



**ENDOCARDIAL  
SOLUTIONS**

## Advanced Diagnostic Solutions for Complex Cardiac Arrhythmias



Endocardial Solutions develops, manufactures, and markets innovative technology for physicians who treat patients with cardiac arrhythmias.

Of the more than ten million people worldwide who suffer from cardiac arrhythmias, only a small percentage receive proper medical attention. Approximately 300,000 – or only 3% – are fortunate enough to be evaluated by electrophysiologists – cardiologists who specialize in cardiac rhythm disorders. Electrophysiologists are the only physician practitioners of catheter ablation, a potentially curative procedure for some arrhythmias. Until recently, the use of ablation has been limited to patients with hemodynamically-stable, sustained arrhythmias.

#### THE ENSITE 3000® SYSTEM

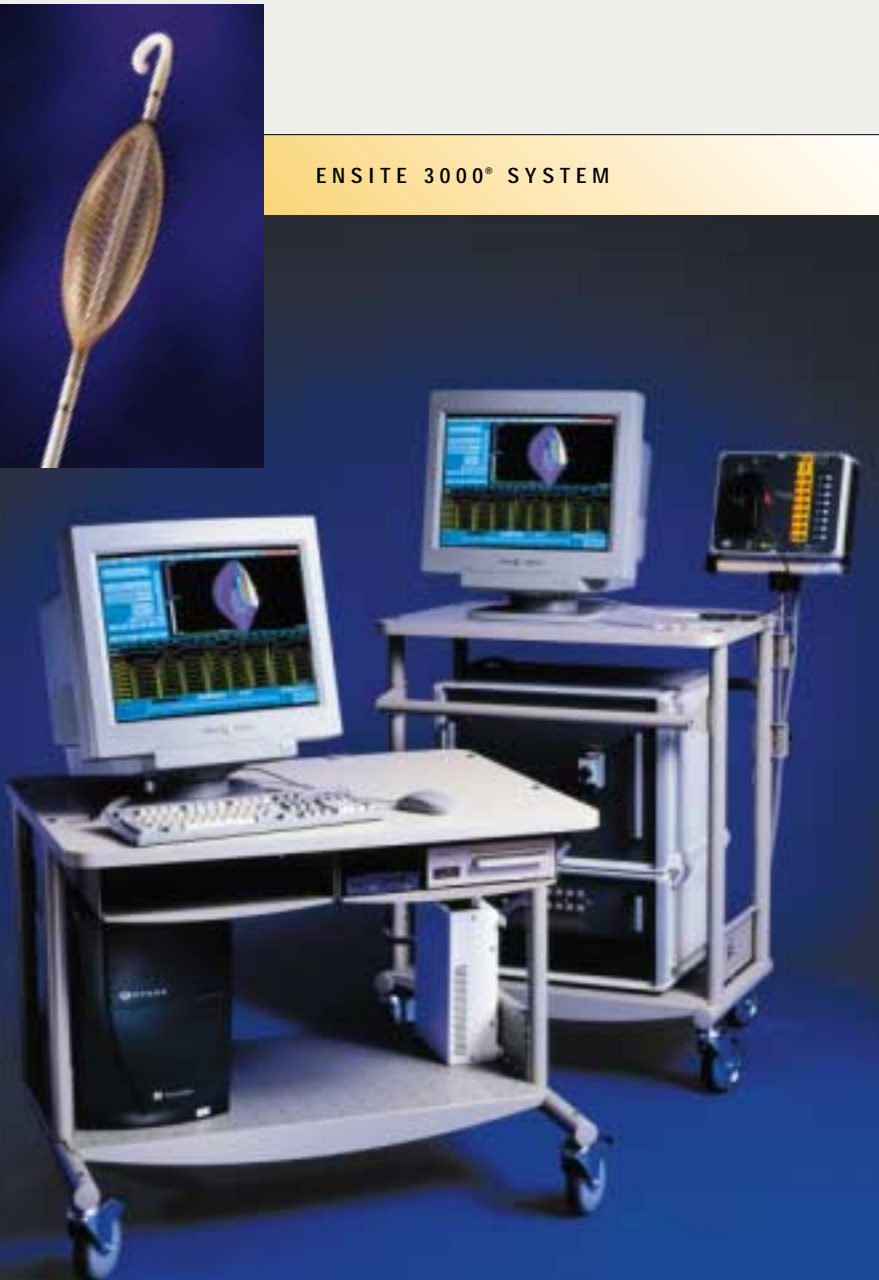
Endocardial Solutions develops, manufactures, and markets innovative technology that is rapidly changing the way catheter ablation is performed. The EnSite 3000® System allows physicians to record cardiac signals from an entire heart chamber simultaneously. The recorded data is then displayed in two forms:

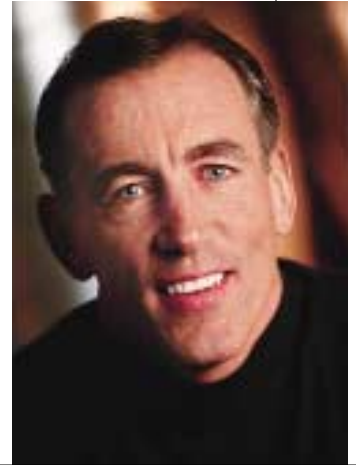
- Dynamic, three-dimensional maps of cardiac electrical activity
- Cardiac electrograms from more than 3,000 points within the heart chamber

#### EXPANDING OPPORTUNITIES FOR THERAPEUTIC ABLATION

The EnSite 3000® System allows physicians to record a wealth of diagnostic information in a short time. Patients who previously could not tolerate long conventional mapping procedures can now be mapped with as little as a single heart beat. Furthermore, the system visually displays the source of an arrhythmia, provides reconstructed electrograms for further diagnosis, and accurately guides a therapeutic catheter to a site of interest. These powerful tools are changing the way physicians perform mapping procedures and allowing more patients to be treated through catheter ablation.

#### ENSITE 3000® SYSTEM





**JAMES W. BULLOCK** President, Chief Executive Officer and Director

1999 was a year of significant progress for Endocardial Solutions. We received approval of our product for sale in the United States, built a sales and clinical support team, sponsored our first annual physician conference and showed continued improvement in financial indices. We are simply getting better in every phase of our business.

During 1999 we focused on preparation for our product introduction in the United States. In April, we received clearance from the U.S. Food and Drug Administration to market the EnSite 3000® System and EnSite® Catheter. We sold our first system to the Mayo Clinic in Rochester, MN, and by the end of the quarter, we had sold a total of five systems.

In anticipation of product approval, we began building the field clinical team during the first quarter. Mike Dale, our Vice President, Sales and Marketing, who joined us in late 1998, did an outstanding job in leading this complex effort. The field team is comprised of area directors, territory managers, field clinical engineers and field service engineers. They work together throughout the entire process, from product installation to customer training. Mike has built a dedicated, first-class team.

The field clinical engineering team has significant electrophysiology experience through either industry or in electrophysiology labs. The 30-member team has earned universal respect from our customers in introducing the EnSite® technology to the marketplace. We are very pleased with the success this group has had in our first few months of U.S. product introduction and continue to hear daily success stories from the use of the EnSite 3000® System.

In May, at the North American Society of Pacing and Electrophysiology (NASPE) we hosted our third symposium where physicians presented case studies using the EnSite 3000® System. The event was attended by more than 300 physicians, which significantly exceeded our expectations. During June, we held our first annual Complex Arrhythmia Mapping Symposium (CAMS). This event showcased the EnSite 3000® System and provided an excellent opportunity for electrophysiologists to have hands-on and classroom experience using the product. More than 100 physicians from Europe and the U.S. attended this creative event that featured dozens of case presentations.

Combined, NASPE and CAMS provided the catalyst necessary for a successful product introduction. The message we continue to hear from our customers confirms that our mission of developing tools to diagnose complex arrhythmias is consistent with the changing demographics of cardiac arrhythmia patients.

Clinical validation of the EnSite 3000® System continues to grow with a total of 80 abstract presentations at several key international meetings including NASPE, AHA, ACC, Cardiostim and The European Society of Cardiology. In addition, we have eight peer-reviewed publications.

Medtronic, Inc., one of the world's leading medical technology companies, markets our product in Europe through an agreement signed in 1997. Our European market introduction began during the second quarter 1998, and with Medtronic we have expanded our placement of systems to include many of the leading cardiovascular centers throughout Europe.

We now have systems installed in nine countries. Medtronic continues to make significant investments in promoting the EnSite 3000® System. I would like to thank Steve LaPorte, former Vice President and General Manager of Medtronic's EP Systems, for his leadership in building this important and successful partnership.

During 1999, we began the regulatory approval process for countries in the Asia Pacific region. In addition, Mike recruited Jerry Hu as the Asia Pacific Area Director to manage the activities in this region and recently completed agreements with several medical distributors. Our efforts will be focused on Australia, China, Korea, Malaysia, New Zealand, Singapore, Taiwan and Thailand. Medtronic will continue to distribute our product in Japan. We will be introducing our product in parts of the Asia Pacific region in early 2000.

Last summer, we successfully completed two audits, the initial inspection of our facility by the U.S. Food and Drug Administration and the 9001 compliance audit for the quality system, the EnSite 3000® System and the EnSite® Catheter.

Worldwide revenue during 1999 was \$9.6 million, compared to 1998 revenue of \$1.9 million, our first year of sales. The net loss for the current year was \$11.7 million, or \$1.23 per share, compared with \$14.7 million, or \$1.63 per share. Approximately 55% of 1999 revenue was from sales in the U.S. and 45% from sales in Europe. During the second quarter, we recorded a positive gross margin for the first time since the company's inception and finished the fourth quarter with a 43% margin. Our operational efficiencies are at an all-time high, and we are well prepared for increased product demand. With more than 70 systems in place, rapidly growing product awareness and new EnSite® applications under investigation, we are well positioned for continued growth.

Our need for capital remains essential for continued growth. During 1999, we raised \$17 million. In February, we signed a \$7 million debt financing agreement with Medtronic and in July we completed a \$10 million private placement of ESI common stock with institutional investors. Six analysts cover our company and our exposure to the institutional investment community is expanding.



BETH TITUS



Ensite 3000® map of Beth Titus' focal tachycardia.

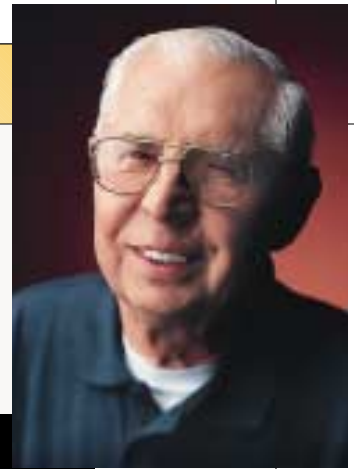
Speaking to an audience of ESI employees in December 1999, Beth Titus described a five-year ordeal with an atrial arrhythmia that persisted despite years of conventional treatment and medication. At the end of her speech, the audience was in tears.

Beth was diagnosed with an atrial tachycardia in 1996, after experiencing daily 5 to 20 minute episodes that left her lightheaded and dizzy. She was placed on medication to control the arrhythmia. Because her episodes were often triggered by exercise, she also had to abstain from physical activity. In September of 1996, she underwent a conventional ablation procedure that halted the arrhythmia. However, after 2 years the arrhythmia returned, and she could no longer climb stairs without risking an episode.

"I was living life on the sidelines. My friends could play soccer or go to gym class. I had to watch."

In May of 1999, Beth's episodes became more frequent. She was referred to Dr. Steven Compton at the University of Utah. Dr. Compton used the EnSite 3000® System to identify a focal tachycardia that originated from a site in Beth's right atrium. The site was eliminated with a simple ablation procedure.

Since the EnSite procedure, Beth has had no recurrences of the arrhythmia, and she has resumed the life of a regular high-school sophomore. Five years of arrhythmia treatment are now over, and the braces she's worn for eight years have just been removed. In what is normally a watershed of worry for parents, she has just received her driver's license. But if she handles the responsibilities of adult life with the maturity that she's dealt with her medical problems, her parents have nothing to fear.

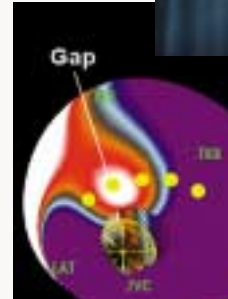


Hearing Charles Bergold describe his heart problems, you detect no sense of concern, and you hear no complaints. It's as if he's discussing something that is interesting, but not worth bothering about – like the weather. At 75, this World War II veteran conveys the feeling that he's seen and conquered bigger problems.

His heart condition first became apparent in 1993, when he collapsed while visiting a friend at a hospital. He was diagnosed with ventricular tachycardia, and after years of antiarrhythmic medication, he ultimately received an implantable defibrillator. But that was just the beginning of his heart problems. Charles had also developed atrial flutter, which by itself is not life-threatening, but can significantly affect quality of life and lead to other ailments. He also required both a coronary artery bypass and a mitral valve replacement. During the multi-purpose surgery that followed, his physician performed an open-heart ablation procedure to terminate the atrial flutter. Within a month, however, his atrial flutter returned, and he required hospitalization.

Charles's electrophysiologist, Dr. Jasbir Sra of the Sinai Samaritan Medical Center in Milwaukee, suggested a new approach, using a newly acquired EnSite 3000® System to analyze the recurring arrhythmia. After building a three-dimensional map of Charles' right atrium, Dr. Sra recorded the atrial flutter and found a small gap in the previous ablation area that allowed the flutter to persist. After applying radiofrequency ablation to the area, the flutter was terminated. In the nine months since the EnSite procedure, Charles has not experienced another episode of atrial flutter.

After the procedure, Charles was informed that he was one of the first patients in the country to be mapped with the new EnSite 3000® System. He was surprised, but not concerned. But then he takes challenges – like his medical problems – in stride, and it seems that he will for a long time to come.



Right atrial map of Charles Bergold's atrial flutter, showing a gap in the original line of ablation.

In response to an increased demand from consumers, we have enhanced our web site to help patients easily find an electrophysiologist in their area. I invite you to visit us at [www.endocardial.com](http://www.endocardial.com).

Finally, in December, we held our third annual Quality Day at the company headquarters in which physicians and their patients presented clinical success stories to ESI employees. In addition to presentations by Dr. Paul Friedman from the Mayo Clinic, Dr. Steven Compton from the University of Utah and Dr. Jasbir Sra from Sinai Samaritan Medical Center in Milwaukee, former patients Bethany Titus and Charles Bergold described how their quality of life has improved since their EnSite® procedure. They joined Becky Holter

and Dan Wiseman whom you met in our 1998 annual report, as evidence that our work is meeting our customers' requirement. Success stories like these serve as our inspiration and give us satisfaction knowing that all of our hard work is having a dramatic impact on peoples' lives!

Sincerely,

**James W. Bullock**  
President, Chief Executive Officer  
and Director

## FINANCIAL HIGHLIGHTS

(In thousands except per share amounts)  
Year ended December 31

<b>Statements of Operation</b>	1999	1998
Net Sales	\$ 9,597	\$ 1,950
Net Income (Loss)	\$(11,729)	\$(14,685)
Net Income (Loss) Per Share – Basic and Diluted	\$ (1.23)	\$ (1.63)
Weighted Average Shares Outstanding	9,559,494	8,989,477

<b>Balance Sheet</b>	1999	1998
Cash and Cash Equivalents	\$ 7,087	\$ 8,715
Total Assets	\$ 17,578	\$ 13,728
Total Liabilities	\$ 9,324	\$ 3,264
Stockholders' Equity	\$ 8,254	\$ 10,463

### YEAR AT A GLANCE

Q1  
99

- Completed debt financing of \$7 million with Medtronic, Inc.
- Announced left ventricular use of the EnSite 3000® System will be submitted as a pre-market approval (PMA) application
- Began hiring and training U.S. sales and clinical team

Q2  
99

- EnSite 3000® System approved by FDA for use in the right atrium
- First quarter of revenue from sales of U.S. systems
- NASPE product display and symposium
- Sponsored first annual Complex Arrhythmia Mapping Symposium (CAMS)

Q3  
99

- Completed \$10 million private placement of ESI common stock with institutional investors
- Adopted Stockholder Rights Plan
- Passed FDA Good Manufacturing Practices audit

Q4  
99

- Hired Asia Pacific Area Director and began multi-national regulatory approval process
- EnSite 3000® System software upgrade approved by FDA

## EXECUTIVE OFFICERS



**James W. Bullock**  
President, Chief Executive  
Officer and Director



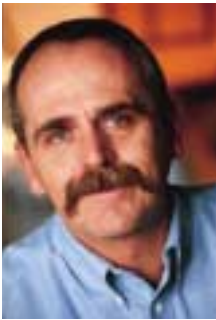
**Leota L. Pearson**  
Vice President, Finance  
and Chief Financial Officer



**Graydon E. Beatty**  
Chief Technical Officer  
and Director



**Michael D. Dale**  
Vice President,  
Sales and Marketing



**Frank J. Callaghan**  
Vice President, Research  
and Development



**Richard J. Omilanowicz**  
Vice President,  
Manufacturing

## BOARD OF DIRECTORS

**James W. Bullock**  
President and  
Chief Executive Officer  
Endocardial Solutions, Inc.

**Graydon E. Beatty**  
Chief Technical Officer  
Endocardial Solutions, Inc.

**James E. Daverman**  
Managing General Partner  
Marquette Venture Partners

**Robert G. Hauser, M.D.**  
Cardiologist  
Minneapolis Heart Institute

**Richard D. Randall**  
Former CEO,  
Innovative Devices, Inc.

**Warren S. Watson**  
Vice President  
and General Manager  
Medtronic EP Systems

**TRANSFER AGENT  
AND REGISTRAR**  
Norwest Bank Minnesota, N.A.  
South St. Paul, MN  
800-689-8788

**AUDITORS**  
Ernst & Young LLP  
Minneapolis, MN

**LEGAL COUNSEL**  
Dorsey & Whitney LLP  
Minneapolis, MN

## ANNUAL MEETING

The Company's Annual Meeting  
of Stockholders will be held on  
May 23, 2000 at 9:00 A.M. at:

Hilton Minneapolis & Towers  
1001 Marquette Avenue  
Minneapolis, MN 55403

## FORM 10-K

A copy of the Company's Form  
10-K, filed with the Securities and  
Exchange Commission is available  
free of charge by calling Investor  
Relations at the number below.

## CORPORATE HEADQUARTERS

1350 Energy Lane, Suite 110  
Saint Paul, MN 55108-5254

Telephone: 651-644-7890  
Facsimile: 651-644-7897

## INVESTOR INQUIRIES

Telephone: 651-523-6917  
E-mail:  
investor@endocardial.com

## LISTING

Trades on the Nasdaq Stock  
Market® under the symbol "ECSI"

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Saint Paul, MN 55108-5254  
U.S.A.

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Facsimile: 651-644-7897  
Web Site: <http://www.endocardial.com>

