

Doughty Brian
 Form 3
 December 29, 2008

FORM 3 UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

OMB APPROVAL

OMB Number: 3235-0104
 Expires: January 31, 2005
 Estimated average burden hours per response... 0.5

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934,
 Section 17(a) of the Public Utility Holding Company Act of 1935 or Section
 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

| | | | | |
|---|---------|--------------------------------------|--|--|
| 1. Name and Address of Reporting Person * | | 2. Date of Event Requiring Statement | 3. Issuer Name and Ticker or Trading Symbol | |
| Â Doughty Brian | | (Month/Day/Year) | CARDIOVASCULAR SYSTEMS INC [CSII] | |
| (Last) | (First) | (Middle) | 12/29/2008 | |
| 651 CAMPUS DRIVE | | | 4. Relationship of Reporting Person(s) to Issuer | 5. If Amendment, Date Original Filed(Month/Day/Year) |
| (Street) | | | (Check all applicable) | |
| ST. PAUL,Â MNÂ 55112 | | | <input type="checkbox"/> Director <input type="checkbox"/> 10% Owner | 6. Individual or Joint/Group Filing(Check Applicable Line) |
| (City) | (State) | (Zip) | <input checked="" type="checkbox"/> Officer <input type="checkbox"/> Other | <input checked="" type="checkbox"/> Form filed by One Reporting Person |
| | | | (give title below) (specify below) | <input type="checkbox"/> Form filed by More than One Reporting Person |
| | | | VP of Marketing | |

Table I - Non-Derivative Securities Beneficially Owned

| 1. Title of Security (Instr. 4) | 2. Amount of Securities Beneficially Owned (Instr. 4) | 3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 4. Nature of Indirect Beneficial Ownership (Instr. 5) |
|---------------------------------|---|--|---|
| Common Stock | 4,900 | D | Â |

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly. SEC 1473 (7-02)

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative Security (Instr. 4) | 2. Date Exercisable and Expiration Date (Month/Day/Year) | 3. Title and Amount of Securities Underlying Derivative Security (Instr. 4) | 4. Conversion or Exercise Price of Derivative Security | 5. Ownership Form of Derivative Security: Direct (D) or Indirect | 6. Nature of Indirect Beneficial Ownership (Instr. 5) |
|--|--|---|--|--|---|
| | Date Exercisable | Title | Amount or Number of | | |

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| | | | | Shares | | (I) (Instr. 5) | |
|-----------------------------|-------|------------|--------------|--------|---------|-------------------|---|
| Stock Option (right to buy) | Â (1) | 12/18/2016 | Common Stock | 70,000 | \$ 5.71 | D | Â |
| Stock Option (right to buy) | Â (2) | 04/17/2017 | Common Stock | 5,000 | \$ 5.71 | D | Â |
| Stock Option (right to buy) | Â (3) | 06/11/2017 | Common Stock | 25,000 | \$ 5.11 | D | Â |
| Stock Option (right to buy) | Â (4) | 08/06/2017 | Common Stock | 10,000 | \$ 5.11 | D | Â |
| Stock Option (right to buy) | Â (5) | 12/11/2017 | Common Stock | 50,000 | \$ 7.86 | D | Â |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|---|---------------|-----------|-------------------|-------|
| | Director | 10% Owner | Officer | Other |
| Doughty Brian 651 CAMPUS DRIVE ST. PAUL, MN 55112 | Â | Â | Â VP of Marketing | Â |

Signatures

/s/ Carlye S. Landin as Attorney-in-Fact for Brian Doughty pursuant to Power of Attorney filed herewith.

12/29/2008

__Signature of Reporting Person

Date

Explanation of Responses:

* If the form is filed by more than one reporting person, *see* Instruction 5(b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

(1) Exercisable: 23,333 on 12/19/07 and 12/19/08 and 23,334 on 12/19/09.

(2) Exercisable: 1,667 on 4/18/08 and 4/18/09 and 1,666 on 4/18/10.

(3) Exercisable: 8,333 on 6/12/08 and 6/12/09 and 8,334 on 6/12/10.

(4) Exercisable: 3,333 on 8/7/08 and 8/7/09 and 3,334 on 8/7/10.

(5) Exercisable: 25,000 on the first anniversary of the closing of the Company's merger with Replidyne, Inc. and 25,000 on the second anniversary of the merger.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *See* Instruction 6 for procedure.

Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.