Thompson Mark Form 4 September 11, 2009

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

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF

SECURITIES

OMB APPROVAL

OMB 3235-0287 Number:

January 31, Expires: 2005

0.5

Estimated average burden hours per

response...

if no longer subject to Section 16. Form 4 or Form 5

Check this box

obligations may continue. See Instruction

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

1(b).

(Last)

(Print or Type Responses)

1. Name and Address of Reporting Person * Thompson Mark

(First)

(Middle)

2. Issuer Name and Ticker or Trading Symbol

5. Relationship of Reporting Person(s) to Issuer

AMERICAN SCIENCE &

(Check all applicable)

ENGINEERING INC [ASEI]

3. Date of Earliest Transaction

(Month/Day/Year) 09/10/2009

X_ Director 10% Owner Officer (give title Other (specify

C/O AMERICAN SCIENCE & ENGINEERING, INC., 829 MIDDLESEX TURNPIKE

> (Street) 4. If Amendment, Date Original

6. Individual or Joint/Group Filing(Check

Filed(Month/Day/Year)

Applicable Line) _X_ Form filed by One Reporting Person Form filed by More than One Reporting

BILLERICA, MA 01821

(City) (State) (Zip)

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1.Title of 2. Transaction Date 2A. Deemed 3. 4. Securities 5. Amount of 6. Ownership 7. Nature of Form: Direct Indirect Security (Month/Day/Year) Execution Date, if TransactionAcquired (A) or Securities (Instr. 3) Code Disposed of (D) Beneficially (D) or Indirect Beneficial (Month/Day/Year) (Instr. 8) (Instr. 3, 4 and 5) Owned Ownership Following (Instr. 4) (Instr. 4)

Reported (A) Transaction(s) (Instr. 3 and 4) Code V Amount (D) Price

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

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

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1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transactic Code (Instr. 8)	5. Number out of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)	6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Underlying Securities (Instr. 3 and 4)	
				Code V	(A) (D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares
Stock Options	\$ 62.5	09/10/2009		A	7,000	09/10/2010	09/10/2019	Common Stock	7,000

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Reporting Owners

Reporting Owner Name / Address

Director 10% Owner Officer Other

Thompson Mark C/O AMERICAN SCIENCE & ENGINEERING, INC. 829 MIDDLESEX TURNPIKE BILLERICA, MA 01821



Signatures

Michelle Bielunis, Attorney-in-Fact 09/11/2009

**Signature of Reporting Person Dat

Explanation of Responses:

- * If the form is filed by more than one reporting person, see Instruction 4(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).

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.

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