

| OMB APPROVAL | |
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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

| | | |
|---|---|---|
| 1. Name and Address of Reporting Person* <u>PUMA MARY G</u> (Last) (First) (Middle) <u>C/O AXCELIS TECHNOLOGIES, INC.</u> <u>108 CHERRY HILL DRIVE</u> (Street) <u>BEVERLY MA 01915</u> (City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol <u>AXCELIS TECHNOLOGIES INC [ACLS]</u> | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <u>President and CEO</u> |
| | 3. Date of Earliest Transaction (Month/Day/Year) <u>02/28/2022</u> | |
| | 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 | 02/28/2022 | | F ⁽¹⁾ | | 9,664 | D | \$0.00 ⁽²⁾ | 414,596 ⁽³⁾ | D | |
| Common Stock | 02/28/2022 | | F ⁽⁴⁾ | | 9,695 | D | \$0.00 ⁽²⁾ | 404,901 ⁽⁵⁾ | 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) |
|--|--|--------------------------------------|--|--------------------------------|--|--|-----------------|---|--|--|---|--|
| | | | | | | Date Exercisable | Expiration Date | | | | | |

Explanation of Responses:

- This forfeiture of shares for tax withholding purposes relates to the vesting on February 28, 2022 of the remainder of performance based restricted stock units granted to the executive in May 2020. These shares were determined to be earned by the executive pursuant to a resolution of the Axcelis Technologies, Inc. Compensation Committee on February 8, 2021, and half of the earned shares vested on February 28, 2021. As agreed with the executive, the shares issued to the executive on the vested shares were reduced by a number of shares having a value equal to the executive's tax withholding obligation with respect to the vested shares.
- These shares were withheld by the Company to cover the tax withholding obligations of the executive on the vesting of restricted stock units on February 28, 2022.
- Of the shares beneficially owned by the executive on February 28, 2022 after the vesting of the 2020 performance based restricted stock units, 136,444 shares were issuable on vesting of restricted stock units which are subject to forfeiture. This number includes 21,858 shares issuable under the executive's 2021 performance based restricted stock units, which also vested on February 28, 2022.
- This forfeiture of shares for tax withholding purposes relates to the vesting on February 28, 2022 of the first half of shares earned under performance based restricted stock units granted to the executive in May 2021. These shares were determined to be earned by the executive pursuant to a resolution of the Axcelis Technologies, Inc. Compensation Committee on February 15, 2022. The second half of the shares earned under this restricted stock unit award will vest on February 28, 2023, assuming continuation of the executive's services. As agreed with the executive, the shares issued to the executive on the vested shares were reduced by a number of shares having a value equal to the executive's tax withholding obligation with respect to the vested shares.
- Of the shares beneficially owned by the executive on February 28, 2022 after the vesting of shares issued on both the 2020 performance based restricted stock units and the 2021 performance based restricted stock units, 114,586 shares were issuable on vesting of restricted stock units which are subject to forfeiture.

Remarks:

Lynnette C. Fallon, as attorney 03/02/2022
in fact for Mary G. Puma

** 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.

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 Number.