SCHEDULE 13G

UNDER THE SECURITIES EXCHANGE ACT OF 1934 ANNUAL FILING

3M CO. (NAME OF ISSUER) COMMON (TITLE CLASS OF SECURITIES) 88579Y101 (CUSIP NUMBER) 12/31/2004 (DATE OF EVENT WHICH REQUIRES FILING OF THIS STATEMENT)

CHECK THE APPROPRIATE BOX TO DESIGNATE THE RULE PURSUANT TO WHICH THIS SCHEDULE IS FILED:

- (X) RULE 13D-1(B)
- () RULE 13D-1(C)
- () RULE 13D-1(D)

*THE REMAINDER OF THIS COVER PAGE SHALL BE FILLED OUT FOR A REPORTING PERSON'S INITIAL FILING ON THIS FORM WITH RESPECT TO THE SUBJECT CLASS OF SECURITIES, AND FOR ANY SUBSEQUENT AMENDMENT CONTAINING INFORMATION WHICH WOULD ALTER THE DISCLOSURES PROVIDED IN A PRIOR COVER PAGE.

THE INFORMATION REQUIRED IN THE REMAINDER OF THIS COVER PAGE SHALL NOT BE DEEMED TO BE "FILED" FOR THE PURPOSE OF SECTION 18 OF THE SECURITIES EXCHANGE ACT OF 1934 ("ACT") OR OTHERWISE SUBJECT TO THE LIABILITIES OF THAT SECTION OF THE ACT BUT SHALL BE SUBJECT TO ALL OTHER PROVISIONS OF THE ACT (HOWEVER, SEE THE NOTES).

 NAME OF REPORTING PERSON S.S. OR I.R.S. IDENTIFICATION NO. OF PERSON STATE STREET BANK AND TRUST COMPANY, ACTING IN VARIOUS FIDUCIARY

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP.*

04-1867445

NOT APPLICABLE

CAPACITIES.

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3. SEC USE ONLY

4. CITIZENSHIP OR PLACE OF ORGANIZATION

CUSIP NO. 88579Y101 SCHEDULE 13G

BOSTON, MASSACHUSETTS

- 5. SOLE VOTING POWER
- 62,033,807 SHARES
- 6. SHARED VOTING POWER 0 SHARES
- 7. SOLE DISPOSITIVE POWER 0 SHARES
- 8. SHARED DISPOSITIVE POWER
- 62,033,807 SHARES
- 9. AGGREGATED AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 62,033,807 SHARES
- 10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*

NOT APPLICABLE 11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 9 7.97% 12. TYPE OF REPORTING PERSON* ΒK SCHEDULE 13G PAGE 3 OF 5 PAGES ITEM 1. (A) NAME OF ISSUER MINNESOTA MINING & MANUFACTURING CO. (B) ADDRESS OF ISSUER'S PRINCIPAL EXECUTIVE OFFICES 3M CENTER ST. PAUL, MN 55144-144 ITEM 2. (A) NAME OF PERSON FILING STATE STREET BANK AND TRUST COMPANY, TRUSTEE (B) ADDRESS OF PRINCIPAL BUSINESS OFFICE OR, IF NONE, RESIDENCE 225 FRANKLIN STREET, BOSTON, MA 02110 (C) CITIZENSHIP BOSTON, MASSACHUSETTS (D) TITLE CLASS OF SECURITIES COMMON (E) CUSIP NUMBER 88579Y101 ITEM 3. IF THIS STATEMENT IS FILED PURSUANT TO RULE 13D-1(B), OR 13D-2(B), CHECK WHETHER THE PERSON FILING IS A: (B) X BANK AS DEFINED IN SECTION 3(A)(6) OF THE ACT SCHEDULE 13G PAGE 4 of 5 PAGES ITEM 4. OWNERSHIP (A) AMOUNT BENEFICIALLY OWNED 62,033,807 SHARES (B) PERCENT OF CLASS 7.97% (C) NUMBER OF SHARES AS TO WHICH SUCH PERSON HAS: (I) SOLE POWER TO VOTE OR TO DIRECT THE VOTE OF 62,033,807 SHARES (II) SHARED POWER TO VOTE OR TO DIRECT THE VOTE 0 SHARES (III) SOLE POWER TO DISPOSE OR TO DIRECT THE DISPOSITION OF 0 SHARES (IV) SHARED POWER TO DISPOSE OR TO DIRECT THE DISPOSITION OF 62,033,807 SHARES ITEM 5. OWNERSHIP OF FIVE PERCENT OR LESS OF A CLASS NOT APPLICABLE ITEM 6. OWNERSHIP OF MORE THAN FIVE PERCENT ON BEHALF OF ANOTHER PERSON. NOT APPLICABLE ITEM 7. IDENTIFICATION AND CLASSIFICATION OF THE SUBSIDIARY WHICH ACQUIRED THE SECURITY BEING REPORTED ON BY THE PARENT HOLDING COMPANY NOT APPLICABLE ITEM 8. IDENTIFICATION AND CLASSIFICATION OF MEMBERS OF THE GROUP NOT APPLICABLE ITEM 9. NOTICE OF DISSOLUTION OF GROUP NOT APPLICABLE SCHEDULE 13G PAGE 5 OF 5 PAGES

ITEM 10. CERTIFICATION

THE FOLLOWING CERTIFICATION SHALL BE INCLUDED IF THE STATEMENT IS FILED PURSUANT TO RULE 13D-1 (B):

BY SIGNING BELOW I CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE SECURITIES REFERRED TO ABOVE WERE ACQUIRED IN THE ORDINARY COURSE OF BUSINESS AND WERE NOT ACQUIRED FOR THE PURPOSE OF AND DO NOT HAVE THE EFFECT OF CHANGING OR INFLUENCING THE CONTROL OF THE ISSUER OF SUCH SECURITIES AND WERE NOT ACQUIRED IN CONNECTION WITH OR AS A PARTICIPANT IN ANY TRANSACTION HAVING SUCH PURPOSES OR EFFECT.

THIS REPORT IS NOT AN ADMISSION THAT STATE STREET BANK AND TRUST COMPANY IS THE BENEFICIAL OWNER OF ANY SECURITIES COVERED BY THIS REPORT, AND STATE STREET BANK AND TRUST COMPANY EXPRESSLY DISCLAIMS BENEFICIAL OWNERSHIP OF ALL SHARES REPORTED HEREIN PURSUANT TO RULE 13D-4.

SIGNATURE

AFTER REASONABLE INQUIRY AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, I CERTIFY THAT THE INFORMATION SET FORTH IN THIS STATEMENT IS TRUE, COMPLETE AND CORRECT.

15 FEBRUARY 2005

STATE STREET CORPORATION STATE STREET BANK AND TRUST COMPANY, TRUSTEE

/s/ SUSAN C. DANIELS VICE PRESIDENT