance by (II) the number of shares of Common Stock Deemed Outstanding immediately after such Dilutive Issuance. Upon each such adjustment of the Exercise Price hereunder, the number of Warrant Shares shall be adjusted to the number of shares of Common Stock determined by multiplying the Exercise Price in effect immediately prior to such adjustment by the number of Warrant Shares acquirable upon exercise of this Warrant immediately prior to such adjustment and dividing the product thereof by the Exercise Price resulting from such adjustment. For purposes of determining the adjusted Exercise Price under this Section 2(a), the following shall be applicable:

(i) Issuance of Options. If the Company in any manner grants any Options and the lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Option or upon conversion, exercise or exchange of any Convertible Securities issuable upon exercise of any such Option is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the granting or sale of such Option for such price per share. For purposes of this Section 2(a)(i), the lowest price per share for which one share of Common Stock is issuable upon exercise of such Options or upon conversion, exercise or exchange of such Convertible Securities issuable upon exercise of any such Option shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon the granting or sale of the Option, upon exercise of the Option and upon conversion, exercise or exchange of any Convertible Security issuable upon exercise of such Option. No further adjustment of the Exercise Price or number of Warrant Shares shall be made upon the actual issuance of such shares of Common Stock or of such Convertible Securities upon the exercise of such Options or upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities.

(ii) Issuance of Convertible Securities. If the Company in any manner issues or sells any Convertible Securities and the lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the issuance or sale of such Convertible Securities for such price per share. For the purposes of this Section 2(a)(ii), the lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof shall be equal to the sum of the lowest amounts of consideration

(if any) received or receivable by the Company with respect to one share of Common Stock upon the issuance or sale of the Convertible Security and upon conversion, exercise or exchange of such Convertible Security. No further adjustment of the Exercise Price or number of Warrant Shares shall be made upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities, and if any such issue or sale of such Convertible Securities is made upon exercise of any Options for which adjustment of this Warrant has been or is to be made pursuant to other provisions of this Section 2(a), no further adjustment of the Exercise Price or number of Warrant Shares shall be made by reason of such issue or sale.

(iii) Change in Option Price or Rate of Conversion. If the purchase price provided for in any Options, the additional consideration, if any, payable upon the issue, conversion, exercise or exchange of any Convertible Securities, or the rate at which any Convertible Securities are convertible into or exercisable or exchangeable for shares of Common Stock increases or decreases at any time, then the Exercise Price and the number of Warrant Shares in effect at the time of such increase or decrease shall be adjusted to the Exercise Price and the number of Warrant Shares which would have been in effect at such time had such Options or Convertible Securities provided for such increased or decreased purchase price, additional consideration or increased or decreased conversion rate, as the case may be, at the time initially granted, issued or sold. For purposes of this Section 2(a)(iii), if the terms of any Option or Convertible Security that was outstanding as of the date of issuance of this Warrant are increased or decreased in the manner described in the immediately preceding sentence, then such Option or Convertible Security and the shares of Common Stock deemed issuable upon exercise, conversion or exchange thereof shall be deemed to have been issued as of the date of such increase or decrease. No adjustment pursuant to this Section 2(a) shall be made if such adjustment would result in an increase of the Exercise Price then in effect or a decrease in the number of Warrant Shares.

(iv) Calculation of Consideration Received. In case any Option is issued in connection with the issue or sale of other securities of the Company, together comprising one integrated transaction in which no specific consideration is allocated to such Options by the parties thereto, the Options will be deemed to have been issued for a consideration of \$0.01. If any shares of Common Stock, Options or Convertible Securities are issued or sold or deemed to have been issued or sold for cash, the consideration received therefor will be deemed to be the net amount received by the Company therefor. If any shares of Common Stock, Options or Convertible Securities are issued or sold for a consideration other than cash, the amount of such consideration received by the

Company will be the fair value of such consideration, except where such consideration consists of securities, in which case the amount of consideration received by the Company will be the Weighted Average Price of such security on the date of receipt. If any shares of Common Stock, Options or Convertible Securities are issued to the owners of the non-surviving entity in connection with any merger in which the Company is the surviving entity, the amount of consideration therefor will be deemed to be the fair value of such portion of the net assets and business of the non-surviving entity as is attributable to such shares of Common Stock, Options or Convertible Securities, as the case may be. The fair value of any consideration other than cash or securities will be determined jointly by the Company and the Required Holders. If such parties are unable to reach agreement within ten (10) days after the occurrence of an event requiring valuation (the **Valuation Event**), the fair value of such consideration will be determined within five (5) Business Days after the tenth (10<sup>th</sup>) day following the Valuation Event by an independent, reputable appraiser jointly selected by the Company and the Required Holders. The determination of such appraiser shall be final and binding upon all parties absent manifest error and the fees and expenses of such appraiser shall be borne by the Company.

(v) Record Date. If the Company takes a record of the holders of shares of Common Stock for the purpose of entitling them (A) to receive a dividend or other distribution payable in shares of Common Stock, Options or in Convertible Securities or (B) to subscribe for or purchase shares of Common Stock, Options or Convertible Securities, then such record date will be deemed to be the date of the issue or sale of the shares of Common Stock deemed to have been issued or sold upon the declaration of such dividend or the making of such other distribution or the date of the granting of such right of subscription or purchase, as the case may be.

(vi) Unless and until such time as the Company receives any stockholder approval that may be required under any applicable stockholder approval provisions in order to allow the Exercise Price to be less than the Exercise Floor Price (as defined below), including, without limitation, under the rules and regulations of any exchange or automated quotation system on which any of the securities of the Company are listed or designated (the **Required Stockholder Approval**), no adjustment pursuant to Sections 2(a) and 3(a) shall cause the Exercise Price to be less than \$[ ], as adjusted for any stock dividend, stock split, stock combination, reclassification or similar transaction (the **Exercise Floor Price**).

(b) Adjustment upon Subdivision or Combination of Common Stock. If the Company at any time on or after the Subscription Date subdivides (by any

stock split, stock dividend, recapitalization or otherwise) one or more classes of its outstanding shares of Common Stock into a greater number of shares, the Exercise Price in effect immediately prior to such subdivision will be proportionately reduced and the number of Warrant Shares will be proportionately increased. If the Company at any time on or after the Subscription Date combines (by combination, reverse stock split or otherwise) one or more classes of its outstanding shares of Common Stock into a smaller number of shares, the Exercise Price in effect immediately prior to such combination will be proportionately increased and the number of Warrant Shares will be proportionately decreased. Any adjustment under this Section 2(b) shall become effective at the close of business on the date the subdivision or combination becomes effective.

(c) Other Events. If any event occurs of the type contemplated by the provisions of this Section 2 but not expressly provided for by such provisions (including, without limitation, the granting of stock appreciation rights, phantom stock rights or other rights with equity features), then the Company's Board of Directors will make an appropriate adjustment in the Exercise Price and the number of Warrant Shares so as to protect the rights of the Holder; provided that no such adjustment pursuant to this Section 2(c) will increase the Exercise Price then in effect or decrease the number of Warrant Shares as otherwise determined pursuant to this Section 2.

(d) De Minimis Adjustments. No adjustment in the Exercise Price shall be required unless such adjustment would require an increase or decrease of at least \$0.01 in such price; provided, however, that any adjustment which by reason of this Section 2(d) is not required to be made shall be carried forward and taken into account in any subsequent adjustments under this Section 2. All calculations under this Section 2 shall be made by the Company in good faith and shall be made to the nearest cent or to the nearest one hundredth of a share, as applicable. No adjustment need be made for a change in the par value or no par value of the Company's Common Stock.

3. RIGHTS UPON DISTRIBUTION OF ASSETS. If the Company shall declare or make any dividend (other than a dividend issued Section 2(b) hereof) or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a **Distribution**), at any time after the issuance of this Warrant, then, in each such case any Exercise Price in effect immediately prior to the close of business on the record date fixed for the determination of holders of shares of Common Stock entitled to receive the Distribution shall be reduced, effective as of the close of business on such record date, to a price determined by multiplying such Exercise Price by a fraction of which (i) the numerator shall be the Weighted Average Price of the shares of Common Stock on the Trading Day immediately preceding such record date minus the value of the Distribution (as determined in good faith by the Company's Board of Directors) applicable to one share of Common Stock, and (ii) the denominator shall be the Weighted Average Price of the shares of Common Stock on the Trading Day immediately preceding such record date.

4. PURCHASE RIGHTS; FUNDAMENTAL TRANSACTIONS.

(a) Purchase Rights. In addition to any adjustments pursuant to Section 2 above, if at any time the Company grants, issues or sells any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the **Purchase Rights**), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights.

(b) Fundamental Transactions. No sooner than fifteen (15) days and nor later than ten (10) days prior to the consummation of a Fundamental Transaction, but not prior to the public announcement of such Fundamental Transaction, the Company shall deliver written notice thereof via facsimile and overnight courier to the Holder (a **Fundamental Transaction Notice**).

(1) Reaffirmation. If the Company enters into or is a party to a Fundamental Transaction in which it is the Successor Entity, the Company shall deliver to the Holder (i) an affirmation that this Warrant shall be a continuing obligation of the Company, or the Company as the Successor Entity, and a reaffirmation of the Company's, or the Company's as the Successor Entity, obligations under the Transaction Documents following such Fundamental Transaction and (ii) a confirmation that there shall be issued upon exercise of this Warrant at any time after the consummation of the Fundamental Transaction (the **Fundamental Transaction Closing Date**), (A) Common Stock or such other shares of publicly traded common stock (or their equivalent) of the Company, or the Company as the Successor Entity, or (B) if the Company is not a publicly traded entity following such Fundamental Transaction, in lieu of the shares of the Company's Common Stock (or other securities, cash, assets or other property) issuable upon exercise of the Warrants prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of such Fundamental Transaction had this Warrant been exercised immediately prior to such Fundamental Transaction, in each case as adjusted in accordance with the provisions of this Warrant. In addition to and not in substitution for any other rights hereunder, prior to the consummation of any Fundamental Transaction in which the Company is the Successor Entity, pursuant to which holders of shares of Common Stock are entitled to receive securities or other assets with respect to or in exchange for shares of Common Stock (a **Corporate Event**), the Company shall make appropriate provision to insure that the Holder will

thereafter have the right to receive upon an exercise of this Warrant at any time after the Fundamental Transaction Closing Date but prior to the Expiration Date, in lieu of the shares of the Common Stock (or other securities, cash, assets or other property) issuable upon the exercise of this Warrant prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of such Fundamental Transaction had this Warrant been exercised immediately prior to such Fundamental Transaction. Provision made pursuant to the preceding sentence shall be in a form and substance reasonably satisfactory to the Holder. The provisions of this Section shall apply similarly and equally to successive Fundamental Transactions and Corporate Events and shall be applied without regard to any limitations on the exercise of this Warrant. Notwithstanding the foregoing, the Holder acknowledges that in connection with any Fundamental Transaction in which the Company is not the Successor Entity, the Holder shall only have the rights set forth in Sections 4(b)(2) and 4(b)(3) hereof.

(2) Fundamental Transaction Exchange. At any time during the period beginning on the date of the Holder's receipt of a Fundamental Transaction Notice and ending on the thirtieth (30<sup>th</sup>) day (the **Automatic Exchange Date**) after the Fundamental Transaction Closing Date, the Holder may require the Company to exchange this Warrant (a **Fundamental Transaction Exchange**), within ten (10) Business Days after such request (or, if later, on the Fundamental Transaction Closing Date), in lieu of the shares of the Common Stock (or other securities, cash, assets or other property) issuable upon the exercise of this Warrant prior to such Fundamental Transaction, for such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of such Fundamental Transaction had this Warrant been exercised immediately prior to such Fundamental Transaction. If the Fundamental Transaction Exchange has not occurred prior to the Automatic Exchange Date and the Holder has not delivered a Black Scholes Notice (as defined below) prior to the Automatic Exchange Date, the Fundamental Transaction Exchange automatically shall occur on the Automatic Exchange Date.

(3) Black Scholes Value. Notwithstanding the foregoing, in the event of a Fundamental Transaction, at the request of the Holder delivered before the Automatic Exchange Date (a **Black Scholes Notice**), the Company (or the Successor Entity) shall purchase this Warrant from the Holder by paying to the Holder, within ten (10) Business Days after such request (or, if later, on the effective date of the Fundamental Transaction), cash in an amount equal to the Black Scholes Value of the remaining unexercised portion of this Warrant on the date of such Fundamental Transaction.

5. NONCIRCUMVENTION. The Company hereby covenants and agrees that the Company will not, by amendment of its Certificate of Incorporation, Bylaws or through any reorganization, transfer of assets, consolidation, merger, scheme of arrangement, dissolution, issue or sale of securities, or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, and will at all times in good faith carry out all the provisions of this Warrant and take all action as may be required to protect the rights of the Holder. Without limiting the generality of the foregoing, the Company (i) shall not increase the par value of any shares of Common Stock receivable upon the exercise of this Warrant above the Exercise Price then in effect, (ii) shall take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of Common Stock upon the exercise of this Warrant and (iii) shall, so long as any of the SPA Warrants are outstanding, take all action necessary to reserve and keep available out of its authorized and unissued shares of Common Stock, solely for the purpose of effecting the exercise of the SPA Warrants, 120% of the number of shares of Common Stock as shall from time to time be necessary to effect the exercise of the SPA Warrants then outstanding (without regard to any limitations on exercise.

6. WARRANT HOLDER NOT DEEMED A STOCKHOLDER. Except as otherwise specifically provided herein, the Holder, solely in such Person's capacity as a holder of this Warrant, shall not be entitled to vote or receive dividends or be deemed the holder of share capital of the Company for any purpose, nor shall anything contained in this Warrant be construed to confer upon the Holder, solely in such Person's capacity as the Holder of this Warrant, any of the rights of a shareholder of the Company or any right to vote, give or withhold consent to any corporate action (whether any reorganization, issue of stock, reclassification of stock, consolidation, merger, conveyance or otherwise), receive notice of meetings, receive dividends or subscription rights, or otherwise, prior to the issuance to the Holder of the Warrant Shares which such Person is then entitled to receive upon the due exercise of this Warrant. Except as set forth in Section 1(h), nothing contained in this Warrant shall be construed as imposing any liabilities on the Holder to purchase any securities (upon exercise of this Warrant or otherwise) or as a shareholder of the Company, whether such liabilities are asserted by the Company or by creditors of the Company. Notwithstanding this Section 6, the Company shall provide the Holder with copies of the same notices and other information given to the shareholders of the Company generally, contemporaneously with the giving thereof to the shareholders.

7. REISSUANCE OF WARRANTS.

(a) Transfer of Warrant. If this Warrant is to be transferred, the Holder shall surrender this Warrant to the Company, whereupon the Company will forthwith issue and deliver upon the order of the Holder a new Warrant (in accordance with Section 7(d)), registered as the Holder may request, representing the right to purchase the number of Warrant Shares being transferred by the Holder and, if less than the total number of Warrant Shares then underlying this Warrant is being transferred, a new Warrant (in accordance with Section 7(d)) to the Holder representing the right to purchase the number of Warrant Shares not being transferred; provided, that prior to any transfer of this Warrant, each transferee of this Warrant shall acknowledge and agree to its obligations under Section 1(h) hereof.

(b) Lost, Stolen or Mutilated Warrant. Upon receipt by the Company of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant, and, in the case of loss, theft or destruction, of any indemnification undertaking by the Holder to the Company in customary form and, in the case of mutilation, upon surrender and cancellation of this Warrant, the Company shall execute and deliver to the Holder a new Warrant (in accordance with Section 7(d)) representing the right to purchase the Warrant Shares then underlying this Warrant.

(c) Exchangeable for Multiple Warrants. This Warrant is exchangeable, upon the surrender hereof by the Holder at the principal office of the Company, for a new Warrant or Warrants (in accordance with Section 7(d)) representing in the aggregate the right to purchase the number of Warrant Shares then underlying this Warrant, and each such new Warrant will represent the right to purchase such portion of such Warrant Shares as is designated by the Holder at the time of such surrender; provided, however, that no Warrants for fractional shares of Common Stock shall be given.

(d) Issuance of New Warrants. Whenever the Company is required to issue a new Warrant pursuant to the terms of this Warrant, such new Warrant (i) shall be of like tenor with this Warrant, (ii) shall represent, as indicated on the face of such new Warrant, the right to purchase the Warrant Shares then underlying this Warrant (or in the case of a new Warrant being issued pursuant to Section 7(a) or Section 7(c), the Warrant Shares designated by the Holder which, when added to the number of shares of Common Stock underlying the other new Warrants issued in connection with such issuance, does not exceed the number of Warrant Shares then underlying this Warrant), (iii) shall have an issuance date, as indicated on the face of such new Warrant which is the same as the Issuance Date, and (iv) shall have the same rights and conditions as this Warrant.

8. NOTICES. Whenever notice is required to be given under this Warrant, unless otherwise provided herein, such notice shall be given in accordance with Section 9(f) of the Securities Purchase Agreement. The Company shall provide the Holder with prompt written notice of all actions taken pursuant to this Warrant, including in reasonable detail a description of such action and the reason therefore. Without limiting the generality of the foregoing, the Company will give written notice to the Holder (i) immediately upon any adjustment of the Exercise Price, setting forth in reasonable detail, within one (1) Business Day certifying, the calculation of such adjustment and (ii) at least fifteen (15) days prior to the date on which the Company closes its books or takes a record (A) with respect to any dividend or distribution upon the shares of Common Stock, (B) with respect to any grants, issuances or sales of any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property to holders of shares of Common Stock (other than Excluded Securities) or (C) for determining rights to vote with respect to any Fundamental Transaction, dissolution or liquidation, provided in each case that such information shall be made known to the public prior to or in conjunction with such notice being provided to the Holder.

9. AMENDMENT AND WAIVER. Except as otherwise provided herein, the provisions of this Warrant may be amended and the Company may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Company has obtained the written consent of the Required Holders; provided that no such action may increase the exercise price of any SPA Warrant or decrease the number of shares or class of stock obtainable upon exercise of any SPA Warrant without the written consent of the Holder. No such amendment shall be effective to the extent that it applies to less than all of the holders of the SPA Warrants then outstanding.

10. GOVERNING LAW. This Warrant shall be governed by and construed and enforced in accordance with, and all questions concerning the construction, validity, interpretation and performance of this Warrant shall be governed by, the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York.

11. CONSTRUCTION; HEADINGS. This Warrant shall be deemed to be jointly drafted by the Company and all the Buyers and shall not be construed against any person as the drafter hereof. The headings of this Warrant are for convenience of reference and shall not form part of, or affect the interpretation of, this Warrant.

12. DISPUTE RESOLUTION. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall submit the disputed determinations or arithmetic calculations via facsimile within two (2) Business Days of receipt of the Exercise Notice giving rise to such dispute, as the case may be, to the Holder. If the Holder and the Company are unable to agree upon such determination or calculation of the Exercise Price or the Warrant Shares within three Business Days of such disputed determination or arithmetic calculation being submitted to the Holder, then the Company shall, within two (2) Business Days submit via facsimile (a) the disputed determination of the Exercise Price to an independent, reputable investment bank selected by the Company and approved by the Holder or (b) the disputed arithmetic calculation of the Warrant Shares to the Company's independent, outside accountant. The Company shall cause at its expense the investment bank or the accountant, as the case may be, to perform the determinations or calculations and notify the Company and the Holder of the results no later than ten Business Days from the time it receives the disputed determinations or calculations. Such investment bank's or accountant's determination or calculation, as the case may be, shall be binding upon all parties absent demonstrable error.

13. REMEDIES, OTHER OBLIGATIONS, BREACHES AND INJUNCTIVE RELIEF. The remedies provided in this Warrant shall be cumulative and in addition to all other remedies available under this Warrant and the other Transaction Documents, at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit the right of the Holder right to pursue actual damages for any failure by the Company to comply with the terms of this Warrant. The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Holder and that the remedy at law for any such breach may be inadequate. The Company therefore agrees that, in

the event of any such breach or threatened breach, the holder of this Warrant shall be entitled, in addition to all other available remedies, to an injunction restraining any breach, without the necessity of showing economic loss and without any bond or other security being required.

14. **TRANSFER.** This Warrant may be offered for sale, sold, transferred or assigned in accordance with applicable law without the consent of the Company.

15. **CERTAIN DEFINITIONS.** For purposes of this Warrant, the following terms shall have the following meanings:

(a) **1933 Act** means the Securities Act of 1933, as amended.

(b) **Black Scholes Value** means the value of this Warrant based on the Black and Scholes Option Pricing Model obtained from the **OV** function on Bloomberg determined as of the day of closing of the applicable Fundamental Transaction for pricing purposes and reflecting (i) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the remaining term of this Warrant as of such date of request, (ii) an expected volatility equal to the greater of 60% and the 100 day volatility obtained from the **HVT** function on Bloomberg as of the day immediately following the public announcement of the applicable Fundamental Transaction and (iii) the underlying price per share used in such calculation shall be the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in the Fundamental Transaction.

(c) **Bloomberg** means Bloomberg Financial Markets.

(d) **Business Day** means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed.

(e) **Closing Sale Price** means, for any security as of any date, the last closing trade price for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing trade price then the last trade price of such security prior to 4:00:00 p.m., New York time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last trade price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing do not apply, the last trade price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no last trade price is reported for such security by Bloomberg, the average of the bid prices, or the ask prices, respectively, of any market makers for such security as reported in the **pink sheets** by Pink Sheets LLC (formerly the National Quotation Bureau, Inc.). If the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Sale Price of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the

fair market value of such security, then such dispute shall be resolved pursuant to Section 12. All such determinations to be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during the applicable calculation period.

(f) **Common Stock** means (i) the Company's shares of Common Stock, par value \$0.001 per share, and (ii) any share capital into which such Common Stock shall have been changed or any share capital resulting from a reclassification of such Common Stock.

(g) **Common Stock Deemed Outstanding** means, at any given time, the number of shares of Common Stock actually outstanding at such time, plus the number of shares of Common Stock deemed to be outstanding pursuant to Sections 2(a)(i) and 2(a)(ii) hereof regardless of whether the Options or Convertible Securities are actually exercisable at such time, but excluding any shares of Common Stock owned or held by or for the account of the Company or issuable upon exercise of the SPA Warrants.

(h) **Convertible Securities** means any stock or securities (other than Options) directly or indirectly convertible into or exercisable or exchangeable for shares of Common Stock.

(i) **Eligible Market** means the Principal Market, The New York Stock Exchange, Inc., The NASDAQ Global Select Market or The NASDAQ Capital Market.

(j) **Expiration Date** means the date sixty (60) months after the Initial Exercise Eligibility Date or, if such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a **Holiday**), the next date that is not a Holiday.

(k) **Fundamental Transaction** means that the Company shall, directly or indirectly, in one or more related transactions, (i) consolidate or merge with or into (whether or not the Company is the surviving corporation) another Person or Persons, if the holders of the Voting Stock (not including any shares of Voting Stock held by the Person or Persons making or party to, or associated or affiliated with the Persons making or party to, such consolidation or merger) immediately prior to such consolidation or merger shall hold or have the right to direct the voting of less than 50% of the Voting Stock or such voting securities of such other surviving Person immediately following such transaction, or (ii) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Company to another Person, or (iii) allow another Person to make a purchase, tender or exchange offer that is accepted by the holders of more than the 50% of the outstanding shares of Voting Stock (not including any shares of Voting Stock held by the Person or Persons making or party to, or associated or affiliated with the Persons making or party to, such purchase, tender or exchange offer), or (iv) consummate a stock purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person whereby such other Person acquires more than the 50% of the outstanding shares of Voting

Stock (not including any shares of Voting Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock purchase agreement or other business combination), (v) reorganize, recapitalize or reclassify its Common Stock or (vi) any person or group (as these terms are used for purposes of Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended) is or shall become the beneficial owner (as defined in Rule 13d-3 under the Securities Exchange Act of 1934, as amended), directly or indirectly, of 50% of the aggregate ordinary voting power represented by issued and outstanding Common Stock.

(l) **Initial Exercise Eligibility Date** means the Issuance Date.

(m) **Options** means any rights, warrants or options to subscribe for or purchase shares of Common Stock or Convertible Securities.

(n) **Parent Entity** of a Person means an entity that, directly or indirectly, controls the applicable Person and whose common stock or equivalent equity security is quoted or listed on an Eligible Market, or, if there is more than one such Person or Parent Entity, the Person or Parent Entity with the largest public market capitalization as of the date of consummation of the Fundamental Transaction.

(o) **Person** means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization, any other entity and a government or any department or agency thereof.

(p) **Principal Market** means The NASDAQ Global Market.

(q) **Required Holders** means the holders of the SPA Warrants representing at least a majority of shares of Common Stock underlying the SPA Warrants then outstanding.

(r) **Series A Warrants** means the Series A Warrants issued pursuant to the Securities Purchase Agreement.

(s) **Series C Warrants** means the Series C Warrants issued pursuant to the Securities Purchase Agreement.

(t) **SPA Securities** means the Notes issued pursuant to the Securities Purchase Agreement.

(u) **Successor Entity** means the Person (or, if so elected by the Required Holders, the Parent Entity) formed by, resulting from or surviving any Fundamental Transaction or the Person (or, if so elected by the Required Holders, the Parent Entity) with which such Fundamental Transaction shall have been entered into.

(v) **Trading Day** means any day on which the Common Stock are traded on the Principal Market, or, if the Principal Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities

market on which the Common Stock are then traded; provided that **Trading Day** shall not include any day on which the Common Stock are scheduled to trade on such exchange or market for less than 4.5 hours or any day that the Common Stock are suspended from trading during the final hour of trading on such exchange or market (or if such exchange or market does not designate in advance the closing time of trading on such exchange or market, then during the hour ending at 4:00:00 p.m., New York time).

(w) **Voting Stock** of a Person means capital stock of such Person of the class or classes pursuant to which the holders thereof have the general voting power to elect, or the general power to appoint, at least a majority of the board of directors, managers or trustees of such Person (irrespective of whether or not at the time capital stock of any other class or classes shall have or might have voting power by reason of the happening of any contingency).

(x) **Weighted Average Price** means, for any security as of any date, the dollar volume-weighted average price for such security on the Principal Market during the period beginning at 9:30:01 a.m., New York City time, and ending at 4:00:00 p.m., New York City time, as reported by Bloomberg through its **Volume at Price** function or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York City time, and ending at 4:00:00 p.m., New York City time, as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest closing bid price and the lowest closing ask price of any of the market makers for such security as reported in the **pink sheets** by Pink Sheets LLC (formerly the National Quotation Bureau, Inc.). If the Weighted Average Price cannot be calculated for such security on such date on any of the foregoing bases, the Weighted Average Price of such security on such date shall be the fair market value as mutually determined by the Company and the Required Holders. If the Company and the Required Holders are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 12 with the term

**Weighted Average Price** being substituted for the term **Exercise Price**. All such determinations shall be appropriately adjusted for any share dividend, share split or other similar transaction during such period.

[Signature Page Follows]

**IN WITNESS WHEREOF**, the Company has caused this Warrant to Purchase Common Stock to be duly executed as of the Issuance Date set out above.

**NANOGEN, INC.**

By:

Name:

Title:

Acknowledged and agreed with respect to Section 1(h):

[HOLDER]

By:

Name:

Title:

EXERCISE NOTICE

TO BE EXECUTED BY THE REGISTERED HOLDER TO EXERCISE THIS

WARRANT TO PURCHASE COMMON STOCK

NANOGEN, INC.

The undersigned holder hereby exercises the right to purchase \_\_\_\_\_ of the shares of Common Stock ( **Warrant Shares** ) of Nanogen, Inc., a Delaware corporation (the **Company** ), evidenced by the attached Warrant to Purchase Common Stock (the **Warrant** ). Capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Warrant.

1. Form of Exercise Price. The Holder intends that payment of the Exercise Price shall be made as:

\_\_\_\_\_ a Cash Exercise with respect to \_\_\_\_\_ Warrant Shares; and/or

\_\_\_\_\_ a Cashless Exercise with respect to \_\_\_\_\_ Warrant Shares.

2. Payment of Exercise Price. In the event that the holder has elected a Cash Exercise with respect to some or all of the Warrant Shares to be issued pursuant hereto, the holder shall pay the Aggregate Exercise Price in the sum of \$ \_\_\_\_\_ to the Company in accordance with the terms of the Warrant.

3. Delivery of Warrant Shares. The Company shall deliver to the holder \_\_\_\_\_ Warrant Shares in accordance with the terms of the Warrant.

Date: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Name of Registered Holder

By:

Name:

Title:

**ACKNOWLEDGMENT**

The Company hereby acknowledges this Exercise Notice and hereby directs Computershare Investor Services to issue the above indicated number of shares of Common Stock in accordance with the Transfer Agent Instructions dated August \_\_, 2007 from the Company and acknowledged and agreed to by Computershare Investor Services.

**NANOGEN, INC.**

By:

Name:

Title: