

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

SCHEDULE 13D

**Under the Securities Exchange Act of 1934
(Amendment No. __)***

Lexicon Pharmaceuticals, Inc.

(Name of Issuer)

Common Stock, par value \$0.001 per share

(Title of Class of Securities)

528872104

(CUSIP Number)

**Raymond Debbane
c/o Ulys, L.L.C.
750 Lexington Avenue
30th Floor
New York, New York 10022
(212) 371-1717**

**Copies to:
Robert Spatt, Esq.
Peter Malloy, Esq.
Simpson Thacher & Bartlett LLP
425 Lexington Avenue
New York, NY 10017
(212) 455-2000**

(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

June 17, 2007

(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP No. 528872104

1. Names of Reporting Persons.

I.R.S. Identification Nos. of above persons (entities only).

Invus, L.P.

I.R.S. Identification No. 83-0359143

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Bermuda

7. Sole Voting Power

Number of Shares 16,498,353

8. Shared Voting Power

Beneficially Owned by 0

9. Sole Dispositive Power

Each Reporting Person 16,498,353

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

16,498,35312. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

16.1%*

14. Type of Reporting Person (See Instructions)

PN

* Based on 85,961,249 shares of Issuer Common Stock outstanding as of June 17, 2007, as provided by the Issuer, plus 16,498,353 shares issuable to Invus, L.P. upon the exercise of warrants as described below.

CUSIP No. 528872104

1. Names of Reporting Persons.

I.R.S. Identification Nos. of above persons (entities only).

Invus Advisors, L.L.C.

I.R.S. Identification No. 83-0359142

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Delaware

7. Sole Voting Power

Number of Shares Beneficially Owned by Each Reporting Person 16,498,353

8. Shared Voting Power

Number of Shares Beneficially Owned by Each Reporting Person 0

9. Sole Dispositive Power

Number of Shares Beneficially Owned by Each Reporting Person 16,498,353

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

16,498,353

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

16.1%*

14. Type of Reporting Person (See Instructions)

OO

* Based on 85,961,249 shares of Issuer Common Stock outstanding as of June 17, 2007, as provided by the Issuer, plus 16,498,353 shares issuable to Invus, L.P. upon the exercise of warrants as described below.

CUSIP No. 528872104

1. Names of Reporting Persons.
I.R.S. Identification Nos. of above persons (entities only).

Invus Public Equities, L.P.
I.R.S. Identification No. 98-0420215

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Bermuda

7. Sole Voting Power

Number of Shares 3,891,108

8. Shared Voting Power

Beneficially Owned by 0

9. Sole Dispositive Power

Each Reporting Person 3,891,108

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

3,891,108

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

4.53%*

14. Type of Reporting Person (See Instructions)

PN

* Based on 85,961,249 shares of Issuer Common Stock outstanding as of June 17, 2007, as provided by the Issuer.

CUSIP No. 528872104

1. Names of Reporting Persons.

I.R.S. Identification Nos. of above persons (entities only).

Invus Public Equities Advisors, L.L.C.

I.R.S. Identification No. 98-04220201

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Delaware

7. Sole Voting Power

Number of Shares Beneficially Owned by Each Reporting Person 3,891,108

8. Shared Voting Power

Number of Shares Beneficially Owned by Each Reporting Person 0

9. Sole Dispositive Power

Number of Shares Beneficially Owned by Each Reporting Person 3,891,108

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

3,891,108

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

4.53%*

14. Type of Reporting Person (See Instructions)

OO

* Based on 85,951,249 shares of Issuer Common Stock outstanding as of June 17, 2007, as provided by the Issuer.

CUSIP No. 528872104

1. Names of Reporting Persons.

I.R.S. Identification Nos. of above persons (entities only).

Ulys, L.L.C.

I.R.S. Identification No. 83-0359139

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Delaware

7. Sole Voting Power

Number of Shares 20,389,461

8. Shared Voting Power

Beneficially Owned by 0

9. Sole Dispositive Power

Each Reporting Person 20,389,461

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

20,389,46112. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

19.9%*

14. Type of Reporting Person (See Instructions)

OO

* Based on 85,961,249 shares of Issuer Common Stock outstanding as of June 17, 2007, as provided by the Issuer, plus 16,498,353 shares issuable to Invus, L.P. upon the exercise of warrants as described below.

CUSIP No. 528872104

1. Names of Reporting Persons.
I.R.S. Identification Nos. of above persons (entities only).

Raymond Debbane

2. Check the Appropriate Box if a Member of a Group (See Instructions)
(a)
(b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Delaware

7. Sole Voting Power

Number of Shares Beneficially Owned by Each Reporting Person 20,389,461

8. Shared Voting Power

0

9. Sole Dispositive Power

20,389,461

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

20,389,461

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

19.9%*

14. Type of Reporting Person (See Instructions)

IN

* Based on 85,961,249 shares of Issuer Common Stock outstanding as of June 17, 2007, as provided by the Issuer, plus 16,498,353 shares issuable to Invus, L.P. upon the exercise of warrants as described below.

Item 1. Security and Issuer

This statement on Schedule 13D (this “Statement”) relates to the common stock, \$0.001 par value per share (the “Issuer Common Stock”), of Lexicon Pharmaceuticals, Inc., a Delaware corporation (the “Issuer” or “Lexicon”). The principal executive offices of the Issuer are located at 8800 Technology Forest Place, The Woodlands, Texas 77381.

Item 2. Identity and Background

This statement is being filed jointly by Invus, L.P., a Bermuda limited partnership, Invus Advisors, L.L.C., a Delaware limited liability company, Invus Public Equities, L.P., a Bermuda limited partnership, Invus Public Equities Advisors, L.L.C., a Delaware limited liability company, Ulys, LLC, a Delaware limited liability company, and Mr. Raymond Debbane, a citizen of Panama (collectively, the “Invus Parties”). The principal executive offices of Invus, L.P., Invus Advisors, L.L.C., Invus Public Equities, L.P., Invus Public Equities Advisors, L.L.C. and Ulys, L.L.C. are located at 750 Lexington Avenue, 30th Floor, New York, NY 10022. The business address for Mr. Raymond Debbane is c/o Ulys, L.L.C., 750 Lexington Avenue, 30th Floor, New York, NY 10022.

Invus, L.P. and Invus Public Equities, L.P. are principally engaged in the business of investing in securities. Invus Advisors, L.L.C. and Invus Public Equities Advisors, L.L.C. are principally engaged in the business of serving as the general partners of Invus, L.P. and Invus Public Equities, L.P., respectively. Ulys, L.L.C. is principally engaged in the business of serving as the managing member of each of Invus Advisors, L.L.C. and Invus Public Equities Advisors, L.L.C. Mr. Raymond Debbane’s principal occupation is the direction of the activities of Invus, L.P. and Invus Public Equities, L.P. in his capacity as Chief Executive Officer and President of Invus Advisors, L.L.C, Chief Executive Officer and President of Invus Public Equities Advisors, L.L.C. and sole member of Ulys, L.L.C., as applicable.

The name, business address, citizenship and present principal occupation or employment of each executive officer of Invus Advisors, L.L.C., Invus Public Equities Advisors, L.L.C and Ulys, L.L.C. and the name and principal business and address of any organization in which such employment is conducted are set forth in Schedule I hereto and are incorporated by reference herein.

During the last five years, none of the Invus Parties or, to the knowledge of the Invus Parties, any of the individuals named in Schedule I hereto, have (i) been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors) or (ii) been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding were or are subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

Item 3. Source and Amount of Funds or Other Consideration

On June 17, 2007, Invus, L.P. and Lexicon entered into a series of agreements pursuant to which Invus, L.P. will make an investment in Issuer Common Stock in an aggregate amount of \$205,472,250 and will have certain rights as described below. In connection with the entry into these agreements, on June 17, 2007, Lexicon issued to Invus, L.P. warrants to purchase 16,498,353 shares of Issuer Common Stock at an exercise price of \$3.0915 per share (the “Warrants”). If Invus, L.P. exercises any Warrants, all funds required for the payment of the exercise price of such Warrants will be obtained from a capital call to Invus, L.P.’s limited partners in respect of previously made commitments.

The purchase of additional shares of Issuer Common Stock by Invus, L.P. up to an aggregate of \$205,472,250, as contemplated by the Securities Purchase Agreement (as defined below), is subject to stockholder approval. If such approval is obtained, Invus, L.P. intends to use funds obtained from a capital call to its limited partners in respect of previously made commitments for the payment of the purchase price for any such additional shares of Issuer Common Stock.

Invus Public Equities, L.P. previously acquired the shares of Issuer Common Stock held by it with funds obtained from a capital call to its limited partners in respect of previously made commitments.

Item 4. Purpose of Transaction

On June 17, 2007, Invus, L.P. and Lexicon entered into a securities purchase agreement (the “Securities Purchase Agreement”), a warrant agreement (the “Warrant Agreement”), a registration rights agreement (the “Registration Rights Agreement”) and a stockholders’ agreement (the “Stockholders’ Agreement”), pursuant to which, among other things, Invus, L.P. will make an investment in Issuer Common Stock and will have the rights described in Item 6 below. Also on June 17, 2007, pursuant to the terms of the Warrant Agreement, Lexicon issued to Invus, L.P. the Warrants. Each of the agreements is summarized in Item 6 below and is filed as an exhibit to this Statement. Each of the agreements, and the description thereof included in Item 6 below, is incorporated by reference into this Item 4.

The Invus Parties intend to review from time to time their investment in the Issuer. Depending on their review and evaluation of the business and prospects of the Issuer and the price level of the Issuer Common Stock, or such other factors as they may deem relevant, the Invus Parties may (a) acquire additional shares of Issuer Common Stock pursuant to the Rights Offerings, preemptive rights, on the open market, on a privately negotiated basis or otherwise, (b) sell all or any part of the shares of Issuer Common Stock held by them pursuant to Rule 144 under the Securities Act, in privately negotiated transactions, in sales registered or exempt from registration under the Securities Act or otherwise, (c) distribute shares of Issuer Common Stock to various of their partners or

members, or (d) engage in any combination of the foregoing, in each case subject to the Securities Purchase Agreement and the Stockholders' Agreement. Subject to applicable law and the Securities Purchase Agreement and the Stockholders' Agreement, the Invus Parties may enter into derivative transactions, hedging transactions or alternative structures with respect to the shares of Issuer Common Stock held by them. Any open market or privately negotiated purchases, sales, distributions or other transactions by the Invus Parties may be made at any time without additional prior notice, subject to the terms of the Securities Purchase Agreement and the Stockholders' Agreement. Any alternative that the Invus Parties may pursue will depend upon a variety of factors, including without limitation, current and anticipated future trading prices of the Issuer Common Stock, the financial condition, results of operations and prospects of the Issuer and the Invus Parties and general economic, financial market and industry conditions, other investment and business opportunities available to the Invus Parties, general stock market and economic conditions, tax considerations and other factors.

Under the Securities Purchase Agreement and the Stockholders' Agreement, the acquisition of additional shares of Issuer Common Stock in certain types of transactions or the disposition of shares of Issuer Common Stock could have an effect on Invus, L.P.'s rights under these agreements, including, without limitation, the level of Invus, L.P.'s representation on the board of directors of the Issuer and the continuation of Invus, L.P.'s rights and obligations under these agreements, as described in Item 6. As a result of the Invus Parties' ongoing review and evaluation of the business of the Issuer, the Invus Parties may, through their representatives on the board of directors of the Issuer and otherwise, continue to communicate with the board of directors, members of management and/or other stockholders of the Issuer from time to time with respect to operational, strategic, financial or governance matters or otherwise work with management and the board of directors of the Issuer to create stockholder value. Invus, L.P. may discuss transactions contemplated by the Securities Purchase Agreement and the Stockholders' Agreement with Lexicon prior to exercising its rights under such agreements, which discussions may lead to Invus, L.P.'s exercise or forbearance from exercise of such rights, and may alter the terms on which Invus, L.P. is willing to exercise such rights.

The securities held for the account of Invus Public Equities, L.P. may be held through margin accounts maintained with brokers, which extend margin credit as and when required to open or carry positions in their margin accounts, subject to applicable federal margin regulations, stock exchange rules and such firms' credit policies. The positions which may be held in the margin accounts, including the shares, are pledged as collateral security for the repayment of debit balances in the respective accounts.

Other than as described in this Statement, the Invus Parties do not have any present plans or proposals that relate to or would result in any of the actions described in subparagraphs (a) through (j) of Item 4 of Schedule 13D; provided, that the Invus Parties may, at any time, review or reconsider their position with respect to the Issuer and reserve the right to develop such plans or proposals.

Item 5. Interest in Securities of the Issuer

(a) As of June 17, 2007, Invus Public Equities, L.P. was the record and beneficial owner of 3,891,108 shares of Issuer Common Stock, representing approximately 4.53% of the outstanding shares of Issuer Common Stock (not taking into account any shares issuable upon the exercise of the Warrants). Invus Public Equities Advisors, L.L.C., as the general partner of Invus Public Equities, L.P. controls Invus Public Equities, L.P. and, accordingly, may be deemed to beneficially own the shares of Issuer Common Stock held by Invus Public Equities, L.P. Invus Public Equities Advisors, L.L.C. disclaims such beneficial ownership, except to the extent of its pecuniary interest in such shares.

As of June 17, 2007, Invus, L.P. had the right to acquire and was thus the beneficial owner of 16,498,353 shares of Issuer Common Stock issuable upon the exercise of the Warrants, representing approximately 16.1% of the outstanding shares of Issuer Common Stock (taking into account the shares issuable upon the exercise of the Warrants). Invus Advisors, L.L.C., as the general partner of Invus, L.P. controls Invus, L.P. and, accordingly, may be deemed to beneficially own the shares of Issuer Common Stock held by Invus, L.P. Invus Advisors, L.L.C. disclaims such beneficial ownership, except to the extent of its pecuniary interest in such shares. Invus, L.P. has certain rights to acquire additional shares of Issuer Common Stock, as described in Item 6.

Ulys, L.L.C., as the managing member of each of Invus Public Equities Advisors, L.L.C. and Invus Advisors, L.L.C., controls each of these two entities and, accordingly, may be deemed to beneficially own the shares of Issuer Common Stock held by them. As a result, Ulys, L.L.C. may be deemed to be the beneficial owner of 20,389,461 shares of Issuer Common Stock. Ulys, L.L.C. disclaims such beneficial ownership, except to the extent of its pecuniary interest in such shares. As the sole member of Ulys, L.L.C., Mr. Raymond Debbane controls Ulys, L.L.C. and, accordingly, may be deemed to beneficially own the 20,389,461 shares of Issuer Common Stock held by Ulys, L.L.C. Mr. Raymond Debbane disclaims such beneficial ownership, except to the extent of his pecuniary interest in such shares.

Except for Messrs. Sobecki and Guimaraes, none of the individuals listed in Schedule I beneficially own any shares of Issuer Common Stock. Mr. Sobecki beneficially owns 1,000 shares of Issuer Common Stock and Mr. Guimaraes beneficially owns 5,000 shares of Issuer Common Stock, in each case representing less than 1% of the number of outstanding shares of Issuer Common Stock.

(b) See rows 7-10 of each cover page for information on the power to vote or direct the vote and the power to dispose or direct the disposition of shares of Issuer Common Stock by the Invus Parties. Each of Messrs. Sobecki and Guimaraes maintains the sole power to vote or direct the vote and to dispose or direct the disposition of all of the shares of Issuer Common Stock held by each of them as described in paragraph (a) of this Item 5.

(c) Except as set forth in Item 3 above, none of the Invus Parties or, to the knowledge of the Invus Parties, any of the individuals listed in Schedule I hereto, have engaged in any transaction during the past 60 days in any shares of Issuer Common Stock.

(d) Not Applicable.

(e) Not Applicable.

Item 6. Contracts, Arrangements or Understandings with Respect to Securities of the Issuer

Except as set forth in this Statement, to the knowledge of the Invus Parties, there are no other contracts, arrangements, understandings or relationships (legal or otherwise) between the Invus Parties and any other person with respect to the securities of the Issuer, including, but not limited to, transfer or voting of any of the securities of the Issuer, joint ventures, loan or option arrangements, puts or calls, guarantees of profits, division of profits or loss, or the giving or withholding of proxies, or a pledge or contingency, the occurrence of which would give another person voting power over the securities of the Issuer.

a. Securities Purchase Agreement

On June 17, 2007, Invus, L.P. and Lexicon entered into the Securities Purchase Agreement, pursuant to which and subject to approval by Lexicon's stockholders as described below and customary closing conditions, Lexicon will issue and sell to Invus, L.P. shares in an initial investment (the "Initial Investment") and to permit Invus, L.P. to require, subject to specific conditions, that Lexicon conduct certain rights offerings (the "Rights Offerings"). The following is a summary of selected provisions of the Securities Purchase Agreement. While the Invus Parties believe this description covers the material terms of the Securities Purchase Agreement, it is qualified in its entirety by reference to the Securities Purchase Agreement, a copy of which is included as Exhibit 1 of this Statement and is incorporated herein by reference.

Initial Investment

In the Initial Investment, Invus, L.P. will purchase shares of Issuer Common Stock for an aggregate consideration of \$205,472,250 in two parts as follows: (i) a number of shares of Issuer Common Stock that, when added to the shares of Issuer Common Stock already owned by Invus, L.P. and its affiliates (including the 3,891,108 shares of Issuer Common Stock owned by affiliates of Invus, L.P. as described in Item 5 above as of the date of the Securities Purchase Agreement and any shares of Issuer Common Stock issued upon exercise of the Warrants described below but excluding, for the avoidance of doubt, the shares of Issuer Common Stock to be issued pursuant to clause (ii) below), equal 19.9% of the aggregate number of shares of Issuer Common Stock outstanding as of the closing of the Initial Investment for a per share purchase price equal to \$3.0915; and (ii) a number of shares of Issuer Common Stock that, when added to the number of shares of Issuer Common Stock already owned by Invus, L.P. and its affiliates and the number of shares subject to clause (i) above, equal 40% of the aggregate number of shares of Issuer Common Stock outstanding as of the closing of the Initial Investment for a per share purchase price equal to \$4.50. Pending the closing of the Initial Investment, Invus, L.P. and its affiliates have agreed not to acquire additional shares of Issuer Common Stock, subject to certain exceptions, except for shares, if any, acquired upon exercise of the Warrants.

First Rights Offering

For a period of 90 days following the date (the "First Rights Offering Trigger Date") which is 27 months after the closing of the Initial Investment, Invus, L.P. will have the right to require Lexicon to make a pro rata offering of non-transferable rights to acquire Issuer Common Stock to all of Lexicon's stockholders (the "First Rights Offering") in an aggregate amount to be designated by Invus, L.P. not to exceed an amount equal to (a) the quotient of (i) \$550,000,000, *minus* the amount of the Initial Investment, *minus* the aggregate amount paid by Invus, L.P. upon the exercise of any Warrants, divided by (ii) two (which quotient is expected to be approximately \$172,500,000), *minus* (b) the aggregate net proceeds received in all Qualified Offerings (as defined below), if any, completed prior to the First Rights Offering Trigger Date. The price per share for the First Rights Offering would be designated by Invus, L.P. in a range between \$4.50 and a then-current average market price of the Issuer Common Stock. The First Rights Offering Trigger Date could be changed to as early as 24 months after the closing of the Initial Investment with the approval of the members of Lexicon's board of directors who are not affiliated with Invus, L.P. (the "Unaffiliated Board"). All of Lexicon's stockholders would have oversubscription rights with respect to the First Rights Offering, and Invus, L.P. would be required to purchase the entire portion of the First Rights Offering that is not subscribed for by other stockholders. A "Qualified Offering" consists of a bona fide financing transaction comprised of Lexicon's issuance of shares of Issuer Common Stock at a price greater than \$4.50 per share, which transaction is not entered into in connection with Lexicon's entry into any other transaction (including, a collaboration or license for the discovery, development or commercialization of pharmaceutical products) involving the purchaser of such shares of Issuer Common Stock.

Second Rights Offering

For a period of 90 days following the date (the "Second Rights Offering Trigger Date" and, together with the First Rights Offering Trigger Date, a "Rights Offering Trigger Date") which is 12 months after the later of (a) the First Rights Offering Trigger Date and (b) the date on which Invus, L.P. exercises its right to require Lexicon to conduct the First Rights Offering, Invus, L.P. will have the right to require Lexicon to make a pro rata offering of non-transferable rights to acquire Issuer Common Stock to all of its stockholders (the "Second Rights Offering" and, together with the First Rights Offering, the "Rights Offerings") in an aggregate amount to be designated by Invus, L.P. not to exceed an amount equal to \$550,000,000, *minus* the amount of the Initial Investment, *minus* the aggregate amount paid by Invus, L.P. upon the exercise of any Warrants, *minus* the amount of the First Rights Offering, *minus* the aggregate net proceeds received in all Qualified Offerings, if any, completed prior to the Second Rights Offering Trigger Date. The price per share for the Second Rights Offering would be designated by Invus, L.P. in a range between \$4.50 and a then-current average market price of the Issuer Common Stock. All of Lexicon's stockholders would have oversubscription rights with respect to the Second Rights Offering, and Invus, L.P. would be required to purchase the entire portion of the Second Rights Offering that is not subscribed for by other stockholders.

Stockholder Approval

The parties' obligations to issue and purchase shares of Issuer Common Stock in the Initial Investment and to conduct and participate in the Rights Offerings would be subject to the approval by Lexicon's stockholders of the Initial Investment, the Rights Offerings and an amendment to Lexicon's certificate of incorporation increasing the number of authorized shares of Issuer Common Stock to a level sufficient to complete the Initial Investment and the Rights Offerings.

Additional Issuances of Common Stock

Until the later of the completion of the Second Rights Offering or the expiration of the 90-day period following the Second Rights Offering Trigger Date, Lexicon will not, without Invus, L.P.'s prior consent, issue any shares of Issuer Common Stock at a price below \$4.50 per share, subject to certain exceptions.

b. Warrant Agreement

Concurrently with the execution and delivery of the Securities Purchase Agreement, Invus, L.P. and Lexicon entered into the Warrant Agreement, pursuant to which on June 17, 2007, Lexicon issued to Invus, L.P. the Warrants. The following is a summary of selected provisions of the Warrant Agreement. While the Invus Parties believe this description covers the material terms of the Warrant Agreement, it is qualified in its entirety by reference to the Warrant Agreement, a copy of which is included as Exhibit 2 of this Statement and is incorporated herein by reference.

The Warrant Agreement provides that the Warrants may be exercised in full or from time to time in part from and after the date of issuance. If the closing of the Initial Investment occurs, any Warrants not exercised prior to such closing will automatically terminate. In addition, the Warrants will expire: (a) 30 business days after the stockholders meeting called to approve the Initial Investment, the Rights Offerings and the amendment to Lexicon's certificate of incorporation increasing the number of authorized shares of Issuer Common Stock (so long as (i) Lexicon has not breached the Securities Purchase Agreement, (ii) Lexicon's board of directors has not withdrawn its recommendation that Lexicon's stockholders vote in favor of the Initial Investment, the Rights Offerings and the amendment to Lexicon's certificate of incorporation increasing the number of authorized shares of Issuer Common Stock, and (iii) certain alternative transactions have not been publicly proposed or consummated); (b) three years after the termination of the Securities Purchase Agreement if it is terminated due to a breach thereof by Lexicon or upon the occurrence of its termination date; and (c) nine months following the stockholders meeting called to approve the Initial Investment, the Rights Offerings and the amendment to Lexicon's certificate of incorporation increasing the number of authorized shares of Issuer Common Stock, if Lexicon's board of directors has withdrawn its recommendation that Lexicon's stockholders vote in favor of the Initial Investment, the Rights Offerings and the amendment to Lexicon's certificate of incorporation increasing the number of authorized shares of Issuer Common Stock, or certain alternative transactions have been publicly proposed or consummated.

If the closing of the Initial Investment does not occur, and subject to certain exceptions, Invus, L.P. and its affiliates will be subject to customary standstill restrictions for a period of one year following the exercise of any Warrants. Until such time as such standstill restrictions are in place, Lexicon will provide to Invus, L.P. such financial, management and operations plans, reports and information as exist and as are requested by Invus, L.P. and will afford Invus, L.P. with reasonable access to the officers, employees, agents, properties, offices and other facilities, books and records of the Issuer as Invus, L.P. may reasonably request.

As described under "Securities Purchase Agreement—Initial Investment" above, any shares of Issuer Common Stock purchased by Invus, L.P. upon the exercise of any Warrants prior to the closing of the Initial Investment will reduce the number of shares of Issuer Common Stock to be purchased by Invus, L.P. in the Initial Investment at a price equal to the exercise price of the Warrants. The number of shares issuable upon the exercise of the Warrants are subject to customary anti-dilution adjustments.

c. Stockholders' Agreement

Concurrently with the execution and delivery of the Securities Purchase Agreement and the Warrant Agreement, Invus, L.P. and Lexicon entered into the Stockholders' Agreement, which, among other things, contains certain governance arrangements and various provisions relating to stock ownership, stock transfers, voting and other matters. The following is a summary of selected provisions of the Stockholders' Agreement. While the Invus Parties believe this description covers the material terms of the Stockholders' Agreement, it is qualified in its entirety by reference to the Stockholders' Agreement, a copy of which is included as Exhibit 3 of this Statement and is incorporated herein by reference.

Governance

Pursuant to the Stockholders' Agreement, from and after the closing of the Initial Investment, Invus, L.P. will have the right to designate three members of the Issuer's board of directors and, from and after the first anniversary of the closing of the Initial Investment, the right to designate the greater of three members or 30% (or the percentage of all the outstanding shares of Issuer Common Stock represented by Invus, L.P.'s ownership, if less than 30%) of all members of the Issuer's board of directors, rounded up to the nearest whole number of directors. From and after the date on which the number of shares of Issuer Common Stock owned by Invus, L.P. and its affiliates exceeds 50% of the total number of shares of Issuer Common Stock then outstanding (not counting for such purpose any shares of Issuer Common Stock acquired by Invus, L.P. from third parties in excess of 40% (or, if higher, its then pro rata amount) of the total number of shares of Issuer Common Stock then outstanding, as permitted by the standstill provisions of the Stockholders' Agreement), Invus, L.P. will have the right to designate a number of directors equal to its percentage ownership of Issuer Common Stock, rounded up to the nearest whole number of directors. If requested by Invus, L.P., the directors appointed by Invus, L.P. would have proportionate representation on the board of directors of any subsidiary of the Issuer and on each committee of the boards of directors of the Issuer and any subsidiary of the Issuer, subject to the applicable requirements of the Securities and Exchange Commission and the Nasdaq Stock Market.

The provisions of the Stockholders' Agreement relating to governance will terminate automatically at such time as the percentage ownership of Invus, L.P. and its affiliates of the total number of shares of Issuer Common Stock then outstanding falls below 10%. Invus, L.P. will also have the right to terminate the governance provisions of the Stockholders' Agreement at any time following the date on which the number of shares of Issuer Common Stock owned by Invus, L.P. and its affiliates exceeds 50% of the total number of shares of Issuer Common Stock then outstanding (not counting for such purpose any shares acquired by Invus, L.P. or its affiliates from third parties in excess of 40% (or, if higher, its then pro rata amount) of the total number of outstanding shares of Issuer Common Stock).

Preemptive Rights

From and after the closing of the Initial Investment, Invus, L.P. will have preemptive rights with respect to future equity issuances by Lexicon (including in any Qualified Offering), subject to certain exceptions, so as to maintain its then-current percentage ownership of the total number of shares of Issuer Common Stock then outstanding. Invus will be required to exercise its preemptive rights in advance with respect to certain marketed offerings and will be obligated to buy its pro rata share of the number of shares of Issuer Common Stock being offered in such marketed offering, including in any over-allotment, (or such lesser amount as is specified in Invus, L.P.'s notice regarding its exercise of such preemptive rights), so long as the shares of Issuer Common Stock to be sold in the offering are priced within a range of 10% above or below the market price of the Issuer Common Stock on the date Lexicon notifies Invus, L.P. of the offering and certain other conditions are met.

The provisions of the Stockholders' Agreement relating to preemptive rights will terminate automatically on the earlier to occur of the tenth anniversary of the closing of the Initial Investment and the date on which the percentage ownership of Invus, L.P. and its affiliates of the total number of shares of Issuer Common Stock then outstanding falls below 10%.

Standstill

From and after the closing of the Initial Investment, Invus, L.P. will be subject to customary standstill provisions restricting its ability to acquire additional shares of Issuer Common Stock from third parties so that the ownership of Invus, L.P. and its affiliates of Issuer Common Stock will not exceed 49% of the total number of shares of Issuer Common Stock then outstanding. These standstill provisions will not apply to acquisitions of securities by way of stock splits, stock dividends, reclassifications, recapitalizations, or other distributions by the Issuer to holders of the Issuer Common Stock, acquisitions contemplated by the agreements described in this Statement, including in the Rights Offerings or upon the exercise of Invus, L.P.'s preemptive rights under the Stockholders' Agreement, or in any other investment approved by the Unaffiliated Board.

The standstill provisions of the Stockholders' Agreement will terminate automatically on the earliest to occur of (a) the tenth anniversary of the closing of the Initial Investment, (b) the date on which the percentage ownership of Invus, L.P. and its affiliates of the total number of shares of Issuer Common Stock then outstanding falls below 10%, (c) the date on which any third party makes a public proposal to acquire (by purchase, exchange, merger or otherwise) assets or business constituting 50% or more of Lexicon's revenues, net income or assets or 50% of any class of Lexicon's equity securities or Lexicon's board of directors recommends or approves, or proposes to recommend or approve, any such transaction, and (d) the date on which any third party acquires beneficial ownership (by purchase, exchange, merger or otherwise) of assets or business constituting 20% or more of Lexicon's revenues, net income or assets or 20% of any class of Lexicon's equity securities or Lexicon's board of directors recommends or approves, or proposes to recommend or approve, any such transaction.

Transfer Restrictions

Without the consent of the Unaffiliated Board, and subject to certain exceptions, Invus, L.P. may not transfer any shares of Issuer Common Stock to third parties that are not affiliates of Invus, L.P., if such transfer would result in any such third party (or any person or group including such third party) owning more than 14.9% of the total number of shares of Issuer Common stock then outstanding.

The provisions of the Stockholders' Agreement relating to transfer restrictions will terminate automatically on the earliest to occur of (a) the tenth anniversary of the closing of the Initial Investment, (b) the date on which the percentage ownership of Invus, L.P. and its affiliates of the total number of shares of Issuer Common Stock then outstanding falls below 10%, and (c) date on which the number of shares of Issuer Common Stock owned by Invus, L.P. and its affiliates exceeds 50% of the total number of shares of Issuer Common Stock then outstanding (not counting for such purpose any shares acquired by Invus, L.P. or its affiliates from third parties in excess of 40% (or, if higher, its then pro rata amount) of the total number of outstanding shares of Issuer Common Stock).

Voting

In any election of persons to serve on the board of directors of the Issuer occurring after the closing of the Initial Investment, Invus, L.P. will be obligated to vote all of its shares of Issuer Common Stock in favor of the directors nominated by Lexicon's board of directors, so long as Lexicon has complied with its obligations under the Stockholders' Agreement described under "Governance" above and the individuals designated by Invus, L.P. for election to the board of directors of Lexicon have been nominated to and, if

applicable, are serving on the board of directors. With respect to all other matters submitted to a vote of the holders of Issuer Common Stock after the closing of the Initial Investment, Invus, L.P. will be obligated to vote any shares of Issuer Common Stock that it acquires from third parties in excess of 40% (or, if higher, its then pro rata amount) of the total number of shares of Issuer Common Stock then outstanding, as permitted by the standstill provisions of the Stockholders' Agreement, in the same proportion as all the votes cast by other holders of Issuer Common Stock, unless Invus, L.P. and Lexicon (acting with the approval of the Unaffiliated Board) agree otherwise. Invus, L.P. may vote all other shares of Issuer Common Stock held by it in its sole discretion.

The provisions of the Stockholders' Agreement relating to voting will terminate automatically on the earliest to occur of (a) the tenth anniversary of the closing of the Initial Investment, (b) the date on which the percentage ownership of Invus, L.P. and its affiliates of the total number of shares of Issuer Common Stock then outstanding falls below 10%, (c) the date on which the number of shares of Issuer Common Stock owned by Invus, L.P. and its affiliates exceeds 50% of the total number of shares of Issuer Common Stock then outstanding (not counting for such purpose any shares acquired by Invus, L.P. or its affiliates from third parties in excess of 40% (or, if higher, its then pro rata amount) of the total number of shares of Issuer Common Stock then outstanding), and (d) the termination of the standstill provisions in accordance with the Stockholders' Agreement.

Consent Rights

From and after the closing of the Initial Investment, Invus, L.P. will be entitled to certain minority protections, including consent rights over (a) the creation or issuance of any new class of shares of Issuer capital stock (or securities convertible into or exercisable for shares of Issuer capital stock) having rights, preferences or privileges senior to or on parity with the Issuer Common Stock, (b) any amendment to Lexicon's certificate of incorporation or bylaws in a manner adversely affecting Invus, L.P.'s rights under the agreements described in this Statement, (c) the redemption, acquisition or other purchase of Issuer capital stock (or securities convertible into or exercisable for shares of Issuer capital stock), (d) any increase in the size of Lexicon's board of directors to more than 12 members, and (e) any shareholder rights plan that does not exclude Invus, L.P.

The provisions of the Stockholders' Agreement relating to consent rights will terminate automatically on the earlier to occur of the tenth anniversary of the closing of the Initial Investment and the date on which Invus, L.P. and its affiliates hold less than 15% of the total number of shares of Issuer Common Stock then outstanding.

d. Registration Rights Agreement

Concurrently with the execution and delivery of the Securities Purchase Agreement, the Warrant Agreement and the Stockholders' Agreement, Invus, L.P. and Lexicon entered into the Registration Rights Agreement. The following is a summary of selected provisions of the Registration Rights Agreement. While the Invus Parties believe this description covers the material terms of the Registration Rights Agreement, it is qualified in its entirety by reference to the Registration Rights Agreement, a copy of which is included as Exhibit 4 to this Statement and is incorporated herein by reference.

Pursuant to the Registration Rights Agreement, Invus, L.P. has certain registration rights with respect to shares of Issuer Common Stock held by it. These registration rights may be transferred to affiliates of Invus, L.P. and to any third party to whom Invus transfers a number of shares of Issuer Common Stock that would result in such third party owning in excess of 3% of the total number of shares of Issuer Common Stock then outstanding.

Demand Registrations

Invus, L.P. and its permitted transferees have the right to initiate (a) up to five demand registrations from and after the occurrence of the closing of the Initial Investment, (b) up to three demand registrations if any of the Warrants have been exercised, but the closing of the Initial Investment does not occur, and (c) an unlimited number of demand registrations if the number of shares of Issuer Common Stock owned by Invus, L.P. and its permitted transferees exceeds 50% of the total number of shares of Issuer Common Stock then outstanding. Lexicon may be required to effect only one demand registration during any six-month period and no demand registrations may be initiated during the period commencing three months prior to the date on which Invus, L.P. delivers a notice to Lexicon exercising its rights under the Securities Purchase Agreement to require Lexicon to conduct a Rights Offering (or if such notice is not delivered, 90 days after the applicable Rights Offering Trigger Date) and ending on the closing of the applicable Rights Offering.

In connection with any exercise of demand rights, the demanding holder of shares of Issuer Common Stock must specify the number of shares of Issuer Common Stock proposed to be sold by it pursuant to such demand registration and the intended method of disposition thereof. A demanding holder may withdraw all or any part of the shares of Issuer Common Stock initially specified by it for inclusion in any demand registration at any time, and if all such shares of Issuer Common Stock are withdrawn, the demanding holder may withdraw the demand related to such shares. So long as any registration statement related to a demand registration has not been declared effective by the Securities and Exchange Commission and the demanding holders elect to bear the out-of-pocket expenses associated with such withdrawn registration statement, such withdrawn registration statement shall not count as a demand registration. If, in any demand registration, the underwriters advise the demanding holders or Lexicon that the number of shares of Issuer Common Stock proposed to be sold in such demand registration exceeds the number that can be sold in such offering or will adversely affect the success of such offering, Lexicon shall include only the number of shares of Issuer Common Stock that can be sold without an adverse effect on the success of the offering, with such shares being allocated first to the demanding holders and then pro rata among the other holders of shares of Issuer Common Stock who have requested to include their shares of Issuer Common Stock in such demand registration.

At the request of any demanding holder, a demand registration may be in the form of a shelf registration. The Issuer may suspend the use of any shelf registration statement that has been declared effective by the Securities and Exchange Commission for a period of up to 90 days if the Issuer's board of directors reasonably determines that the continued effectiveness or use thereof would materially adversely affect any material corporate transaction to be undertaken by Lexicon and may also suspend use of such shelf registration during any period if Lexicon and the holders of a majority of the shares of Issuer Common Stock included in such shelf registration consent in writing to such suspension for such period.

Piggyback Registration Rights

Invus, L.P. and its permitted transferees are also entitled to piggyback registration rights if at any time Lexicon proposes to (i) file a registration statement under the Securities Act of 1933, as amended (the "Securities Act"), with respect to an offering by Lexicon for its own account or the account of any holders of any class of common equity securities of Lexicon or (ii) effect an offering of stock pursuant to an effective shelf registration statement. Lexicon is required to give written notice of such proposed filing or offering to Invus, L.P. and its permitted transferees as soon as practicable, but in no event less than 20 days before the anticipated filing or offering, and give Invus, L.P. and its permitted transferees the opportunity to include in such registration the shares of Issuer Common Stock held by them on the same terms and conditions as any similar securities of Lexicon.

Unless the registration statement relating to such offering is filed pursuant to a demand registration, if the underwriters in such offering advise Lexicon that the number of securities proposed to be included in the registration will adversely affect the success of the offering, Lexicon shall include only the number of shares of Issuer Common Stock that can be sold without an adverse effect on the success of the offering, with such shares being allocated first to the number of securities Lexicon proposes to sell for its own account and then pro rata based on the number of securities that Invus, L.P. and its permitted transferees have requested for inclusion in such offering.

Holders of shares of Issuer Common Stock who have exercised their piggyback registration rights may withdraw all or part of the shares of Issuer Common Stock held by them from a piggyback registration at any time, unless such registration is underwritten, in which case shares of Issuer Common Stock included in a registration statement following the exercise of piggyback registration rights may not be withdrawn after the date of the registration statement.

Item 7. Material to be Filed as Exhibits

1. Securities Purchase Agreement, dated as of June 17, 2007 (incorporated by reference to Exhibit 10.1 of Form 8-K filed by Issuer on June 19, 2007 (SEC File No. 000-30111)).

2. Warrant Agreement, dated as of June 17, 2007 (incorporated by reference to Exhibit 10.2 of Form 8-K filed by the Issuer on June 19, 2007 (SEC File No. 000-30111)).

3. Stockholders' Agreement, dated as of June 17, 2007 (incorporated by reference to Exhibit 10.4 of Form 8-K filed by the Issuer on June 19, 2007 (SEC File No. 000-30111)).

4. Registration Rights Agreement, dated as of June 17, 2007 (incorporated by reference to Exhibit 10.3 of Form 8-K filed by Issuer on June 19, 2007 (SEC File No. 000-30111)).

5. Joint Filing Agreement, dated as of June 27, 2007.

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

INVUS, L.P.

By: INVUS ADVISORS, L.L.C.,
its general partner

By: /s/ Raymond Debbane

Name: Raymond Debbane

Title: President

INVUS PUBLIC EQUITIES, L.P.

By: INVUS PUBLIC EQUITIES ADVISORS, L.L.C.,
its general partner

By: /s/ Raymond Debbane

Name: Raymond Debbane

Title: President

INVUS ADVISORS, L.L.C.

By: /s/ Raymond Debbane

Name: Raymond Debbane

Title: President

INVUS PUBLIC EQUITIES ADVISORS, L.L.C.

By: /s/ Raymond Debbane

Name: Raymond Debbane

Title: President

ULYS, L.L.C.

By: /s/ Raymond Debbane

Name: Raymond Debbane

Title: President

RAYMOND DEBBANE

/s/ Raymond Debbane

Dated: June 27, 2007

SCHEDULE I

The name, citizenship and present principal occupation or employment of each executive officer of Invus Advisors, L.L.C., Invus Public Equities Advisors, L.L.C and Ulys, L.L.C. and the name of any organization in which such employment is conducted are set forth below. The business address for each of the persons listed below and the address of the principal executive offices of each of The Invus Group, L.L.C., Invus Public Equities Advisors, L.L.C. and Ulys, L.L.C. is 750 Lexington Avenue, 30th Floor, New York, NY 10022. The Invus Group, L.L.C. is a private equity and investment management firm. See Item 2 of this Statement for a description of the principal business of each of Invus Public Equities Advisors, L.L.C. and Ulys, L.L.C.

<u>NAME</u>	<u>PRESENT PRINCIPAL OCCUPATION OR EMPLOYMENT</u>
Invus Advisors, L.L.C.	
<i>Raymond Debbane</i> President and Chief Executive Officer (citizen of Panama)	See Item 2
<i>Christopher Sobecki</i> Managing Director (citizen of the United States)	Managing Director The Invus Group, L.L.C.
<i>Philippe Amouyal</i> Managing Director (citizen of France)	Managing Director The Invus Group, L.L.C.
<i>Jonas Fajgenbaum</i> Managing Director (citizen of Argentina)	Managing Director The Invus Group, L.L.C.
<i>Aflalo Guimaraes</i> Managing Director (citizen of the United States)	Managing Director The Invus Group, L.L.C.
Invus Public Equities Advisors, L.L.C.	
<i>Raymond Debbane</i> President and Chief Executive Officer (citizen of Panama)	See Item 2
<i>Khalil Barrage</i> Vice President, Treasurer and Secretary (citizen of the United States)	Vice President, Treasurer and Secretary Invus Public Equities Advisors, L.L.C.
<i>Christopher Sobecki</i> Vice President (citizen of the United States)	Managing Director The Invus Group, L.L.C.
Ulys, L.L.C.	
<i>Raymond Debbane</i> President, Managing Director, Treasurer and Secretary (citizen of Panama)	See Item 2

EXHIBIT 5

JOINT FILING AGREEMENT

We, the signatories of this Statement on Schedule 13D to which this Agreement is attached, hereby agree that such statement is, and any amendments thereto filed by any of us will be, filed on behalf of each of us.

INVUS, L.P.

By: INVUS ADVISORS, L.L.C.,
its general partner

By: /s/ Raymond Debbane
Name: Raymond Debbane
Title: President

INVUS PUBLIC EQUITIES, L.P.

By: INVUS PUBLIC EQUITIES ADVISORS, L.L.C.,
its general partner

By: /s/ Raymond Debbane
Name: Raymond Debbane
Title: President

INVUS ADVISORS, L.L.C.

By: /s/ Raymond Debbane
Name: Raymond Debbane
Title: President

INVUS PUBLIC EQUITIES ADVISORS, L.L.C.

By: /s/ Raymond Debbane
Name: Raymond Debbane
Title: President

ULYS, L.L.C.

By: /s/ Raymond Debbane
Name: Raymond Debbane
Title: President

RAYMOND DEBBANE

/s/ Raymond Debbane

Dated: June 27, 2007