

DATA ITEM DESCRIPTION

TITLE: Ammunition Demilitarization and Disposition Plan

Number: DI-SAFT-81640

Approval Date: 21 July 2003

AMSC Number: F7512

Limitation Time: None

DTIC Applicable: No

GIDEP Application: No

Preparing Activity: OO-ALC/WMCI

Applicable Forms:

Use/Relationship: The Ammunition Demilitarization and Disposition Plan is used to document planned demilitarization and disposition tasks, data, and requirements for new or modified ammunition items *IAW AMC-R 75-2/NAVSEAINST 8027.2/AFMCI 21-131*.

The Ammunition Demilitarization and Disposition Plan is developed for new or modified ammunition items.

This data item description contains the format, content, and intended use information for the data deliverable resulting from the work task described in solicitation.

Requirements:

1. Reference Documents: The applicable issue of any document cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions shall be as specified in the contract.
2. Format and Content: The Ammunition Demilitarization and Disposition Plan shall include the following:
 - a. Cover Page
 - b. Table of Contents
 - c. List of Tables
 - d. List of Figures
 - e. Purpose
 - (1) Objective
 - (2) Scope
 - (3) Limitations
 - f. Item Description
 - (1) Physical Description
 - (2) Functional Description
 - (3) Product Baseline Table
 - (4) Classification
 - (5) Hazard Classification for End Item
 - g. Safety Summary
 - (1) General
 - (2) Specific
 - (3) Energetic and Hazardous Materials Table

- h. Environmental Significance
 - (1) General
 - (2) Specific
 - aa. Recyclable Materials
 - bb. Waste Streams
 - i. Demilitarization/Disposition Alternatives
 - j. Demilitarization/Disposition Procedures
- (1) Disassembly
 - (2) Demilitarization
 - (3) Disposition
 - k. Demilitarization/Disposal Special Tools and Equipment
 - l. Validation Test
 - m. Reference Documents
 - n. Terms and Definitions as required
- a. COVER PAGE: Include ammunition item name, DoD Identification Code, Preparer, Distribution Statement, Revision/Change, and Date (demilitarization/disposition plan identification number is optional).
- b. TABLE OF CONTENTS: Self-explanatory.
- c. LIST OF TABLES: Self-explanatory.
- d. LIST OF FIGURES: Self-explanatory.
- e. PURPOSE:
 - (1) Objective: This plan identifies requirements necessary to accomplish safe and environmentally acceptable demilitarization/disposition of the item.
 - (2) Scope: Provide a brief overview of the preferred process(es) being used.
 - (3) Limitations: Identify areas not covered by the plan, e.g. transportation, incinerator operations, washout operations, etc. Also, demilitarization/disposition of subassemblies covered in other plans.
- f. ITEM DESCRIPTION:
 - (1) Physical Description: Provide a detailed description of the item configuration with attached illustration(s).
 - (2) Functional Description: Describe how the item functions when used as intended.
 - (3) Product Baseline Table: Develop a table (spreadsheet) similar to the example shown in Table 1. As a minimum, the table/spreadsheet should contain fields/columns for assembly levels, nomenclature, net explosive weight, unit weight, quantity, drawing/specification

numbers, and composition. This table/spreadsheet should essentially be the complete drawing package for the ammunition item excluding schematic drawings. Proprietary information should be included and as a minimum should identify basic constituents, if not exact formulae. Energetic and hazardous materials should be listed by name only (HNS, PBXN-5, Lithium, etc) and an Energetic and Hazardous Materials table as described below (under Safety Summary) should be referenced for specific compositions.

(4) Classification: Identify the source of classification for all classified items/components and provide minimum declassification requirements for each (or an interim).

(5) Hazard classification for the end item (either final or interim).

g. **SAFETY SUMMARY:** This section will summarize hazards that are unique to the item and precautions/procedures that must be employed during demilitarization/disposition operations.

(1) General: Provide an overview of the safety requirements for storage and handling of the item.

(2) Specific: Identify the safety requirements directly related to the demilitarization process being used.

(3) Energetic Hazardous Materials Table: Develop a table listing all of the energetic and hazardous materials in the munitions item including the chemical composition of each material and the resultant products of combustion. Information will be made available on existing PEP materials. See Table II.

(4) Propellants Compositions Table: Develop a table listing all of the propellants in the munitions item including the chemical composition, specification, and Net Explosive Weight (N.E.W.). See Table III.

h. **ENVIRONMENTAL SIGNIFICANCE:** This section will include an analysis describing the environmental significance of each demilitarization/disposition process.

(1) General: Provide a brief overview of the regulations applicable to the preferred demilitarization/disposition process.

(2) Specific: Identify the specific impact of all identified demilitarization/disposition processes. Identify the output products of all treatment neutralization processes. Identify the method used to determine the products (e.g. computer models bang box data, other empirical techniques, etc).

(a) Recyclable Materials: List all of the recyclable materials generated by the preferred demilitarization/disposition process.

(b) Waste Streams: Identify the waste streams produced by the preferred demilitarization/disposition process. This will include the combustion products from the energetic and hazardous materials table.

(3) Residual Analysis: Provide an analysis of residual material remaining in/on retrievable hardware items, such as, cartridge actuated devices, and JATO rocket motor cases after the item has functioned as intended.

- i. **DEMILITARIZATION/DISPOSITION ALTERNATIVES:** This section will list alternative methods of demilitarization/disposition of the item(s) addressed by the plan, identifying the preferred method. (NOTE: The government shall provide information on available technology and equipment capability to the developer.) The developer shall utilize this data in developing the demilitarization/disposition plan. Give a summary of the demilitarization options available for each item requiring demilitarization (e.g. incineration, mutilation of inert hardware by shedding or crushing, neutralization, hydrolysis, or plasma arc destruction.).

NOTE: Alternatives are not required if the demilitarization/disposition process is based on disassembly.

- j. **DEMILITARIZATION/DISPOSITION PROCEDURES:** This section will describe each alternative method in detail including step-by-step procedures, safety precautions, disassembly diagrams, declassification procedures, and components/piece part tables.

NOTE: Detailed operating procedures for equipment or processes covered by references are not required for the processes described here.

(1) Disassembly: Provide step-by-step procedures for disassembling the munitions item to the point necessary to gain access and/or remove the energetic and hazardous materials (e.g. fuze removal, pull apart, explosive washout/meltout, or water jet cutting).

(2) Demilitarization: This section will describe the processes used to remove or otherwise neutralize the military potential of a munitions *IAW DoD 4160.21-M-1*. Such neutralization is to be carried out in a safe, cost effective, practicable, environmentally responsible manner. Demilitarization is necessary step for military (items prior to their release) to a non-military setting.

(3) Disposition: List the available disposition options including treatment options for the demilitarized munitions item parts and residuals waste stream (e.g. incinerator ash to hazardous waste landfill, inert hardware for sale or recycling, explosives for reuse/alternate use). List the available treatment options for the waste stream generated by processes (e.g. hydrolysis of waste water from explosive washout or wet scrub of incinerator off gases).

- k. **DEMILITARIZATION/DISPOSITION SPECIAL TOOLS AND EQUIPMENT:** This section will describe special tools and equipment required to accomplish the procedures described.
- l. **VALIDATION TEST (WHEN REQUIRED):** This section will address the validation test. The validation plan will identify the quantity of items to be demilitarized, the tools and equipment required, the proposed location for the test, and any other pertinent information required to validate the planned demilitarization/disposition process. Satisfactory completion of the validation test shall be required prior to approval of the demilitarization/disposition plan.
- m. **REFERENCE DOCUMENTS:** List all technical references including any TM's, TO's, DMWR, DoD, and non-DoD regulations applicable to the preferred demilitarization process.
- n. **TERMS AND DEFINITIONS (AS REQUIRED):**

TABLE I. PRODUCT BASELINE TABLE.								
ASSEMBLY LEVEL	DESCRIPTION	U.W. (LBS)	N.E.W. (LBS)	QTY	DRAWING	SPECIFICATION	SDS	COMPOSITION
1.0	CARTRIDGE,.50 CALIBER, API MK 211 MOD O	0.2521	0.0394	1	6086059	WS 25470	40939	
1.01	CASE, CARTRIDGE,.50 CAL	0.1243		1	5502646			BRASS
1.02	PRIMER, PERCUSSION	0.0026	0.0004	1	645339-1	MIL-P-46610	855	FED CTG K-7
1.02.01	CUP, PRIMER	0.0000		1				BRASS
1.02.02	MIXTURE, PRIMER	0.0004	0.0004	1		FEDERAL CTG #315		TABLE II
1.02.03	DISC	0.0000		1				
1.02.04	ANVIL	0.0000		1				
1.03	LACQUER, CELLULOSE NITRATE, GREEN	AR		1		MIL-L-10287		
1.04	LACQUER, CELLULOSE NITRATE, ALUMINUM	AR		1		MIL-L-10287		
1.05	PROPELLANT (3 ALTERNATES)	0.0143	0.0143	1	6086059			TABLE III
1.06	COMPOUND, WATERPROOFING	AR		1		MIL-C-13783		
1.07	PROJECTILE .50 CAL API (MULTIPURPOSE)	0.0959	0.0052	1	6086061		40936	
1.07.01	CORE & CORE BODY ASSEMBLY	0.0550		1	6086065			TUNGSTEN CARBIDE
1.07.01.01	CORE BODY (PHOSPHATE COATED IAW MIL-C-49)	0.0240		1	6086067	AISI 12L14/12L13		TUNGSTEN CARBIDE
1.07.01.02	CORE	0.0310		1	6086066			TUNGSTEN CARBIDE
1.07.02	ZIRCONIUM	0.0013	0.0013	1	6068064		40937	ZIRCONIUM/HAFNIUM
1.07.03	COMPOSITION A-4	0.0020	0.0020	1		MIL-C-440	311	TABLE II
1.07.04	JACKET, PROJECTILE	0.0336		1	6086062	MIL-C-21768		COPPER ALLOY
1.07.05	INCENDIARY MIX #136	0.0019	0.0019	1	6086063	7548270	1772	TABLE II
1.07.06	LEAD SEAL	0.0022		1	6086068	MIL-L-13283	753	LEAD
1.08	UNIT LOAD, CTG,.50 CAL	4104.0000	453.8880	1		MIL-STD-1323-394		
1.08.01	PALLET, STEEL MK 3 MOD O	94.0000		1	564200			STEEL
1.08.02.01	BOX, WIRE BOUND	0.0000		1	7553347	PPP-B-585		WOOD
1.08.02.02.01	BOX, AMMUNITION	0.0000		1	7553296			STEEL
1.08.03	STRAPPING, STEEL	16.0000		1				STEEL
1.08.04	BASE, TOP & BOTTOM	29.0000		2				PLYWOOD
1.08.05	PROTECTOR, EDGE	0.0000		14				STEEL

Table I – Product Baseline Table

TABLE II. ENERGETIC AND HAZARDOUS MATERIEL TABLE.						
ITEM	COMPOSITION	DRAWING	SPECIFICATION	N.E.W. (GRAINS)	SDS	PRODUCTS OF COMBUSTION
PROJECTILE LOAD		6068064		36.2000		
	ZIRCONIUM			9.2000	40937	
COMPOSITION A-4	RDX/WAX		MIL-C-440	13.9000	311	
	RDX		MIL-R-398	13.4830	40425	
	WAX		MIL-W-20553	0.4170		
INCENDIARY MIX	#136	6086063	7548270	13.1000	1772	
	MAGNESIUM/ ALUMINUM 50/50	7548270	JAN-M-454 TY A	6.4190	8/15	
	POTASSIUM PERCHLORATE	7548270	MIL-P-217	6.4190	53	
	CALCIUM RESINATE	7548270	MIL-C-20470 TY I	0.2620	10059	
PRIMER	K-75		FEDERAL CTG #315	2.7000		
	LEAD STYPHNATE			1.0120	16	
	TETRACENE			0.1350	18	
	BARIUM NITRATE			0.8100	4	
	ANTIMONY SULFIDE			0.3375	17	
	PETN			0.3375	110183	

Table II – Energetic and Hazardous Material Table

TABLE III. PROPELLANT COMPOSITIONS.					
ITEM	COMPOSITION	DRAWING	SPECIFICATION	N.E.W. (GRAINS)	SDS
PROPELLANT #1	WC860	10534811	MIL-P-3984	100.0000	10101
	NITROCELLULOSE		MIL-N-244	73.0000	31
	DINITROTOLUENE		MIL-D-204	1.0000	439
	GRAPHITE		MIL-G-155	0.4000	10161
	POTASSIUM NITRATE		MIL-P-156	1.5000	38
	SODIUM SULFATE		MIL-S-50004	0.5000	10067
	CALCIUM CARBONATE		MIL-C-293	1.0000	10098
	NITROGLYCERIN		MIL-N-246	11.0000	30
	DIPHENYLAMINE		MIL-D-98	1.5000	408
	DIBUTYLPHTHALATE		MIL-D-218	10.0000	482
	TIN DIOXIDE		MIL-S-50005	0.1000	
PROPELLANT #2	RA-NC-167	6086060		100.0000	40938
	NITROCELLULOSE		MIL-N-244	94.8000	31
	DIBUTYLPHTHALATE		MIL-D-218	1.5000	482
	ETHYL CENTRALITE		MIL-E-255	1.5000	37
	DIPHENYLAMINE		MIL-D-98	1.0000	408
	POTASSIUM SULPHATE		MIL-P-217	1.0000	53
	GRAPHITE		MIL-G-155	0.2000	10161
PROPELLANT #3	IMR5010	10534796	MIL-P-3984	100.0000	10040
	NITROCELLULOSE		MIL-N-244	83.7500	31
	DIPHENYLAMINE		MIL-D-98	1.2500	408
	GRAPHITE		MIL-G-155	0.4000	10161
	DINITROTOLUENE		MIL-D-204	10.0000	439
	POTASSIUM SULFATE		MIL-P-193	1.0000	773

Table III – Propellant Compositions