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DETAIL SPECIFICATION

FUEL. NAVAL DISTILLATE

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

1. SCOPE

1.1 Scope. This specification covers one grade of Naval distillate fuel: NATO symbol F-76.

2. APPLICABLE DOCUMENTS

2.1 <u>General</u>. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 <u>Specifications, standards, and handbooks</u>. 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 cited in the solicitation or contract.

INTERNATIONAL STANDARDIZATION AGREEMENTS

NATO STANAG-1135 - Interchangeability of Fuels, Lubricants and Associated Products used by the Armed Forces of the North Atlantic Treaty Nations

NATO STANAG-1385 - Guide Specification (Minimum Quality Standards) for Naval Distillate Fuels (F-75 and F-76)

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-290 - Packaging and Marking of Petroleum and Related Products

(Copies of these documents are available online at https://assist.dla.mil/quicksearch/ or <a href="https://assist.dla.mil/quick

2.3 <u>Non-Government publications</u>. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASTM INTERNATIONAL

ASTM D86 - Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure

Comments, suggestions, or questions on this document should be addressed to: Commander, Naval Sea Systems Command, ATTN: SEA 05S, 1333 Isaac Hull Avenue, SE, Stop 5160, Washington Navy Yard, DC 20376-5160 or emailed to CommandStandards@navy.mil, with the subject line "Document Comment". Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.dla.mil.

AMSC N/A FSC 9140

ASTM D93	-	Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester
ASTM D97	-	Standard Test Method for Pour Point of Petroleum Products
ASTM D130	-	Standard Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test
ASTM D189	-	Standard Test Method for Conradson Carbon Residue of Petroleum Products
ASTM D287	-	Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)
ASTM D445	-	Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)
ASTM D482	-	Standard Test Method for Ash from Petroleum Products
ASTM D524	-	Standard Test Method for Ramsbottom Carbon Residue of Petroleum Products
ASTM D613	-	Standard Test Method for Cetane Number of Diesel Fuel Oil
ASTM D664	-	Standard Test Method for Acid Number of Petroleum Products by Potentiometric Titration
ASTM D974	-	Standard Test Method for Acid and Base Number by Color-Indicator Titration
ASTM D976	-	Standard Test Methods for Calculated Cetane Index of Distillate Fuels
ASTM D1141	-	Standard Practice for the Preparation of Substitute Ocean Water
ASTM D1266	-	Standard Test Method for Sulfur in Petroleum Products (Lamp Method)
ASTM D1298	=	Standard Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method
ASTM D1401	-	Standard Test Method for Water Separability of Petroleum Oils and Synthetic Fluids
ASTM D1500	-	Standard Test Method for ASTM Color of Petroleum Products (ASTM Color Scale)
ASTM D1552	-	Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method)
ASTM D2274	-	Standard Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)
ASTM D2500	-	Standard Test Method for Cloud Point of Petroleum Products
ASTM D2622	-	Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry
ASTM D2709	-	Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge
ASTM D2887	=	Standard Test Method for Boiling Range Distribution of Petroleum Fractions by Gas Chromatography
ASTM D3120	-	Standard Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry

ASTM D3605	-	Standard Test Method for Trace Metals in Gas Turbine Fuels by Atomic Absorption and Flame Emission Spectroscopy
ASTM D3828	-	Standard Test Methods for Flash Point by Small Scale Closed Cup Tester
ASTM D4052	-	Standard Test Method for Density, Relative Density and API Gravity of Liquids by Digital Density Meter
ASTM D4057	-	Standard Practice for Manual Sampling of Petroleum and Petroleum Products
ASTM D4176	-	Standard Test Method for Free Water and Particulate Contamination in Distillate Fuels (Visual Inspection Procedures)
ASTM D4177	-	Standard Practice for Automatic Sampling of Petroleum and Petroleum Products
ASTM D4294	-	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy- Dispersive X-ray Fluorescence Spectrometry
ASTM D4530	-	Standard Test Method for Determination of Carbon Residue (Micro Method)
ASTM D4808	-	Standard Test Methods for Hydrogen Content of Light Distillates, Middle Distillates, Gas Oils, and Residua by Low-Resolution Nuclear Magnetic Resonance Spectroscopy
ASTM D5291	-	Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants
ASTM D5304	-	Standard Test Method for Assessing Middle Distillate Fuel Storage Stability by Oxygen Overpressure
ASTM D5452	-	Standard Test Method for Particulate Contamination in Aviation Fuels by Laboratory Filtration
ASTM D5453	-	Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence
ASTM D5771	-	Standard Test Method for Cloud Point of Petroleum Products (Optical Detection Stepped Cooling Method)
ASTM D5772	-	Standard Test Method for Cloud Point of Petroleum Products (Linear Cooling Rate Method)
ASTM D5773	-	Standard Test Method for Cloud Point of Petroleum Products (Constant Cooling Rate Method)
ASTM D5949	-	Standard Test Method for Pour Point of Petroleum Products (Automatic Pressure Pulsing Method)
ASTM D5950	-	Standard Test Method for Pour Point of Petroleum Products (Automatic Tilt Method)
ASTM D5985	-	Standard Test Method for Pour Point of Petroleum Products (Rotational Method)
ASTM D6045	-	Standard Test Method for Color of Petroleum Products by the Automatic Tristimulus Method
ASTM D6079	-	Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFRR)
ASTM D6217	-	Standard Test Method for Particulate Contamination in Middle Distillate Fuels by Laboratory Filtration

ASTM D6450	-	Standard Test Method for Flash Point by Continuously Closed Cup (CCCFP) Tester
ASTM D6890	-	Standard Test Method for Determination of Ignition Delay and Derived Cetane Number (DCN) of Diesel Fuel Oils by Combustion in a Constant Volume Chamber
ASTM D7039	-	Standard Test Method for Sulfur in Gasoline and Diesel Fuel by Monochromatic Wavelength Dispersive X-ray Fluorescence Spectrometry
ASTM D7111	-	Standard Test Method for Determination of Trace Elements in Middle Distillate Fuels by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)
ASTM D7170	-	Standard Test Method for Determination of Derived Cetane Number (DCN) of Diesel Fuel Oils—Fixed Range Injection Period, Constant Volume Combustion Chamber Method
ASTM D7171	-	Standard Test Method for Hydrogen Content of Middle Distillate Petroleum Products by Low-Resolution Pulsed Nuclear Magnetic Resonance Spectroscopy
ASTM D7688	-	Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFFR) by Visual Observation
ASTM E29	-	Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

(Copies of these documents are available from ASTM International, 100 Barr Harbor Dr., P.O. Box C700, West Conshohocken, PA 19428-2959 or online at http://www.astm.org.)

BRITISH STANDARDS INSTITUTE

BS EN14078 - Liquid petroleum products. Determination of fatty acid methyl ester (FAME) content in middle distillates. Infrared spectrometry method.

(Copies of this document are available from the British Standards Institute, BSI Customer Services, 389 Chiswick High Road, London, W4 4AL, United Kingdom or online at http://shop.bsigroup.com/.)

INSTITUTE OF PETROLEUM (IP)

IP 579/10 - Determination of FAME Content in Middle Distillates – Infrared Spectrometry Method

(Copies of this document are available from the Energy Institute, 61 New Cavendish Street, London, W1G 7AR, United Kingdom or online at http://www.energyinstpubs.org.uk/.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, 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 General. Requirements contained herein are not subject to corrections for tolerance of standard test methods. If multiple determinations are made by the inspecting laboratory, average results will be used except for those standard test methods where repeatability data are given. In those cases, the average value derived from the individual results that agree within the repeatability limits given may be used at the discretion of the inspection authority, provided an indication is given of the total number of results obtained and the number falling outside of the repeatability limits. The flash point value is absolute and no value less than 60.0 °C is permissible. For purposes of determining conformance with these specifications, an observed value or a calculated value shall be rounded "to the nearest unit" in the last right-hand digit used in expressing the specification limit, in accordance with the rounding method of ASTM E29.

- 3.2 <u>Material</u>. The fuel supplied under this specification shall consist of refined hydrocarbon distillate fuel, containing no residual fuel. The fuel shall be derived from conventional sources including crude oil, natural gas liquid condensates, heavy oil, shale oil, and oil sands and may contain only those additives specified in 3.2.1 unless otherwise stated. The fuel shall not contain any intentionally blended fatty acid methyl esters (FAME) as specified in 3.2.2.
- 3.2.1 <u>Additives</u>. The additives listed herein may be used either singularly or in combination, provided the amounts do not exceed those specified herein. Information concerning the type and amount of each additive used shall be made available when requested by the procuring activity or user.
- 3.2.1.1 <u>Metal deactivator</u>. A metal deactivator, N, N-disalicyclidene-1, 2 propanediamine, may be blended into the fuel in an amount not to exceed 5.8 milligrams of active ingredient per liter of fuel (2.2 grams/100 U.S. gallons, or 2 lb/1,000 barrels).
 - 3.2.1.2 <u>Lubricity additives</u>. Lubricity additives are permitted in accordance with Note 15 of <u>table I</u>.
- 3.2.2 <u>FAME</u>. The recent mandatory and voluntary introduction of FAME (commonly known as biodiesel) has resulted in the potential for trace amounts of FAME in F-76 fuel. Fuel supplied under this specification shall not be blended with FAME. In the event of contamination with FAME, the fuel supplied under this specification shall not contain more than 0.1 volume percent FAME as determined by EN14078:2009 or IP 579/10.
- 3.3 <u>Physical and chemical requirements</u>. The Naval distillate fuel shall conform to the physical and chemical requirements specified in <u>table I</u>. Where more than one test method is allowed for a specific requirement, <u>table I</u> lists the referee test method first and follows it with the notation "(R)". For sulfur, <u>table II</u> shows the referee test methods for sulfur, the alternate sulfur test methods, and the range over which each test method applies.

TABLE I. Physical and chemical requirements.

PHYSICAL REQUIREMENTS				
Characteristic	Requirement	ASTM Test Method		
Appearance, at 25 °C or ambient, whichever is higher	Clear, bright, and free of visible particulates	D4176 ^{1/}		
Demulsification, at 25 °C, minutes (max)	10	D1401 ^{2/}		
Density, at 15 °C, kg/m³ (max)	876	D1298 (R), D4052, D287		
Distillation: 10% Point, °C 50% Point, °C 90% Point, °C (max) End Point, °C (max) Residue + Loss, % vol. (max)	Record Record 357 385 3.0	D86 (R) ^{3/} D2887 ^{4/}		
Cloud Point, °C (max)	-1	D2500 (R), D5771 ^{5/} , D5772 ^{5/} , D5773 ^{5/}		
Color, (max)	3	D1500 (R), D6045		
Flash Point, °C (min)	60.0	D93 (R) ⁶ / ₂ , D6450 ⁶ / ₂ , D3828 ⁶ / ₂		
Particulate Contamination, mg/liter (max)	10	D6217 (R), D5452 ^½		
Pour Point, °C (max)	-6	D97 (R), D5949, D5950, D5985 8/		
Viscosity, at 40 °C, mm ² /second	1.7 – 4.3	D445		
CHE	MICAL REQUIREMENTS			
Characteristic	Requirement	ASTM Test Method		
Acid Number, mg KOH/g (max)	0.30	D974 (R) ⁹ /, D664		
Ash, wt. % (max)	0.005	D482		
Carbon Residue on 10% bottoms, wt. %	0.20	D524 (R) 10/		
(max)	0.14	D189, D4530 10/		
Corrosion, at 100 °C (max)	No. 1	D130		
Hydrogen Content, wt. % (min)	12.5	D7171 (R), D4808, D5291		
Ignition Quality: Cetane Number, (min) Cetane Index, (min) Derived cetane number (min)	42 43 42	D613 (R) D976 D6890, D7170		
Storage Stability, total insolubles, mg/	3.0	D5304 (R) 11/		
100 ml (max)	1.5	D2274 ^{12/}		
Sulfur Content, wt. % (max)	0.1	D4294 (R) ¹³ / ₂ , D1266, D1552, D2622, D3120, D5453 (R) ¹⁴ / ₂ , D7039		
Trace Metals, ppm (max): Calcium Lead Sodium plus Potassium Vanadium	1.0 0.5 1.0 0.5	D7111 (R), D3605		
Lubricity, at 60 °C, micrometers (max)	460 ^{15/}	D6079, D7688		
Additive Names and Dosages	Record			

TABLE I. Physical and chemical requirements – Continued.

NOTES:

- If the sample has no visible particulates, but is otherwise not "clear and bright" (see 6.3.2) per ASTM D4176, Procedure 1, then the product shall meet the requirements of ASTM D2709, 0.05-percent volume of water and sediment, maximum. The fuel is acceptable for appearance if the water and sediment content is 0.05 percent volume or less. If the sample fails ASTM D4176, Procedure 1, because it contains visible sediment or particulate matter, but meets the requirements of 10 milligrams per liter, maximum, in accordance with ASTM D5452 or ASTM D6217, then the fuel is considered acceptable provided all other requirements are met.
- $^{2/}$ The demulsification test shall be conducted in accordance with ASTM D1401 with the following exceptions:
 - (a) Synthetic seawater in accordance with ASTM D1141 shall be the emulsifying fluid.
 - (b) The test temperature shall be 25 °C.
 - (c) The demulsification time shall be that required for separation into two layers with no visible cuff at the interface. A lacy emulsion or cuff which does not form a band shall be disregarded. The fuel/water/emulsion layer volumes shall be recorded at 1-minute intervals and the demulsification time reported to the nearest minute.
- As the end point of the distillation is approached, if either a thermometer reading of 385 °C or a decomposition point is observed, the heating shall be discontinued and the procedure resumed as directed in ASTM D86.
- ^{4/} Results from ASTM D2887 shall be reported as "Predicted D86" results by application of the correlation in Appendix X5 of ASTM D2887 to convert the values. ASTM D86 shall remain as the referee method. Distillation residue and loss limits provide control of the distillation process during the ASTM D86 test method and do not apply to ASTM D2887.
- ^{5/} If either ASTM D5771, ASTM D5772, or ASTM D5773 is used, the temperature recorded in each respective test shall be rounded to the next lower integer and reported as the ASTM D2500 equivalent cloud point in accordance with ASTM D5771, ASTM D5772, or ASTM D5773.
- $^{6/}$ The flash point value is absolute and no value less than 60.0 °C is permissible.
- If ASTM D5452 is utilized, a minimum of 1-litre sample will be used to meet the sample requirement of ASTM D6217.
- 8/ If either ASTM D5949, ASTM D5950, or ASTM D5985 is used, the results from these tests should be based on the observations at 3 °C temperature intervals and reported as the ASTM D97 equivalent.
- $^{9/}$ The sample size when using ASTM D974 shall be 20.0±2.0 grams.
- ¹⁰ If ASTM D189 or ASTM D4530 is performed in lieu of ASTM D524, the maximum allowable carbon residue shall be 0.14 mass percent.
- Only nylon membrane filter media (0.8 micrometer pore size) are acceptable as specified in ASTM D5304. Do not use glass fiber (Type A/E) filter media to obtain test results.
- 12/ This test is performed on the finished product. If ASTM D2274 is utilized, the test period shall be extended from 16 hours to 40 hours.
- $\frac{13}{}$ Referee method for a sulfur range of 0.0150 to 0.1 wt. %.
- $^{14/}$ Referee method for a sulfur range of 0.0001 to 0.0150 wt. %.
- $\frac{15}{}$ The lubricity requirement only applies to fuels containing <0.050 wt. % (500 ppm) sulfur. Lubricity additives may only be used with prior approval of additive and dosage by the procuring activity and user.

TABLE II. Sulfur.

ASTM Sulfur Test Method	Range, wt. %	
D1266 ¹ /	0.0005 to $0.1^{2/}$	
D1552 ½	$0.06 \text{ to } 0.1^{2/}$	
D2622 ^{1/}	0.0003 to $0.1^{\frac{2}{}}$	
D3120 ¹ /	0.0003 to 0.01	
D4294 (R) ^{3/}	0.0150 to $0.1^{2/}$	
D5453 (R) 4/	0.0001 to 0.1 ^{2/}	
D7039 ¹ /	0.0004 to 0.0017	

NOTES:

- 1/ Alternate test method.
- $^{2/}$ Test method upper range limit exceeds 0.1 wt. %, the maximum allowed in this specification (see <u>table I</u>).
- $\frac{3}{2}$ Referee method for sulfur levels of 0.0150 to 0.1 wt. %.
- $\frac{4}{2}$ Referee method for sulfur levels of 0.0001 to 0.0150 wt. %.

4. VERIFICATION

4.1 <u>Classification of inspections</u>. The inspection requirements specified herein are classified as conformance inspection (see 4.4).

4.2 Sampling.

- 4.2.1 <u>Sampling for bulk lots</u>. Bulk samples for tests shall be taken in accordance with ASTM D4057 for manual sampling and ASTM D4177 for automatic sampling (see 6.3.1).
- 4.2.2 <u>Sampling for examination of packaged lots</u>. A random sample of packaged containers shall be taken from each lot in accordance with table III. The sample shall be examined in accordance with 4.3 (see 6.3.3).

TABLE III. Sampling for examination of packaged lots.

Lot Size	Sample Size	
1-13	All	
14-150	13	
151-250	32	
251-500	50	
501-1,200	80	
1,201-3,200	125	
3,201-10,000	200	
10,001-35,000	315	
35,001 and over	500	

4.3 Examination of the packaged lot. Samples taken in accordance with 4.2.2 shall be examined for compliance with MIL-STD-290 with regard to fill, closure, sealing, leakage, packaging, packing, and marking requirements as specified in 5.1. Any container having one or more defects, or under the required fill volume, shall be rejected (see 6.6).

- 4.4 <u>Conformance inspection</u>. Each sample selected as specified in 4.2 shall be tested as specified in table I.
- 4.5 Ozone depleting substances (ODSs). In any of the test methods, the use of any ODS as outlined in EPA Class 1 and Class 2 Ozone Depleting Substances is prohibited. An appropriate non-ODS solvent shall be substituted.

5. PACKAGING

5.1 <u>Packaging</u>. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

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

- 6.1 <u>Intended use</u>. Naval distillate fuel is intended for use in all Naval shipboard boilers, gas turbines, and diesel engines operating at ambient temperatures above -1 °C (30 °F). Other uses may be specified according to the needs of the Department of Defense. Additives as specified in 3.2.1 are permitted. Gas turbines and diesel engines operating in ambient temperatures that fall consistently below -1 °C should utilize JP-5 fuel in accordance with MIL-DTL-5624.
 - 6.2 Acquisition requirements. Acquisition documents should specify the following:
 - a. Date of ordering and date of supply.
 - b. Title, number, and date of this specification.
 - c. If required, the specific issue of individual documents referenced (see 2.2.1).
 - d. Packaging requirements (see 4.3 and 5.1).
 - e. Ozone depleting substances are prohibited.
 - 6.3 Definitions.
- 6.3.1 <u>Bulk lot</u>. Bulk lot should be considered an indefinite quantity of a homogeneous mixture of material offered for acceptance in a single isolated container.
- 6.3.2 <u>Clear and bright</u>. The terms clear and bright are independent of the natural color of the fuel. Clear means the absence of any cloud, emulsion, or readily visible particulate matter or free water. Bright refers to the shiny appearance of clean, dry fuel.
- 6.3.3 <u>Packaged lot</u>. Packaged lot should be considered an indefinite number of 208-liter (55-gallon) drums or smaller unit containers of identical size and type, offered for acceptance, and filled with a homogeneous mixture of material from one isolated container; or filled with a homogeneous mixture of material manufactured in a single plant run (not exceeding 24 hours) through the same processing equipment, with no change in ingredient material.
- 6.4 <u>International standardization agreement implementation</u>. This specification implements NATO STANAG-1135, Interchangeability of Fuels, Lubricants and Associated Products Used by the Armed Forces of the North Atlantic Treaty Nations, and NATO STANAG-1385, Guide Specification for Naval Distillate Fuels (F-75 and F-76). When amendment, revision, or cancellation of this specification is proposed, the preparing activity must coordinate the action with the U.S. National Point of Contact for the international standardization agreement, as identified in the ASSIST database at https://assist.dla.mil.
- 6.5 <u>NAVSEA approval and direction</u>. Deviation from specified materials, procedures, and requirements, and selection of specific alternative materials and procedures require NAVSEA approval or direction. Requests should include supporting documentation.

6.6 <u>Recommended examination lot acceptance/rejection criteria</u>. If, as a result of the examination of the packaged lot, the number of defective or under-filled containers exceeds the reject limit number of <u>table IV</u>, the lot represented by the sample should be rejected.

TABLE IV. Lot acceptance/rejection criteria.

Lot Size	Sample Size	Reject Limit
1-13	All	Any
14-150	13	1
151-250	32	2
251-500	50	3
501-1,200	80	4
1,201-3,200	125	6
3,201-10,000	200	11
10,001-35,000	315	15
35,001 and over	500	22

NOTES:

- 1. All defective items should be replaced with acceptable items prior to lot acceptance.
- 2. Inspect sample size until reject criteria are reached.
- 3. Rejected lots may be screened and resubmitted for inspection and retest.

6.7 Subject term (key word) listing.

Boiler

Diesel engine

Diesel fuel

Gas turbine engine

Lubricity

Marine diesel

Marine gas oil

Metal deactivator

Refined hydrocarbon distillate fuel

6.8 <u>Changes from previous issue</u>. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians: Preparing Activity:

 $Army-CR4 \hspace{1cm} Navy-SH$

Navy – SH (Project 9140-2011-001)

Air Force – 68

Review Activities:

Navy - CG, MC, SA

DLA - GS, PS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.