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MILITARY STANDARD

SANITATION STANDARDS FOR MEAT PROCESSING PLANTS IN OVERSEAS AREAS



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MIL-STD-1481E

DEPARTMENT OF DEFENSE

Washington, DC 20301-2300

Sanitary Standards for Meat Processing Plants in Overseas Areas

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MIL-STD-1481E**CONTENTS**

Paragraph		Page
1.	SCOPE-----	1
1.1	Purpose-----	1
1.2	Application-----	1
1.3	Objectives-----	1
1.4	Limitations-----	1
2.	REFERENCED DOCUMENTS-----	1
2.1	Issues of documents-----	1
2.2	Other publications-----	2
3.	DEFINITIONS-----	3
3.1	Adequate-----	3
3.2	Adulterated-----	3
3.3	Animals-----	3
3.4	Carcass-----	3
3.5	Cleaning-----	4
3.6	Contamination-----	4
3.7	Critical Control Points-----	4
3.8	Critical defect-----	4
3.9	Defect-----	4
3.10	Disinfection Unit (Sterilizer)-----	4
3.11	Fabricating-----	4
3.12	Food-----	4
3.13	Food contact surface-----	4
3.14	Lavatory-----	4
3.15	Meat-----	5
3.16	Meat by-products-----	5
3.17	Meat processing plant-----	5
3.18	Offal-----	5
3.19	Plant-----	5
3.20	Prepared meats-----	5
3.21	Processing-----	5
3.22	Production area-----	5
3.23	Product area-----	6
3.24	Sanitize-----	6
3.25	Toilet facility-----	6
3.26	Toilet room-----	6
3.27	Urinal-----	6
3.28	Water closet-----	6
3.29	Wholesome-----	6
4.	GENERAL REQUIREMENTS-----	6
4.1	Sanitary compliance rating (SCR)-----	6
4.2	DD Form 2546 (Meat Processing Plant Sanitary compliance checklist)-----	7
4.2.1	Recording of defects-----	7
4.2.2	Computation of the sanitary compliance rating-----	7

MIL-STD-1481E**CONTENTS--Continued**

	Page
4.2.3	Additional Requirements----- 7
4.2.4	Remarks/Recommendations----- 8
Paragraph	
5.	DETAILED REQUIREMENTS----- 8
5.1	Premises----- 8
5.2	Construction of building----- 8
5.2.1	Construction of Toilet/dressing rooms and Handwashing facilities----- 9
5.2.2	Livestock pens----- 9
5.2.3	Holding and shackling pens----- 9
5.2.4	Slaughtering department----- 9
5.3	Lighting-----10
5.4	Ventilation and humidity-----10
5.5	Water supply-----10
5.5.1	Nonpotable Water-----11
5.6	Ice (If used)-----11
5.7	Disposal of wastes-----11
5.7.1	Handling and control of inedible, condemned, and restricted products-----12
5.8	Toilet/dressing rooms and handwashing facilities-----12
5.9	Construction and repair of equipment and utensils-----13
5.9.1	Cutting and boning boards and tables-----13
5.10	Cleaning and sanitizing treatment-----13
5.10.1	Disinfection Units (Sterilizers)-----14
5.10.2	Automatic Cutting Saws-----14
5.11	Methods-----14
5.12	Public health controls-----15
5.13	Cooling and refrigeration-----15
5.14	Storing and storage facilities-----16
5.15	Control of insects, birds, rodents, and/or other animals-----16
5.16	Vehicles and transportation facilities----16
5.17	Cleanliness and health of personnel-----17
5.17.1	Cleanliness-----17
5.17.2	Health-----17

Enclosure: DD Form 2546 (Meat Processing Plant Sanitary
Compliance Checklist)

MIL-STD-1481E

1. SCOPE

1.1 Purpose. This standard establishes the general sanitary requirements for overseas meat and poultry slaughtering and processing plants.

1.2 Application. This standard is applicable in all overseas areas for meat and poultry slaughtering and processing plants supplying the U.S. Armed Forces. Compliance with this standard is mandatory for the listing of plants in the Directory of Sanitarily Approved Food Establishments for Armed Forces Procurement (short title: "the Directory") as provided in AR 40-657/NAVSUPINST 4355.4/MCO P10110.31 and AFR 161-32.

1.3 Objectives. This standard is intended to insure clean, wholesome meat and poultry products that are free from chemical, microbiological, and physical contaminants and to prevent the transmission of foodborne disease to members of the Armed Forces.

1.4 Limitations. This standard will not be used to determine the capability of an establishment to produce or furnish products or services that are in compliance with specifications or other purchase descriptions.

2. REFERENCED DOCUMENTS

2.1 Government documents. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this standard to the extent specified herein.

Environmental Protection Agency (EPA)

Code of Federal Regulations (CFR), Title 40, Protection of the Environment, Parts 100 to 149 and Parts 150 to 189

(Application for copies should be addressed to Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001.)

MIL-STD-1481E

US Department of Agriculture (USDA)

Agriculture Handbook No. 570, US Inspected Meat and Poultry Packing Plants - A Guide to Construction and Layout.

Sanitation Handbook - For Meat and Poultry Inspections

CFR, Title 7, Agriculture, Parts 53 to 209.

CFR, Title 9, Animals and Animal Products, Parts 200 to End.

List of Proprietary Substances and Nonfood Compounds Authorized for Use Under USDA Inspection and Grading Programs.

(Application for copies should be addressed to Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001).

U.S. Department of Health and Human Services (HHS)

CFR, Title 21, Food and Drugs, Parts 100 to 169 and Parts 170 to 199

(Application for copies should be addressed to Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001).

US Department of Defense

AR 40-657/NAVSUPINST 4355.4/MCO P10110.31 - Medical Services, Veterinary/Medical Food Inspection and Laboratory Service

AFR 161-32 - Aerospace Medicine, Food Safety and Inspection Program

(Application for copies should be addressed to the applicable purchasing agency).

2.2 Other publications. The following documents form a part of this standard to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply:

MIL-STD-1481E

National Sanitation Foundation (NSF)

NSF Standard 37 for Air Curtains for Entranceways in Food Establishments.

(Application for copies should be addressed to the National Sanitation Foundation, PO Box 1468, Ann Arbor, MI 48106).

(Technical society and technical association specifications and standards are generally available for reference from libraries. Technical groups and using federal agencies also distribute them).

3. DEFINITIONS

3.1 Adequate. Methods required to accomplish the intended purpose in keeping with accepted public health practices (21 CFR 110).

3.2 Adulterated. The condition of a food (a) if it bears or contains any poisonous or deleterious substance in a quantity that may render it injurious to health; (b) if it bears or contains added poisonous or deleterious substance for which no safe tolerance officially exists, or in excess of such tolerance if one does exist; (c) if it consists in whole or part of any filthy, putrid, or decomposed substance, or if it is otherwise unfit for human consumption; (d) if it was processed, prepared, packed, or held under unsanitary conditions, whereby it may have become contaminated with filth, or whereby it may have become injurious to health; (e) if it is in whole or in part the product of a diseased animal, or an animal that had died other than by slaughter; or (f) if its container is in whole, or in part, of any poisonous or deleterious substance that may render the contents injurious to health; (g) if any unauthorized substance was added thereto or mixed or packed with it to increase its bulk or weight, or reduce its quality or strength, or make it appear better or of greater value than it is.

3.3 Animals. Cattle, sheep, swine, poultry, goats, rabbits, or deer.

3.4 Carcass. The commercially prepared or dressed body of any animal intended for human food.

MIL-STD-1481E

3.5 Cleaning. The physical removal of food residues, ingredients, and other soiling materials by approved methods.

3.6 Contamination. The act or process of exposing the product to an adulterant or unwholesome material.

3.7 Critical Control Point (CCP). Critical points in a food process where there is a high probability that improper control may cause, allow, or contribute to a hazard or to filth in the final food or decomposition of the final food (21 CFR 110).

3.8 Critical defect. An imperfection, practice, or procedure that may result in hazardous or unsafe conditions, or that is likely to prevent the use or performance of an item or product as intended, or cause the product to be injurious to health.

3.9 Defect. A product, practice, procedure, or condition at variance with specified requirements.

3.10 Disinfection Unit (Sterilizer). A container for sanitizing knives, cleavers, hand held saws, and other hand tools used during slaughter, dressing, boning, and meat cutting operations.

3.11 Fabricating. Cutting and boning into wholesale or retail cuts, dicing, or grinding.

3.12 Food. Any raw, cooked, or processed edible substance, ice, beverage, or ingredient used or intended for use or sale in whole or in part for human consumption.

3.13 Food contact surface. Those surfaces that contact human food and those surfaces from which drainage onto the food or onto surfaces that contact food ordinarily occurs during the normal course of operations. "Food contact surfaces" include utensils and food contact surfaces of equipment (21 CFR 110).

3.14 Lavatory. A basin or bowl, usually one permanently installed with running water, for washing the face and hands.

MIL-STD-1481E

3.15 Meat. The part of the muscle of any cattle, sheep, swine, or goats, which is skeletal or that is in the tongue, the diaphragm, the heart, or the esophagus, with or without the accompanying and overlying fat, and the portions of bone, skin, sinew, nerve, and blood vessels that normally accompany the muscle tissue and are not separated from it during dressing. It does not include the muscle found in the lips, snout, or ears. This term as applied to products of equines, shall have a meaning comparable to that provided in this paragraph with respect to cattle, sheep, swine, and goats.

3.16 Meat by-products. Any parts capable of use as human food, other than meat, which is derived from one or more cattle, sheep, swine, or goats. This term as applied to products of equines, shall have a meaning comparable to that provided in this paragraph with respect to cattle, sheep, swine, and goats.

3.17 Meat processing plant. A commercial plant that slaughters, processes, supplies, or stores meat, or meat by-products. It may be one or more buildings and includes barns, holding pens, or separate storage areas (dry or refrigerated) that may be used as applicable, to hold animals or store raw materials or finished products destined for the US Armed Forces.

3.18 Offal. Waste parts, especially of a slaughtered or butchered animal.

3.19 Plant. The building(s) or parts thereof, used for or in connection with the manufacturing, processing, labeling, or holding of human food.

3.20 Prepared meats. The products intended for human food that are obtained by subjecting meat to drying, curing, smoking, cooking, grinding, seasoning, or flavoring, or to any combination of such procedures, and to which no considerable quantity of any substance other than meat or meat by-products has been added.

3.21 Processing. Steps in the manufacture, preparation and packaging of a food product into its final form.

3.22 Production area. The room or area in which processing occurs.

MIL-STD-1481E

3.23 Product area. The production area and all other areas where the product, ingredients, and packaging materials are handled or stored.

3.24 Sanitize. Adequate treatment of clean food contact surfaces by a process that is effective in destroying vegetative cells of pathogenic bacteria and in substantially reducing numbers of other microorganisms. Such treatment shall not adversely affect the product and shall be safe for the consumer (21 CFR 110).

3.25 Toilet facility. A fixture maintained within a toilet room for defecation and/or urination that flushes with water.

3.26 Toilet room. A room maintained within or on the premises of a plant, containing toilet facilities and handwashing facilities for use by employees.

3.27 Urinal. A fixture maintained within a toilet room for the sole purpose of urination that flushes with water.

3.28 Water Closet. A fixture maintained within a toilet room for defecation and/or urination that flushes with water.

3.29 Wholesome. Conducive to good health and well-being.

4. GENERAL REQUIREMENTS

4.1 Sanitary compliance rating (SCR). Establishments that attain an SCR of 90 or more shall be recommended for initial or continued listing in the Directory, provided there are no critical defects, determined in accordance with 4.2.1. When a critical defect is recorded, the inspection of the entire plant will be completed, annotating all deficiencies and an SCR shall still be computed. For initial, special or update inspections where critical defects or an SCR of less than 90 is recorded, the plant shall not be recommended for listing. For routine inspections where critical defects or an SCR of less than 90 is recorded a special inspection will be conducted to decide final recommendations concerning listing in the Directory.

MIL-STD-1481E

4.2 DD Form 2546 (Meat Processing Plant Sanitary Compliance Checklist). The Sanitary Compliance Checklist (DD Form 2546) will be used to record all defects during initial, special or update inspections. An abbreviated form may be used for routine inspections. A completed copy of the inspection form used will be provided to the plant management upon completion of the inspection. Sanitary requirements set forth in this military standard are itemized as sanitation defects in column 1 of the checklist. Individual defects are given assigned points in column 2 of the checklist unless designated as critical (see Paragraph 3.8). The copy of DD Form 2546 at the end of this publication can be used for local reproduction. The form will be locally reproduced on 8 1/2 X 11-inch paper. Electronic versions of the checklist are also authorized.

4.2.1 Recording of defects. The inspector designates as critical or numerically rates the observed sanitation defects. The numerical rating shall be within the range of the assigned defect points in column 2, and recorded in column 3. Any defect entry and related points that are not applicable to the plant shall be deleted by lining out the non-applicable defect and assigned points. Non-applicable defect points shall be subtracted from the total number of assigned defect points when totaling column 2. In instances where the inspector considers a defect to be of such magnitude to constitute a serious health hazard, the numerical rating shall be deleted in column 2, and the word "critical" shall be recorded in columns 2 and 3. Defects designated as critical in the checklist may not be downgraded or assigned defect points.

4.2.2 Computation of the sanitary compliance rating. To compute the SCR, total columns 2 and 3 and use as shown in the following formula:

$$\frac{\text{Net total of column 2} - \text{Net total of column 3}}{\text{Net total of column 2}} \times 100 = \text{SCR}$$

The SCR assigned will be rounded to the nearest whole percent (i.e., 0.01 to 0.49 will round down and 0.50 to 0.99 will round up).

4.2.3 Additional Requirements. Checklist items pertaining to "Other regulatory agencies concerned with sanitation of this establishment and Methodology" must be completed for every initial, special or update inspection. The methodology section

MIL-STD-1481E

will be completed in sufficient detail that anyone reading the report can visualize procedures from beginning to end. A Hazard Analysis Critical Control Point (HACCP) analysis of the plant processing system shall be included. Such an analysis should include a diagram of the facility, whereon critical control points (See Paragraph 3.7) in the process are identified.

4.2.4 Remarks/Recommendations. Numerical and critical defects shall be explained in the remarks section in sufficient detail to describe clearly the condition that resulted in the rating. Deficiencies not listed in the checklist but observed and considered by the inspector to be of sufficient importance will also be explained in this section.

5. DETAILED REQUIREMENTS

5.1 Premises. The premises shall present a clean and orderly appearance. They shall be well drained and free of environmental conditions and/or materials that are a nuisance or hazard to sanitation. The area shall be free of weeds, debris, and unused equipment and materials. The area shall be free of waste materials stored or handled in such a manner to be a potential health hazard. The approaches to receiving and shipping docks shall be clean and maintained to minimize dust.

5.2 Construction of building. The building shall be large enough to accommodate the operation without hampering sanitary practices. Floors, walls, and ceilings shall be constructed of materials that can readily be kept clean, sanitary, and in good repair. Overhead wiring, pipes, hangers, ducts, etc. will be constructed or appropriately enclosed to prevent contaminants such as dust, paint or other debris from falling on food or food contact surfaces. Ceilings shall be free of peeling paint. Exterior openings, including doors, windows, conveyor openings, pipe openings, and vents, shall be in good repair. Exterior openings shall be equipped with screens or other effective means to prevent the entrance of insects, birds, and/or other animals. When the screening of openings is impracticable, such as in receiving areas, flying insect entry may be controlled by properly positioned air curtains or overlapping plastic strips large enough to cover the total door opening. Air curtains shall comply with NSF Standard No. 37 for Air Curtains for Entrances in Food Establishments. Screen doors shall open outward and be self-closing. Rooms in the processing areas shall not open directly into barns, stables, living quarters, toilet rooms, garages, retail sales stores, or maintenance shops. Facilities shall be provided for storing raw materials, packing and packaging materials, and finished products.

MIL-STD-1481E

5.2.1 Construction of Toilet/dressing rooms and handwashing facilities. A sufficient number of sanitary toilets, water closets, and/or urinals shall be provided. Toilet rooms shall be conveniently located, constructed of materials that can be easily and satisfactorily cleaned and sanitized, and separately vented to the outside. Toilet rooms shall be constructed so that they do not open directly into rooms or areas where components or products are processed or stored. Doors shall be tight-fitting and self-closing.

5.2.2 Livestock pens. The pens, ramps, unloading chutes, curbs, and runways shall be of such construction, materials, and finish, that they can be readily and thoroughly cleaned. Pens shall be equipped for watering and feeding if necessary. They shall be in good repair, resistant to wear, and well drained with liquid wastes delivered into the plant waste system. Adequate curbing of an impervious material, 12 inches (30.48 cm) or more in height shall be installed around the borders of livestock pen area(s), except at entrances, to confine liquids. Well-located hose connections equipped with back-flow prevention devices shall be provided for the cleanup of the livestock pen. Holding pens shall be of adequate size and equipped to perform antemortem inspection(s). Water troughs or devices with suitable overflows shall be located over or next to pen floor drains. A suspect and squeeze pen shall be provided with a weather-tight roof and ample lighting so that antemortem inspections may be carried on properly. A separate pen shall be provided to isolate suspects and sick or injured animals. A reasonable proportion of the livestock pens shall be under a weather-tight roof. Cattle and sheep must remain under a weather-tight roof for sufficient time so that water is not dripping from their hair coats when they enter the slaughter hall. The runways for cattle and sheep from the roofed pens to the slaughter hall also must be under a weather-tight roof. Livestock pens shall be cleaned daily.

5.2.3 Holding and shackling pens. Holding and shackling pens shall be located outside of or effectively separated from the slaughtering department by full-height partitions of impervious material to avoid dust, odor, and contamination of the slaughtering area.

5.2.4 Slaughtering department. Adequate facilities (see Sanitation Handbook - For Meat and Poultry Inspectors) shall be provided for slaughter operations. Beef may be dressed on either a movable rail system or cradles and hoists. Beef kill floors shall include: a dry landing area; a system of suspension so that animals will be bled only while hanging; a bleeding area

MIL-STD-1481E

large enough so that blood is not splashed onto stunned animals or carcasses being dressed and properly drained and curbed; suitable facilities for dehorning, flushing, washing, and inspecting heads; an area for skinning and eviscerating carcasses; an area for inspection of carcasses and viscera; and an area equipped with a water spray for washing finished carcasses. Veal, swine, sheep, and goats shall be slaughtered on either a manual or mechanical rail system, except limited veal kill may be conducted on a beef kill floor. Killing floors shall provide a separate protected or secure area for holding "suspect" carcasses with associated viscera, heads, and hooves. Handwashing basins in slaughtering rooms shall be operated by means other than the hands.

5.3 Lighting. Each room shall have sufficient natural or artificial lighting for the purpose for which it is to be used. Sufficient lighting shall be present in all areas to permit adequate visibility for cleaning and sanitary inspection of operations. Lights in production areas and other areas where a potential exists for product adulteration (for example, chillrooms) shall be either equipped with protective shields or they shall be of construction that they will not shatter if broken. The intensity of artificial illumination in workrooms shall be no less than 30 foot-candles. At all locations where inspections occur or where special illumination enables employees to prepare products to meet the requirements of the inspections, the illumination shall be not less than 50 foot-candles. There should be not less than 20 foot-candles in the pens, alleys, area where antemortem inspection is performed, and carcass coolers. "Suspect" pens, offal coolers (except at packing point and reinspection area), locker rooms, and toilet rooms shall have not less than 20 foot-candles.

5.4 Ventilation and humidity. Humidity shall be regulated with ventilation or air movement to control condensation, objectionable odors, and mold growth on ceilings and walls in all areas. Air for ventilation shall be adequately filtered or directed outward as appropriate to prevent contamination. Ventilation systems shall be clean and maintained in good repair. In locations subject to dust and objectionable odors, such as those adjoining livestock pens, runways, and inedible departments, windows shall be the fixed-type.

5.5 Water supply. The water supply shall be readily accessible, of a sufficient quantity, and have an acceptable sanitary quality, as established in Title 40 CFR; military service regulations; or acceptable host country drinking water standards

MIL-STD-1481E

as determined by the Major Command (MACOM) Surgeon. The water heater shall furnish a sufficient supply of hot water to meet the plant's cleaning, sanitizing, and inspection requirements at all times throughout a working day. There shall be mixing valves at all scullery sinks and hose connections. There shall be no cross-connection between potable and nonpotable lines. There shall be protection against possible back-siphonage. Bacteriological examination and water test results shall be maintained at the plant to show that the water supply was approved by the host country's health authorities within the past six months. If plant personnel do not have such evidence of water potability, applicable military service regulations governing potable water supplies will be followed to approve the water supply(ies). Samples drawn for testing shall be taken from faucets located in the plant.

5.5.1 Nonpotable Water. Nonpotable water outlets, such as private wells, if present, shall be located and identified by color code and labeled (labels will be multilingual as appropriate) nonpotable to preclude the use of nonpotable water for other than the purposes designated. The color code used shall be readily identifiable, prominently displayed, and clearly understood by plant personnel. The use of nonpotable water is permitted for the flushing of toilet facilities, for boilers, and for other similar uses provided it does not directly, nor indirectly, contact the ingredients, product, packaging materials, product area, or personnel handling the product.

5.6 Ice (If used). Ice shall be from a supply of potable water that meets the requirements of paragraph 5.5. It shall be manufactured, handled, stored, and used in a sanitary manner. Bacteriological examinations of ice produced within a plant's facility and used in the processing (i.e., sausage) of product as an ingredient or comes in direct contact with the product, will be performed at a frequency determined by the MACOM Surgeon.

5.7 Disposal of wastes. Liquid wastes shall be conveyed to a public sewer system through inclosed piping or shall be disposed of in another sanitary sewage system approved by host country health authorities. Floor drains shall be functional and properly trapped. Drains for stomach contents shall not connect to regular drainage lines or to toilet lines. Dry and product waste shall be placed in suitable covered receptacles conveniently located throughout the plant premises. All waste shall be collected and disposed of at frequent intervals to prevent insect and rodent attraction and development of objectionable odors. All containers or equipment used to handle,

MIL-STD-1481E

transport, or hold inedible materials shall be clearly marked "inedible" and thoroughly cleaned as often as required to prevent insanitary or malodorous conditions (containers need not be marked in English, but must be color coded or clearly labeled in the local language).

5.7.1 Handling and control of inedible, condemned, and restricted products. Adequate facilities for handling inedible and condemned material shall be provided. Inedible products departments shall be separate and distinct from those used for edible products, except that a solid, self-closing door completely filling the opening is allowed between the inedible products departments and the slaughtering or viscera separating departments. If there are no rendering facilities, condemned material shall be held in properly labeled, water-tight, covered containers in a suitable inedible products room pending removal. No personnel from a renderer shall enter coolers or processing areas of the plant. Condemned materials shall be maintained under the direct positive controls of the inspector until acceptably denatured or rendered incapable of use as human food. Inedible materials shall be maintained under controls by the plant and inspector until denatured or decharacterized and not capable of use as human food or packaged and identified as food other than for humans. Restricted products (for example, cysticercosis carcasses and carcasses passed for cooking) shall be under direct or positive inspectional control until acceptably treated for use as human food. Controls must be maintained until condemned parts are incapable of spreading infection to other animals.

5.8 Toilet/dressing rooms and handwashing facilities. A sign directing employees to wash their hands before returning to work shall be conspicuously posted in all toilet rooms, break rooms and product handling areas. Handwashing signs shall be multilingual, as appropriate. Handwashing facilities with running water at tepid (approximately 105°F) temperature for handwashing, soap (liquid or powder), soap dispenser, sanitary single-service towels or hot air blower-type hand dryers, will be conveniently located in all toilet rooms and throughout processing and inspection areas. **NOTE: Warm air hand dryers shall not be the sole means of hand drying at employee lavatories.** Toilet rooms and fixtures, dressing rooms, and handwashing facilities will be maintained in a clean, orderly manner. There shall be a sanitary waste receptacle in each toilet room. Toilet/dressing rooms shall not be used for storage of cleaning equipment. Dressing rooms shall be separate from toilet rooms.

MIL-STD-1481E**5.9 Construction and repair of equipment and utensils.**

Equipment and utensils shall be designed, constructed, and used to preclude adulteration of food with toxic lubricants, fuel, metal fragments, contaminated water, or other contaminants. Lubricants used on contact surfaces of product handling and processing equipment shall be edible and nontoxic and shall be used sparingly in a manner that prevents contamination of food or food contact surfaces. The only lubricants authorized (within the stated limitations) are those listed in 21 CFR 178.3570. Many of these authorized lubricants are in the USDA publication, "List of Proprietary Substances and Nonfood Compounds Authorized for Use Under USDA Inspection and Grading Programs." The MACOM Surgeon may provide a list of other lubricants from 21 CFR 178.3570. Equipment and utensils shall be of such material and workmanship to be smooth, easily cleanable, and durable. The food contact surfaces of equipment and utensils shall, in addition, be easily accessible for cleaning, nontoxic, corrosion-resistant, and consist of nonabsorbent material. Food contact surfaces and solder shall not contain antimony, bismuth, brass, copper, cadmium, lead, zinc, and/or other toxic materials. Solder on food contact surfaces shall be hard solder. Equipment shall be located in a manner that provides adequate space for cleaning, maintenance, and inspection.

5.9.1 Cutting and boning boards and tables. Boards used on boning and cutting tables shall be either approved rubber or plastic acceptable to the military services, and shall be easily removable for cleaning. Cutting surfaces shall always be maintained in a sanitary condition. They shall be smooth, relatively impervious, without cracks and crevices, and free of objectionable odors. Cutting surfaces not meeting these criteria shall be rejected.

5.10 Cleaning and sanitizing treatment. Methods used for cleaning and sanitizing shall not contaminate nor adulterate the product. All products shall be moved sufficiently away or otherwise protected prior to the start of cleaning to avoid contamination or adulteration by splashing. All multiple-service containers, equipment, and utensils used in handling, processing, storing, or transporting of exposed product shall be disassembled, as appropriate, cleaned thoroughly, and sanitized after use. Chemicals used in cleaning and sanitizing treatments shall be properly labeled and stored. Cleaning and sanitizing chemicals shall be used as prescribed by the manufacturer's label directions. The only sanitizers authorized (within the stated limitations) are those in 21 CFR 178.1010. Many of these are in the USDA publication, "List of Proprietary Substances and Nonfood Compounds Authorized for Use Under USDA Inspection and Grading

MIL-STD-1481E

Programs." The MACOM Surgeon may provide a list of other sanitizers from 21 CFR 178.1010. When using chemical sanitizers, a test kit, other devices, or approved methods that adequately measure the correct concentration of the solution shall be available and used. If water is used as a surface sanitizer, it must be not less than 170°F (77°C) with at least 30 seconds contact time. All rooms and areas used to receive, inspect, process, or store components or the finished products shall be maintained in a clean, sanitary manner to preclude the possibility of microbiological, chemical, or physical contamination (i.e., dust, dirt, etc.). Cleanup personnel shall be trained in acceptable cleaning and sanitizing procedures. Cleaning procedures and schedules for equipment and the general product areas shall be available upon request by the inspector.

5.10.1 Disinfection Units (Sterilizers). Disinfection units (Sterilizers) shall be constructed of rust-resistant metal, and shall be of sufficient size for complete immersion of saws, knives, cleavers, and other tools in 170°F (77°C) water. They shall adjoin the lavatories in slaughter departments and be in processing rooms in convenient locations. As a minimum, disinfection units shall be at each point along the slaughter line where the carcass is cut or examined prior to the final postmortem determination that the animal is wholesome. Each disinfection unit shall be provided with a water or steam line, that enters the receptacle above the water level and provides a continuous flow into each unit during production. Units may be heated by electricity, steam or centrally heated water. Each unit will have an overflow, and a means for completely emptying the receptacle. Chemical sanitizers shall not be used in disinfection units during processing without the MACOM Surgeon's approval.

5.10.2 Automatic Splitting Saws. Automatic splitting saws must be automatically sanitized by 170°F (77°C) water sprayed on the blade after splitting each carcass. A means to monitor the sanitizing water temperature in the pipe is required.

5.11 Methods. Methods used in slaughtering and processing, handling, and storage of meat, meat-by-products, or meat food products shall be conducted IAW USDA/FDA requirements except deviations approved by the MACOM Surgeon. In any case, methods shall prevent contamination or adulteration. Slaughtering, dressing, and processing methods shall prevent the contamination of carcasses and edible viscera by the hair side of the hide, the contents of the gastrointestinal tract, by lactating udders, by transfer from another animal's carcass, viscera, or head by

MIL-STD-1481E

direct or indirect contact with disease animals, or by direct or indirect contact with contaminated articles, such as floors, boots, or insanitary clothing. A properly marked retained cage or other acceptable devices shall be present to secure retained product.

5.12 Public health controls. Antemortem and postmortem inspection shall be performed (a) by local governmental inspection services if such services are acceptable to the United States Military Services or (b) by US Army Veterinary Service personnel. The MACOM Commander will publish the approved methods and procedures for host country antemortem and postmortem inspections. Means shall be provided to assure adequate public health control of finished products. Means shall include physical, chemical, and microbiological examinations and tests necessary to establish that the product is not adulterated or contaminated. Records of examinations and/or tests shall be on file and made available to the military veterinary inspector. Head, viscera, carcass identity tags (gang tags), retained tags, and condemned tags shall be used (tags need not be in English, but must be color coded). Color codes for the tags must be furnished in writing to the military veterinary inspector.

5.13 Cooling and refrigeration. Cooler rooms shall be free from objectionable odors and from mold. They also shall be maintained in a sanitary condition. The coolers and freezers shall be capable of maintaining temperature and humidity necessary for the preservation of the foods being stored or processed. Sufficient refrigerated space should be provided to handle carcasses and product properly. A maximum temperature of 40°F (4°C) shall be maintained in such areas. Operations such as beef boning and trimming, bacon slicing, pork cutting, prepackaging meats, and sausage chopping and mixing shall be conducted in departments having a temperature not higher than 50°F (10°C). Such operations shall be located in rooms separate from carcass or product holding coolers. Frozen food storage facilities shall maintain a product temperature of 0°F (-18°C) or lower. Frozen food storage facilities shall be adequately maintained to insure circulation of refrigerated air and shall be defrosted as frequently as necessary to maintain refrigeration efficiency. Refrigerated rooms shall be equipped with a thermometer graduated in not more than 2°F (1°C) divisions and with an accuracy of + or - 2°F (+ or - 1°C) throughout the specified scale range (indicating a representative air temperature).

MIL-STD-1481E

5.14 Storing and storage facilities. Storing methods shall minimize deterioration and prevent contamination. Storage facilities shall be sanitary and in good repair. Shelves, cabinets, and dunnage or pallets shall be used where necessary to protect materials from contamination. Single-service articles and packaging materials shall be maintained in sanitary boxes, cartons, tubes, or otherwise protected and handled in a sanitary manner. All storage facilities, including walk-in coolers, must have at least 4 inches between pallets of items and the wall.

5.15 Control of insects, birds, rodents, and/or other animals. Insects, birds, rodents, and other animals shall be excluded from the plant. Effective measures for the control of insects, birds, rodents, and/or other animals shall always be maintained. The presence of any harborage, attractant and/or breeding area for insects, rodents, birds and/or other animals shall not be permitted. If harborage, attractant, and/or breeding areas are on bordering grounds not under the plant operator's control, care must be exercised in the plant by inspection, extermination, or other means to effect exclusion of pests, dirt, and other filth that may be a source of food contamination. Pesticides (insecticides and rodenticides), if used, shall be limited to those that appear in 40 CFR 185. Many such pesticides are in the USDA publication, "List of Proprietary Substances and Nonfood Compounds Authorized for Use Under USDA Inspection and Grading Programs." The MACOM Surgeon may recommend additional products from 40 CFR 185. These products shall be used as prescribed by label directions, and shall be handled and stored safely.

5.16 Vehicles and transportation facilities. Vehicles and transportation equipment shall be constructed and operated to protect contents from contamination and deterioration. They shall be clean and in good repair. Completely enclosed refrigerated vehicles are required for transporting perishable meat and meat products. The temperature of frozen meat and meat products shall not rise above 10⁰F (-12⁰C) during delivery. The temperature of fresh meat and meat products shall not rise above 40⁰F (7⁰C). All vehicles used to move subsistence items must be provided with pallets, duckboards, or built-in channels that will elevate the product sufficiently to protect the packaging. Vehicles used to transport food must not carry trash, garbage, petroleum products, or other materials that might contaminate subsistence supplies.

MIL-STD-1481E**5.17 Cleanliness and health of personnel.**

5.17.1 Cleanliness. All employees shall wash their hands before beginning work and upon returning to work after using toilet facilities, eating, smoking, or otherwise soiling their hands. They shall keep their hands clean and follow acceptable hygienic practices while on duty. Eating, drinking, expectorating, or use of tobacco in any form shall be prohibited in each room and compartment where any food products or supplies are prepared, stored, or otherwise handled. Except for plain wedding bands or emergency medical bracelets, employees shall not wear any jewelry or fingernail polish while working in the plant. All persons engaged in receiving, testing, processing, manufacturing, packaging, or handling food products shall wear clean, white, or light-colored washable or disposable outer garments that are suitable for the work performed. Hair nets, caps, beard nets, or other effective hair restraints to cover hair shall be worn to prevent contamination of food and food contact surfaces. Employees' personal effects shall not be in production areas. A locker or other suitable facility will be provided for each employee. Locker rooms and lunch rooms shall always be maintained in a clean, orderly fashion.

5.17.2 Health. No person afflicted with, or a carrier of, a communicable disease capable of transmission through or by food shall be permitted in any room or compartment where products are prepared, manufactured, or otherwise handled. No person who has a discharging or infected wound, sore, or lesion on hands, arms, or other exposed portion of the body shall work in any processing rooms or in any capacity resulting in contact with the processing or handling of products, containers, or equipment. Where health authorities require health certificates, they shall be kept on file at the plant office. Plant personnel shall receive appropriate training in proper food handling techniques, disease control, and food protection principles and will be cognizant of the danger of poor personal hygiene and insanitary practices.

MIL-STD-1481E

Custodians:

Army - GL
Navy - SA
Air Force - 50

Preparing activity:

Army - GL
Project No: 8905-1109

Review activities:

Army - MD
Navy - MS, SA
Air Force - 50

Copies of this standard for military use may be requisitioned on DD Form 1425 (Specification and Standard Requisition) and submitted to Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094. The title and identifying symbol should be stipulated when requesting copies of military standards.

MEAT PROCESSING PLANT SANITARY COMPLIANCE CHECKLIST (This checklist is an integral part of MIL-STD-1481E and its application is mandatory.)		1. DATE OF INSPECTION (YYMMDD)	
2. PLANT INSPECTED		b. ADDRESS	
a. NAME			
3. PLANT OWNER		b. TELEPHONE NUMBER	
a. NAME OF COMPANY OR INDIVIDUAL			
4. ACCOMPANYING INDIVIDUAL			
a. NAME		b. TITLE	
SANITATION DEFECTS (1)		ASSIGNED DEFECT POINTS (2)	INSPECTOR'S DEFECT POINTS (3)
5.1 PREMISES			
a. Not well drained		3	
b. Not free from nuisances and sources of contamination, to include approaches to receiving and shipping docks and dust control		5	
5.2 CONSTRUCTION OF BUILDING			
a. Not large enough to accommodate the operation without hampering sanitary practices		5	
b. Walls, floors, ceilings not in good repair / not constructed of materials easily kept clean and sanitary		5	
c. Wiring, pipes, hangers, ducts not constructed or appropriately enclosed to prevent contamination		5	
d. Exterior openings not in good repair or not equipped with screens to prevent the entrance of insects, birds, rodents and/or other animals		5	
e. Air curtains, if used, not in compliance with NSF Standard		3	
f. Screen doors not outward opening and/or not self-closing		3	
g. Processing area opens directly into living quarters, garages, maintenance shops, barns, or stables		4	
h. Facilities for storage of packing and packaging materials and finished products not provided and/or not sanitary or in good repair		5	
5.2.1 CONSTRUCTION OF TOILET / DRESSING ROOM AND HANDWASHING FACILITIES			
a. Sufficient number of toilets not provided		5	
b. Toilet rooms not conveniently located		4	
c. Toilet rooms constructed of materials that are not easily cleaned		4	
d. Toilet rooms not separately vented to the outside		4	
e. Toilet rooms open directly into processing area and/or doors not self-closing and tight-fitting		5	
5.2.2 LIVESTOCK PENS			
a. Livestock pens, ramps, unloading chutes, and runways construction prevents their maintenance in a sanitary manner		Critical	
b. Water troughs or devices not located over or adjacent to pen floor drains		3	
c. Suspect and squeeze pen not adequately constructed to conduct antemortem inspection		5	
d. Separate facilities not provided for suspect, sick, or injured animals		5	
e. Reasonable proportion of livestock pens, where the suspect pen and squeeze pens are located, not under a weathertight roof		4	
f. Cattle and sheep runways from the covered pens to the slaughter hall not under weathertight roof		4	
5.2.3 HOLDING AND SHACKLING PENS			
a. Holding and shackling pens not effectively located to prevent contamination of slaughtering areas		Critical	
5.2.4 SLAUGHTERING DEPARTMENT			
a. Adequate facilities for slaughtering and dressing not provided		Critical	
b. Adequate bleeding facilities not provided and no suitable suspension system exists to allow animals to be bled only while hanging when required		Critical	
c. Separate facilities for holding and inspecting suspected carcasses with viscera, head and hooves, not provided		Critical	
d. Adequate facilities for confining animals prior to stunning or shackling not provided		3	
e. Bleeding areas are not properly drained and curbed		5	
f. Adequate inspection stations not provided		5	
g. Adequate facilities for carcass and associated head and viscera inspection not provided		5	
h. Handwashing basins in slaughtering room not operated by some means other than the hands		4	
5.3 LIGHTING			
a. Insufficient lighting		4	
b. Lights in processing and storage areas not shielded or shatterproof when required		5	

MEAT PROCESSING PLANT SANITARY COMPLIANCE CHECKLIST		
SANITATION DEFECTS (1)	ASSIGNED DEFECT POINTS (2)	INSPECTOR'S DEFECT POINTS (3)
5.4 VENTILATION AND HUMIDITY		
a. Insufficient control of ventilation and air movement causing mold and condensates on walls, ceilings, or product	5	
b. Ventilation system not clean and in good repair	5	
c. Windows not of fixed-type when required	5	
5.5 WATER SUPPLY		
a. Cross-connection exists between potable and nonpotable water supply or sewage	Critical	
b. Potable water supply found to be nonpotable	Critical	
c. Potability certificate not current or available	5	
d. Not easily accessible	4	
e. Inadequate in quantity and/or temperature	5	
f. Mixing valves not available at all scullery sinks and hose connections	4	
g. Not adequate protection against possible back-siphonage	5	
5.5.1 NONPOTABLE WATER		
a. Nonpotable water outlets not identified by prominently displayed color code and labels	5	
b. Nonpotable water used for other than authorized purposes	5	
5.6 ICE		
a. Not made from potable water which meets requirements	Critical	
b. Not manufactured, handled, stored, or used in a sanitary manner	5	
5.7 DISPOSAL OF WASTES		
a. Condemned, inedible, and restricted products not maintained under positive inspectional control	Critical	
b. Liquid wastes not disposed of in a sanitary manner	5	
c. Floor drains not of proper diameter, functional, or properly trapped	3	
d. Waste not collected in suitable, properly covered containers and disposed of at frequent intervals and/or in a sanitary manner	4	
e. Adequate facilities and containers for handling inedible and condemned material not provided and/or containers not properly identified	5	
f. Inedible products departments not adequately separated from departments processing edible materials	5	
5.8 TOILET/DRESSING ROOMS AND HANDWASHING FACILITIES		
a. Handwashing sign, water at suitable temperature, soap, soap dispenser, or appropriate hand-drying facilities absent or not conveniently located	5	
b. Toilets / dressing rooms or handwashing facilities not maintained in a clean, orderly fashion	5	
c. Toilet rooms used for storage of cleaning equipment	3	
d. Shower/bath facilities not provided when required	3	
5.9 CONSTRUCTION AND REPAIR OF EQUIPMENT AND UTENSILS		
a. Design, construction, and use of such equipment and utensils does not preclude the adulteration of food	Critical	
b. Product-contact surfaces not of nontoxic material	Critical	
c. Product-contact surfaces not of impervious material, not smooth, nor of corrosion-resistant material	4	
d. Not clean or not in good repair	5	
e. Not constructed so that all product surfaces can be readily sanitized	5	
f. Equipment not easily accessible for cleaning, maintenance and inspection	5	
5.9.1 CUTTING AND BONING BOARDS AND TABLES		
a. Boards used on boning and cutting tables not of required materials	5	
b. Cutting surfaces not clean and sanitary	5	
5.10 CLEANING AND SANITIZING TREATMENT		
a. Cleaning or sanitizing methods do not prevent product contamination or adulteration	Critical	
b. All products not moved away or protected prior to equipment or area cleaning to avoid contamination or adulteration	Critical	
c. All multiservice containers, equipment, and utensils not cleaned and sanitized after use	Critical	
d. Unauthorized chemical compounds used for cleaning and sanitizing	Critical	
e. Cleaning and sanitizing chemicals not properly labeled or stored	5	
f. Test kit or other device not used when chemical sanitizers are utilized	5	
g. Water used as sanitizer less than 170° F (77°C)	5	
h. Rooms and areas not maintained in a clean, sanitary manner	5	
i. Adequate and conveniently located hose connections not available	4	

MEAT PROCESSING PLANT SANITARY COMPLIANCE CHECKLIST

SANITATION DEFECTS (1)	ASSIGNED DEFECT POINTS (2)	INSPECTOR'S DEFECT POINTS (3)
5.10.1 DISINFECTION UNITS (STERILIZERS)		
a. Not constructed of required materials and/or not of appropriate size	5	
b. Not located along slaughter line and in the processing room as required	5	
c. Not provided with continuous flow of water or steam	5	
d. Chemical sanitizers used without MACOM Surgeon's approval	5	
5.10.2 AUTOMATIC SPLITTING SAWS		
a. Not automatically sanitized as required	5	
b. Thermometer to monitor sanitizing water temperature not available	5	
5.11 METHODS		
a. Methods permit contamination / adulteration of product	Critical	
b. Dressing procedures do not prevent contamination of carcass or edible viscera	Critical	
c. A properly marked retained cage or other acceptable devices not available for securing product needing retention	Critical	
d. Methods permit deterioration of product	5	
5.12 PUBLIC HEALTH CONTROLS		
a. Local antemortem and postmortem inspection systems unacceptable (<i>this defect applicable when U.S. military veterinary personnel are unable to provide inspection or unable to provide adequate supervision</i>)	Critical	
b. Not inspected upon receipt and at other times as needed for determination of adulteration, contamination, or infestation	5	
c. When applicable, examinations not performed to assure adequate public health control of raw materials and finished products	5	
d. Records of examination and tests of raw materials and finished products not available	5	
e. Identity tags not color coded	3	
5.13 COOLING AND REFRIGERATION		
a. Processing temperature higher than 50°F (10°C)	Critical	
b. Cooler rooms not free from objectionable odors and from mold and/or not maintained in a sanitary condition	5	
c. Product not stored at proper temperature and humidity	5	
d. Thermometer not available as required	3	
5.14 STORING AND STORAGE FACILITIES		
a. Storing methods do not minimize deterioration or prevent contamination (<i>includes packaging, packing, and single-service articles</i>)	5	
b. Shelves, cabinets, or dunnage not used where necessary to prevent contamination or minimize deterioration	5	
c. Single-service articles and packaging materials not protected	4	
5.15 CONTROL OF INSECTS, BIRDS, RODENTS, AND/OR OTHER ANIMALS		
a. Presence of insects, birds, rodents, and/or other animals in production area	Critical	
b. Unauthorized insecticides or rodenticides used	Critical	
c. Insecticides or rodenticides not used in accordance with label directions	Critical	
d. Presence of insects, birds, rodents, and/or other animals in nonproduction area	5	
e. Effective measures for control of insects, birds, rodents, and/or other animals not maintained at all times	5	
f. Rodent harborage or insect breeding places present	5	
g. Insecticides or rodenticides are handled or stored in an unsafe manner	5	
5.16 VEHICLES AND TRANSPORTATION FACILITIES		
a. Not constructed or operated to protect contents from contamination or deterioration	Critical	
b. Not properly maintained or not clean	3	
5.17 CLEANLINESS AND HEALTH OF PERSONNEL		
5.17.1 CLEANLINESS		
a. Employees not washing hands after contamination	Critical	
b. Evidence of eating, smoking, chewing tobacco, or expectorating in product handling areas	5	
c. Fingernail polish and/or unauthorized jewelry worn by plant personnel	3	
d. Employees not wearing garments / hair restraints suitable for work being performed	5	
e. Storage of employee's personal effects in production rooms	3	
f. Lunchroom(s) not maintained in clean, orderly fashion	4	
g. Each employee not furnished a locker or other suitable facility	3	
h. Locker(s) not maintained in clean, orderly fashion	4	

MEAT PROCESSING PLANT SANITARY COMPLIANCE CHECKLIST

SANITATION DEFECTS (1)	ASSIGNED DEFECT POINTS (2)	INSPECTOR'S DEFECT POINTS (3)
5.17.2 HEALTH		
a. Employees affected with or a carrier of a communicable or infectious disease and/or employees having an infectious wound, sore, or lesion on hands, arms, or other exposed parts of the body not excluded from contacting ingredients, products, or food contact surfaces	Critical	
b. Prescribed medical examinations of personnel not being made and / or records of such not available	4	
c. Plant personnel not instructed in acceptable hygienic practices, disease control, and proper sanitary rules of food handling	5	
6. FORMULA $\text{SCR} = \frac{\text{Net Total of Column 2} - \text{Net Total of Column 3}}{\text{Net Total of Column 2}} \times 100$	TOTALS	408
	MINUS NONAPPLICABLE DEFECT POINTS	-
	NET TOTAL DEFECT POINTS	
7.a. SCR COMPUTATIONS	b. SCR ASSIGNED	c. NUMBER OF CRITICAL DEFECTS
8. OTHER REGULATORY AGENCIES CONCERNED WITH SANITATION OF THIS ESTABLISHMENT <i>(Record the agency, date, and results of last inspection.)</i>		

MEAT PROCESSING PLANT SANITARY COMPLIANCE CHECKLIST

9. METHODOLOGY SECTION *(Record narrative information describing the plant, premises, equipment, and procedures. Discussion of Hazard Analysis Critical Control Points and the diagram of the facility required in paragraph 4.2.3 must be included.)*

10. REMARKS / RECOMMENDATIONS *(Key discrepancies noted to the subparagraph numbers above.)*

11. INSPECTOR

a. TYPED NAME

b. TITLE

c. GRADE

d. SIGNATURE

e. DATE SIGNED (YYMMDD)

f. TELEPHONE NUMBER

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 MIL-STD-1481E	2. DOCUMENT DATE (YYMMDD) 1992 June 30
3. DOCUMENT TITLE SANITATION STANDARDS FOR MEAT PROCESSING PLANTS IN OVERSEAS AREAS		
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 U.S. Army Natick RD&E Center	b. TELEPHONE (Include Area Code) (1) Commercial 508-651-4501	(2) AUTOVON/DSN 256-4501
c. ADDRESS (Include Zip Code) Commander, U.S. Army Natick RD&E Center ATTN: STRNC-WTP Natick, MA 01760-5018	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	