INCH-POUND

MIL-C-44072C
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SUPERSEDING
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MILITARY SPECIFICATION

COOKIES, OATMEAL; AND BROWNIES; CHOCOLATE COVERED

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers chocolate covered oatmeal cookies and chocolate covered brownies in flexible bags for use as a component of operational rations.

1.2 Classification. The product shall be of the following types, as specified (see 6.1).

Type I - Brownies, chocolate covered
Type II - Oatmeal cookie bars, chocolate covered

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.1).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 8920

SPECIFICATIONS

FEDERAL

L-P-378 - Plastic Sheet and Strip, Thin Gauge, Polyolefin
QQ-A-1876 - Aluminum Foil
PPP-B-636 - Boxes, Shipping, Fiberboard

MILITARY

MIL-C-10928 - Candy and Chocolate Confections

STANDARDS

FEDERAL

FED-STD-595 - Colors

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

ENVIRONMENTAL PROTECTION AGENCY (EPA)

National Primary Drinking Water Regulations

(Copies are available from the Office of Drinking Water, Environmental Protection Agency, WH550D, 401 M Street, S.W., Washington, DC 20460.)

U.S. DEPARTMENT OF AGRICULTURE (USDA)

Regulations Governing the Inspection of Eggs and Egg Products (7 CFR Part 59)

(Copies are available from Poultry Division, Agricultural Marketing Service, U.S. Department of Agriculture, Room 3932, South Building, P.O. Box 96456, Washington, DC 20090-6456.)

U.S. Standards for Grades of Shelled Almonds
U.S. Standards for Grades of Shelled Pecans
U.S. Standards for Shelled English Walnuts

(Copies are available from the Head, Standardization Section, Fresh Products Branch, Fruit and Vegetable Division, Agricultural Marketing Service, U.S. Department of Agriculture, Room 2056, South Building, Washington, DC 20090-6456.)

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS)

Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder (21 CFR Parts 1 - 199)

(Copies are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.1).

AMERICAN ASSOCIATION OF CEREAL CHEMISTS (AACC)

Approved Methods of the American Association of Cereal Chemists

(Application for copies should be addressed to the American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.)

AMERICAN OIL CHEMISTS SOCIETY (AOCS)

Official and Tentative Methods of the American Oil Chemists Society

(Application for copies should be addressed to the American Oil Chemists Society, 508 South Sixth Street, Champaign, IL 61820.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 882 - Tensile Properties of Thin Plastic Sheeting
D 1238 - Flow Rates of Thermoplastics by Extrusion Plastometer
D 1505 - Density of Plastics by the Density-Gradient Technique

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS (AOAC)

Official Methods of Analysis of the Association of Official Analytical Chemists

(Application for copies should be addressed to the Association of Official Analytical Chemists, 2200 Wilson Boulevard, Suite 400-CD, Arlington, VA 22201-3301.)

NATIONAL ACADEMY OF SCIENCES

Food Chemicals Codex

(Application for copies should be addressed to the National Academy Press, 2101 Constitution Avenue, N.W., Washington, DC 20418.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.1), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.4.

3.2 Ingredients. All ingredients shall be clean, sound, wholesome, and free from foreign material, evidence of rodent or insect infestation, extraneous material, off-odors, off-flavors, and off-colors.

3.2.1 Sugar. Sugar shall be white, refined, granulated, cane or beet sugar. Powdered sugar of equivalent quality may be substituted for part of the granulated sugar to control spread.

3.2.2 Oatmeal. Oatmeal shall be the commercial product known as quick cooking oatmeal. It shall have natural rolled oat flavor and odor and shall be clean and free from burned particles, rancid, musty, sour, or other undesirable flavors and odors.

3.2.3 Flour. Flour for brownies shall be enriched wheat flour made from hard or soft wheat, shall be bleached or unbleached, and shall be of the commercial grade known as bread flour. For the cookie bar, the flour shall be from soft wheat, shall be of the type known as cookie flour, and shall be enriched, bleached or unbleached.

3.2.4 Shortening, hydrogenated. Shortening shall be a refined, hydrogenated vegetable oil or combination of refined vegetable oils which are in common use by the baking industry. All coconut, palm, and palm kernel oils shall be excluded. The shortening shall have a stability of not less than 100 hours as determined by the Active Oxygen Method (AOM) in Method Cd 12-57 of the Commercial Fats and Oils chapter in the Official and Tentative Methods of the American Oil Chemists Society. The shortening may contain alpha monoglycerides and an antioxidant or combination of antioxidants, as permitted by the Federal Grain Inspection Service (FGIS), and the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder.

3.2.5 Nuts.

3.2.5.1 Nuts, almonds, shelled. Shelled almond pieces shall be of the small piece size classification and shall be U.S. No. 1 Pieces of the U.S. Standards for Grades of Shelled Almonds. A minimum of 95 percent, by weight, of the pieces shall pass through a 4/16-inch diameter round hole screen and not more than 5 percent, by weight, shall pass through a 2/16-inch diameter round hole screen. The shelled amonds shall be coated with an approved food grade antioxidant and shall be of the latest season's crop.

3.2.5.2 Nuts, pecans, shelled. Shelled pecan pieces shall be of the small piece size classification, shall be of a light color, and shall be U.S. Grade No. 1 Pieces of the U.S. Standards for Grades of Shelled Pecans. A minimum of 90 percent, by weight, of the pieces shall pass through a 4/16-inch diameter round hole screen and not more than 2 percent, by weight, shall pass through a 2/16-inch diameter round hole screen. The shelled pecans shall be coated with an approved food grade antioxidant and shall be of the latest season's crop.

3.2.5.3 Nuts, walnuts, shelled. Shelled walnut pieces shall be of the small piece size classification, shall be of a light color, and shall be U.S. No. 1 of the U.S. Standards for Shelled English Walnuts. A minimum of 90 percent, by weight, of the pieces shall pass through a 4/16-inch diameter round hole screen and not more than 1 percent, by weight, shall pass through a 2/16-inch diameter round hole screen. The shelled walnuts shall be coated with an approved food grade antioxidant and shall be of the latest season's crop.

3.2.6 Whole eggs, liquid or frozen. Whole eggs may be liquid or frozen and shall have been processed and labeled in accordance with the Regulations Governing the Inspection of Eggs and Egg Products (7 CFR Part 59). The whole eggs shall be egg whites and egg yolks in their natural proportions as broken directly from the shell eggs, as evidenced by a USDA Egg Products Inspection Certificate. For liquid whole eggs, the USDA certificate shall state the date and time of pasteurization. Liquid whole eggs shall be held at a temperature of 40°F or lower and shall be held for not more than 72 hours from time of pasteurization until the start of formulation of the product in which they are used. Frozen whole eggs shall be held at 10°F or lower and used within 120 days

from the date of production. The whole eggs shall be free from off-odors and off-flavors such as sulfide-like, fruity, sour, musty, or metallic, and shall be free from foreign materials.

3.2.6.1 Whole eggs, dried. Dried whole eggs or free-flowing dried whole eggs may be used. The anticaking ingredient in the free-flowing dried whole eggs may be either silicon dioxide or sodium silicoaluminate. The amount of silicon dioxide shall be not more than 1 percent by weight of the dried whole eggs, and the amount of sodium silicoaluminate shall be less than 2 percent by weight of the dried whole eggs. The dried whole eggs and free-flowing dried whole eggs shall contain not less than 95 percent by weight of the dried whole eggs. The dried whole eggs and free-flowing dried whole eggs shall contain not less than 95 percent by weight total eggs solids, and shall have been processed and labeled in accordance with the Regulations Governing the Inspection of Eggs and Egg Products (7 CFR Part 59), as evidenced by the USDA egg products inspection shield on the label. Dried whole eggs and free-flowing dried whole eggs shall be smoooth and free from lumps that do not fall apart under light pressure; free from scorched, burnt, sulfurous, or other pronounced off-odors and off-flavors; and free from foreign materials.

3.2.7 Water. Water used for formulation, ice making, and washing shall conform to the National Primary Drinking Water Regulations.

3.2.8 Cocoa. Cocoa shall be natural process cocoa of the type known as medium fat cocoa.

3.2.9 Dextrose. Dextrose shall be anhydrous or dextrose hydrate.

3.2.10 Soda. Soda shall be fine powdered sodium bicarbonate which meets the requirements of the Food Chemicals Codex.

3.2.11 Salt. Salt shall be white, noniodized, refined sodium chloride with or without anticaking agents.

3.2.12 Chemical leavening. Chemical leavening shall be any combination of edible leavening agents used in the commercial production of brownies.

3.2.13 Flavoring. Flavoring shall be vanillin, ethyl vanillin, or a mixture thereof.

3.2.14 Chocolate coating. The chocolate coating shall conform to that used for type I candy of MIL-C-10928 concerning requirements pertinent to the ingredients, formulation, and performance of the coating, except that the added fat shall have the following characteristics:

Wiley Melting Point: 117° to 119°F Solid Fat Index:	°F	Percent Solid
	50	68
	70	58
	80	52
	92	30
	110	12 maximum

In addition, the coating shall be enriched with the following vitamins in not less than the following amounts:

Thiamine (as thiamine mononitrate)	8.0	mg per pound
Pyridoxine (as pyridoxine hydrochloride)	8.0	mg per pound
Ascorbic acid (vitamin C)	320	mg per pound
Vitamin A	20,000	I.U. per pound

(Note: Estimated loss of vitamins due to processing is approximately 15 percent for all but thiamine which is about 30 percent. The amounts cited above shall represent after-processing values.)

3.2.15 Vitamins. Vitamin A shall be a refined concentrate of vitamin A ester (palmitate). When added to the chocolate or confections, it shall not impart a fishy or objectionable odor or flavor to the finished product. Ascorbic acid (vitamin C) and thiamine hydrochloride, thiamine mononitrate, and pyridoxine hydrochloride shall be of Food Chemicals Codex grade.

3.2.16 Pregelatinized starch. Pregelatinized starch shall be derived from corn, tapioca, or any other farinaceous product. It shall be precooked and processed to produce a food grade thickener stabilizer of a white color and a powdery texture.

3.2.17 Wheat gluten. Wheat gluten shall be made from wheat flour which has been treated for the almost complete removal of the starch. It shall have been processed to an off-white powder.

3.3 Brownie and cookie bar preparation and processing.

3.3.1 Brownie formula. The formula for the brownie shall be as follows:

Ingredient	Parts by weight
Sugar 1/	23.0
Flour 2/	21.0
Shortening	16.8
Nuts 3/	16.0
Whole eggs (liquid basis) 4/	13.0
Cocoa	5.5
Dextrose, anhydrous	4.4

Ingredient	Parts by weight (cont'd)
Salt	0.3
Chemical leavening	As required
Flavoring	Trace

1/ Powdered sugar may be substituted for part of the granulated sugar to control spread.

2/ Pregelatinized starch, malted barley flour, wheat gluten or any combination thereof may be substituted for a part of the flour to obtain proper dough consistency.

3/ Nuts shall be either almonds, pecans, or walnuts or any combination thereof.

4/ Frozen whole eggs shall be tempered/thawed and held at an internal temperature of 28° to 40°F for not more than 24 hours prior to product preparation.

3.3.2 Brownie preparation. (NOTE: The contractor is not required to follow the exact procedure shown below provided that the brownies conform to all finished product requirements in 3.4.)

a. Whip eggs in large bowl on high speed until light and fluffy.
b. Combine sugars, cocoa, salt, and leavening; add to beaten eggs, and whip on high speed until thick.
c. Add shortening slowly while mixing on low speed.
d. Scrape bowl and whip on high speed until thick.
e. Mix flour, nuts, and flavors together and fold into batter; mix until uniform.
f. Pour batter into pan at a rate that will yield uncoated brownies which, when cut such as to meet the dimension requirements specified in 3.4f, will weigh approximately 35 grams each. (Experimentally, a panning rate of 14 to 16 grams per square inch was used.)
g. Bake at 350°F until done (30 to 45 minutes).

3.3.3 Brownie cutting. The brownies shall be cut to the appropriate size when cool (see 3.4f).

3.3.4 Brownie moisture content. The moisture content of the uncoated brownie shall be not more than 8.0 percent.

3.3.5 Brownie coating. The brownies shall be completely enrobed with a continuous uniform chocolate coating (see 3.2.14) in an amount which shall be not less than 29 percent by weight of the finished product.

Density 0.21 to 0.23 gram per milliliter

3.3.6 Cookie bar formula. The formula for the cookie bar shall be as follows:

Ingredient	Parts by weight
Sugar (sucrose)	34.0
Oatmeal	30.0
Shortening	17.0
Flour 1/	14.0
Water (variable)	10.0
Eggs (dry whole basis)	2.0
Dextrose	2.0
Soda (variable) 2/	0.5
Salt	0.5

1/ Pregelatinized starch may be substituted for a portion of the flour to obtain proper dough consistency.

2/ A slight amount of leavening acid may be used to control spread.

3.3.7 Cookie bar preparation. The ingredients shall be mixed in a batter, deposited, and baked until done as indicated by normal color and texture. The cookie bars shall be baked and handled in such a fashion that they remain intact.

3.3.8 Cookie bar moisture content. The moisture content of the uncoated baked cookie bar shall be not more than 3.5 percent.

3.3.9 Cookie bar coating. The cookie bars shall be completely covered with a continuous uniform chocolate coating (see 3.2.14) in an amount which shall be not less than 40 percent by weight of the finished product.

3.4 Finished products requirements (brownies and cookie bars). The finished product shall comply with the following requirements, as applicable:

a. There shall be no foreign material such as, but not limited to, dirt, insect parts, hair, wood, glass, or metal.

b. There shall be no foreign odor or flavor such as, but not limited to, burnt, scorched, stale, sour, rancid, or moldy.

c. There shall be no color foreign to the product.

d. Chocolate coating shall completely cover the product.

e. Product shall not be broken or crushed.

f. The dimensions of the coated brownie shall not exceed 3-1/2 inches by 2-1/2 inches by 5/8 inch.

g. The weight of the coated brownie shall be not less than 46 grams or more than 56 grams.

h. The texture of the brownie shall be firm but not hard.

i. The rectangular shaped coated cookie bar shall not exceed 3-1/2 by 2-1/2 inches and shall not exceed 7/16 inch in thickness.

j. The interior of the coated cookie bar shall be crisp and have the characteristic flavor of oatmeal.

k. The weight of the coated cookie bar shall be not less than 43 grams nor more than 56 grams.

3.4.1 Palatability. The finished product shall be equal to or better than the approved preproduction sample (see 6.1) in palatability and overall appearance.

3.5 Plant qualification. The product shall be prepared, processed, and packaged in establishments meeting the requirements of 21 CFR, Part 110, "Current Good Manufacturing Practice in Manufacturing, Processing, Packaging or Holding Human Food," and the plant sanitation requirements of the appropriate Government inspection agency.

3.6 Federal Food, Drug, and Cosmetic Act. All deliveries shall conform in every respect to the provisions of the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder.

4. QUALITY ASSURANCE PROVISIONS

4.1 Contractor's responsibility. Inspection and acceptance by the USDA shall not relieve the contractor of obligation and responsibility to deliver a product complying with all requirements of this specification. The contractor shall ensure product compliance prior to submitting the product to the USDA for any inspection.

4.2 Inspection and certification. Product acceptability shall be determined by the USDA. The USDA will determine the degree of inspection and supervision necessary to ensure compliance with the requirements of this specification.

4.3 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.4).
b. Quality conformance inspection (see 4.5).

4.4 First article inspection. When a first article is required (see 6.1), it shall be inspected in accordance with the quality assurance provisions of this specification and evaluated for overall appearance and palatability. Any failure to conform to the quality assurance provisions of this specification or any appearance or palatability failure shall be cause for rejection of the first article.

4.5 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.5.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

4.5.1.1 Ingredient and component examination. Conformance of ingredients and components to identity, condition, and other requirements specified in 3.2 shall be certified by the ingredient supplier or ingredient manufacturer, and compliance shall be verified by examination of pertinent labels, markings, U.S. Grade Certificates, certificates of analyses, or other such valid documents acceptable to the inspection agency. If necessary, each ingredient shall be examined organoleptically or inspected according to generally recognized test methods, such as the standard methods described in the Official Methods of Analysis of the Association of Official Analytical Chemists and in the Approved Methods of the American Association of Cereal Chemists, to determine conformance to the requirements. Any nonconformance to an identity, condition, or other requirement shall be cause for rejection of the ingredient or component lot or of any involved product.

4.5.1.2 Laminated bag material certification. Material listed below may be accepted on the basis of a contractor's certification of compliance to the indicated requirements. Thickness tolerances as specified in L-P-378 and QQ-A-1876, as applicable, shall apply.

Material requirement	Requirement paragraphs	Test procedure
Ionomer or polyethylene film thickness	5.1.1.1 and 5.1.2.1	As specified in L-P-378, except that a machinist's micrometer may be used provided that its graduations and accuracy conform to the requirement of L-P-378
Polyester film thickness	5.1.1.1 and 5.1.2.1	As above
Aluminum foil thickness	5.1.1.1 and 5.1.2.1	As specified in QQ-A-1876

Material requirement	Requirement paragraphs	Test procedure
Laminated material construction	5.1.1.1 and 5.1.2.1	Laboratory evaluation
Color of laminated material	5.1.1.1 and 5.1.2.1	Visual evaluation

4.5.1.3 Unfilled preformed bag seal strength testing. The unfilled preformed bags shall be tested for seal strength in accordance with Method A or B of ASTM D 882 except that testing speed may be 10 or 12 inches per minute. The lot size shall be expressed in bags. The sample size shall be the number of bags indicated by inspection level S-1. Three adjacent specimens shall be cut from each of the three sealed sides of each bag in the sample. The results shall be reported to the nearest 0.1 pound. The average seal strength of each seal shall be calculated by averaging the strengths of the three test specimens cut from that seal. Any test specimen failing to meet the individual test specimen seal strength requirement specified in 5.1.1.1.1 or any seal failing to meet the average seal strength requirement specified in 5.1.1.1.1 shall be cause for rejection of the lot.

4.5.2 In-process inspection.

4.5.2.1 In-process examination. In-process examination shall be performed to determine conformance to preparation, processing, holding, bag filling and sealing, and bulk pack handling requirements. Any nonconformance revealed by actual examination or by review of records of time, temperature, and formulation or of other valid documents shall be cause for rejection of the involved product.

4.5.2.2 In-process moisture content testing. The baked brownie or cookie bar, as applicable, prior to coating, shall be tested for moisture content in accordance with the Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC): Chapter: Cereal Foods; section: Total Solids (Moisture, Indirect Method); Method: Vacuum Oven Method except that the drying cycle shall be 16 hours at 70°C under a pressure of not more than 100 mm Hg. The sample unit shall be one brownie or one cookie bar. Results shall be reported to the nearest 0.1 percent. Any sample unit not conforming to the moisture content requirement in 3.3.4 or 3.3.8, as applicable, shall be classified as a major defect and shall be cause for rejection of the lot. The lot size shall be expressed in units of one brownie or one cookie bar, as applicable. The inspection level shall be S-2.

4.5.2.3 In-process coating weight examination. Prior to coating, a sample of 20 brownies or cookie bars, as applicable, shall be randomly selected from the lot, identified, and individually weighed. After coating, the sample of

20 brownies or cookies shall be reweighed. The coating weight as a percentage of the product weight shall be calculated to the nearest 1 percent as follows:

$$\text{Coating weight, percent} = \frac{\text{Coated product weight - Uncoated product weight}}{\text{Coated product weight}} \times 100$$

Nonconformance with the coating weight requirements in 3.3.5 or 3.3.9, as applicable, shall be a major defect and be cause for rejection of the lot.

4.5.3 Product inspection (when unit packing in bags as specified in 5.1.1 is required).

4.5.3.1 Net weight inspection. The net weight of the filled and sealed bags shall be determined by separately weighing each sample unit on a suitable scale tared with an average weight of representative empty bags. Results shall be reported to the nearest gram. Any individual sample unit having a net weight of less than 46 grams or more than 56 grams for brownies or less than 43 or more than 56 grams for cookie bars shall be classified as a minor defect. The lot size shall be expressed in bags. The sample unit shall be one filled and sealed bag. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 2.5.

4.5.3.2 Filled and sealed bag examination. The filled and sealed bags shall be examined for the defects listed in table I. The lot size shall be expressed in bags. The sample unit shall be one filled and sealed bag. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major defects and 2.5 for minor defects.

TABLE I. Filled and sealed bag defects 1/

Category		Defect
Major	Minor	
101		Tear, hole, or open seal
102		Bag dimensions not as specified
103		Not heat sealed
104		Dimensions not as specified
105		Closure seal not located as specified
106		Presence of delamination 2/
107		Not clean 3/
108		Required labeling missing, incorrect, illegible, or smudged
109		Distance between inside edge of tear notch and inside edge of bag less than 3/16 inch
110		Exterior color of bag not as specified

TABLE I. Filled and sealed bag defects 1/ (cont'd)

Category		Defect
Major	Minor	
	201	Tear notch missing
	202	Tear notch not located as specified
	203	Depth of tear notch not as specified

1/ Any evidence of insect or rodent infestation shall be cause for rejection of the lot.

2/ Delamination shall be scored as a defect except delamination of outer ply when located in the seal area 1/16 inch or further from food product edge of seal. Bags exhibiting this type of delamination shall be tested by manually flexing the delaminated area 10 times. The area of delamination shall be held between thumb and forefinger of each hand with both thumbs and forefingers touching each other. The delaminated area shall then be rapidly flexed by rotating both hands in alternating clockwise-counterclockwise directions. Care shall be exercised when flexing delaminated area near the tear notches to avoid tearing the bag material. After flexing, the separated outer ply shall be grasped between the thumb and forefinger and gently lifted toward the food product edge of the seal. If the separated area is too small to be held between thumb and forefinger, a number two stylus shall be inserted into the delaminated area and a gentle lifting force applied against the outer ply. If separation of the outer ply can be made to extend to less than 1/16 inch from the product edge of the seal with no discernible resistance to the gentle lifting, the bag shall be rejected.

3/ Outer packaging shall be free from foreign matter which is unwholesome, has the potential to cause pouch damage (i.e, glass, metal filings, etc.) or generally detracts from the clean appearance of the package. The following examples shall not be scored as defects for unclean:

a. Foreign matter which presents no health hazard or potential pouch damage and which can be readily removed by gently shaking the package or by gently brushing the package with a clean, dry cloth.

b. Dried product which affects less than 1/8 of the total surface area of one pouch face (localized and aggregate).

c. Water spots.

d. Very thin film of grease, oil, or product residue which is discernible to touch, but is not readily discernible by visual examination.

4.5.3.3 Bag vacuum examination. The filled and sealed bags shall be visually examined for a proper vacuum level not less than 96 hours after filling and sealing. The sealed bag shall continue to exhibit a tight adherence to the surface contours of the product when a pulling force is applied at the center of each side seal. This force shall be applied by holding each side seal between thumb and forefinger of each hand, and simultaneously exerting a slight pull with both hands. The bag material shall resist this pulling force as evidenced by the material quickly returning to conform to the product edges when the pulling force is relieved. Any evidence of loss of vacuum shall be considered a major defect. The lot size shall be expressed in bags. The sample unit shall be one filled and sealed bag. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65.

4.5.3.4 Product inspection. The finished product shall be examined for the defects listed in table II. The lot size shall be expressed in bags. The sample unit shall be the contents of one filled and sealed bag. The inspection level shall be S-4 and the AQL, expressed in terms of defects per hundred units, shall be 2.5 for major defects and 4.0 for minor defects.

TABLE II. Product defects 1/ 2/

Category		Defect
Major	Minor	
101		Size not as specified
102		Cookie bar interior not crisp
103		Texture of brownie hard or not firm
104		Coating not completely covering product
105		Brownie or cookie bar crushed 3/
	201	Brownie or cookie bar broken (broken off edges not exceeding 1/16 inch maximum are considered acceptable)
106		Flavor not characteristic of oatmeal (cookie bar only)

1/ The presence of foreign material (for example, glass, dirt, insect parts, hair, wood, glass, or metal), foreign odor or off-flavor (for example, burnt, scorched, moldy, rancid, sour, stale), or foreign color shall be cause for rejection of the lot.

2/ Product not equal to or better than the approved preproduction sample (see 6.1) in palatability and overall appearance shall be cause for rejection of the lot. (This comparison shall be performed only when deemed necessary by an Agricultural Marketing Service (AMS) agent.)

3/ A crushed item is one in which 1/8 or more the volume of the item has been reduced to crumbs.

4.5.4 Product inspection (when bulk packing as specified in 5.2.2 is required). The product shall be examined for the defects listed in table III. The lot size shall be expressed in brownies or cookie bars, as applicable. The sample unit shall be one cookie bar or one brownie. The inspection level shall be S-4 and the AQL, expressed in terms of defects per hundred units, shall be 2.5 for major defects and 4.0 for minor defects.

TABLE III. Bulk product defects 1/ 2/

Category		Defect
Major	Minor	
101		Size not as specified
102		Cookie bar interior not crisp
103		Texture of brownie hard but not firm
104		Coating not completely covering product
	201	Brownie or cookie bar broken (broken off edges not exceeding 1/16 inch maximum are considered acceptable)
	202	Brownie less than 46 grams or more than 56 grams
	203	Cookie bar less than 43 grams or more than 56 grams
105		Brownie or cookie bar crushed 3/
106		Flavor not characteristic of oatmeal (cookie bar only)

1/ The presence of foreign material (e.g., glass, dirt, insect parts, hair, wood, metal), foreign odor or off-flavor (e.g., burnt, scorched, moldy, rancid, sour, stale) or foreign color shall be cause for rejection of the lot.

2/ Product not equal to or better than the approved preproduction sample (see 6.1) in palatability and overall appearance shall be cause for rejection of the lot. (This comparison shall be performed only when deemed necessary by an AMS agent.)

3/ A crushed item is one in which 1/8 or more the volume of the item has been reduced to crumbs.

4.5.5 Bag closure seal testing. The filled and sealed bags shall be tested in accordance with method A or B of ASTM D 882, except that the testing speed may be 10 or 12 inches per minute. For preformed bags, three adjacent specimens, 1/2 or 1 inch wide, shall be cut from the closure seal of each bag in the sample. For the form-fill-seal bags, three adjacent specimens, 1/2 or 1 inch wide shall be cut from each side and each end of each bag in the sample. For the preformed bag, the average seal strength of the closure seal shall be calculated by averaging the test results of the three test specimens cut from that seal. For the form-fill-seal bag, the average seal strength of each side and end of the bag shall be calculated by averaging the test results of the three specimens cut from that side or end. The results shall be reported to the nearest 0.1 pound per inch of width. The lot size shall be expressed in bags. The sample unit shall be one filled and sealed bag. The sample size shall be the number of bags indicated by inspection level S-1. Any test specimen or average seal strength failing to meet the requirements of 5.1.1.1.2 and 5.1.2.1.1 shall be cause for rejection of the lot.

4.5.6 Shipping container examination. Shipping containers shall be examined for defects in assembly, closure, and reinforcement (when applicable) in accordance with PPP-B-636. In addition, the following defects shall be classified as follows: Major: Marking missing, incorrect, or illegible; Minor: (1) More than 2 percent (to nearest unit) under marked count, (2) Pad or liner missing or not material specified, (3) Bulk pack layers not separated by food grade parchment or bleached greaseproof paper, or cookie bars or brownies not wrapped in cellophane, as applicable, (4) Height of liner not as specified (see 5.2.2). In addition, the lot shall be rejected if sample data indicate lot average is less than marked count.

5. PACKAGING

5.1 Preservation. When specified (see 6.1), the product shall be preserved in accordance with level A.

5.1.1 Level A. One chocolate covered brownie or one chocolate covered cookie bar shall be unit packed in bags as specified in 5.1.1.1 or 5.1.2.1.

5.1.1.1 Preformed bags. The preformed bags shall be fabricated from 0.002-inch thick ionomer or polyethylene film laminated or extrusion coated to 0.00035-inch thick aluminum foil which is laminated to 0.0005-inch thick polyester. The three plies shall be laminated so that the aluminum foil is between the other two layers. The bag shall be formed with the polyester on the exterior of the bag. The complete exterior surface of the bag shall be uniformly colored in the range of 34079 through 34087 or 24052 through 24097 or 10045 or 30045 through 30118 (excluding 30109) of FED-STD-595. The material shall show no evidence of delamination or degradation when heat sealed or fabricated into bags and shall not transfer any foreign odor or flavor to the product being packed.

5.1.1.1.1 Bag construction. The bag shall be formed by heat sealing to the size and design configuration as shown in figure 1, except that squared or rounded corners are acceptable. The heat seals shall be made in a manner that will assure the hermetic quality of the bag. The side and bottom seals shall have an average seal strength of not less than 6 pounds per inch of width and no individual specimen shall have a seal strength of less than 5 pounds when tested as specified in 4.5.1.3.

5.1.1.1.2 Bag filling and sealing. The brownie or the cookie bar shall be placed into the bag in such a manner as to avoid contamination of the closure seal area. The filled bag shall be closed under a vacuum of not less than 22 and not more than 25 inches of mercury (see 4.5.3.3) with a heat seal not less than 1/4 inch wide. If thermal impulse or combination (heated curved bar with thermal impulse) sealing is used, any seal width from 1/8 to 7/16 inch will be acceptable. The closure seal location shall be as shown in figure 1. The average seal strength shall be not less than 6 pounds per linear inch, and no individual test specimen seal strength shall be less than 5 pounds when tested as specified in 4.5.5.

5.1.2.1 Form-fill-seal bags. Form-fill-seal bags shall consist of a tray-shaped body with a heat sealable cover. The tray-shaped body of each bag shall be fabricated from 0.002-inch thick linear low density polyethylene bonded to 0.0007-inch thick aluminum foil with 10 pounds per ream polyethylene, and the opposite side of the aluminum foil shall be bonded to 0.00075-inch thick oriented polypropylene with 10 pounds per ream polyethylene. The cover of each bag shall be fabricated from 0.002 inch thick linear low density polyethylene bonded to 0.00035-inch thick aluminum foil with 10 pounds per ream polyethylene and bonding 0.0005-inch thick polyester to the opposite side of the aluminum foil with 10 pounds per ream polyethylene. The linear low density polyethylene shall be the copolymer of ethylene and octene-1, having a melt index range of 0.8 to 1.2 g/10 minutes in accordance with ASTM D 1238 and a density range of 0.918 to 0.922 g/cm^3 in accordance with ASTM D 1505. The color requirements of the exterior (polyethylene or polyester sides) of each laminate shall be as specified in 5.1.1.1. The material shall show no evidence of delamination or degradation when heat sealed or fabricated into bags and shall not transfer any foreign odor or flavor to the product being packed.

5.1.2.1.1 Bag forming, filling and sealing. The tray-shaped body of each bag shall be fabricated by forming the laminate material in an appropriately designed cavity. One brownie or one cookie bar shall be placed into the tray-shaped body of the bag. The filled bag body shall then be hermetically sealed under a vacuum of not less than 22 and not more than 25 inches of mercury (see 4.5.3.3) by application of the cover. The cover shall be applied by a continuous heat seal of not less than 1/4 inch wide along the entire perimeter of the tray-shaped body. The closure seal shall be made in a manner that will assure a hermetic seal and preclude leakage of air into the unit pack through the bag seal or through defects created when the bag is formed, filled, and sealed. Bag integrity and air tightness of the closure seal shall be tested in

accordance with 4.5.3.3. The closure seal shall have an average seal strength of not less than 6 pounds per inch of width and no individual specimen shall have a seal strength of less than 5 pounds (see 4.5.5). The outside dimensions of the sealed bags shall be 4 inches wide by 5-1/4 inches long (+ 1/16 inch). A V or C-shaped tear notch shall be placed on one outside edge of two opposite outside edges of the bag to effect easy opening of the bag in the machine direction of the bag body and cover laminates. Each tear notch shall be located 1/2 inch (+ 1/16 inch) from the outside corner of the bag. Each tear notch shall be a minimum 1/32 inch deep, but shall not extend into the seal to a depth that would reduce the seal width to less than 3/16 inch. Alternatively, if the bag has serrated edges, the serrations may be used as tear notches provided that the serrations are located to effect easy opening in the machine direction of the bag laminates, the serrations are clean-cut (no frayed edges or plastic tailings exist), and the serration depth and the minimum seal width at the serrations are in accordance with the requirements specified for the V or C-shaped notches. The sealed bag shall not show any evidence of material degradation, aluminum stress cracking, delamination, or foreign odor where heat sealed or formed.

5.2 Packing, level C, for shipment to ration assembly. Packing shall be in accordance with 5.2.1 or 5.2.2, as applicable.

5.2.1 Cookie bars and brownies unit packed. When cookie bars or brownies are preserved in accordance with 5.1, not more than 200 unit packs shall be packed flat in a snug-fitting fiberboard box constructed and closed in accordance with style RSC-L, type CF, class domestic, variety SW, grade 175 of PPP-B-636.

5.2.2 Bulk packing. When cookie bars or brownies are not preserved in accordance with 5.1, not more than 200 brownies or 200 cookie bars shall be packed flat in a snug-fitting fiberboard box as specified in 5.2.1. The box shall be provided with a bottom pad made from the same material as the box and shall be provided with a liner made from not less than 0.003-inch thick class 2, polyethylene of L-P-378. The bottom pad shall have a length and width dimension 1/16 inch less than the inside length and width of the box. The liner shall be of sufficient height to permit a double fold at the top of the bag prior to closure of the fiberboard box. The layers of cookie bars or brownies shall be separated from each other by a sheet of food grade parchment, bleached waxed paper, or bleached greaseproof paper. Bulk packed cookie bars and brownies shall not be stored above 80°F, and if storage time is to exceed 30 days they shall be stored at 0°F or below. In lieu of sheets separating layers, units of one chocolate covered cookie bar, or one chocolate covered brownie may be individually wrapped in cellophane. The cellophane wrap, if used, shall be removed prior to unit packing the cookie bars or brownies as specified in 5.1.

5.3 Labeling and marking.

5.3.1 Unit packs. Each unit pack (see 5.1.1) shall be clearly printed with permanent ink, in large letters of black, purple, or similar dark, contrasting color with the following information (as applicable):

BROWNIE, CHOCOLATE COVERED

or

COOKIE BAR, CHOCOLATE COVERED

(Name and address of producer)

5.3.2 Shipping containers. In addition to any special marking required by the contract or purchase order, shipping containers shall be marked in accordance with MIL-STD-129. In addition, the shipping containers for bulk packed cookie bars and brownies (see 5.2.2) shall have additional precautionary markings as specified in 5.3.2.1.

5.3.2.1 Precautionary marking (applicable to 5.2.2 only). The following precautionary marking shall appear on top of each container, in bold capital letters, all letters being of the same height:

DO NOT STORE ABOVE 80°F.

IF STORAGE TIME IS TO EXCEED 30 DAYS
STORE AT 0°F OR BELOW.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.
b. Type of product required (see 1.2).
c. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
d. When a first article is required (see 3.1, 4.4, and 6.3).
e. Provisions for approved preproduction samples (see 3.4.1 and 6.3).
f. When unit packing in accordance with 5.1 is required.

6.2 Award of contract. Award of contracts for the product specified in this document will be limited to plants known to maintain the required sanitation conditions of 3.5.

6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Appropriate level of pack. Based on the conditions known or expected to be encountered during shipment, handling and storage of the specific item being procured, the procuring activity should select the appropriate level of pack in accordance with the criteria established in AR 700-15/NAVSUPINST 4030.28/AFR 71-6/MCO 4030.33A/DLAR 4145.7.

6.5 Subject term (key word) listing.

Bars, dessert
Dessert
Operational rations

6.6 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - GL
Navy - SA
Air Force - 50

Preparing activity:

Army - GL

(Project 8920-0530)

Review activities:

Army - MD, QM
Navy - MC
DP - SS

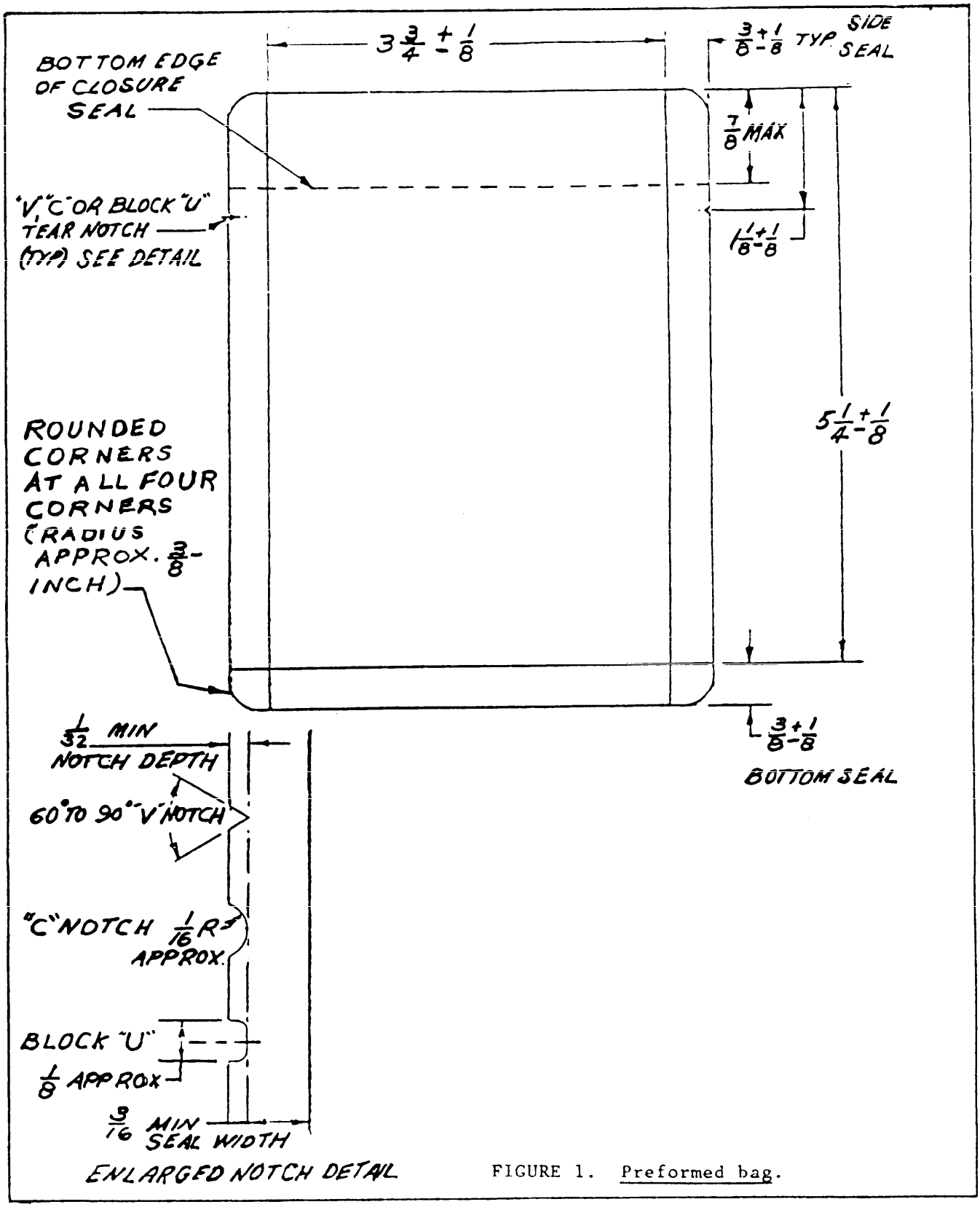

FIGURE 1. Preformed bag.

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...rth and sixth ... The third and fifth layers shall be exactly as the first and the four...

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
	MIL-C-44072C	1990 April 30

3. DOCUMENT TITLE
Cookies, Oatmeal; And Brownies; Chocolate Covered

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME	b. TELEPHONE (Include Area Code)	
U.S. Army Natick RD&E Center	(1) Commercial 508-651-5221	(2) AUTOVON 256-5221
c. ADDRESS (Include Zip Code) Commander, U.S. Army Natick RD&E Center ATTN: STRNC-ES Natick, MA 01760-5014	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	

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