

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL	
OMB Number:	3235-0287
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1. Name and Address of Reporting Person* FLOOD DOUGLAS (Last) (First) (Middle) 4 CONSTITUTION DRIVE (Street) SOUTHBOROUGH MA 01772 (City) (State) (Zip)	2. Issuer Name and Ticker or Trading Symbol MERCURY COMPUTER SYSTEMS INC [MERCY]	5. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) VP, Corporate Development
	3. Date of Earliest Transaction (Month/Day/Year) 09/11/2006	
	4. If Amendment, Date of Original Filed (Month/Day/Year)	

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

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	09/11/2006		A		11,703	A	\$0.00 ⁽¹⁾	21,379	D	

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

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. Transaction Code (Instr. 8)		5. Number 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 Securities Underlying Derivative Security (Instr. 3 and 4)	8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
				Code	V	(A)	(D)	Date Exercisable	Expiration Date					
Employee Stock Option (right to buy)	\$23.438	09/11/2006		D		13,500		11/02/2000 ⁽²⁾	11/02/2009	Common 13,500	\$0.00 ⁽³⁾	0	D	
Employee Stock Option (right to buy)	\$30.063	09/11/2006		D		10,500		10/10/2001 ⁽⁴⁾	10/10/2010	Common 10,500	\$0.00 ⁽³⁾	0	D	
Employee Stock Option (right to buy)	\$25.55	09/11/2006		D		2,810		09/10/2002 ⁽⁵⁾	09/10/2011	Common 2,810	\$0.00 ⁽³⁾	0	D	
Employee Stock Option (right to buy)	\$37.15	09/11/2006		D		10,000		10/15/2002 ⁽⁶⁾	10/15/2011	Common 10,000	\$0.00 ⁽³⁾	0	D	
Employee Stock Option (right to buy)	\$23.46	09/11/2006		D		10,000		07/28/2005 ⁽⁷⁾	07/28/2014	Common 10,000	\$0.00 ⁽³⁾	0	D	

Explanation of Responses:

- On September 11, 2006, Mercury Computer Systems, Inc. cancelled, pursuant to its option exchange program, options granted to the reporting person on November 2, 1999, October 10, 2000, September 10, 2001, October 15, 2001 and July 28, 2004. In exchange the reporting person received a restricted stock award covering 11,703 shares which vests as to two-thirds of the covered shares on September 11, 2008 and one-third of the covered shares on September 11, 2009.
- The cancelled option provided for vesting in four equal installments commencing on November 2, 2000.
- Field N/A to this transaction but was completed to allow for electronic filing only.
- The cancelled option provided for vesting in four equal installments commencing on October 10, 2001. On June 20, 2005 the Company fully accelerated the vesting of this option.
- The cancelled option provided for vesting in four equal installments commencing on September 10, 2002.
- The cancelled option provided for vesting in four equal installments commencing on October 15, 2002. On June 20, 2005 the Company fully accelerated the vesting of this option.
- The cancelled option provided for vesting in four equal installments commencing on July 28, 2005.

Craig Barrows, Attorney-in-fact 09/12/2006

** Signature of Reporting Person Date

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

* 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.

