DECONTAMINATION AND CERTIFICATION PLAN
BUILDING 612 COMPLEX

01518

SENECA ARMY DEPOT ACTIVITY (SEDA)
ROMULUS, NY 14541
1 MARCH 1999

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I. GENERAL:

The Building 612 complex consists of an Ammunition Maintenance and Disassembly facility (B612), boiler plant (B609), propellant collection magazine (B610), and flammable material storage (B611), and a service magazine (B608) adjacent to B610. Despite the designation, B608 was not used to store ammunition. B612 and B610 are "presumed to be contaminated" or 3X level of contamination (IOC PAM 385-1) with single and double base propellants and could POSSIBLY contain ammunition components (remote), porous and nonporous fillers/packing materials and/or dunnage (likely). B609, B611, and B608 are presumed "not contaminated" or 0 (zero)level of contamination.

The purpose of this plan is to describe the rationale, methods of decontamination, inspection criteria, and sampling and analyses employed by the decontamination and certification teams to render B612 and B610 safe for sale to the general public (5X level of contamination). This outcome is expected based on the design of the facilities, review of work records and SOP's, interviews with knowledgeable individuals, and efforts employed to support a reclassification. The ultimate decision rests with the Dept. of the Army, Chief of Engineers, DAEN-REM-C, (TB 700-4 Oct 1978).

II. DESCRIPTION:

The B612 was built in 1954 and became operational in 1955. It was designed IAW Army and DOD explosives safety standards, and is considered typical of Army ammunition maintenance and renovation facilities at storage depots. Construction is reinforced concrete slab on grade with integral footings at the perimeter and beneath interior concrete walls and barricades. Exterior walls are concrete masonry block and ceiling/roof is reinforced concrete plank with steel frame windows, doors and 16 copper roof ventilators. Walls, window and door frames and ceilings are painted; the floor has had a sealer applied.

It is equipped with a lightning protection and counterpoise ground system to which reinforcing steel, metal objects, and electrical grounds are bonded. All electrical conduit, switches, receptacles, lights, devices and junction boxes, located within the operational area are of dust tight (explosion proof) construction. There is a fire protection system consisting of overhead sprinklers as well as manual and UV activated deluges systems (all wet pipe systems) with flow sensing and manual alarm circuits.

The original pneumatic (vacuum) propellant removal system was removed and in the 1990's. Construction of a new stainless steel system was started but never finished or used to convey energetic material. This new system consists of approximately 100 ft of overhead piping that runs from the ceiling of B612, across the roof and road way, to the collection area magazine B610. Note: The old system was reportedly decontaminated to 5X by flashing and turned in to DLA.

There is also a pneumatic piping system for compressed air that runs the length of the building that was used to power APE, paint sprayers and hand tools.

There is a potable water system, office area, and rest rooms located in the administrative area at the North end of the building. This area is physically separated from the operational area by concrete walls (floor to ceiling) and steel doors. Electrical service and distribution panels, and the UV deluge control arming and control panel are located here also.

Two ammunition maintenance lines (A & B) are centered in the operational area, separated by a substantial dividing wall designed IAW DOD criteria. The individual bays (10) of each line are also similarly separated. Bay 7B is further divided by 3 steel partitions (8' x 5' x 2"thick).

There is a separate room (Bay B-9) on the West side of line B. This Bay contains a separate monolithic dividing wall with 45 degree side walls and a deluge system.

There are two electric motor driven conveyors which run the length of the lines from the unpack/repack areas at each end of the facility. Conveyor penetrations of the dividing walls are guarded by automatic (fusible link) fire doors on both sides of the opening.

There is a paint spray booth and drying oven serviced by an overhead hook conveyor in the last bay of Line B. The last bay of Line A has a metal exhaust hood only. Immediately adjacent to the administrative area
is a steam coil heat exchanger air handling system that provided comfort heating to the operating lines. The blower and control wiring is dust proof construction.

The North and South ends of the facility are provided with above grade loading docks, covered by roofs, but otherwise open to the weather.

B610 is a small (38' x 14')earthen covered reinforced concrete magazine, separated into two bays by a dividing wall and serviced by double steel doors for access to each bay. The original doors were replaced in the early 1990's with new steel doors. This magazine

served as the collection point for propellant conveyed by the pneumatic vacuum system from B612. Propellant was collected in 55 gal steel drums via a fabric shroud connected to the discharge piping. The magazine contains a deluge system.

III. OFFICE OF RECORD:

Facility drawings are maintained in the Engineering and Environmental Division, SEDA, Romulus, NY 14541 ATTN: SIOSE-IE. See Appendix A for site and floor plans.

Ammunition SOP's are maintained in the Conventional Ammunition Division, SEDA, Romulus, NY 14541 ATTN: SIOSE-MC. See Appendix B for a list of applicable SOP's.

IV. HISTORY:

B612 was utilized for the maintenance, renovation, conversion, disassembly, marking, and inspection of conventional ammunition items such as projectiles, cartridges, rockets, mines, bombs, and propelling charges. Typical operations included adding or replacing propellant increments or loads, replacing bursting, boosting, or expelling charges, and disassembly of items and their components for further demilitarization or storage. Other minor maintenance, repackaging, marking, and inspections were also performed.

In the conduct of normal operations, propellants and propelling charges would be open and exposed within the operational bays, however, there was no open exposure of high explosives or initiators. Components such as warheads, bursters, primers, rocket motors were transferred after disassembly to storage, open burning/open detonation (OB/OD) grounds, or to the APE 1236 Deactivation Furnace as directed or appropriate.

During the 1970's, 90MM and 105MM projectiles were reportedly inspected and cleaned for "TNT in the fuse well threads", however, none was reportedly found during the operations. There are no SOP's available for these operations to review.

SOP NO., SE-D505-B-017, PROJ., 155MM, ILLUMINATING M485A2, 01/17/90 involved replacing black powder expelling charges due to the possibility of leaking, ruptured, or damaged cups, however, none were reportedly found.

Other SOP's in Appendix B were reviewed for the possibility of exposed explosives or initiators in operations. None were found. Interviews were conducted with retired and current B612 supervisors, and employees who worked in the facility (including one certified

explosives operator with over 30 years experience at SEDA). There is no recollection of any operation involving exposed high explosives other than noted above.

V. PRESUMPTIONS:

A remote possibility exists that a high explosive or initiating component was not properly accounted for and remains in the facility. This can be determined by visual inspection and will be addressed in the decontamination plan to bring the facility to 5X (XXXXX).

A significant possibility exists that propellant grains, residues, or increments, and porous and non porous materials that may have contacted same, remains in the facility. While this alone is not sufficient to be deemed an explosives safety hazard, B612 and B610 are PRESUMED CONTAMINATED with propellant and will be decontaminated to 5X (XXXXX).

It is highly improbable that exposed high explosives or residues remain on or in non porous materials and equipment. Therefor, the operational area is "PRESUMED NOT CONTAMINATED" with explosives.

There are no porous materials known to be in the facility operational area, however, they may be encountered during decontamination and inspection. A case by case determination of explosives contamination, for any porous material encountered, will be made depending on the nature of the item found.

VI. STATUS OF DECONTAMINATION:

B612 and B610 are currently considered 3X (XXX) for propellant residues and possible unaccounted ammunition items or components. The building is safe for its intended purpose as an ammunition maintenance facility.

SEDA is a BRAC installation scheduled to close in July 2001. All Ammunition items currently stored are being shipped to other IOC installations and are scheduled to be removed by July 1999. As part of the Installation Reuse Plan, a maximum security prison is planned for construction by the New York State Department of Corrections. The 720 acre site includes the B612 complex. The NY State Office of General Services has requested to utilize B612 for its administration offices during and after construction. A certification of decontamination to 5X (XXXXX) is necessary for transfer to the public and to declare the facilities safe for renovation and reuse.

Implementation of the decontamination plan contained herein, will bring the buildings to 5X (XXXXX) condition and they will pose no explosives safety hazard. This plan and certification will be

forwarded, through the Commanding General, Industrial Operations Command, for concurrence, to the US Army Chief of Engineers, for approval, IAW TB 700-4 October 1978.

VII. LIST OF KNOWLEDGEABLE PERSONNEL:

The decontamination and certification team consists of the following individuals. A brief description of their positions, experience, and qualifications is included.

Mr. Thomas C. Battaglia, CENAN-CO-W, (607) 869-1353, US Army Corps of Engineers, NY District, Construction Division, SEDA Project Engineer.

In addition to his current position, Mr. Battaglia was the Safety and Occupational Health Manager at Seneca Army Depot from 1984 to 1988 and responsible for the explosives safety, radiological, and industrial safety programs. He also served as the Senior Safety Engineer, HQ Depot Systems Command from 1989 to 1991 and was responsible for technical engineering reviews of plans and submittals.

Ms. Linda L. Knowles, SIOSE-MA, (607) 869-1252, US Army Seneca Army Depot Activity, Chief, Ammunition Surveillance/Inventory/Safety Division.

In addition to her current position, Ms. Knowles has four years of administrative experience in ammunition, six years of operations experience in ammunition transportation and maintenance, and seventeen years experience in ammunition Quality Assurance (QASAS) at four locations. She is graduate of the US Army Defense Ammunition Center and School (USADACS) career program, with over fourteen months of training.

Mr. Stephen M. Absolom, SIOSE-IE, (607) 869-1309, US Army Seneca Army Depot Activity, Chief, Engineering and Environmental Division.

In addition to his current position, Mr. Absolom was the Director of Public Works at SEAD from 1992 to 1995, managing the operations/maintenance, logistics, fire protection, housing, and engineering divisions. From 1982 to 1992 he was the C, Engineering and Environmental Div and Accountable Real Property Officer. He was responsible for construction, maintenance and repair of facilities and installation environmental compliance programs.

Mr. John F. Cleary, SIOSE-BTC, (607) 869-1235, US Army Seneca Army Depot Activity, DOD Base Transition Coordinator.

In addition to his current position, Mr. Cleary was an SW Assembler and Repairer from 1977 to 1993. He also served as the C, Alpha Monitoring Team from 1985-1993 and was responsible for the supervision of survey, monitoring and decontamination personnel responding to radiological accidents. He is a certified Radiation Protection Officer and graduate of the US Army Chemical school

Mr. John P. Hennessy, SEDA LRA, (607) 869-1356, Seneca County Industrial Development Authority, Property Disposition Coordinator.

In addition to his current position, Mr. Hennessy was a certified explosives operator from 1980 to 1985 at Seneca Army Depot. From 1985 to 1998, he was the Ammunition Maintenance Supervisor at SEAD and responsible for preparation and review of SOP's, transportation and maintenance operations involving ammunition, and decontamination of APE to 3X and 5X levels. He completed all required USADACS sponsored training commensurate with these positions in 1982.

Phillip S. Wilkie, SIOSE-MC, (607) 869-1257, US Army Seneca Army Depot Activity, Chief, Conventional Ammunition Division.

In addition to his current position, Mr. Wilkie has twenty six years experience in ammunition operations as an operator and supervisor. He was the Explosives Operator Foreman from 1987 to 1993. He has completed a total of seven months training at USADACS.

Mr. Steven C. Scott, SIOSE-MA, Seneca Army Depot Activity, QASAS, Inspector.

In addition to his current position, Mr. Scott has four years of military service and thirteen years in ammunition surveillance at three locations. He is a graduate of the USADACS career program, with fifteen months of training.

Mr. Ben Alongi, SIOSE-MC, Seneca Army Depot Activity, Ammo Operations Worker.

In addition to military service and other positions held, Mr. Alongi has been a certified Ammunition operator for ten years.

Mr. Bruce Cooley, SIOSE-MC, Seneca Army Depot Activity, Ammo Operations Worker.

In addition to military service and other positions held, Mr. Cooley has been a certified Ammunition operator for fifteen years.

VIII. SPECIAL INSTRUCTIONS:

The safety of personnel will be paramount during all decontamination, inspection, sampling, and certification activities.

In addition to the general safety precautions described in the SOP's referenced, the on site supervisor (Chief, Conventional Ammunition Div.) will conduct a daily morning safety meeting with the operating personnel. Topics will include the daily task plan, protective equipment, special requirements for non-routine tasks, and any problems encountered during the previous day's effort. Operating personnel will be encouraged to ask questions and/or propose safe and effective alternative methods based on the experience they are gaining.

Steam cleaning of the conveyors and non porous surfaces will be conducted IAW SOP NO. SE-0000-M-027, DECONTAMINATION OF APE TO LEVEL XXX, 01/12/96,(Appendix C), and as described or amended by the decontamination plan that follows.

There is a remote possibility that ammunition items or components may be discovered during the work. Operating personnel will be instructed to not touch or otherwise disturb actual or suspect objects. They shall immediately move to the administrative area and call for supervisory and QASAS assistance. Based on further investigations, the Project Engineer and the C, Ammunition Surveillance/Safety Div. will determine if the object can be safely moved, removed, or otherwise disposed of. Disposal of items, components, or objects will be conducted IAW SOP NO. SE-0000-H-005, DEMILITARIZATION OF EXPLOSIVE AMMUNITION AND EXPLOSIVES CONTAMINATED MATERIAL, 10/14/86, &C1 01/17/96, (Appendix D).

If an explosive item of unknown condition or deemed to be dangerous is found, Army EOD assets will be summoned for assistance. Work will not continue until the item has been removed and the area declared safe.
Further, an occurrence of this type will necessitate a reevaluation of the decontamination plan and the feasibility of continuance.

IX. DECONTAMINATION METHODS

It is noted that the SEDA Radiological Assistance Team has been sampling (and marking) walls, floors, ceilings, and equipment in B612 for evidence of radioactive contamination (NONE FOUND) and has not reported any concerns or encountered suspect items. All of the team members are knowledgeable and several are certified ammunition operators.

PHASE 1.

The initial step will consist of a visual inspection of each bay or building. Flash lights, work, and task lights, will be utilized to augment the area and natural lighting in the building(s).

In B612, special attention will be given to the conveyors, drive motors, ancillary equipment that remains, the roof ventilators, the cavity formed by the fire door openings in the dividing walls, and the cracks between the walls and floors in Bay 1B.

During this INITIAL inspection, the site supervisor will be present and ALL objects found (larger than 1/2 inch in any dimension) will be reported as described in Section VIII. Disposition instructions will be given or the location will be noted in detail and left undisturbed pending further review and action.

Porous material will be collected and destroyed in the open burn tray at the SEDA OB/OD area. Nonporous materials will be disposed of as solid waste IAW applicable State and Federal regulations

Based on the results of the initial visual inspection, a decision will be made concerning the necessity of physically removing the conveyors and/or fire doors prior to Phase 2.

PHASE 2.

All surfaces will be vacuumed using "shop vac" type equipment with 1-2" inches of water maintained in the collection tub. The waste collected will be destroyed in the open burn tray at the SEDA OB/OD area.

The roof ventilators and other selected surfaces will be sampled for laboratory analysis and/or tested with Webster's reagent or similar indicating chemicals. This will determine the necessity of additional cleaning of these structures. It will also be used to verify that apparently nonporous surfaces are, in fact, free of propellant residues.

PHASE 3.

Phases 1 and 2 are assumed to be sufficient to remove any possible residual propellant, porous materials, and inert debris. However, as an additional precaution the following step will be taken.

All surfaces will be steam cleaned or scrubbed with hot water. Waste water will be collected, sampled, analyzed, and disposed of IAW applicable State and Federal regulations.

PHASE 4.

If the conveyors or fire doors were removed during Phase 1, they will be steam cleaned, marked 5X (XXXXX), removed from the building, and turned in as scrap.

Otherwise, Phase 4 will consist of a final visual inspection by the Team Leaders and concurrence on the approval for the certification.

Phases 1-4 will be completed for all buildings and contents listed as "Presumed Contaminated" in Section I.

X. CERTIFICATION OF DECONTAMINATION:

The following individuals certify that the procedures described above have been completed and the B612 complex contains no significant amount of contaminants that would present an explosives safety hazard. The facilities are considered safe for modification/renovation including heat producing activities such as welding, drilling, sawing etc. Requirements of TB 700-4, DECONTAMINATION OF FACILITIES AND EQUIPMENT, Oct 1978, and IOCP 385-1, CLASSIFICATION AND REMEDIATION OF EXPLOSIVE CONTAMINATION, 16 Jul 1997, have been met. The B612 complex is safe for sale/transfer to the general public.

RECOMMEND APPROVAL:

Thomas C. Battaglia
Project Engineer

Linda K. Knowles
C, Ammo Survl/Safety

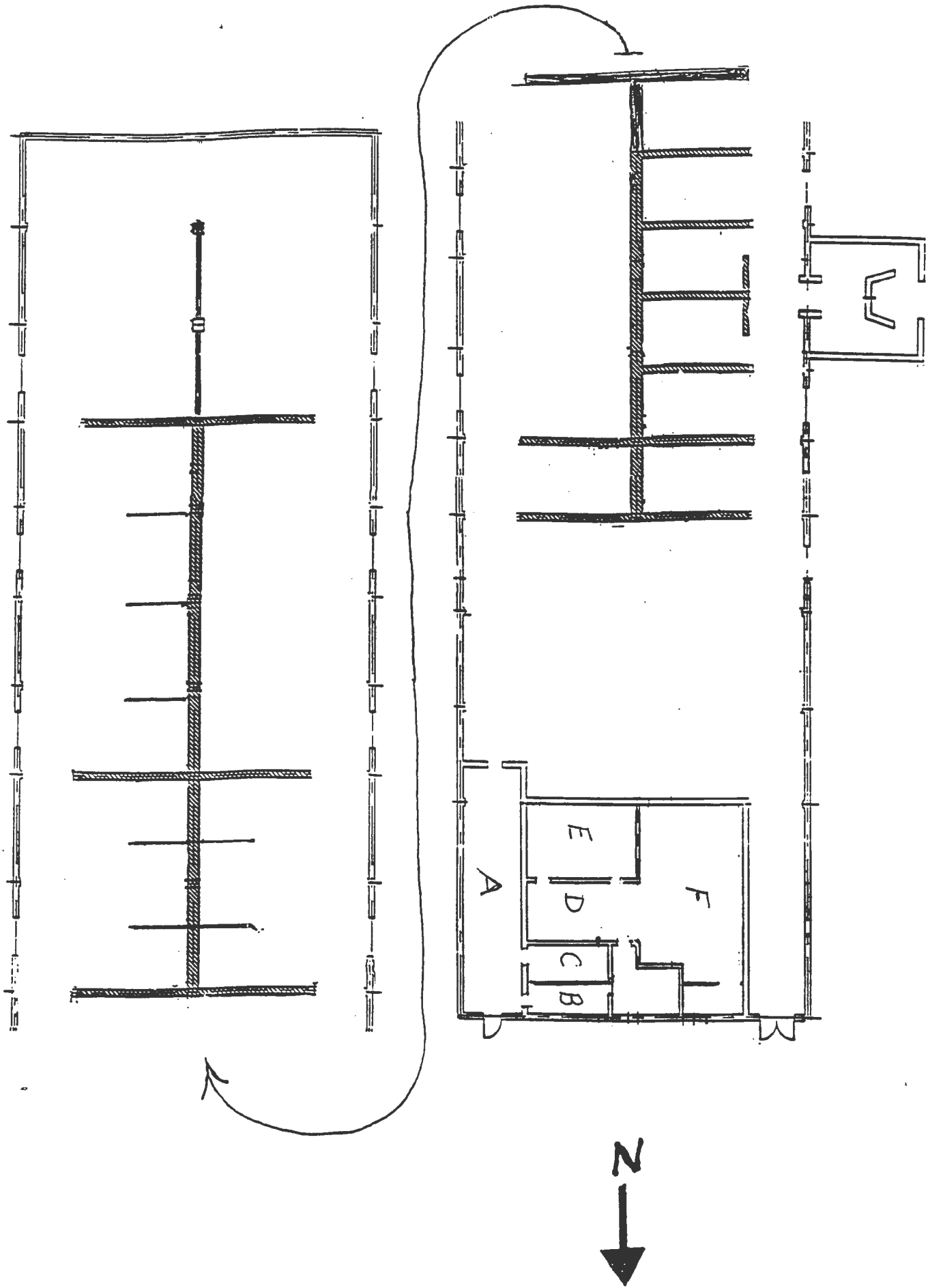
Stephen M. Absolom
C, Engineering and Environmental Coord.

John F. Cleary
DOD Base Transition

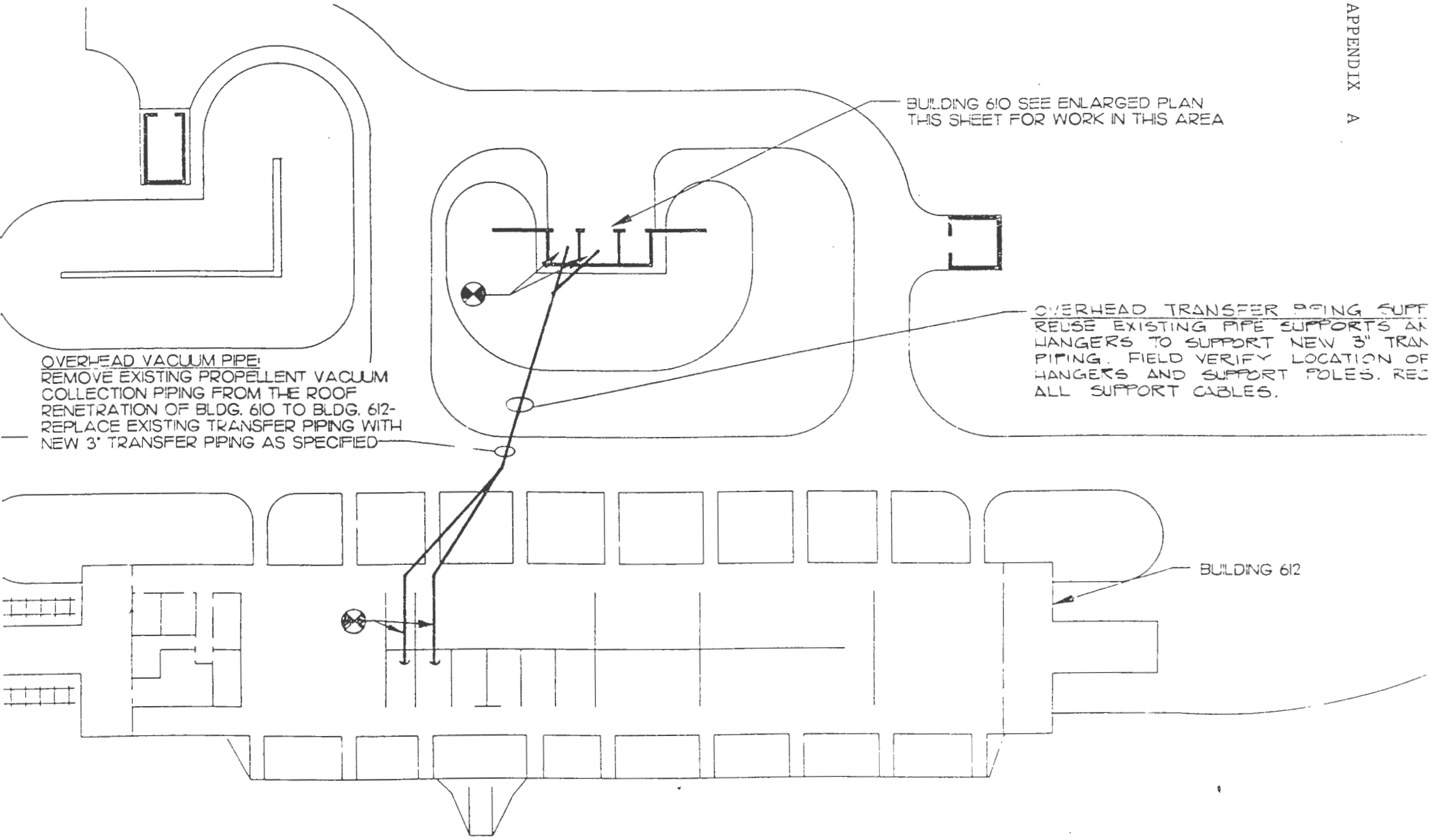
Concur/Non-concur

Donald C. Olson
LTC, OD
Commanding

APPENDIX A



BUILDING 612



SITE PLAN

1" = 1'-0"

APPENDIX B

SOP NO	ITEM	OPERATION	BASIC	REVISION	CHANGE
SE-0000-L-001	ALL AMMO, EXPLOS, &/OR COMPS VIA RAIL, MTR VEHICLE	REC/STORE/ISSUE	09/29/86	3-03/22/95	2-05/13/96
SE-0000-L-002	ALL AMMO, EXPLOS, &/OR COMPS	SHIP & REC	10/08/86	2-09/22/94	0- / /
SE-0000-M-003	RETURN MATERIAL	REC/INSP	10/21/86	3-05/04/95	0- / /
SE-0000-G-004	DEMOLITION OF EXPLO, AMMO LOADED COMPS & PYROS	DEMIL	10/21/86	4-09/12/94	2-10/16/95
SE-0000-H-005	EXPLO AMMO AND EXPLO CONTAMINATED MAT	DEMIL	10/14/86	4-01/13/95	1-01/17/96
SE-B104-D-007	CTG., 30MM, HEI, PERCUSSION-PRIMED	CONVERSION	03/12/90	0- / /	0- / /
SE-A071-E-010	CTG., 5.56MM BALL, M193 10/CLIP	INSPECTION	12/10/90	0- / /	0- / /
SE-0000-J-015	APE 1028, SYSTEM VACUUM COLLECTION	DISASSEM & REMO	07/19/91	0- / /	0- / /
SE-H600-J-016	ROCKET, HE, 3.5 INCH M28A2	DISASSEM DEMIL	09/30/91	0- / /	1-10/17/91
SE-D505-B-017	PROJ., 155MM, ILLUMINATING M485A2	MAINTENANCE	01/17/90	0- / /	0- / /
SE-K092-B-018	MINE, AP M16 & M16A1 W/ FUZE MINE COMB M605	RENOVATION	12/04/89	0- / /	0- / /
SE-D680-E-018	PROJ., 8" HE	INSPECTION	08/05/92	0- / /	0- / /
SE-A066-E-019	CTG 5.56MM BALL, M193 20/CARTON	REMARKING	07/23/92	0- / /	0- / /
SE-A131-E-020	CTG. 7.62MM BALL M80 TRACER M62 LINKED	INSPECTION	05/19/89	0- / /	0- / /
SE-D541-E-020	CHG., PROP 155MM	INSPECTION	08/04/92	0- / /	0- / /
SE-C462-E-021	CTG., 105MM HE, M444	MINOR MAINT	12/18/92	0- / /	0- / /
SE-C462-B-023	CTG., 105MM HE, M444	RENOVATION	05/20/93	0- / /	0- / /
SE-B000-E-024	CTG., 30MM VARIOUS	MINOR MAINT	04/12/94	0- / /	1-06/01/94
SE-H104-E-025	1340-H104 (MLRS) ROCKET POD, 29MM, M25	MINOR MAINT	03/08/95	0- / /	0- / /
SE-0000-R-301	AMMO STORAGE SITES, STRUCTURES & CONTENTS	SURVL INSP	08/08/69	7-06/01/95	0- / /
SE-0000-T-303	LIGHTNING PROTECTION SYSTEM	INSP AND TEST	02/21/79	4-11/14/88	1-06/01/89
SE-0000-R-305	SMALL ARMS AMMO THRU 30MM, INCLUDING DU	SURVL INSP	06/07/75	7-07/31/96	0- / /
SE-0000-R-306	BOMB AND BOMB COMPONENTS	SURVL INSP	07/16/75	7-07/11/96	0- / /
SE-L000-R-307	PYROTECHNICS	SURVL INSP	03/29/76	6-05/23/95	0- / /
SE-0000-R-308	PROP CHGS	SURVL INSP	04/09/76	6-02/06/95	0- / /
SE-0000-R-309	SELECTION OF SURVL SAMPLES OF AMMO & RELATED COMPS	SAMPLE SELECT	01/16/84	5-05/26/95	0- / /
SE-0000-R-313	BASIC/OPERATION/TRAINING LOAD AMMO	SURVL INSP	01/01/79	5-03/16/89	0- / /
SE-0000-R-314	ROCKETS AND ROCKET COMPONENTS	INSP & TEST	10/22/75	6-08/09/96	0- / /
SE-0000-T-315	VEHICLES & SHIPMENTS OF AMMO & EXPLOSIVES	SURVL INSP	11/01/76	6-05/01/95	0- / /
SE-M000-R-316	DEMOLITION & INCENDIARY MATERIALS	SURVL INSP	04/23/76	6-04/23/93	0- / /
SE-K000-R-317	MILITARY CHEMICAL AGENTS AND COMPONENTS	SURV INSPECTION	03/08/76	7-09/11/96	0- / /
SE-0000-R-319	LANCE MISSILE & COMP.	SURVL INSP	07/28/76	3-07/11/89	0- / /
SE-G000-R-321	GRENADES & COMPS FSC 1330	SURVL INSP	12/06/79	6-08/21/95	0- / /
SE-K000-R-322	MINES, AP, AT, PRACTICE & COMPS	SURVL INSP	11/11/75	6-06/13/96	0- / /
SE-N000-R-323	ARTILLERY FUZES	SURVL INSP	06/17/95	6-01/02/96	0- / /
SE-0000-T-325	AMMO AREA OPERATIONS	SURVEILLANCE	03/23/84	3-06/01/95	0- / /
SE-0000-T-328	GROUNDING SYSTEMS	INSPECTION,TEST	02/22/89	0- / /	0- / /
SE-M000-R-329	CTG AND PROP ACTUATED DEVICES	SURVL INSP	06/07/90	2-06/29/95	0- / /
SE-N000-R-330	PRIMERS	SURVL INSP	11/17/89	3-05/01/96	0- / /
SE-0000-R-331	MORTAR AMMO AND COMPS	SURVL INSP	10/22/90	2-04/19/95	0- / /
SE-0000-R-332	SEMI-FIXED AMMO & COMPS	SURVL INSP	02/11/91	3-03/22/96	0- / /
SE-D000-R-333	SEPARATE LOADING (& SEPARATED) ARTILLERY PROJS	SURVL INSP	12/20/90	2-05/26/95	0- / /
SE-0000-R-334	FIXED AMMO AND COMPS	SURVL INSP	10/22/90	2-12/12/95	0- / /
SE-0000-R-340	ARMY ATACMS	SURVL INSP	09/05/91	1-05/03/96	0- / /

APPENDIX C

12 JAN 1996

1. SENECA ARMY DEPOT ACTIVITY

STANDING OPERATING PROCEDURE FOR:

2. ITEM: a. Ammunition Peculiar Equipment

3. OPERATION: Decontamination of APE to Level XXX

4. EST DAILY PRODUCTION RATE: N/A

5. ORGANIZATION SYMBOL: SIOSE-MO

6. SOP NO. SE-0000-M-027 DATE

a. Rev No. DATE

b. Chg No. DATE

7. AUTHORITY: DOD 5160.65-M

8. PREPARED BY: CARSON LANKFORD DATE DEC 18, 1995 TITLE Industrial Specialist DSN 489-5441

9. REVIEWED BY: JOHN HENNESSEY DATE 18 DEC 95 TITLE Chief, Conventional Ammunition Division

10. SUBMITTED BY: GERALD R. MAINE DATE 18 Dec 95 TITLE Chief, Operations Division

11. CONCURRENCES:

OFFICE	SIGNATURE/DATE	TITLE
Mission Operations	BRUCE W. JOHNSON	Director
Ammunition Surveillance	LINDA L. KNOWLES 9 Jan 95	Division Chief
Facilities Engineers	STEPHEN M. ABSOLOM 22 Jan 95	Environ Prot Officer
Safety Office	THOMAS J. STI*CIC	Safety Manager

12. APPROVAL STEPHEN W. BROOKS LTC, CM Commanding — 12 JAN '96 DATE

13. BIENNIAL REVIEW:

DATE	SIGNATURE	TITLE
		C, Conventional Ammo Div
		C, Ammo Surveillance Div
		C, Mission Operations Div
		Environ Prot Officer
		Safety Manager
		Commander

14. ANNUAL SAFETY OFFICE REVIEW:

DATE	SIGNATURE	TITLE

SUPERVISOR'S STATEMENT

SOP NO. SE-0000-M-027 REV NO. _____ CHG NO. _____ DATE [illegible]

1. The supervisor will sign this statement:

   a. When first assigned as supervisor of the operation.

   b. When an approved change is made to the SOP.

   c. At least once per quarter during continuing operations.

   d. After absence from the job in excess of 15 consecutive workdays.

2. I have personally reviewed each of the operational steps of the SOP and have no question in my mind that the operation can be performed safely, efficiently, and in compliance with environmental restrictions noted in the SOP. I have verified to my satisfaction that operators are trained and are capable of performing their part of the operation in a safe and efficient manner and have instructed them to follow the SOP without deviation.

SUPERVISOR'S SIGNATURE	DATE

OPERATOR'S STATEMENT

SOP NO. SE-0000-M-027 REV NO. _____ CHG NO. _____ DATE 12 JAN 1993

1. The operator will sign this statement:

   a. When first assigned to the operation.

   b. When an approved change is made to the SOP.

   c. At least once per quarter during continuing operations.

   d After absence from the job in excess of 15 consecutive workdays.

2. I have read or have had read to me and understand the general and specific safety and environmental requirements, personnel and explosive limits, work description and inspection requirements necessary to accomplish my operation. I have been thoroughly trained in, and am familiar with, my part of the operation and I agree to abide by these instructions throughout my assignment to the operation.

NAME/SIGNATURE	DATE	OPERATION NUMBER

SOP NO. SE-0000-M-027 DATE 9 2 [illegible]
REV NO. _____ DATE _____
CHG NO. _____ DATE _____

INDEX OF OPERATIONS

REMARKS:

This Standing Operating Procedure provides instructions for the decontamination of Ammunition Peculiar Equipment (APE) to level XXX for shipment to Tooele Army Depot or to a "knowledgeable" activity as described in DOD 5160.65-M.

REFERENCES:

DA Pam 385-64 Ammunition and Explosives Safety Standards

MIL-STD 129-1 Marking for Shipment and Storage

DOD 5160.65-M Single Manager for Conventional Ammunition: Implementing Joint Conventional Ammunition Policies and Procedures.

TB 700-4 Decontamination of Facilities and Equipment

Appropriate Technical Manual for APE to be Contaminated

TM 43-0000-47 Appendix C, Army Equipment Data Sheets, Ammunition Peculiar Equipment

AR 40-5 Preventive Medicine

SEDA-R 420-2 Installaton Management Hazardous Waste Management

GENERAL SAFETY REQUIREMENTS

1. Standing operating procedure (SOP), applicable portion, shall be conspicuously posted in rooms or bays involved in the operation. Supervisory personnel shall maintain copies of a complete standing operating procedure and be responsible for the enforcement of its provisions.

2. There will be no deviation or change from the approved SOP without prior approval of the Installation Commander or his designated representative.

3. Employees will not tamper with any safety devices or protective equipment.

4. Personnel will be so located that operators will have an unobstructed path of travel to the nearest available exit.

5. Work locations will be maintained in a neat and orderly condition.

6. Operators lifting material will use proper, safe hand holds, assume proper lifting position, avoid twisting when lifting or carrying, and avoid sharp objects.

7. Each MHE/vehicle operator will have in his possession a valid operator's permit for the particular piece of equipment to be operated.

8. Perform daily inspections of hand tools and safety and operational equipment. Insure that all equipment is in a safe and workable condition for designed use and proper functioning. Hand tools required must be of non-sparking material.

9. Leather/leather palmed gloves will be worn when handling equipment, pipes, components and other material.

10. Steel toed safety shoes will be worn by all personnel engaged in material handling operations.

11. Material Handling Equipment (MHE) and other lifting devices will have the load rating and date of next inspection marked on them. The load rating will not be exceeded and the equipment will not be used without a current inspection date.

12. The supervisor will immediately report all injuries/accidents to the Safety Office (1-261). Security Police Division (1-448) will also be notified of accidents/incidents involving government vehicles or suspected criminal activities. Halt operations and leave the scene undisturbed except for life-saving efforts, until released by Safety/Security Police.

GENERAL SAFETY REQUIREMENTS Cont'd

13. Waste paints, thinners, oily rags, other highly flammable materials will be disposed of as hazardous waste IAW SEDA-R 420-2, Hazardous Waste Management.

14. In all areas that the noise decibel reading is 85 or above, operators will wear ear protection and area will be properly marked.

15. Operation, storage, maintenance, refueling, inspection, loading and unloading of all trucks, vehicles and MHE will be performed IAW SOP SE-0000-L-001. All general safety requirements and operational procedures will be followed where applicable.

16. In the event of an electrical storm, operations will be stopped. When the process has been brought to a point in which it is safe to leave, Bldg 512 will be evacuated and secured. Personnel will evacuate by motor vehicle to Bldg 323.

17. Unauthorized flame-producing devices must not be permitted in work areas. Flame producing devices such as oxyacetyline torches, electric welders and blow torches must not be used due to the possibility of initiation of explosive material remaining in a confined space.

18. Operators must be equipped with protective clothing, gloves, goggles, face shields, respirators and boots as required.

19. Fire extinguishers and first aid kits must be available in close proximity to operations.

20. Vehicles and radio/wire communications equipment must be available for immediate use by operating personnel.

21. Personnel using steam cleaner will wear rubber gloves, rubber apron, rubber boots, goggles, and a plastic face shield.

22. Any defect or unusual condition noted that is no covered by this SOP will be reported immediately to supervisory/QASAS (Quality Assurance Specialist, Ammunition Surveillance) personnel.

23. Care will be taken to limit exposure of a minimum personnel, for a minimum time, to a minimum amount of hazardous material consistent with safe and efficient operations.

24. Personnel in the proximity to steel banding operations will wear face shields and safety eyewear. Operators handling metal banding will also wear leather-palmed gloves.

25. All material transferred to salvage will be certified free of explosive contaminantion by the supervisor in charge and verified by Quality Assurance Specialists, Ammunition Surveillance (QASAS).

GENERAL SAFETY REQUIREMENTS Cont'd

26. For all indoor flanges, pipes and component connections, steam cleaning should be accomplished prior to applying penetrating oil to nuts and bolts. Frictional heat must be avoided. Before attempting to loosen nuts, penetrating oil must be applied to the contacting surfaces. Sufficient time must be allowed for the oil to penetrate within the threads before attempting to separate the parts. A second application is recommended.

27. Personnel working in decontamination operations shall not work alone. At least one other person will be within voice communication.

28. Personnel performing decontamination operations must be under medical surveillance programs outlined in AR 40-5.

29. Adequate wash rooms and showers are to be available for personnel working in building 612.

30. Hand tools required must be of nonsparking material.

31. Only approved type vehicles and other powered equipment will be used in the decontamination area.

32. A complete record shall be prepared of decontamination and cleanup actions for each piece of APE when operations in a contaminated or suspected contaminated area are discontinued for the purpose of placing the item in standby, dismantling, demolition, alteration, conversion, repair, maintenance or shipping. This record is to acquaint people working in the area as to what hazards may exist so that they may use the proper precautions.

33. The fire department shall be notified when all decontamination actions are underway.

1

STANDING OPERATING PROCEDURE FOR:

Decontamination of Ammunition Peculiar Equipment (APE) to XXX Condition

B. OPERATION NO. 1

C. BAY NO. Bldg 612

D. SOP NO. SE-0000-M-027 DATE 12 [illegible] 1993

E. REV NO. _____ DATE _____

F. CHG NO. _____ DATE _____

G. OPERATION: Receive Ammunition Peculiar Equipment (APE) from storage

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: N/A

I. PERSONNEL LIMITS: OPERATORS: N/A TRANSIENTS N/A

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Quality Assurance Specialist, Ammunition Surveillance (QASAS) will have determined the need for more detailed decontamination.	1. Items without known contamination will be moved to Bldg 317; those items requiring decontamination will be sent to Bldg 612. Operators will use leather palmed gloves while tying down APE to the vehicle.
2.	Receive carrier(s) loaded with APE.	2. (S)(O) During transport of APE from the storage structure, drivers will insure that items are secured to prevent damage while in transit.
3.	Remove load from carrier.	3. (O)(S) APE will be unloaded using MHE or in the case of small, light weight items, by hand. Operators will use leather palmed gloves when moving items by hand. Remove APE from crate, and/or cut all banding stabilizing the APE to the skid. Place contaminated APE onto a 10 mil plastic sheet. Surround APE with "PIGS" to contain any run-off. Leather palmed gloves, safety glasses and face shield will be used when removing or cutting banding.

K. SPECIAL REQUIREMENTS:

1. The decontamination and its operations shall be under the direct control and supervision of an experienced and trained individual charged with the supervisory responsibility for all activities within the area. During his/her absence, a competent quallified person will be designated to be in charge.

L. Equipment, tools, gauges, and supplies:

	ITEM	QTY	SPEC/DRWGS	NSN
1.	Leather or leather palmed gloves	1pr/Oper	MIL-G-2366	Various
2.	Hearing protection	"	Various	Various
3.	Safety shoes	"	ANSI-Z41.1-1967/ MIL-S-41821D	Various
4.	Forklift	As required		"
5.	Chains, straps	As required	MIL-W-25361	Various
6.	Safety glasses	1pr/Oper	ANSI-Z87.1/ GGG-G-521	Various
7.	Face shield	1pr/Oper	L-F-36	Various
8.	Band/strap cutters	As required	MIL-S-17743	Various
9.	Oil absorbant booms ("PIGS")	As required		793001X611244
10.	10 mil plastic sheets	As required	Commercial	Various

STANDING OPERATING PROCEDURE FOR:

Decontamination of Ammunition Peculiar Equipment (APE) to XXX Condition

B. OPERATION NO. 2

C. BAY NO. Bldg 612

D. SOP NO. SE-0000-M-027 DATE 12 JAN

E. REV NO. _____ DATE _____

F. CHG NO. _____ DATE _____

G. OPERATION: Decontaminate Ammunition Peculiar Equipment(APE)

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: N/A

I. PERSONNEL LIMITS: OPERATORS: N/A TRANSIENTS N/A

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Clean APE IAW applicable APE Technical Manual.	1. a. (O)(S) Operators will use rags, brushes and solvent (Simple Green) to remove explosive residues. Care must be taken to insure that all nooks and crannies are cleaned to comply with the Industrial Level Cleaning and Preservation/ Packaging as specified in TM 43-0001-47, Appendix C. Operators will wear rubber gloves and safety glasses while working with solvents. MSDS for all cleaning material and solvents will be at the work site. 1. b. (O)(S) Operators will observe all safety precautions listed in the applicable Material Safety Data Sheet.
2.	Clean APE with hot water and steam.	2. a. (O)(S) Operators will thoroughly clean each piece of APE to remove any solvent and any existing explosive residue with hot water and steam. Operators performing the steam cleaning shall be trained in the equipment's use prior to cleaning the APE. Operators shall wear, as a minimum, a rubber apron, rubber gloves, and face shield. Hearing protection shall be also be worn if the Safety Office determines that a hearing hazard exists.

2. b. (O) Operators will examine the "PIGS" periodically and replace them when they become saturated. "PIGS" will be placed into a 55 gallon removable head drum and removed to the demolition grounds for disposal by burning. All drums will have a Hazardous Waste label attached as soon as any waste material is placed therein. Appendix I, SEDA-R 420-2 will be initiated for each barrel and provided to Ops Div and the Engineering/Environmental Div.

2. c. (O) After cleaning, insure APE is sufficently dry before moving to eliminate possible contamination of other areas.

2. d. (QC) Inspector will perform the appropriate test to determine the condition of the APE. If the APE meets the criteria for XXX condition, the inspector will complete DA Form 3803 or DD Form 2271 and affix it to the APE. If tests show an unacceptable level of contamination, APE will be recleaned until a level XXX condition is obtained.

2. e. (O)(QC) All documentation certifying to testing of PCB will be replaced. Test to confirm the absence of PCB's will be conducted on all APE for which there is no record of testing.

3. Mark APE with appropriate decontamination condition.

3. (O) (QC) The cleaned APE will have the condition code XXX conspicuously painted in 1 inch yellow letters on the APE. Another contrasting color will be used when the items to be marked are already painted yellow.

4. Preserve and prepare for shipment.

4. (O)(QC) All APE will be preserved for shipment IAW the appropriate APE Technical Manual.

K. SPECIAL REQUIREMENTS:

1. The Conventional Ammunition Division will obtain SDSSE-LS Form 253 (Flame Permit) to operate the steam cleaner.

2. Operators of the steam cleaner will be trained in the use and operation of the steam cleaner.

3. Containment area will be cleaned as required to prevent contamination of the area, but not less than on a daily basis. Contaminants will be placed in a properly labeled 55 gallon removable head drum. Full drums will be moved to the demolition grounds for future disposal. The supervisor will insure that Appendix I, SEDA-R 420-2 is properly filled out and provided to the Engineering/Environmental Division and the Operations Division.

4. The decontamination area and its operators shall be under the direct control and supervision of an experienced and trained individual charged with the supervisory responsibility for all activities within the area. During his/her absence a qualified person will be designated to be in charge.

5. The supervisor will insure that all applicable MSDS are available at the work site.

6. Containment Area (Hot Water and Steam Cleaning) : A run-off containment area shall be provided for hot water and steam cleaning operations. The set-up should consist of plastic sheeting and oil absorbent booms (PIGS). The containment area shall be inspected and approved by the Environmental Office prior to the start of the cleaning operation.

7. Run off water and foreign material residue shall be desposed of as directed by the Environmental Oficer.

L. Equipment, tools, gauges, and supplies:

	ITEM	QTY	SPEC/DRWG#	NSN
1.	Leather or leather palmed gloves	1pr/Oper	MIL-G-2366	Various
2.	Safety glasses	"	ANSI-Z87.1/ GGG-G-2366	Various
3.	Face Shield	"	L-F-36	Various
4.	Hearing protection	"	Various	Various
5.	Rubber gloves	"	ZZ-G-381	Various
6.	Rubber apron	"	A87412	Various
7.	Safety shoes	"	ANSI-Z41.1-1967/ MIL-S-41821D	Various
8.	Non spark producing tools	As required	Various	Various
9.	Penetrating oil	As required	Various	Various

10.	Chains, straps	As required	MIL-W-25361	Various
11.	Rubber boots	1pr/Oper	Various	Various
12.	Steam cleaner	As required	Various	Various
13.	Wire brushes	As required	HB-178	Various
14.	Emory cloth	As required	A-A-1048	5350002460330
14.	Stencil ink, Yellow	As required	TT-I-1795	7510001710816
15.	Stencil ink, Black	As required	TT-I-1795	7510001610811
16.	Cleaner, All Purpose (Simple Green)	As required	"	7930013068369
17.	Shop rags	As required	Various	Various
18.	Waste recepticals	As required	Various	Various
18.	Brooms	As required	Various	Various
20.	1" Stencil machine	As required	GG-S-747	7490001640537
21.	Stencil paper	As required	Various	Various
22.	Safety goggles, safety	As required	ANSI Z87.1/ GGG-G-521	Various
23.	Corrosion, Preventative (P-19)	As required	Various	8030005261605
24.	Oil absorbant booms ("PIGS")	As required		793001X611244
25.	55 gallon removable head drum.	As required		811001X611046
26.	First aid kit	As required	Various	Various
27.	Fire extinguisher, Class B/C	As required	Various	Various

STANDING OPERATING PROCEDURE FOR:

Decontamination of Ammunition Peculiar Equipment (APE) to XXX Condition

B. OPERATION NO. 3

C. BAY NO. Bldg 612

D. SOP NO. SE-0000-M-027 DATE 12 JAN 1999

E. REV NO. _____ DATE _____

F. CHG NO. _____ DATE _____

G. OPERATION: Move Ammunition Peculiar Equipment (APE) to Bldg 317.

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: N/A

I. PERSONNEL LIMITS: OPERATORS: N/A TRANSIENTS N/A

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Load APE onto carrier.	1.a. (O)(S) Place cleaned APE onto a truck using appropriate MHE or by hand for small items. Small components that are part of the APE but are not attached to the main assembly, will be placed into a box and accompany the item. Operators will wear leather palmed gloves when moving any APE by hand. 1.b. (O)(S) Vehicle operator will insure that the load is properly secured prior to moving the load. 1.c. (O) Care will be taken to insure that the DA Form 3803 or DD Form 2271 is not accidentally removed. If for some reason it is lost in transit, QASAS will be notified immediately and a new one prepared and placed on the APE.

K. SPECIAL REQUIREMENTS:

1. The decontamination area and its operations shall be under the direct control and supervision of an experienced and trained individual charged with the supervisory responsibility for all activities within the area. During his/her absence, a qualified person will be designated to be in charge.

L. Equipment, tools, gauges, and supplies:

	ITEM	QTY	SPECS/DRWG#	NSN
1.	Leather or leather palmed gloves	1pr/Oper	MIL-G-2366	Various
2.	Hearing protection	1pr/Oper	Various	Various
3.	Safety shoes	1pr/Oper	ANSI-Z41.1-1967/ MIL-S-41821D	Various
4.	Chains, straps	As required	MIL-W-25361	Various
5.	Forklift	As required	Various	Various

STANDING OPERATING PROCEDURE FOR:

Decontamination of Ammunition Peculiar Equipment (APE) to XXX Condition

B. OPERATION NO: 4

C. BAY NO. Bldg 317

D. SOP NO. SE-0000-M-027 DATE 12 [illegible] 1998

E. REV NO. _____ DATE _____

F. CHG NO. _____ DATE _____

G. OPERATION: Prepare Ammunition Peculiar Equipment (APE) for Shipment

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: N/A

I. PERSONNEL LIMITS: OPERATORS: N/A TRANSIENTS N/A

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Unload APE from carrier.	1. (O)(S) APE will be unloaded using MHE or in the case of small items, by hand and placed inside the building. Items will not be left outside. Operators will wear leather palmed gloves when moving items by hand.
2.	Prepare APE for shipment.	2. a. (O) Operators will insure that the guidelines prescribed by TM 43-0001-47, Appendix C are followed when preparing APE for shipment. Rubber gloves and safety glasses will be worn while working with Simple Green.
		2. b. (O)(QC) APE prepared for domestic shipment will be skidded rather than crated if economically advantageous. APE will be wrapped in 10 mil plastic sheets and all ends secured to insure that APE is protected. Safety glasses, face shields, and leather palmed gloves will be worn whenever the operator is working with banding material.
		2. c. (O)(QC) All crates and skids will be marked on two sides with APE NSN, serial number, weight, and cube. Lettering will be in 1" high black lettering.

2. d. (O)(QC) APE that consists of more than one box will have each box marked with the APE number, serial number, weight and cube on each box. Boxes and crates will be identified as 1 of 1, 1 of 2, 2 of 2, etc.

2. e. (O)(QC) A final check will be made to insure that DA Form 3803 or DD Form 2271 is still attached to each piece of APE before closing the container.

3. Transfer APE to designated warehouse.

3. (O)(S) Load APE onto vehicle using MHE or if small and light weight, by hand. Stabilize load to prevent in transit damage. Leather palmed gloves will be worn by the operator when moving small items.

K. SPECIAL REQUIREMENTS:

1. Required skids, boxes, and crates will be manufactured by the box and crate shop in building 113. The guidelines prescribed by TM 43-0001-47, Appendix C will be followed when preparing boxes, crates and skids.

2. The decontamination area and its operations shall be under the direct control and supervision of an experienced and trained individual charged with the supervisory responsibility for all activities within the area. During his/her absence, a competent qualified person will be designated to be in charge.

3. The supervisor of the operation will insure that MSDS's are available for applicable items used by the operators.

K. Equipment, tools, gauges, and supplies:

	ITEM	QTY	SPEC/DRWG#	NSN
1.	Safety shoes	1pr/Oper	ANSI-Z41.1-1947/ MIL-S-41821D	Various
2.	Leather or leather palmed gloves	1pr/Oper	MIL-G-2366	Various
3.	Forklift	As required	Various	Various
4.	Chains/straps	As required	MIL-W-25361	Various
5.	Hearing protection	1pr/Oper	Various	Various
6.	Carpenter tools, manual and powered	As required	Various	Various

K. Equipment, tools, gauges, and supplies, cont'd:

	ITEM	QTY	SPEC/DRWG#	NSN
7.	Stencil ink, black	As required	TT-I-1795	7510001610811
8.	1" Stencil machine	As required	GG-S-747	7490001640537
9.	Hearing protection	1pr/Oper	Various	Various
10.	Face shield	1/prOper	L-F-36	Various
11.	Safety glasses	1pr/Oper	ANSI-Z87.1/ GGG-G-521	
12.	Nails	As required	FF-N-105	Various
13.	3/4" banding	As required	QQ-S-781	Various
14.	3/4" banding machine	As required	MIL-S-43361	Various
15.	Plywood, 4'x 8'X 1/2" sheets	As required	Commercial	Various
16.	Lumber, 2"x4",1"x4", 6"x6", 4"x6", 2"x10"	As required	Commercial	Various
17.	10 mil plastic sheets	As required	Commercial	Various
18.	Metal cleats	As required	Various	Various
19.	Stencil Paper	As required	Various	Various

STANDING OPERATING PROCEDURE FOR:

Decontamination of Ammunition Peculiar Equipment (APE) to XXX Condition

B. OPERATION NO. 5

C. BAY NO. Designated Warehouse

D. SOP NO. SE-0000-M-027 DATE 12 [illegible]

E. REV NO. _____ DATE _____

F. CHG NO. _____ DATE _____

G. OPERATION: Move Ammunition Peculair Equipment (APE) to Warehouse.

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: N/A

I. PERSONNEL LIMITS: OPERATORS: N/A TRANSIENTS N/A

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Unload APE into warehouse.	1.a. (O)(S) Unload APE into warehouse by using appropriate MHE, or by hand for small, light weight items. Operator will place items in a designated area. Operators will wear leather palmed gloves when moving items by hand. 1.b. (O) Items will be stored so that the nomenclature, number, and serial number are visible.
2.	Preparation of "Record of Decontamination"	2. When the APE is stored in warehouse, the Conventional Ammunition Division will complete the "Record of Decontamination". An example is at Figure 1.

K. SPECIAL REQUIREMENTS:

1. The decontamination area and its operations shall be under the direct control and supervision of an experienced and trained individual charged with the supervisory responsibility for all activities within the area. During his/her absence, a competent qualified person will be designated to be in charge.

L. Equipment, tools, gauges, and supplies:

	ITEM	QTY	SPEC/DRWGS	NSN
1.	Leather or leather palmed gloves	1pr/Oper	MIL-G-2366	Various
2.	Safety shoes	1pr/Oper	ANSI-Z41.1-1967/ MIL-S-41821D	Various
3.	Hearing protection	1pr/Oper	Various	Various
4.	Chains/straps	As required	MIL-W-25361	Various
5.	Forklift	As required	Various	Various

Record of Decontamination

Previous Use:

Decontamination Procedure Used:

Decontamination Status Degree:

Special Instructions:

Restrictions:

Identification of Critical Points of Operation:

List of Personnel Knowledgeable About Equipment:

Identity of Equipment (Nomenclature, APE identification and serial number):

Signatures of Personnel Preparing and Approving Record:

Dates of Various Actions:

Figure 1

APPENDIX D

1. SENECA ARMY DEPOT ACTIVITY

STANDING OPERATING PROCEDURE FOR:

2. ITEM: a. Demolition of Explosives, Ammunition Loaded Components and Pyrotechnics

b. Various FSCs and DODICs

c. Fire Symbols (Various)

d. Chemical Symbols: None Required

3. OPERATION: Demilitarization By Detonation

4. EST DAILY PRODUCTION RATE: N/A

5. ORGANIZATION SYMBOL: SIOSE-MC

6. SOP NO. SE-0000-G-004 DATE 21 Oct 88

a Rev No. 5 DATE 02 DEC 1996

b. Chg No. 1 DATE

7. AUTHORITY: AMC-R 755-8
DA Pam 385-64

8. PREPARED BY: MIKE WARNER DATE 15 OCT 97 TITLE Industrial Specialist DSN. 489-5441

9. REVIEWED BY: JOHN P. KENNEDY DATE 15 OCT 97 TITLE Chief, Conventional Ammunition Division

10. SUBMITTED BY: PHILLIP S. WILKIE DATE 15 Oct 97 TITLE Chief, Conventional Storage Division

11. CONCURRENCES:

OFFICE	SIGNATURE/DATE	TITLE
Mission Operations	BRUCE W. JOHNSON	Director
Ammunition Surveillance	LINDA L. KNOWLES	Division Chief
Engineering/Environmental	STEPHEN M. ABSOLOM	Environmental Protection Officer
Safety Office	THOMAS J. STINCIC	Safety Manager

12. APPROVED: DONALD C. OLSON
LTC, OD
Commanding

23 Oct 97
DATE

13. ANNUAL REVIEW:

DATE	SIGNATURE	TITLE
		D/Mission Operations
		C 'Ammo Surveillance Div
		Environ Prot Officer
		Safety Manager
		Commander

SUPERVISOR'S STATEMENT

SOP NO. SE-0000-G-004 REV NO. 5 CHG NO. _____ DATE 02 DEC 1996

1. The supervisor will sign this statement:

   a. When first assigned as supervisor of the operation.

   b. When an approved change is made to the SOP.

   c. At least once per quarter during continuing operations.

   d. After absence from the job in excess of 15 consecutive workdays.

2. I have personally reviewed each of the operational steps of the SOP and have no question in my mind that the operation can be performed safely, efficiently, and in compliance with environmental restrictions noted in the SOP. I have verified to my satisfaction that operators have been trained and are capable of performing their part of the operation in a safe and efficient manner and have instructed them to follow the SOP without deviation.

SUPERVISOR'S PRINTED/TYPED NAME: _____

SUPERVISOR'S NAME	DATE

OPERATOR'S STATEMENT

SOP NO. SE-0000-G-004 REV NO. 5 CHG NO. _____ DATE 02 DEC 1996

1. The operator will sign this statement:

   a. When first assigned to the operation.

   b. When an approved change is made to the SOP.

   c. At least once per quarter during continuing operations.

   d. After absence from the job in excess of 15 consecutive workdays.

2. I have read or have had read to me and understand the general and specific safety and environmental requirements, the personnel and explosive limits, and the work description and inspection requirements necessary to accomplish my operation. I have been thoroughly trained in, and am familiar with, my part of the operation, and I agree to abide by these instructions throughout my assignment to the operation.

NAME	DATE	OPERATION NUMBER

INDEX OF OPERATIONS

REMARKS:

1. Operation consists of destruction of ammunition and/or explosives by detonation.

2. All material to be turned into DRMO will be inspected and certified free of explosive IAW DOD 4160.21-M-1.

3. This SOP supersedes SOP AMXSE-3, June 1973, to come in compliance with new SOP numbering system and AMC-R 700-107.

GENERAL SAFETY REQUIREMENTS Cont'd

15. Any ammunition determined to be dangerous to handle or store will be reported immediately to supervisory personnel. Operations will be suspended and if warranted, personnel will be evacuated pending further instructions.

16. Equipment and the grounding system will be tested for electrical resistance and continuity when prepared for use and at 6 month intervals thereafter if in continuous use. The tests shall be conducted by QASAS, and test results will be maintained by the Ammunition Surveillance Division (ASD). ASD will notify the Conventional Ammunition Division (CAD) of any corrective action required. CAD will notify Public Works that corrective action is required.

17. Appropriate fire symbols and/or chemical hazard symbols shall be displayed on vehicles used in transporting ammunition intradepot.

18. Leather or leather-palmed gloves will be worn by all personnel engaged in material handling operations.

19. Steel-toed safety shoes will be worn by all personnel engaged in material handling operations.

20. Material handling equipment (MHE) and other lifting devices will have the load rating and date of next inspection marked on them. The load rating will not be exceeded and the equipment will not be used without a current inspection date.

21. Supervisors will instruct personnel in the proper methods of handling Pentachlorophenol (PENTA) treated material IAW U.S. Army Environmental Hygiene Agency (USAEHA) Technical Guide No. 146.

22. No demilitarization/disposal operation will be conducted during an electrical storm or when such a storm is approaching within five kilometers (3 miles). All personnel will evacuate to Bldg 115 if a storm approaches during operations.

23. The supervisor will immediately report all injuries/accidents to the Safety Office (Ext. 41-261). Security Division (Ext. 41-448) will also be notified of accidents/incidents involving government vehicles or suspected criminal activities. Halt operations and leave the scene undisturbed, except for life saving efforts, until released by Safety/Security.

24. In the event of an explosive accident, personnel injury or major property damage, the following procedure will be followed: Operation will cease immediately, and emergency response personnel will be notified by dialing 117. Call Director, Mission Operations (D/MO) (Ext. 41-771) and explain events which occurred and action taken. The following notifications will be made: Commanding Officer (Ext. 41-206), Chief, Ammunition Surveillance Division (C/ASD) (Ext. 1-322) and Safety Manager (Ext. 41-251). D/MO; C/ASD and Safety Office will investigate. Following the investigation, D/MO will advise the Ammunition Divisions when to resume operations.

GENERAL SAFETY REQUIREMENTS Cont'd

25. In the event of a fire, attempt to extinguish the fire only if it is in an early state and HC/D 1.1 material is not involved. In all cases, alert fire-fighting forces by [illegible]. When personnel safety is in doubt, personnel will evacuate to the Bldg 833 area. At least one individual will remain at a safe distance on the [illegible] route of fire-fighting forces to inform them of the specific hazards involved.

26. Paint thinners, oily rags and other [illegible] flammable materials will be kept in approved, closed receptacles.

27. Waste paints, thinners, oily rags and other highly flammable materials will be disposed of as hazardous waste [illegible]-2, Hazardous Waste Management.

28. All material transferred to salvage [illegible] certified free of explosive contaminations by the supervisor in charge [illegible] by Quality Assurance Specialists, Ammunition Surveillance (QASAS).

29. All areas that the noise decibel reading [illegible] or above, operators will wear ear protection and area will be properly [illegible].

30. Components or material being transported [illegible] disassembly operation to Demolition Grounds will be properly identified [illegible] exterior pack; any misleading markings will be [illegible] out or [illegible].

31. Trucks transporting explosive materials [illegible] demolition grounds grounds shall be equipped with two class 10BC or [illegible] equivalent rated portable fire extinguishers.

32. Materials for Detonating Ammunition:

a. Detonation of explosives or ammunition [illegible], where practicable, initiated by electric blasting caps using [illegible] (either in the 110 VAC Mode or the Hand Detonation Mode). Improvised methods for exploding electric blasting caps shall not be used. When [illegible] detonated are covered with earth, blasting caps shall not be buried [illegible] ground level with the initiating charge. The initiating explosive [illegible] be primed with detonating cord of sufficient length to reach up [illegible] covering to a point where the blasting cap may be connected above [illegible] level.

b. General safety requirements for [illegible] electric blasting caps and electric blasting circuits:

(1) Electric blasting caps, [illegible] detonators, electric blasting circuits, and the like may be [illegible] dangerous levels by extraneous electricity, [illegible] static electricity, galvanic action, induced electric [illegible] transmission wires, and radio frequency [illegible] transmitters. Safety precautions shall be [illegible] of a premature initiation of electric blasting caps and [illegible] which they form a part.

GENERAL SAFETY REQUIREMENTS Cont'd

(2) Electric blasting caps must be in closed metal boxes when being transported by vehicles equipped with two-way radios and also when in area where extraneous electricity is known to be present or is suspected of being present.

33. Procedure in the Event of Electrical Storms: Blasting or demolition operations shall not be conducted during an electrical storm or when a storm is approaching within five kilometers (three miles). When an electrical storm approaches, all operations shall be suspended, cap wires and lead wires shall be short-circuited and all personnel shall evacuate the demolition area to a safe location.

34. Detonation of Ammunition.

(a) Ammunition or explosives to be destroyed by detonation should be detonated in a pit covered with not less than ten (10) feet of earth. In the case of only 100 lb NEW per pit, the minimimum earth cover requirement is six (6) to eight (8) feet of earth. The components should be placed on their sides or in the position to expose the largest area to the influence of the initiating explosives with an adequate number of demolition blocks placed in intimate contact on top of the item to be detonated and held in place by earth packed over the demolition blocks. Where space permits, and the demolition area is remotely located from inhabited buildings, boundaries, work areas, and storage areas, detonation of shells and explosives may be accomplished without the aid of a pit. In either event, however, the total quantity to be destroyed at one time, dependent on local conditions, should be established by trial methods to assure that adjacent and nearby structures and personnel are safe from the blast effect or missiles resulting from the explosion. This procedure should be used for the destruction of fragmentation grenades, HE projectiles, mines, photoflash munitions, mortar shells, bombs, and HE rocket heads which have been separated from motors. Unless authorized by specific procedure (i.e., an LOI or DMWR), rocket motors containing solid propellants should not be destroyed by detonation. Open detonation of conventional munitions filled with HC, WP, RP, colored smokes, and riot control agents is prohibited. Target practice rounds filled with polychloronapthalene are also prohibited from open burning and detonation.

(b) After each detonation, a search shall be made of the surrounding area for unexploded material and items. Notify Environmental Protection Officer (Ext. 41-450) of location and nature of lumps of undetonated explosive if found. Fuzed ammunition or items which may have internally damaged components should be detonated in-place unless the item can be safely handled by using mechanical retrievers providing protection to personnel.

(c) In case of misfires, personnel shall not return to the point of detonation for at least 30 minutes after which not more than two qualified personnel shall be permitted to examine the misfire.

GENERAL SAFETY REQUIREMENTS Cont'd

35. Pit Preparation - Demolition pits may be excavated and "cleaned up" independent of QASAS observation. However, in the event unexploded ordnance is discovered, it will be flagged, operations will be suspended, and QASAS personnel contacted for disposition instructions. If the discovery is made after regular-duty hours, operations will be suspended until the following shift. The demo grounds will be secured and the Security Division informed of the situation (Ext. 41-448). QASAS will be contacted at the beginning of the following shift for disposition instructions.

36. Supervision and Training.

a. The disposal area and its operations shall be under the direct control and supervision of an experienced and trained individual charged with supervisory responsibility for all activities within the area. During his/her absence, a competent qualified person will be designated to be in charge. He/she shall also be charged personally with the sole custody of all ignition devices. Prior to actual detonation of explosives, all personnel including the demolition ground supervisor will be evacuated to a safe distance or protective structure affording adequate protection but consistent with the need to monitor the total operation until it is complete.

b. Personnel employed at the destruction area shall be thoroughly trained regarding the nature of the materials handled, the hazards involved, and the precautions necessary. The danger of using unapproved improvised methods and other deviations must be thoroughly instilled in the minds of employees. It is essential that thorough training and vigilant supervision be provided. All demolition grounds operations must be carried out in strict conformance with approved SOPs.

c. In the absence of specific regulations covering any phase of the destruction of explosive material, complete information will be forwarded through command channels to the Commander, AMC, ATTN: AMCSF, requesting instructions and guidance.

37. Heavy equipment operators will perform required maintenance on earth-moving and other heavy equipment. This maintenance will include those steps necessary to preclude inadvertant drainage of the fuel system due to frozen or leaking fuel lines, cracked sediment bowl, etc. Operators will take extra precautions to inspect the fuel system for any existing leaks and take immediate corrective action if a leak is discovered.

38. A first aid kit will be present during all operations. It will be able, as a minimum capability, to handle burns and puncture wounds. The kit will be approved by local medical authorities based on the hazards involved. Personnel will be trained in the use fo the first aid kit, and its limitations. They will be instructed that if there is any doubt as to its use, they will seek professional medical care for the injured person.

GENERAL SAFETY REQUIREMENTS Cont'd

39. Operation, storage, maintenance, refueling, inspection, loading, and unloading of all trucks, vehicles, and MHE will be performed IAW SOP SE-0000-L-001. All general safety requirements and operational procedures will be followed where applicable. NOTE: When being refueled, vehicles will be at least 100 feet from structures or sites containing explosives (including explosive laden vehicles).

40. A means of communication between personnel at the demolition/burning grounds will be maintained in working order. A further means of communication will be maintained between personnel preparing items for destruction and the control center on the range. Operations will not be conducted if one or both of these means of communication is not working. Radios will not be used when electrically initiated explosives are involved, unless the distances listed in Table 6-3 of DA Pam 385-64 are observed.

A. STANDARD OPERATING PROCEDURE FOR: B. OPERATION NO. 1

Demilitarization By Detonation C. BAY NO. N/A

D. SOP NO. SE-0000-G-004 DATE 21 Oct 86

E. REV NO. 5 DATE 02 DEC 1996

F. CHG NO. DATE

G. OPERATION: Receive and Unload

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: 3,750 lbs

I. PERSONNEL LIMITS: OPERATORS 12 TRANSIENTS: 5

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Receive and unload ammunition and/or explosives from storage IAW SOP SE-0000-L-001.	1. a. (O) Security must be maintained for material. Only quantities that can be destroyed and/or adequately secured will be delivered to the Demolition Ground. Ammunition and/or explosives that are not destroyed that day will be returned to storage each night. 1. b. (O) Supervisor will designate one operator to raise flag. 1. c. (S) The number of personnel used at the demolition area will be kept to the minimum but not less than two (2). 1. d. (S) The Demolition Grounds shall be serviced with telephone or two-way radio communication. 1. e. (S) Fire symbols shall be posted at holding area and on vehicles moving material around/within Demolition Grounds. The fire symbols for the most hazardous material will be posted. 1. f. (S) The engine must be shut off and when vehicles are parked on a grade at least one (1) wheel of the carrier must be chocked and brakes set.

1. g. (S) Blasting caps will not be transported with explosives in the same vehicle.

2. Check material to assure items agree with DA Form 4508.

2. a. (O) Return incorrect material to storage.

2. b. (S) Material awaiting destruction shall be stored at not less than intraline distance from demolition pits. This restriction applies only to that material not to be immediately placed on warehouse trailers.

3. By hand or using forklift equipment, unload carriers.

3. a. (S)(O) Place material to be destroyed on warehouse trailers.

3. b. (S) All personnel will wear leather or leather-palmed gloves when handling rough or sharp material.

3. c (S) All personnel exposed to PCP treated wooden boxes will follow the guidance of USAEHA Technical Guide No. 146.

K. SPECIAL REQUIREMENTS:

1. Ensure QASAS is present on the scene prior to commencing operations.

2. Supervisors and operators shall read and adhere to the general safety provisions in this procedure.

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

	ITEM	QTY REQD	DWG/SPEC NO.	NSN
1.	Fire Symbol	As Req'd	MIL-M-43994	Various
2.	Leather or Leather-Palmed Gloves	"	MIL-G-2366	Various
3.	Lift Truck, Gas, 4,000 lbs	"	Type G	

A. STANDING OPERATING PROCEDURE FOR: B. OPERATION NO. 2

Demilitarization By Detonation C. BAY NO. N/A

D. SOP NO. SE-0000-G-004 DATE 21 Oct 86

E. REV NO. 5 DATE 02 DEC 1996

F. CHG NO. DATE

G. OPERATION: Unpack (at Holding Area)

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: 3,750 lbs

I. PERSONNEL LIMITS: OPERATORS 12 TRANSIENTS: 5

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)

NOTE: This operation is optional and will be performed at the discretion of the supervisor. If unpack at the holding area is determined to be more practical than unpack at the pit area, the following procedures apply.

1. Receive material at unpack line within holding area.

2. Depalletize if ammunition is palletized.

2. a. (O)(S) Cut and remove strapping from pallet and place in scrap containers. Operators cutting strapping will wear eye protection, face shield and leather or leather-palmed gloves. In addition, personnel in close proximity of strap cutting operation will wear eye protection.

2. b. (O) Serviceable strapping may be set aside for later unitization of empty boxes.

2. c. (O) Set pallets aside for later unitization of empty boxes or containers for transfer to storage or DRMO.

2. d. (O) Remove banding and/or lead seals from boxes. Place in scrap containers.

2. e. (O) Operators handling boxes or pallets with PCP treated material will follow the guidance in USAEHA Technical Guide No. 146.

3. Open boxes or containers as required.	3. a. (QC)(O)(S) All items will be inspected for dangerous deterioration, corrosion, physically weakened or missing components that might render the round unsafe for handling in the normal manner. If normal handling or unpacking is determined to be unsafe, the operation will be stopped and the foreman in charge will be notified. A decision will be made whether to continue unpackaging or to destroy the item(s) in the packing.
	3. b. (O) With end opening boxes, boxes may be left on pallets and end removed. Remove fiber container(s).
	3. c. (O) For hinged lid boxes, the boxes may be opened on the pallet. Remove fiber container(s).
	3. d. (O) Ammunition and explosive components may arrive in a non-standard pack (i.e. from a disassembly operation). Unpack as required.
	3. e. (O) Place filler material in scrap containers.
4. Open fiber container(s) if required.	4. (O) Remove tape from fiber (use knife, if required). Place tape in scrap container. Remove lid by hand. Save lid to cover primer of round. A knife may be used to slit side of lid enough to remove it.
5. Remove ammunition.	5. a. (O) Remove ammunition and place lid or protective cover over primer end of round.
	5. b. (O) Place round in a box or suitable container for transfer to demolition pits. Egg crate type containers may may be used for larger rounds.
	5. c. (O)(Q) Assure fiber container is empty.

6. Disposition of fiber containers, wooden boxes and pallets.	6. a. (O)(QC) All ammunition containers will be inspected 100% to assure that all items have been removed. See Special Requirement #2 for required certification and documentation.
	6. b. (QC) Inspector will sample boxes and containers IAW MIL-STD 105 to assure items have been removed.
	6. c. (O) Place empty fiber containers in scrap containers for transfer to burning grounds, DRMO or land fill.
	6. d. (O) Place empty boxes on pallet and strap. Empty boxes may be transferred to scrap yard, DRMO or storage. PCP treated boxes will not be burned.
	6. e. (O) Transfer excess pallets to storage or burning grounds. PCP treated pallets will not be burned.
	6. f. (S) Operators handling boxes or pallets with PCP treated material will follow the guidance in USAEHA Technical Guide No. 146.
	6. g. (S) Personnel handling boxes with rough or sharp material will wear leather or leather-palmed gloves.
	6. h. (S) Operators using strapping equipment will wear eye protection, face shield and leather or leather-palmed gloves.
7. Remove all packing material from pit area.	7. (O) Transfer all packing material to holding area, scrap yard, storage, or DRMO prior to detonation operation.

K. SPECIAL REQUIREMENTS:

1. Ensure QASAS is present on the scene prior to commencing operations.

2. Packing material will be inspected 100%, with the inspection being certified and verified, respectively, by the Demolition Grounds supervisor (or representative) and the QASAS. Documentation will be IAW the paragraphs below:

a. Inert Material Certification: End-opening boxes transferred to the Defense Reutilization and Marketing Office will have their lids (closure removed and placed inside the boxes and be positioned on the pallets so that all boxes have their open ends facing in the same direction. The following certification is a requirement and will be placed on all DD Forms 1348-1 accompanying packing material and/or inert material that does not require demilitarization prior to delivery to DRMO:

"I CERTIFY THAT THE ITEMS LISTED HEREON HAVE BEEN INSPECTED 100% BY ME AND, TO THE BEST OF MY KNOWLEDGE, CONTAIN NO ITEMS OF A HAZARDOUS NATURE."

AMMUNITION SUPERVISOR DATE

b. Inspection Certification for Packing Material: The following certification is a requirement and will be placed on all DD Forms 1348-1 accompanying packing material or inert material to DRMO:

"I CERTIFY THAT BASED ON A SAMPLING INSPECTION, THE ABOVE CERTIFICATION IS VALID AND THE ITEMS LISTED HEREON ARE TO THE BEST OF MY KNOWLEDGE EXPLOSIVE FREE."

QUALITY ASSUR SPEC (AMMO SURV) DATE

L. EQUIPMENT, TOOLS, GAUGES, AND SUPPLIES:

ITEM	QTY	SPEC/DRWG NO.	NSN
1. Work Tables	As Reqd		
2. Truck	" "		
3. Fire Symbols	" "	MIL-M-43994	Various

L. EQUIPMENT, TOOLS, GAUGES, AND SUPPLIES (Cont'd):

ITEM		QTY	SPEC/DRWG NO.	NSN	
4.	Hand Tools	"	"		Various
5.	Tote boxes	"	"		
6.	Forklift, Gas Powered w/end stops	"	"	Type GS	
7.	Roller conveyor, gravity, w/end stops	"	"		
8.	Leather-palmed gloves or equivalent	"	"	MIL-G-2366	Various
9.	Safety shoes	"	"	MIL-S-41821	Various
10.	Safety glasses	"	"	ANSI-Z-87.1	Various
11.	Strap cutters	"	"		
12.	Scrap container	"	"		
13.	Knife	"	"		
14.	Face shield	"	"	L-F-36	Various
15.	Tear Strip Machine	"	"		
16.	First Aid Kit	1			
17.	Fire Extinguisher	As Req'd			

A. STANDARD OPERATING PROCEDURE FOR: B. OPERATION NO. 3

Demilitarization By Detonation C. BAY NO. N/A

D. SOP NO. SE-0000-G-004 DATE 21 Oct 86

E. REV NO. 5 DATE 02 DEC 1996

F. CHG NO. DATE

G. OPERATION: Transfer Material to Demolition Pits, Set-up Pits and Cover

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: Max 250 lbs per pit

I. PERSONNEL LIMITS: OPERATORS 12 TRANSIENTS: 5

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Receive demolition charges and blasting caps from service magazines.	1. a. (O) Only the quantity of explosive that is required for the day's operation will be removed from service magazines. However, operators need not create light boxes or light pallets for the sole purpose of meeting this requirement.
		1. b. (O) Place boxes of demolition charges and detonating cord on warehouse trailers.
		1. c. (O)(S) Blasting caps will NEVER be transported with other explosive items.
		1. d. (O) Demolition charges will be under constant surveillance at all times when out of service magazine.
		1. e. (S) Blasting caps will always be transported in a metal can and kept at a safe distance from initiation explosive and material to be demiled. Blasting caps will be stored in a metal magazine located intraline distance from north demolition pit.
2.	Transport material to be destroyed and demolition charges (except for blasting caps) to detonating pits.	2. a. (O) Place material on warehouse trailer and secure. No more than the quantity required to complete a maximum of 15 pits will be loaded.
		2. b. (O) Place demolition charges on warehouse trailer and secure. No more than the quantity required to detonate a maximum of 15 pits will loaded.

2. c. (O)(S) Material may be placed on trailers by forklift or by hand. Operators using forklift will have a valid license. Operators handling boxes, rough or sharp material will wear leather or leather-palmed gloves.

2. d. (O) Hook up warehouse trailers to forklift or tractor.

2. e. (O) Material to be destroyed will always be directly behind the forklift or tractor (i.e. before the donor explosives) but with an empty cart immediately after the forklift or tractor if vehicle is equipped with rear exhaust.

2. f. (S) Fire symbol for the most hazardous material will be posted on the front of the vehicle and on the rear of the last warehouse trailer.

2. g. (S) Only two operators will ride in vehicle transporting explosives. No personnel will ride on trailers.

3. Set up pits.

3. a. (O) Operator using a shovel will level enough room to lay out the material to be destroyed. If desired, cardboard or non P-treated boxes or parts of boxes may be used to facilitate more stable stacking of demil items.

3. b. (O) If the material to be destroyed was not unpacked earlier at the holding area, follow the procedures outlined in Operation 2, steps 2-7.

3. c. (O) If material is too heavy to be handled manually (i.e. large caliber projectiles), operators may employ mechanical, hydraulic, or electrically powered equipment to move the item(s). Examples are slings attached to a back-hoe arm, crane, or hoist. If more practical, items may be pushed. An individual will guide the equipment operator in both cases.

3. d. (O)(S) Remove material from warehouse trailer and place in pit. Material should be laid so that sides are in contact with each other. Material that has already been set up in boxes should be placed in pits side by side. Extreme caution will be exercised at all times when handling and moving items from trailers to pits. Only in special circumstances will packaged ammunition be detonated.

3. e. (O) Remove any boxes or containers that are left and place on warehouse trailer.

3. f. (O) Move vehicle up so the warehouse trailer with the demolition charges is in front of the pit.

3. g. (O)(S) Rounds of ammunition that are laid directly in the pit will have primers protected at all times.

3. h. (S)(Q) If pits from previous detonations are used, inspect to ensure no smoldering residue, heat or unexploded ammunition is retained.

4. Place demolition charge in pit.

4. a. (O) Place a sufficient quantity of demolition charge (TNT, Tetrytol, Comp C2/C3/C4 or equivalent) in direct contact with material to be demilitarized.

4. b. (O) Loaded components such as boosters, supplementary charges and similar items which have been authorized for destruction may be used to supplement initiating explosive.

5. Cut detonating cord.

5. (O) Cut detonating cord into required length (sufficient to wrap and tie around demolition charge and extend out of pit approximately 20 feet). Use a non-sparking knife or cap crimper to cut detonating cord.

6. Tie detonating cord around initiating explosive.

6. a. (O) Wrap detonating cord along the demolition charge ensuring that at least 20 inches of cord is concentrated and in contact with surface of initiating material. When applicable, use Dupont Cavity punch to punch hole for detonating cord insertion.

6. b. (O) There will be a minimum of two (2) leads of detonating cord to the donor charge(s) for each pit.

6. c. (O) Sufficient dirt will be placed over items using hand shovel to prevent movement of material.

7. Move to next pit.

7. (O) Move vehicle to next pit and repeat Steps 3, 4, 5 and 6 of this operation.

8. Cover pits with bulldozer and/or bucket-loader earth mover.

8. a. (O) Supervisor or leader will direct earth-mover operator(s) when to start covering pits. There will be a minimum of one (1) pit between the operators setting-up a pit and a pit being covered.

8. b. (O) Each pit should normally have ten (10) to twelve (12) feet of earth cover. In the event only 100 lb NEW or less is to be destroyed, the minimum earth cover is six (6) to eight (8) feet.

8. c. (S) Earth-mover operator(s) will be assisted and directed by a second operator at all times while covering demolition pits.

8. d. (O)(S) The earth-moving equipment will be inspected frequently during the operation for presence of unexploded items which may be uncovered and lodged in the tractor parts. If items are discovered, the supervisor, QASAS and Safety Office (ext. 41-261) will be notified prior to removal or continued operation.

8. e. (S) Operator assisting earth-moving equipment will watch to see that no large rocks are pushed into pits. Operator will also ensure earth-moving equipment does not run over set-up explosives.

8. f. (S)(O) Once final pit is covered, earth-moving equipment will be inspected for unexploded ammunition and removed to a safe distance.

8. g. (S) All but two (2) operators will be evacuated to Bldg. 2104. After securing bulldozer driver will proceed to Bldg. 2104.

9. Close gate.

9. (O) Supervisor will designate one operator to close gate.

K. SPECIAL REQUIREMENTS:

1. Ensure QASAS is present on scene prior to commencing operations.

2. Open detonation of conventional munitions filled with HC, WP, RP, colored smokes and riot control agents is prohibited.

3. Demil operations will not be conducted during an electric storm or when such a storm is approaching. Under such conditions, all electrical operations will be suspended, cap and lead wires shunted, and personnel removed from the disposal area.

K. SPECIAL REQUIREMENTS (Cont'd):

4. Weather conditions may require that demil operations be halted with one or more pits already covered. If operations cannot resume during the shift, and the covered pits must be left overnight, the Security Division and Fire Department shall be notified of the situation (Ext 41-270).

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

	ITEM	QTY	SPEC/DWG NO.	NSN
1.	Hand tools	As Req'd		Various
2.	Safety shoes	" "	MIL-S-41821	Various
3.	Safety glasses	" "	ANSI-Z-87.1	Various
5.	Detonating cord	" "		Various
6.	M2 Cap Crimper	" "	MIL-C-43436	5120-00-029-0683
7.	Tape, adhesive elec insulation 3/4" wide or equivalent	" "		Various
8.	Truck	" "		
9.	Boosters (TNT, Tetrytol, Comp C2/C3/C4 or equiv explosive	" "		
10.	Knife, non-sparking	" "	GGG-K-481	Various
11.	Overshoes, rubber	" "		
12.	Dust respirators or mask	" "	NIOSH APPROVED	
13.	String	" "		
14.	Dupont cavity punch	" "		
15.	Scrap container	" "		
16.	First Aid Kit	1		
17.	Fire Extinguisher	As Req'd	BC	

A. STANDARD OPERATING PROCEDURE FOR: B. OPERATION 4

Demilitarization By Detonation C. BAY NO. N/A

D. SOP NO. SE-0000-G-004 DATE 21 Oct 86

E. REV NO. 5 DATE 02 DEC 1996

F. CHG NO. DATE

G. OPERATION: Transport Electric Caps to Demolition Pit, Prime Pits and Detonate

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: MAX 250 lbs per pit

I. PERSONNEL LIMITS: OPERATORS 2 TRANSIENTS: 0

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Test galvanometer.	1. a. (O) Place M2 cap crimper or a piece of metal across the two terminals. If this does not cause a deflection of the needle (23 to 25 units on scale), the battery is weak. Operator will exchange galvanometer or replace batteries.
		1. b. (O) When used in a cold climate, the galvanometer should be protected from freezing by keeping it under the clothing near the body.
2.	Test No. 47 radio pilot lamp.	2. b. (S) Test should be performed in Bldgs 2101, 2104 or a safe distance from blasting caps.
		2. a. (O) Attach wires to D or C cell battery. If light flashes, it is capable of detecting RF energy.
3.	Prepare to check the Fire Control Panel circuits.	3. a. (S) WARNING The blasting wire ends opposite the Fire Control Panel shall be shunted or twisted together.
		3. b. (O)(S) Insure the Fire Control Panel Power Sitch is in the OFF position.
		3. c. (O) Insure the Fire Control Panel Circuit Selector is at position 1.

3. d. (O) Insure the Fire Control Panel Mode Key Switch is in the 110 VAC position or the Hand Detonation position, depending on the firing mode selected.

3. e. (S) CAUTION
The Mode Key Switch shall be placed in the OFF position, and the key removed and maintained by the individual responsible for priming the shots any time that individual is not operating the Fire Control Panel.

4. Perform the circuit continuity checks for the 110 VAC mode.

4. a. (O) Insure the Selector Switch is at position no. 1.

4. b. (O) Set the Control Panel Mode Key Switch to 110 VAC.

4. c. (O) Remove the shunt/untwist the ends of the firing wires and separate, insuring the wires do not touch one another.

4. d. (O) Touch one wire to a post on the galvanometer and touch the other wire to the opposite post on the galvanometer. A wide deflection of the galvanometer needle indicates the circuit is continuous and ready for use. No deflection of the needle indicates the circuit is open and a problem exists. Locate the defect and repair.

4. e. (O) When the circuit test is successful:

(1) Replace the shunt or twist the two firing wires together to prevent build up of static charge.

(2) Position the Selector Switch to position 2, and repeat the previous steps (4.b thru 4.e)

(3) Repeat steps 4.b thru 4.e until all firing circuits that will be used in the operation are tested and continous.

5. Perform the circuit continuity checks for the Hand Detonation mode

5.a. (O) The following steps are required ONLY if the Hand Detonation mode is to be utilized.

5.b. (S) Insure the Fire Control Panel Power Switch is in the OFF position.

5.c. (O) Insure the Fire Control Panel Selector Switch is in Position 1.

5.d. (O) Insure the Fire Control Panel Mode Key is in the Hand Detonation position.

5.e. (O) Attach the blasting machine to the Binding Posts located on the Fire Control Panel.

5.f. (O) Remove the shunt/untwist the firing wires and separate, insuring the wires do not touch one another.

5.g. (O) Touch one wire to a post on the galvanometer and touch the other wire to the opposite post on the galvanometer. A wide deflection of the galvanometer needle indicates the circuit is continuous and ready for use. No deflection of the needle indicates the circuit is open and a problem exists. Locate the defect and repair.

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SOP NO. 35-0000-G-004 DATE 21 Oct ...
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5. ... when the circuit test is successful:

(1) Replace the shunt or twist the two firing wires together to prevent build up of static charge.

(2) ... the Selector Switch ... and repeat steps 5.e ...

(3) ... this procedure until all ... circuits that will be used ... operation are tested and ...

6. Test for extraneous electricity in the firing circuits.

6.a. ... will test for the ... extraneous electricity in the firing circuits. This test will be performed for both the ... and the Hand Detonat...

6.b. (O) ... Touch firing wire leads to the ... Pilot Lamp. Any glow ... the lamp indicates the presence of static electricity or RF energy in the firing line. No blasting ... be attached to a particular ... line until that line ... passes the Lamp test.

7. Record weather data.

7. (O) ... and record weather data ...

8. Remove blasting caps from service magazine and transport to pit area.

8.a. (O) ... blasting cap to assure ... properly shunted. Reposition ... twist leads of cap wires ... required.

8.b. ... caps in metal container ... enough caps to prime ... of pits to be detonated ... includes several ... caps to replace any ... continuity inspection. ... to pit area.

9. Inspect and test blasting caps.

9. a. (S) Once electric caps are removed from metal container, there will be no radio transmission in demo grounds area unless an emergency requires the use of a radio. Transmission will be made by handheld radio at a distance of not less than 10 feet from the blasting caps.

9. b. (O)(S) The cap will not be held directly in the hand but will be held by the wires approximately one (1) inch from the cap. Assure cap is always pointed away from the body.

9. c. (O)(S) Uncoil lead wires. Operators will uncoil by hand and avoid running the wires through their fingers, as static electricity may be generated. Do not throw, wave or snap wires to loosen coils.

9. d. (O)(S) Carefully extend cap lead wires to maximum length.

9. e. (O)(QC) Inspect cap for cracks, dents, and corrosion. Inspect cap wires for tears or breaks.

9. f. (O) Reject damaged caps. Damaged/defective caps shall be taped to detonating cord loop exiting any of the pits.

9. g. (O) Using pointed leg of M2 cap crimper insert into ground to make a hole a minimum of 10 feet from det cord. Insert cap into hole and/or secure behind a sandbag or rock.

9. h. (O)(S) The operator removing the shunt from blasting cap will ground himself/herself by grasping the bare segment of the firing wire.

9. i. (O) While holding firing wire, remove shunt. Hold one cap lead wire to post of galvanometer and touch other lead wire to other post. Galvanometer needle will deflect slightly less than when instrument was tested.

9. j. (O) Reject caps shall be taped to detonating cord.

9. k. (O) Shunt lead wires of caps appropriately after testing.

10. Connect blasting caps to firing wire.

10. a. (S) Only two (2) operators will be permitted in the demolition pit area when capping (priming) operation is in progress. @ASAS may observe the area with an Ammunition Division representative after the operators have evacuated the area. At no time will more than two individuals be permitted in pit area during and after priming of pits.

10. b. (S) The firing wires must be shunted and also grounded at the Firing Panel end.

10. c. (S) The individual responsible for priming the shots or his/her delegated assistant will be the sole custodian of all ignition devices and Fire Control Panel keys.

10. d. (O) Before splicing, insulated wires must have the insulating material stripped from the ends. Approximately three (3) inches of bare, clean wire are required. Use care not to nick or cut the wires.

10. e. (O) Grasp the bare wire of the firing wire. Remove the shunt from the blasting cap and connect one lead to one lead of the firing wire, twist together. Twist the other leads together. Assure that good connections are made.

10. f. (O) Using electric insulation tape, tape the two connections to separate and insulate.

10. g. (O) Using a weighted object, place on firing wire to secure wire.

11. Connect blasting caps to detonating cord.

11. a. (O) Remove cap from hole or from behind barricade.

11. b. (O)(S) Place cap between the two leads coming out of pit and tape. When taping be sure not to squeeze cap between detonating cord. Do not tape cap within 6" of ends of detonating cord leads.

11. c. (O) Repeat Steps 6 thru 11. b of this operation for all pits to be detonated. Omit Step 7 (documentation of weather data is complete).

11. d. (O) Once all pits are charged, evacuate to personnel shelter 2101.

12. Move all vehicles, except vehicle used to transport operators doing capping, from area.

12. a. (O)(S) Vehicle used to transport personnel to shelter, Bldg 2101, must be parked a minimum of 75 feet from last hole.

12. b. (O) Once pits have been capped, the operators will return to vehicles. The operators will proceed to Bldg. 2101. QASAS and supervisor may inspect and return to Bldg 2101 or continue to Bldg 2104.

12. c. (O) Operators at Bldg 2101 will call Bldg 2104 by land line or radio and let supervisor or designated representative know that pits are ready to be detonated.

12. d. (O) Operator will close gate.

13. Make appropriate notifications by phone.

13. a. (O) The supervisor or designated representative will notify the following:

Conv Ammunition Div	41-441
Security Division	41-448
Fire Department	41-316
Env Protection Ofcr	41-450
ASD	41-322
Airfield	41-414 *

*(may be unattended--if so, no further action required)

13. b. (O) The supervisor or designated representative will notify the operators in Bldg 2101 that the phone calls have been completed, and it is clear to detonate the pits.

13. c. (S) The supervisor will designate one operator to remain outside Bldg 2104 and watch the sky around demo grounds area for aircraft. If aircraft enter demo grounds area all operations will stop until aircraft has left area.

14. Sound alarm.

14. a. (O) Operator in Bldg 2101 will leave shelter and take one final check of area to assure that no unauthorized personnel have entered the area. Also check to see that no equipment has been left in proximity of the pits.

14. b. (O) Siren or horn will be sounded at least three (3) minutes prior to actual detonation of material.

15. Fire using the 110 VAC Mode.

15. a. (O)(S) The keys to fire control panel will be in control of operator(s) priming detonation pits.

15. b. (O) Switch ON the toggle Power Switch.

15. c. (O) Turn the Mode Key Switch to the 110 VAC Mode. The GREEN Power Mode Light will illuminate.

15. d. (O) Position the Selector Switch to position 1 or to the desired circuit to be fired.

15. e. (O) To fire: Depress and hold down the left side Fire Pushbutton. Do not release the Pushbutton.

15. f. (O) Depress and hold the right side Fire Pushbutton; the red Fire Light will illuminate and the distinctive clicking sound of the blasting relay will be heard "kicking in." The clicking sound of the actuated blasting relay informs the operator that the firing circuit has been complete.

CAUTION

Both Fire Pushbuttons must be depressed and the pressure maintained until the firing circuit relay actuates and completes the firing circuit.

15. g. (O)(S) There will be a minimum of 30 seconds between detonations.

15. h. (O)(S) Should a misfire occur in the blasting circuit, check the indicator light to ascertain that the circuit does have power. Attempt to refire the circuit. If the firing circuit is still not completed, bypass the problem circuit and continue firing the remaining circuits until all detonations are complete. When all circuits are fired except the problem circuit, follow the misfire procedure in Step 16.

16. Handling of misfires.

16. a. (O)(S) Electric misfires: WARNING: WAIT AT LEAST 30 MINUTES AFTER EXPECTED DETONATION BEFORE APPROACHING ANY MISFIRE.

16. b. (O)(S) A misfire will be approached by the person in charge or who has the most knowledge of the firing system involved. A second person will act as a safety backup. The safety backup will stay clear of the immediate danger area. He will utilize natural barriers or obstructions for protection, but remain in a position to observe the actions of the person examining the misfire. He will be prepared to summon help for person examining the misfire if an accident should occur.

16. c. (O)(S) Upon reaching the misfire, if detonating cord lead detonates, but fails to detonate the charge, it will be necessary for two (2) operators to dig within approximately 6 inches of the material being detonated, position a new detonating charge, recover material with dirt then retire to Bldg 2101 and detonate the material at that site. In the event the cap does not detonate, remove cap wire from firing wire and twist cap wires to shunt. (DO NOT REMOVE OR DISTURB ORIGINAL CAP). Inspect, test, and connect new blasting cap to firing wire IAW steps 8,9, 10, and 11. Tape cap to detonating cord, retire to Bldg 2101, and detonate material.

16. d. (O)(S) In event of a misfire left overnight, notify Security Division and Fire Department of misfire and set up road barricade to prohibit entry into area.

17. Fire using the Hand Detonation Mode.

17. a. (O)(S) This step will be used ONLY for the Hand Detonation Mode.

17. b. (O) Switch the Panel Power Switch to the OFF position. The toggle switch should be pointing down when the power is off on the Fire Control Panel.

17 c. (O) Set the rotary circuit Selector Switch to position 1 or the desired circuit to be fired.

17 d. (O) Connect the blasting machine current-carrying leads to the Binding Posts, located on the Fire Control Panel.

17. e. (O) Set the Mode Key Switch to the Hand Detonation position.

17. f. (O) Operate the blasting machine IAW the operator's manual or TM 9-1300-277.

17. g. (O)(S) In the event of a misfire, attempt to refire the circuit. If detonation still does not occur, follow the misfire procedure detailed in Step 16.

18. Clear area.

18. a. (O) Once all pits have been detonated, operator in Bldg 2101 will phone Bldg 2104 and let personnel know that all pits have been detonated.

18. b. (O) Operator will lower flag and open gate.

19. Inspect area.

19. (O) Inspect area IAW steps in Operation #6.

K. SPECIAL REQUIREMENTS:

1. Ensure QASAS is present on the scene prior to commencing operations.

2. The blasting machine will be kept in a metal cabinet at Bldg 2104. This cabinet will be kept locked at all times except when blasting machine is being utilized IAW this SOP. The foreman and his delegated assistant are the only authorized personnel to carry the key.

3. CAUTION. Only the special silver-chloride dry cell battery BA 245/U, which produces only 0.9 volts, is to be used in the galvanometer, as other batteries may produce sufficient voltage to detonate electric blasting caps. Because of the tendency to corrode, the battery should be removed from the galvanometer when it is not to be used for extended periods. At temperatures of -20 degrees F to 0 degrees F, use the BA-2245/U Silver Chloride Battery, NSN: 6135-00-883-9909. This also is an approved battery for the blasting galvanometer.

4. Protect galvanometer when used in a cold climate as dry cell batteries tend to cease functioning at temperatures below zero degrees F.

5. Disposal operations will not be conducted during an electric storm, or when such a storm is approaching. Under such conditions, all electrical operations will be suspended, cap and lead wires shunted, and personnel removed from the disposal area.

6. Weather conditions may require that demil operations be halted with one or more pits already covered. If operations cannot resume during the shift, and the covered pits must be left overnight, the Security Division (ext. 41-448) and Fire Department (ext. 41-316) shall be notified of the situation.

7. Open detonation of HC, colored smokes, WP, RP, and riot control munitions is prohibited.

8. Detonation of hazardous waste is prohibited except as allowed by 40 CFR 265.382 for the open detonation of waste explosives.

9. Detonation operations will be accomplished in such a manner that high-order detonations are achieved to minimize environmental contamination.

10. All detonation operations will be conducted with at least one (1) person present who has successfully completed the required training in environmental compliance procedures/requirements.

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

	ITEM	QTY	SPEC/DWG NO.	NSN
1.	Hand tools	As Req'd		Various
2.	Safety shoes	" "	MIL-S-41821	Various
3.	Safety glasses	" "	ANSI-Z-87.1	Various
4.	Cap, blasting, elec	" "		Various
5.	Galvanometer	1		6625-00-539-8444
6.	Detonating cord	As Req'd		Various
7.	M2 Cap Crimper	" "		5120-00-029-0583
8.	Tape, adhesive elec insulation 3/4" wide or equivalent	" "		Various
9.	Truck	" "		
10.	Boosters (TNT, Tetrytol, Comp C2/C3/C4, M15 mine or equiv explosive	" "		
11.	Firing wire	" "		
12.	Knife, non-sparking	" "	GGG-K-481	Various
13.	Wire stripper	" "		
14.	Overshoes, rubber	" "		

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES (Cont'd):

ITEM	QTY	SPEC/DWG NO.	NSN
15. Dust respirators or mask	As Req'd	NIOSH APPROVED	
16. String	" "		
17. Matches in container (M2A1 can or equiv)	" "		
18. Blasting machine 10, 30 or 50 cap	" "		
19. APE 1055M3	2		
20. Silver Chloride Dry Cell Battery	1	B 245/U	6135-00-128-1632
21. Silver Chloride Dry Cell Battery	1	B 2245/U	6135-00-883-9909
22. Sandbags	As Req'd		
23. First Aid Kit	1		
23. Fire Extinguisher	As Req'd	BC	

A. STANDARD OPERATING PROCEDURE FOR: B. OPERATION 5

Demilitarization By Detonation C. BAY NO. N/A

D. SOP NO. SE-0000-G-004 DATE 21 Oct 86

E. REV NO. 5 DATE 02 DEC 1996

F. CHG NO. DATE

G. OPERATION: Non-electric Priming and Detonating

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: MAX 250 lbs per pit

I. PERSONNEL LIMITS: OPERATORS 2 TRANSIENTS: 0

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Receive time fuse and igniters from storage or service magazine and prepare for test.	1. a. (O)(S) Verify NSN and lot number to assure time fuse is selected. 1. b. (O) Using a non-sparking knife, or cap crimper, cut and discard a six-inch length from the free end of the roll of time fuse. Discarded length of fuse may be burned IAW Steps 3 or 4 of this operation.
2.	Light time fuse and test for burn time.	2. a. (O) Cut off a three-foot length of time fuse. 2. b. (S) Time fuse test will be conducted a safe distance (a minimum of 100 feet) from all ammunition and explosives. 2. c. (O) With a stop watch or suitable substitute, determine the length of time the 3 feet of time fuse burns. Using that rate, calculate the number of feet required for the desired fuse burn time. 2. d. (O) Time fuse will be ignited using methods in Steps #3 or 4.

3. Ignite time fuse with M60 fuse igniter.	3. a. (O) Attach an igniter by unscrewing the fuse holder cap two or three turns BUT do not remove cap. Press the shipping plug into the igniter to release the split collet, and rotate the plug as it is removed. Insert free end of time fuse until it rests against the primer and tighten cap.
	3. b. (O) To fire: remove the safety pin from the M60 igniter, push plunger all the way in and turn release ring one quarter of a turn and pull. In the case of a misfire, repeat the above process. If igniter still fails to function, replace with a serviceable igniter and repeat above instructions.
4. Ignite time fuse with match.	4. a. (O) Split time fuse at the end, place the head of an unlit match in the powder train.
	4. b. (O) To fire, light the inserted match with a flaming match or by rubbing the abrasive on the match box against the match head.
5. Prepare time fuse for priming.	5. a. (O)(S) Using a non-sparking knife or cap crimper cut length of time fuse.
	5. b. (S) Time fuse as determined by test burn in step #2 will be of sufficent length to allow enough time for personnel to withdraw to Bldg 2104 or 2101.
	5. c. (S) In no case will the time fuse be less than 3 feet long or have a burn time of less than 120 seconds.

5. d. (O) Cut time fuse to provide the following burn times (by pit):

Pit Number	Burn Time
1	7 minutes
2	8 minutes
3	9 minutes
4	10 minutes
5	11 minutes
6	12 minutes
7	13 minutes
8	14 minutes
9	15 minutes
10	16 minutes
11	17 minutes
12	18 minutes
13	19 minutes
14	21 minutes
15	22 minutes

ALTERNATE METHOD

If desired, the following method may be substituted: pits #1-7 and pits #8-15 may be primed and detonated separately. If this is the case, time fuse lengths for pits #8-15 will be the same as pits #1-8, as listed above.

6. Record weather data.

6. (O) Gather and record weather data IAW Appendix D.

7. Inspect caps.

7. (O) Inspect for serviceability. If cap is dented, bent, cracked or deteriorated--reject. Rejected caps will be taped to loop of detonating cord exiting any of the pits.

8. Prepare blasting cap to receive fuse.

8. a. (O)(S) Extreme caution will be exercised at all times in the handling of non-electric caps. They will not be carried loose or in a capper's pocket. Rough handling will be avoided. Caps should not be exposed to hot sun for long intervals when not protected by a box or covering. They should not be held in the hand for long intervals, for bringing them to body temperature makes them hazardous.

8. b. (O)(S) CAUTION: Never tap the cap with a hard object or against a hard object. Do not insert anything into the cap to remove any dirt or foreign material. Never blow into the cap.

8. c. (O) Take cap and holding open end-down gently bump the hand holding the cap against the other hand, to remove any dirt or foreign matter.

9. Insert fuse into cap.

9. a. (O) Hold the time fuse vertically with the square cut end up and slip the blasting cap gently down over it so that the flash charge in the cap is in contact with the end of the time fuse; if not, it may misfire.

9. b. (S)(O) Never force the time fuse into blasting cap by twisting or any other method. If the end of time fuse is too large to enter the blasting cap freely, roll it between the thumb and fingers until the size is reduced to permit free entry.

9. c. (O) After the blasting cap has been seated, grasp the time fuse between the thumb and third finger and extend the forefinger over the end of the cap to hold it firmly against the end of the time fuse. Keep a slight pressure over the closed end of the cap with the forefinger.

9. d. (O) Slide the second finger down the outer edge of the blasting cap to guide the crimpers and thus obtain accurate crimping.

10. Crimp blasting cap.

10. a. (O)(S) The fuse and cap will be held at arm's length at the side of the body with the head turned away to avoid serious injury if detonation occurs.

10. b. (O)(S) Using an M2 cap crimper only, crimp blasting cap at a point of 1/8 to 1/4 of an inch from the open end. A crimp too near the explosive in the blasting cap may cause detonation.

10. c. (O)(S) CAUTION: Make sure cutting area on M2 crimper is NOT used during crimping.

10. d. (O)(S) Point the cap out and away from the body, other personnel, and explosives during crimping.

10. e. (O) Install M60 IAW Step 3. a of this operation.

11. Connect blasting caps to detonating cord.

11. a. (O)(S) Tape blasting cap between the two leads of detonating cord exiting the pit. When taping, be sure to avoid squeezing the cap between the detonating cord.

11. b. (O)(S) Once all pits are connected, operators will evacuate to Bldg 2101.

12. Make appropriate notifications by phone.

12. a. (O) The supervisor or designated representative will notify the following:

Operations Division	41-441
Security Division	41-448
Fire Department	41-316
Env Protection Ofcr	41-450
ASD	41-322
Airfield	41-414 *

*(may be unattended--if so, no further action required)

12. b. (O) The supervisor or designated representative will notify the operators in Bldg 2101 that it is clear to detonate the pits. Assure gate is closed.

12. c. (O)(S) The supervisor will designate one operator to remain outside Bldg 2104 and watch the sky around the demo grounds area for aircraft. If aircraft enter demo grounds area, all operations will stop until air-aircraft have left area.

13. Sound alarm.

13. (O)(S) Siren or horn will be sounded at least three minutes prior to actual detonation of material.

14. Detonate pits.

14. a. (O) Two operators will leave Bldg 2101 and drive to pit area. Once they reach pit area, they will park vehicle 75 feet from hole #1.

14. b. (O) Two operators will leave vehicle and walk to furthest pit utilized.

14. c. (O) Pits will be ignited in this order: #15 (or the furthermost pit which was utilized) down to #1. If operators exercised the option of priming 7 to 8 pits at a time (as described in Step 5. d) they may start with either set, provided they start with the furthermost pit of each set.

14. d. (O)(S) Activate the M60 igniter. If initial attempt fails, repeat the process. If igniter still fails to function, IMMEDIATELY replace and repeat ignition. If second igniter fails, discontinue attempt and move to next pit.

14. e. (O) Once all pits have been ignited, operators will return to vehicle and drive to Bldgs 2101 or 2104.

14. f. (O) Count detonations as they occur to assure all set-ups have been detonated.

15. Handling of misfires.

15. a. (O)(S) Non-electric misfires:

WARNING

WAIT AT LEAST 30 MINUTES AFTER EXPECTED DETONATION BEFORE APPROACHING ANY MISFIRE.

15. b. (O)(S) Misfires will always be approached by one man with a second man acting as safety backup.

15. c. (O)(S) A misfire will be approached by the person in charge or who has the most knowledge of the firing system involved. A second person will act as a safety backup. The safety back-up will stay clear of the immediate danger area. He/she will utilize natural barriers or obstructions for protection, but remain in a position to observe the actions of the person examining the misfire. He/she will be prepared to summon help for the person examining the misfire if an accident should occur.

15. d. (O) Prepare a new fused blasting cap with a time of seven minutes and tape to detonating cord. Ignite IAW Step 3 or 4 this operation.

15. e. (O)(S) Once fuse has been ignited, return to vehicle and drive to Bldgs 2101 or 2104. Wait for detonation.

15. f. (O) Upon completion of all pits being detonated, operator will lower flag and open gate.

16. Inspect area.

16. (O) Inspect area IAW steps in Operation #6.

K. SPECIAL REQUIREMENTS:

1. Ensure QASAS is present on the scene prior to commencing operations.

2. Disposal operations will not be conducted during an electric storm, or when such a storm is approaching. Under such conditions, operations will be suspended, and personnel removed from the demolition grounds.

3. Weather conditions may require that demil operations be halted with one or more pits already covered. If operations cannot resume during the shift, and the covered pits must be left overnight, the Security Division (ext. 41-448) and Fire Department (ext. 41-316) shall be notified of the situation.

4. Open detonation of HC, colored smokes, WP, RP, and riot control munitions is prohibited.

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

5. Detonation of hazardous waste is prohibited except as allowed by 40 CFR 265.382 for the open detonation of waste explosives.

6. Detonation operations will be accomplished in such a manner that high-order detonations are achieved to minimize environmental contamination.

7. All detonation operations will be conducted with at least one (1) person present who has successfully completed the required training in environmental compliance procedures/requirements.

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

	ITEM	QTY	SPEC/DWG NO.	NSN
1.	Hand tools	As Req'd		Various
2.	Safety shoes	" "	MIL-S-41821	Various
3.	Safety glasses	" "	ANSI-Z-87.1	Various
4.	Detonating cord	" "		Various
5.	M2 Cap Crimper	" "	MIL-C-43436	5120-00-029-0683
6.	Tape, adhesive elec insulation 3/4" wide or equivalent	" "		Various
7.	Truck	" "		
8.	Boosters (TNT, Tetrytol, Comp C2/C3/C4, M15 mine or equiv explosive	" "		
11.	Knife, non-sparking	" "	GGG-K-481	Various
12.	Overshoes, rubber	" "		
13.	Fuse, blasting time	" "		1375-M670
14.	Igniter, M60	" "		1375-M766
15.	Cap, blasting, non-electric	" "		Various
16.	Dust respirators or mask	" "	NIOSH APPROVED	
17.	String	" "		
18.	Matches in container (M2A1 can or equiv)	" "		
19.	First Aid Kit	1		
20.	Fire Extinguisher	As Req'd		

A. STANDARD OPERATING PROCEDURE FOR: B. OPERATION 6

Demilitarization By Detonation C. BAY N/A

D. SOP NO. SE-0000-G-004 DATE 21 Oct 86

E. REV NO. 5 DATE 02 DEC 1996

F. CHG NO. DATE

G. OPERATION: Inspect Area

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: N/A

I. PERSONNEL LIMITS: OPERATORS 8 TRANSIENTS: 4

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Re-enter demolition area.	1. a. (O)(S) Upon completion of detonation, operators and QASAS will search surrounding area for duds (unexploded material and items). If duds are found, they will be destroyed by placing TNT or Comp C-4 blocks next to the material as close as possible without touching the material. Use shaped charges to destroy thick walled ammunition residue. Charges will be set up, primed, and detonated IAW the procedures outlined in operations 3 and 4 (or 3 and 5 if non-electric method is required).
		1. b. (O)(S) If any evidence of unexploded explosives material (lumps, residue, etc.) is found, the Environmental Protection Officer, Ext. 41-450, will be notified.
		1. c. (O)(S)(QC) Operators will perform a sweep of the area for ammunition scrap metal, components, and unexploded residue after each day's operations or prior to further bulldozing of the pit area.

2. Supervisor-in-charge will perform 100% inspection of scrap deemed suitable for transfer to DRMO.

2. a. (O) Material generated from ammunition or from other explosive items or incendiary munitions, even though properly inspected and rendered inert, will not mingle with other types of material including scrap when transferred to DRMO. Emphasis will be placed on the separation of inert projectiles, dummy rounds of ammunition, and other inert types of material.

2. b. (O) Each turn-in document will be annotated with the applicable demilitarization code. (See Appendix 3, DOD 4160.21-M-1, for demil codes).

2. c. (O) Demilitarization requirements will be as directed in Appendix 1 and 4, DOD 4160.21-M-1.

2. d. (O) DD Form 1348-1 or equivalent form will be signed by the supervisor certifying that the items were demilitarized/decontaminated IAW Item 4, Appendix 4, Defense Demilitarization Manual DOD 4160.21-M-1 and also signed (verified) by a QASAS.

3. Prepare for turn-in.

3. a. (O)(S)(QC) Prior to transfer to salvage, supervisor will inspect and certify items to be free of explosives. QASAS will perform a verification inspection as further assurance that all items are completely inert.

3. b. (O) Prepare certification IAW para K.1 (Special Requirement) below.

K. SPECIAL REQUIREMENT:

1. Certification Statements:

a. Demilitarization Certification: The following certification is a requirement and will be placed on all DD Forms 1348-1 (or equivalent) accompanying demilitarized material to DRMO:

"I CERTIFY THAT THE (Item Nomenclature) WERE DEMILITARIZED IN ACCORDANCE WITH DOD 4160.21-M-1, DEFENSE DEMILITARIZATION MANUAL, APPENDIX 4 AND/OR AMC-R 755-8:"
SIGNATURE (Supervisor) DATE _____
COUNTER SIGNATURE (QASAS) DATE _____

b. DD Forms 1348-1 (or equivalent) accompanying the above items must also contain the statements listed below.

(1) Inert Material Certification: the certification statement below is a requirement and will be placed on all DD Forms 1348-1 accompanying inert (demilitarized) material to DRMO:

"I CERTIFY THAT THE ITEMS LISTED HEREON HAVE BEEN INSPECTED 100% BY ME AND, TO THE BEST OF MY KNOWLEDGE, CONTAIN NO ITEMS OF A HAZARDOUS NATURE."

_____ _____
AMMUNITION SUPERVISOR DATE

(2) Inert Material Verification: the verification statement below is a requirement and will be placed on all DD Forms 1348-1 accompanying inert (demilitarized) material to DRMO:

"I CERTIFY THAT BASED ON A SAMPLING INSPECTION, THE ABOVE CERTIFICATION IS VALID AND THE ITEMS LISTED HEREON ARE TO THE BEST OF MY KNOWLEDGE EXPLOSIVE FREE."

_____ _____
QUALITY ASSUR SPEC (AMMO SURV) DATE

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

	ITEM	QTY	SPEC/DWG NO.	NSN
1.	Hand tools	As Reqd		Various
2.	Safety shoes	" "	MIL-S-41821	Various
3.	Safety glasses	" "	ANSI-Z-87.1	Various
4.	Truck	" "		Various

APPENDIX A

General Environmental Requirements

1. Waste paints, thinners, pentachlorophenol (PENTA) residues, oily rags, ash residue, and other hazardous materials will be disposed of as a hazardous waste IAW SEDA-R 420-2, Hazardous Waste Management.

2. If any evidence of unexploded explosive material (lumps, residue, etc.) are found, the Environmental Protection Officer (EPO), ext. 41-450, will be notified.

3. Pentachlorophenol (PENTA) treated pallets, ammunition boxes, or other wood will not be open detonated (OD).

4. Except in emergency situations, open detonation of HC, colored smoke, WP, RP, and riot control agents is prohibited. Specific approval is required by AMC, Department of Environmental Conservation (DEC), and EPA as appropriate for emergency situations.

5. All personnel involved with OD operations will be familiar with the requirements in Subpart X of 40 CFR Part 264. Personnel will comply with the specifications in the application and the permit itself when finalized.

6. All personnel involved with OD operations will attend SEDA's annual hazardous waste training refresher course.

7. OD of hazardous waste is prohibited, except as allowed by 40 CFR 265.382 for the OD of waste explosives.

8. OD operations will be accomplished such that high-order detonations are achieved.

9. D/MO will provide, by memorandum to the EPO, a detailed chemical composition of all candidates for OD. This should be submitted a minimum of one month prior to demil operations.

10. An after action report will be provided to the EPO whenever the general environmental requirements are not met. The report will state the cause/reasons and actions taken.

11. Appendix D contains the three applicable Land Disposal Restriction notification/certification statements. The Internal Notification Statement (page D-1) shall be submitted by Chief, Conventional Ammunition Division (or Chief, Conventional Storage Division) to the demil supervisor (with copy furnished to the Environmental Protection Officer). The Internal Certification Statement (page D-2) shall be submitted by the demil supervisor to the OD (with copy furnished to the Environmental Protection Officer). The statement (with required entries) on page D-3 shall be submitted to the Environmental Protection Officer with turn in of hazardous wastes.

12. When feasible, demilitarization processes alternative to Open Burning/Open Detonation will be used.

13. Incompletely destroyed munitions (i.e., duds) are potentially reactive and will be treated again by Open Burning/Open Detonation during the next day of operation. In no case will such items remain unprocessed more than 90 days.

14. Any item with exposed explosives will not be left exposed to the elements. Such items will be disposed of immediately or placed in a container until such time as disposal can be accomplished. These actions are required in order to preclude the explosive composition leaching into the soil.

15. All personnel involved with Open Burning/Open Detonation operations shall receive yearly instruction in the contents of Seneca's Subpart X of 40 CFR Part 264, *Application for Miscellaneous Unit to Treat, Store, and Dispose of Hazardous Waste*. This instruction shall be provided by the Environmental Protection Officer.

16. Heavy equipment operators will perform required maintenance on earth-moving and other heavy equipment. This maintenance will include those steps necessary to preclude inadvertant drainage of the fuel system due to frozen or leaking fuel lines, cracked sediment bowl, etc. Operators will take extra precautions to inspect the fuel system for any existing leaks and take immediate corrective action if a leak is discovered.

APPENDIX B

1. Seneca's Subpart X of 40 CFR Part 264, *Application for Miscellaneous Unit to Treat, Store, and Dispose of Hazardous Wastes* is considered an appendix to this SOP. However, its volume makes its physical inclusion impractical. A copy of the application is on file with the Environmental Protection Officer.

APPENDIX C

METEROLOGICAL DATA CHECKLIST

Forecast data required to be logged when detonating:

DATA	DATA	SOURCE OF DATA
Date	Mo/Day/Yr	Supervisor
Time	24 hr clock	Supervisor
Wind Speed	MPH	NWS
Wind Direction		NWS
Temperature	Degree Far.	NWS
Relative Humidity	Percentage	NWS/Fire Dept
Visibility	Miles	NWS
Sky Condition (ceiling)	Feet	NWS
Barometric Pressure	Inches	NWS

(NWS: National Weather Service, Rochester or Syracuse Bureau or military equivalent, i.e., Griffiss AFB)

Meteorological conditions required to perform detonation:

1. Probability of precipitation less than 50%.
2. Probability of thunderstorm less than 50%.
3. Probability of electric storm less than 50%.
4. Wind speed between 3 and 20 miles per hour. Gusts will be less than 30 miles per hour.
5. Operations shall not be carried out when the cloud cover is greater than 80% AND the cloud ceiling is less than 2000 feet.
6. Visibility must be at least 1 mile.

NOTE: Weather symbols may be used to augment/replace written entries in the weather log as applicable. See the following pages of Appendix C for legend of symbols.

WEATHER SYMBOL LEGEND

ALTOCUMULUS, (thin patches)

ALTOCUMULUS (in bands and thickening)

ALTOCUMULUS, (double layered)

VISIBILITY (reduced by smoke)

HAZE

LIGHT FOG

HEAVY FOG, ICE FOG

DUST WHIRLS

DUST OR SAND STORM

TORNADO (Funnel Cloud)

TROPICAL STORM

HURRICANE

SQUALL

DRIZZLE

SLIGHT FREEZING DRIZZLE

SLIGHT RAIN, INTERMITTENT

SLIGHT RAIN, CONTINUOUS

MODERATE RAIN, INTERMITTENT

MODERATE RAIN, CONTINUOS

HEAVY RAIN INTERMITTENT

HEAVY RAIN CONTINUOUS

PRECIPITATION (during past hour)

INCREASED, (phenomenon during past hour)

DECREASED, (phenomenon, during past hour)

PRECIPITATION (not REACHING GROUND)

PRECIPITATION (landing far from station)

PRECIPITATION (landing near station)

SHOWERS

HAIL

RAIN SHOWERS (moderate or heavy)

WEATHER SYMBOL LEGEND

WIND
(calm)

WIND
(approx 1 mph)

WIND
(approx 6 mph)

WIND
(approx 12 mph)

WIND
(approx 58 mph)

WARM FRONT,
ALOFT

WARM FRONT,
SURFACE

COLD FRONT,
ALOFT

COLD FRONT,
SURFACE

OCCLUDED FRONT,
SURFACE

STATIONARY FRONT,
SURFACE

CLEAR SKY

SCATTERED CLOUDS,
0.1 or less

SCATTERED CLOUDS
0.2 or 0.3

SCATTERED CLOUDS,
0.4

SCATTERED CLOUDS,
0.5

BROKEN CLOUDS,
0.6 - 0.9

BROKEN CLOUDS,
0.6

BROKEN CLOUDS,
0.7 OR 0.8

BROKEN CLOUDS,
0.9

OVERCAST

OVERCAST,
COMPLETE

OVERCAST,
SKY OBSCURED

STRATUS and/or
FRACTOSTRATUS

FRACTOSTRATUS,
(fractocumulus [Scud])

ALTOSTRATUS,
(thin, semi-
transparent)

ALTOSTRATUS,
(thick)

STRATOCUMULUS
(spreading from
cumulus)

STRATOCUMULUS,
(not from cumulus)

CUMULUS, (little
vertical development)

CUMULUS and
STRATOCUMULUS

CUMULUS, (con-
siderable develop-
ment)

CUMULONIMBUS
(clear-cut tops
lacking)

CUMULONIMBUS
(clear top)

ALTOCUMULUS

WEATHER SYMBOL LEGEND

RAIN SHOWERS, (violent)

SLIGHT SHOWERS of SNOW PELLETS

SLIGHT SHOWERS of HAIL

LIGHTNING

THUNDERSTORM

THUNDERSTORM (moderate, with hail)

THUNDERSTORM (heavy, with hail)

ICE PRISMS

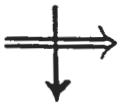
SNOW GRAINS

ICE PELLETS (sleet)

SNOW

STARLIKE SNOW CRYSTALS

DRIFTING SNOW (slight to moderate)



DRIFTING SNOW (heavy)

BLOWING SNOW (slight to moderate)

APPENDIX D

SENECA ARMY DEPOT ACTIVITY
Land Disposal Restriction Internal Notification
Open Burning/Open Detonation Treatment

1. EPA ID Number: NY0213820830

2. Waste type: _____

3. PEP type: _____

_____

_____

_____

4. Hazardous waste number: _____

5. Treatment standard expressed as specific technology: Deact

   a. Open burning: _____

   b. Open detonation: _____

The following statement must be signed by the supervisor or commanding officer who is responsible for the operation which generated the hazardous waste:

I certify under penalty of law that I personally have examined and am familiar with the waste, through analysis and testing or through knowledge of the waste, to support this certification that the waste complies with the treatment standards in Part 376, section 376.4, or all applicable prohibitions set forth in subdivision 376.3(b) of part 376 or Section 3004(d) of RCRA. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine or imprisonment.

_____
(Printed Name)

_____
(Signature)

_____
(Title)

_____
(Date)

APPENDIX D

SENECA ARMY DEPOT ACTIVITY
Land Disposal Restriction Internal Notification
Open Burning/Open Detonation Treatment

1. EPA ID Number: NY0213820830

2. Waste type: _____

3. PEP type: _____

_____

_____

_____

4. Hazardous waste number: _____

5. Treatment standard expressed as specific technology: Deact

   a. Open burning: _____

   b. Open detonation: _____

The following statement must be signed by the supervisor or commanding officer who is responsible for the operation which treated the hazardous waste:

I certify under penalty of law that the waste has been treated in accordance with the requirements of subdivision 376.4(c). I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine or imprisonment.

_____
(Printed Name)

_____
(Signature)

_____
(Title)

_____
(Date)

SDSTO-SEI Form 201-6, 28 March 94

Land Disposal Restriction Internal Notification and Certification

1. EPA ID Number: NY0213820830

2. Waste type: _____

3. Hazardous waste number: _____

4. Number of containers: _____

5. Generation point (building #): _____

6. Applicable treatment standards: _____

7. Expressed as concentrations in waste extract: _____

8. Expressed as specific technologies: _____

9. Expressed as waste concentration: _____

10. Waste Analysis Data attached: (Yes No)

The following statement must be signed by the supervisor or commanding officer who is responsible for the operation which generated the hazardous waste:

I certify under penalty of law that I personally have examined and am familiar with the waste being turned-in and that it is subject to the land disposal restrictions of 6 NYCRR Part 376. The waste **does not meet** the applicable treatment standards set forth in 6 NYCRR Part 376, section 376.4, or all applicable prohibitions set forth in subdivision 376.3(b) of part 376 or Section 3004(d) of RCRA. I believe that the information I submitted is true, accurate, and complete.

_____
(Printed Name)

_____
(Signature)

_____
(Title)

_____
(Date)

SDSTO-SEI Form 201-4, 28 March 94

APPENDIX 2

COMPOSITION OF PROPELLANTS, EXPLOSIVES AND PYROTECHNICS

TABLE 2-1

COMPOSITION OF PROPELLANT TREATED BY OPEN BURNING (OB)

Composition (% by wt.)

Propellant Designation	M1	M2	M5	M6	M7	M8
Chemical						
Nitrocellulose	85.0	77.45	81.95	87.0	54.6	52.15
Nitroglycerin	-	19.50	15.00	-	35.5	43.00
Nitroguanidine	-	-	-	-	-	-
Dinitrotoluene	10.0	-	-	10.0	-	-
Dibutylphthalate	5.0	-	-	3.0	-	-
Diethylphthalate	-	-	-	-	-	3.0
Diphenylamine	1.0*	-	-	1.0	-	-
Ethyl Centralite	-	0.60	0.60	-	0.9	0.60
Barium Nitrate	-	1.40	1.40	-	-	-
Potassium Nitrate	-	-	-	-	7.8	-
Lead Carbonate	1.0**	-	-	-	-	-
Potassium Sulfate	1.0**	-	-	1.0*	-	-
Tin	-	-	-	-	-	-
Carbon Black	-	-	-	-	1.2	-
Graphite	-	0.30	0.30	-	-	-
Cryolite	-	-	-	-	-	-
2-Dinitro-diphenyldiamine	-	-	-	-	-	-
Lead Stearate	-	-	-	-	-	-
Triacetin	-	-	-	-	-	-
Charcoal	-	-	-	-	-	-
Sulfur	-	-	-	-	-	-

Notes: *Added basis
**Added basis when specified

TABLE 2-1
(Cont.)

Composition (% by wt.)

Propellant Designation	M16	M17	M18	M26	M26 E1	M30	M30 A1
Chemical							
Nitrocellulose	55.50	22.0	80.00	67.25	68.70	28.00	28.00
Nitroglycerin	27.50	21.5	10.00	25.00	25.00	22.50	22.50
Nitroguanidine	-	54.7	-	-	-	47.70	47.00
Dinitrotoluene	10.50	-	-	-	-	-	-
Dibutylphthalate	-	-	-	-	-	-	-
Diethylphthalate	-	-	-	-	-	-	-
Diphenylamine	-	-	.70	-	-	-	-
Ethyl Centralite	4.00	1.5	-	6.00	6.00	1.50	1.50
Barium Nitrate	-	-	-	0.75	-	-	-
Potassium Nitrate	-	-	-	0.70	-	-	-
Lead Carbonate	-	-	-	-	-	-	-
Potassium Sulfate	1.50	-	-	-	-	-	1.00
Tin	-	-	-	-	-	-	-
Carbon Black	0.50	-	-	-	-	-	-
Graphite	-	Glaze 0.1	-	0.30	0.30	Glaze 0.10	-
Cryolite	-	0.3	-	-	-	0.30	-
2-Dinitro-diphenyldiamine	-	-	-	-	-	-	-
Lead Stearate	.505	-	-	-	-	-	-
Triacetin	-	-	-	-	-	-	-
Charcoal	-	-	-	-	-	-	-
Sulfur	-	-	-	-	-	-	-

Notes: *Added basis
**Added basis when specified

TABLE 2-1
(Cont.)

Composition (% by wt.)

Propellant Designation:	M31	M31 A1	IMR	T2	T3	T23	Black Powder
Chemical							
Nitrocellulose	20.00	20.00	90.00	57.50	58.00	67.25	-
Nitroglycerin	19.00	19.00	-	30.00	22.50	0.25	-
Nitroguanidine	54.70	54.00	-	-	-	-	-
Dinitrotoluene	-	4.50	9.00	4.50	2.50	-	-
Dibutylphthalate	-	-	-	-	-	-	-
Diethylphthalate	-	-	-	-	-	-	-
Diphenylamine	-	-	-	-	-	-	-
Ethyl Centralite	-	-	-	8.00	8.00	6.00	-
Barium Nitrate	-	-	-	-	-	0.75	-
Potassium Nitrate	-	-	-	-	-	0.70	74.00
Lead Carbonate	-	-	-	-	-	-	-
Potassium Sulfate	-	1.50	1.00**	1.50	-	-	-
Tin	-	-	-	-	-	-	-
Carbon Black	-	-	-	0.02*	-	-	-
Graphite	-	-	-	-	-	0.30	-
Cryolite	0.30	-	-	-	-	-	-
2-Dinitro-diphenyldiamine	1.50	-	-	-	-	-	-
Lead Stearate	-	-	-	0.50	0.50	-	-
Triacetin	-	-	-	-	8.50	-	-
Charcoal	-	-	-	-	-	-	15.60
Sulfur	-	-	-	-	-	-	10.40

Notes: *Added basis
**Added basis when specified

TABLE 2-2

CHEMICAL FORMULA OF EXPLOSIVES TREATED BY OPEN DETONATION (OD)

Primary Explosives - Chemical Name	Chemical Formula	Hazardous Waste ID Number
Lead Azide	N_6Pb (71% PB)	D003, D008
Mercury Fulminate	$C_2HgN_2O_2$ (7.05% Hg)	D003, D009
Diazodinitrophenol (DDNP)	$C_6H_2N_4O_5$	D003
Lead Styphnate	$C_6HN_3O_8Pb$ (44.2% Pb)	D003, D008
Tetracene	$C_{18}H_{12}$	D003
Potassium Dinitrobenaofuroxane (KDNBF)	$C_6H_2N_4O_6K$	D003
Lead Monomitroresorcinate (LMNR)	$C_6H_3NO_2Pb$ (57.5% Pb)	D003, D008
Lead Thiocyanate (fuel)	$Pb(SCN)_2$ (64% Pb)	D008
Antimony Sulfide (fuel)	Sb_2S_5	D003
Calcium Silicate (fuel)	$CaSiO_3$	D003, D001
Potassium Chlorate (oxidizer)	$KClO_3$	D003
Ammonium Perchlorate (oxidizer)	NH_4ClO_4	D003
Barium Nitrate	$Ba(NO_3)_2$	D003, D005

TABLE 2-2
(Cont.)

High Explosives – Chemical Name	Chemical Formula	Hazardous Waste ID Number
(Aliphatic Nitrate Esters)		
1,2,4-Butanetriol Trinitrate (BTN)	$C_4H_7N_3O_9$	D003
Diethyleneglycol Dinitrate (DEGN)	$C_4H_8N_2O_7$	D003
Nitroglycerine (NG)	$C_3H_5N_3O_9$	D003
Nitrostarch (NS)	$C_6H_{10}O_5NO_2$	D003
Pentaerythritol Tetranitrate (PETN)	$C_5H_8N_4O_{12}$	D003
Trimethylene Glycoldinitrate (TEGN)	$C_6H_{12}O_4N_2O4$	D003
1,1,1-Trimethylolethane Trinitrate (TMETN)	$C_5H_9O_{9N}3$	D003
Nitrocellulose (NC)	$C_{12}H_{16}(ONO_2)_4O_6$	D003
(Nitramines)		
Cyclotetramethylenete-Tranitramine (HMX)	$C_4H_8N_8O_2$	D003
Cyclotrimethylene-Trinitramine (RDX)	$C_3H_6N_6O_6$	D003
Ethylenediamine Dinitrate (EDDN: Haleite)	$C_2H_6N_4O_4$	D003
Nitroguanidine (NQ)	$CH_4N_4O_2$	D003
2,4,6-Trinitrophenyl-Methylnitramine	$C_7H_5N_5O_8$	D003

TABLE 2-2
(Cont.)

High Explosives – Chemical Name:	Chemical Formula:	Hazardous Waste ID Number
(Nitroaromatics)		
Ammonium Picrate (Explosive D)	$C_6H_3N_3O_7H_3N$	D003
1,3-Diamino-2,4,6-Trinitrobenzene (DATB)	$C_6H_4N_6O_6$	D003
2,2'4,4'6,6'-Hexanitroazobenzene (HNAB)	$C_{12}N_8O_{12}$	D003
Hexnitrostilbene (HNS)	$C_{14}H_6N_6O_{12}$	D003
1,3,5-Triamino-2,4,6-Trinitrobenzene (TATB)	$C_6H_6N_6O_6$	D003
2,4,6-Trinitroluene (TNT)	$C_7H_5N_3O_6$	D003
Ammonium Nitrate	HN_4NO_3	D003
Plastic Bonded Explosive (PBX)		
Explosives (see above) and polymer binder, plasticizer, and fuel (aluminum or iron)		
(Pyrotechnics)		
Combination of: Oxidizer - oxygen or fluorine Fuel - powdered aluminum or magnesium Binding Agents - resins, waxes, plastics, oils, retardants, waterproofing, color intensifier		

TABLE 2-2
(Cont.)

Explosives - Chemical Name	Chemical Formula	Percent
Black Powder	Potassium Nitrate	74.0
	Charcoal	15.6
	Sulfur	10.4
Composition B	60/40 Cyclotol	
	RDX	60
	TNT	39
	WAX	17
Photoflash	Laminac	96.8
	Lupersol, DDM	3.0
	Iron Oxide	.2
Composition C4	RDX	91.0
	Polyisobutylene	2.1
	Motor Oil	1.6
	Di-(2-Ethylhexyl) Sebacate	5.3
TPA Incendiary	Triethylaluminum	?
Amatol	Ammonium Nitrate	?
	TNT	?
Composition A3	RDX	91
	WAX	9
Explosive A4	RDX	97
	WAX	3
HBX-1.3 & 6	RDX	39.6
	TNT	37.8
	Aluminum	17.1
	Densitizer Comp D2	5.0
	CACL	.5
Octol	HMX	75
	TNT	25

TABLE 2-2
(Cont.)

Explosives - Chemical Name	Chemical Formula	Percent
PBX	RDX Polystyrene Dioclylphthalate	? ? ?
Pentolite	PETN TNT	50 50
Picratol	Explosive D TNT	52 48
Tetrytol	Tetryl TNT	? ?
Torpex	RDX TNT Aluminum	42 40 18
Tritonal	Aluminum TNT	? ?
Military Dynamite - Medium Velocity	RDX TNT Starch SAE No. 10 Oil Polysobutylene	75 15 5 4 1
Military Dynamite - Low Velocity	RDX/dye* TNT Tripentaery-Thritol Binder** Celluloseacetate	17.5 67.8 8.6 4.1 2.0

Notes: * The dye is 1 - methylamino-anthraquinone (1-MA) used in the amount of .5% of the RDX mixture.

** The binder is vistac No. 1 consisting of polybutene and diotyseabacate

APPENDIX D

1. SENECA ARMY DEPOT ACTIVITY

STANDING OPERATING PROCEDURE FOR:

2. ITEM: a. Explosive Ammunition and Explosive Contaminated Material

b. DODIC - Various

Fire Symbols - Various

3. OPERATION: Demilitarization (By Burning)

4. EST DAILY PRODUCTION RATE: N/A

5. ORGANIZATION SYMBOL: SIOSE-MC

6. SOP NO. SE-0000-H-005 Date 14 Oct 86

a. Rev No. 5 Date 28 JAN 1997

b. Change No. ____ Date ____

7. Authority: AMC-R 755-8
AMC-R 385-100

8. PREPARED BY _____ DATE 31 DEC 96 TITLE Industrial Specialist
MIKE WARNER DSN 489-5441

9. REVIEWED BY _____ DATE 6 JAN 97 TITLE Chief, Conventional Ammunition Division
JOHN P. HENNESSY

10. SUBMITTED BY _____ DATE 31 Dec 96 TITLE Chief, Conventional Storage Division
PHILLIP S. WILKIE

11. CONCURRENCES:

OFFICE	SIGNATURE/DATE	TITLE
Mission Operations	7 Jan 97 BRUCE W. JOHNSON	Director
Ammunition Surveillance	7 Jan 97 LINDA K. KNOWLES	Division Chief
Eng/Environmental Div	24 Jan 97 STEPHEN M. ABSOLOM	Environmental Protection Officer
Safety Office	27 Jan 97 THOMAS J. STINCIC	Safety Manager

12. APPROVAL _____ DATE 28 Jan 97
STEPHEN M. BROOKS
LTC, CM
Commanding

ANNUAL REVIEW:

DATE	SIGNATURE	TITLE
		C, Conv Ammunition Div
		C, Ammo Surveillance Div
		Director of Mission Ops
		Environ Prot Officer
		Safety Manager
		Commander

OPERATOR'S STATEMENT

SOP NO. SE-0000-H-005 REV NO. 5 CHG NO. _____ DATE 28 JAN 1997

1. The operator will sign this statement:

   a. When first assigned to the operation.

   b. When an approved change is made to the SOP.

   c. At least once per quarter during continuing operations.

   d. After absence from the job in excess of 15 consecutive workdays.

2. I have read or have had read to me and understand the general and specific safety and environmental requirements, personnel and explosive limits, work description and inspection requirements necessary to accomplish my operation. I have been thoroughly trained in, and am familiar with, my part of the operation and I agree to abide by these instructions throughout my assignment to the operation.

NAME	DATE	OPERATION NUMBER
[signature]	10 2 97	ALL
[signature]	10-2-97	all
[signature]	10 2-97	all

SUPERVISOR'S STATEMENT

SOP NO. SE-0000-H-005 REV NO. 5 CHG NO _____ DATE 28 JAN 1997

1. The supervisor will sign this statement:

   a. When first assigned as supervisor of the operation.

   b. When an approved change is made to the SOP.

   c. At least once per quarter during continuing operations.

   d. After absence from the job in excess of 15 consecutive workdays.

2. I have personally reviewed each of the operational steps of the SOP and have no question in my mind that the operation can be performed safely, efficiently, and in compliance with environmental restrictions noted in the SOP. I have verified to my satisfaction that operators have been trained and are capable of performing their part of the operation in a safe and efficient manner and have instructed them to follow the SOP without deviation.

SUPERVISOR'S NAME	DATE
John Hennessey	10-2-97

SOP NO. SE-0[illegible]-HH005 DATE 14 Oct 86
REV NO. [illegible] DATE 28 JAN 1997
CHG NO. [illegible] DATE [illegible]

INDEX OF OPERATIONS

OPER NO.	BLDG NO. OR SITE	TOTAL EXPL ALLOWED IN BAY (REF COL. 3)	DESCRIP OF OPERATION	PAGE NO.
1	Demo Grds Burning Tray	None	Receive Material and Prepare Combustible Bed	12
2	" "	5000 LB	Prepare Propellant, Explosives and Pyrotechnics (PEP) for Burning	16
3	" "	5000 LB	Non-electric Ignition of Combustible Bed	23
4	" "	N/A	Inspection and clean-up	27
5	" "	N/A	Decontamination of Propellant, Explosives, and Pyrotechnics (PEP) Contaminated Equipment and Scrap	31
Appendix A			Meteorological data checklist	
Appendix B			Environmental Requirements	
Appendix C			Explosive Compositions	
Appendix D			MI, MS Hazard	
Appendix E			Surveillance Requirements	

REMARKS:

1. Operation consists of the demilitarization of ammunition, explosives and explosive contaminated material by burning.

REMARKS cont'd:

2. All general safety requirements contained in this SOP will be complied with and enforced during operations.

3. General Environmental Requirements (Appendix B) were provided by the Environmental Protection Officer. Surveillance Requirements (Appendix E) were provided by the Ammunition Surveillance Division.

4. Revision 5 represents a general administrative update.

REFERENCES:

AMC-R 385-100 Safety Manual
DA-Pam 385-64 Ammunition and Explosive Safety Standards
AMC-R 700-107 Preparation of Standing Operating Procedures
AMC-R 755-8 Disposal of Supplies and Equipment: Authorizing, Accomplishing and Reporting Demilitarization of Class V Materiel
DMWR 9-1300-0001-D1 Demilitarization of Small Explosive Loaded Items
DMWR 9-1300-0000-X4 Demilitarization of Separate Loading Propellant Charges and Bulk Propellant
AR 190-11 Physical Security of Arms, Ammunition and Explosives
DOD 4160.21-M-1 Defense Demilitarization Manual
SB 742-1 Inspection of Supplies and Equipment: Ammunition Surveillance Procedures
TB 700-4 Decontamination of Facilities and Equipment
FM 5-25 Explosives and Demolitions
TM 9-1300-214 Military Explosives
SEDA-R 420-2 Facilities Engineering; Hazardous Waste Management
Restricted Burning Permit Number 3609
ENVCRR 373 (Part B) RCRA Permit Application

GENERAL SAFETY REQUIREMENTS

1. Standing operating procedures (SOP), applicable portion, shall be conspicuously posted in the office and bunker and available in all vehicles used in the demolition area. Supervisory personnel shall maintain copies of a complete standing operating procedure and be responsible for the enforcement of its provisions.

2. There will be no deviation or change from the approved SOP without prior approval of the Installation Commander or his designated representative.

3. Employees will not tamper with any safety devices or protective equipment.

4. Any defect or unusual condition noted that is not covered by this SOP will be reported immediately to supervisory/QASAS (Quality Assurance Specialist, Ammunition Surveillance) personnel.

5. Appropriate fire symbol and chemical hazard symbol shall be displayed in such a manner as to be easily visible from all roads of approach.

6. Care will be taken to limit exposure of a minimum number of personnel, for a minimum time, to a minimum amount of hazardous material consistent with safe and efficient operations.

7. Personnel will be so located that operators will have an unobstructed path of travel to the nearest available exit.

8. Work locations will be maintained in a neat and orderly condition.

9. All hand tools shall be maintained in a good state of repair.

10. Personnel in proximity to steel banding operations will wear face shields and safety eyewear. Operators handling metal banding will also wear leather or leather-palmed gloves.

11. Operators lifting material will use proper, safe hand holds, assume proper lifting position, avoid twisting when lifting or carrying, and avoid sharp objects.

12. Each MHE/vehicle operator will have in his/her possession a valid operator's permit for the particular piece of equipment to be operated.

13. Types E, EE, ES, and EX rated battery-powered equipment are satisfactory for handling all classes of ammunition and explosives packed IAW Department of Transportation regulations.

14. Explosives-loaded ammunition, packaged ammunition or bulk explosives shall not be handled roughly, thrown about, tumbled, dropped, or walked over other explosives or ammunition. Large ammunition items, packaged in DOT approved containers designed to permit dragging, rolling or towing may be so moved when necessary during handling for storage and transportation.

GENERAL SAFETY REQUIREMENTS Cont'd

15. Any ammunition determined to be dangerous to handle or store will be reported immediately to supervisory personnel. Operations will be suspended and if warranted, personnel will be evacuated pending further instructions.

16. Equipment and the grounding system will be tested for electrical resistance and continuity when prepared for use and at 6 month intervals thereafter if in continuous use. The tests shall be conducted by QASAS, and test results will be maintained by the Ammunition Surveillance Division (ASD). ASD will notify the Conventional Ammunition Division (CAD) of any corrective action required. CAD will notify Public Works that corrective action is required. Grounding systems will be visually inspected daily prior to use.

17. Appropriate fire symbols and/or chemical hazard symbols shall be displayed on vehicles used in transporting ammunition intradepot.

18. Leather or leather-palmed gloves will be worn by all personnel engaged in material handling operations.

19. Steel-toed safety shoes will be worn by all personnel engaged in material handling operations.

20. Material handling equipment (MHE) and other lifting devices will have the load rating and date of next inspection marked on them. The load rating will not be exceeded and the equipment will not be used without a current inspection date.

21. Supervisors will instruct personnel in the proper methods of handling Pentachlorophenol (PENTA) treated material IAW U.S. Army Environmental Hygiene Agency (USAEHA) Technical Guide No. 146.

22. No demilitarization/disposal operation will be conducted during an electrical storm or when such a storm is approaching within five kilometers (3 miles). When the process has been brought to a point at which it is safe to leave, the burning tray will be covered and the supervisor or designated representative shall direct personnel to evacuate to Bldg 115.

23. The supervisor will immediately report all injuries/accidents to the Safety Office (Ext. 41-251). Security (Ext. 41-448) will also be notified of accidents/incidents involving government vehicles or suspected criminal activities. Halt operations and leave the scene undisturbed, except for life saving efforts, until released by Safety/Security.

24. In the event of an explosive accident, personnel injury or major property damage, the following procedure will be followed: Operations will cease immediately, and emergency response personnel will be notified by dialing 117. Call Director of Mission Operations (D/MO) (Ext. 41-771) and explain events which occurred and action taken. The following notifications will be made: Commanding Officer (Ext. 41-206), Chief, Ammunition Surveillance Division (C/ASD) (Ext. 41-352) and Safety Manager (Ext. 41-261). D/MO, C/ASD and Safety Office will investigate. Following the investigation, D/MO will advise the Ammunition Branch when to resume operations.

GENERAL SAFETY REQUIREMENTS Cont'd

25. In the event of a fire, attempt to extinguish the fire only if it is in an early state and explosive loaded containers are not excessively heated. If time and equipment are sufficient, remove loaded containers from the vicinity of the fire. If personnel safety is in doubt, a location containing explosives/hazardous material will be evacuated immediately.

26. Paint thinners, oily rags and other highly flammable materials will be kept in approved, closed receptacles.

27. Waste hazardous materials (eg., paints, solvents, oily rags, etc.) will be handled, stored and disposed of as hazardous waste IAW SEDA-R 420-2, Hazardous Waste Management.

28. All material transferred to DPMO will be certified free of explosive contaminations by the supervisor in charge and verified by Quality Assurance Specialists, Ammunition Surveillance (QASAS).

29. In all areas that the noise decibel reading is 85 or above, operators will wear hearing protection and area will be properly marked.

30. Components or material being transported from disassembly operation to Demolition Grounds will be properly identified on exterior pack; any misleading markings will be marked out or obliterated.

31. Trucks transporting explosive material to demolition grounds shall be equipped with two class 10BC or greater equivalent rated portable fire extinguishers.

32. Supervision and Training.

a. The disposal area and its operations shall be under the direct control and supervision of an experienced and trained individual charged with supervisory responsibility for all activities within the area. During his/her absence, a competent qualified person will be designated to be in charge. He/she shall also be charged personally with the sole custody of all ignition devices. Prior to actual initiation of burn, all personnel including the demolition ground supervisor will be evacuated to a safe distance (i.e., the immediate vicinity of the firing bunker, Bldg 2101).

b. Personnel employed at the destruction area shall be thoroughly trained regarding the nature of the materials handled, the hazards involved, and the precautions necessary. The danger of using unapproved improvised methods and other deviations must be thoroughly instilled in the minds of employees. It is essential that thorough training and vigilant supervision be provided. All demolition grounds operations must be carried out in strict conformance with approved SOPs.

GENERAL SAFETY REQUIREMENTS Cont'd

c. In the absence of specific regulations covering any phase of the destruction of explosive material, complete information will be forwarded through command channels to the Commander, AMC, ATTN: AMCSF, requesting instructions and guidance.

33. General burning requirements:

a. Burning tray shall be used for all open burning of ammunition, explosives and PEP contaminated waste except in emergency situations approved by the Commander and coordinated with the Environental Protection Officer.

b. Bulk initiating explosives and others used predominantly in detonator and photoflash compositions shall be destroyed by detonation.

c. When burning tray is used, the following must be observed:

(1) When burning loose explosives other than initiating explosives, depth of explosives in tray will be 3 inches or less.

(2) Burning tray ignition train will be arranged and lit so both it and the explosives burn in the direction from which the wind is blowing.

(3) Burning shall not be repeated in trays within 24 hours unless all ash/residue has been removed from tray to assure safety of personnel and equipment during subsequent burnings.

(4) To ensure complete burning of wet explosives, the tray shall be lined with nonexplosive combustible material upon which the explosives are placed. It is usually necessary to burn PDX wet to prevent detonation.

d. Burning of colored smokes, WP, HC mixes, CS, and CN requires specific approval of the Commander, AMC, ATTN: AMCSF.

GENERAL SAFETY REQUIREMENTS Cont'd

e. Personnel will avoid direct skin contact with the solid residue or inhalation of the smoke generated from the burning of M1 and M6 propellant. Eating or drinking in the area where these types of propellants are burned is prohibited. These solid residues will be treated as hazardous waste. When cleaning the burning tray, ensure that gloves, coveralls, safety eyewear, and respirators are worn.

f. Some types of explosives and tracer or igniter composition give off toxic fumes when being destroyed by burning. Proper respiratory protective equipment such as hosemasks, airline masks and self-contained breathing apparatus shall be worn where such fumes are likely to be encountered.

34. Operation, storage, maintenance, refueling, inspection, loading and unloading of all trucks, vehicles and MHE will be performed IAW SOP SE-0000-L-001. All general safety requirements and operational procedures will be followed where applicable. NOTE: When being refueled, vehicles will be at least 100 feet from structures or sites containing explosives (including explosive laden vehicles).

35. A first aid kit will be present during all operations. It will be able, as a minimum capability, to handle burns and puncture wounds. The kit will be approved by local medical authorities based on the hazards involved. Personnel will be trained in the use of the first aid kit and its limitations. They will be instructed that if there is any doubt as to its use, they will seek professional medical care for the injured person.

36. One hour after each burning operation, the area will be searched by trained and competent personnel for hazardous items. These personnel will be instructed in the size and shape of the items being destroyed as well as actions to take upon finding an item.

37. A means of communication between personnel at the demolition/burning grounds and base facilities will be maintained in working order. A further means of communications will be maintained between personnel preparing items for destruction and the control center on the range. Operations will not be conducted if one or both of these means of communication is not working. Radios will not be used when electrically initiated explosives are involved, unless the distances listed in Table 5-2 of DA Pam 385-64 are observed.

A. STANDING OPERATING PROCEDURE FOR: Demilitarization (By Burning)

B. OPERATION NO. 1

C. LOCATION Demo Grounds

D. SOP NO. SE-0000-H-005 DATE 14 Oct 86

E. REV NO. 5 DATE 28 JAN 1997

F. CHG NO. DATE

G. OPERATION: Receive Material and Prepare Combustible Bed

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: N/A

I. PERSONNEL LIMITS: OPERATORS: 6 TRANSIENTS: 4

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Receive carrier(s) loaded with boxes or other combustible material.	1.a. (O) Combustible material will be transported to Demo Grounds IAW SOP SE-0000-L-001. 1.b. (O)(S) No (Pentachlorophenal) PCP-treated boxes or material will be used for combustible material or burned for any purpose.
2.	Unload combustible material from carrier(s).	2.a. (O) Material may be removed by conveyors, forklift or by hand. Operators will have a valid forklift operator's license. 2.b. (S) Operators will wear leather or leather-palmed gloves when handling boxes, rough or sharp material.
3.	Prepare combustible bed of material using scrap lumber, boxes, pallets, saw dust, etc. inside of the burning tray.	3.a. (O)(S) The burning tray will be properly grounded. 3.b. (O) Combustible material, boxes, pallets, etc., will be laid out in a level bed-like configuration to accept ammunition/explosives for burning. 3.c. (O) (QC) Combustible bed must be sufficient in size to assure all ammunition/explosives will be consumed when ignited.

3. g. (O) A maul, axe, saw etc., may be used to reduce boxes or pallets for use in combustible bed.

3. e. (O) No pentachlorophenol (PCP) treated boxes or material will be used for combustible material or burned for any purpose.

4. Pour fuel oil over combustible bed.

4. a. (O) To accelerate burning of ammunition and components, fuel oil may be poured on the underlying combustible material before ignition train is laid. Only light (#1 or #2) fuel oil will be used for preparing the combustible bed.

4. b. (S) Volatile flammable liquids such as gasoline, acetone, benzene, etc., will not be used to accelerate burning. Flammable liquids or solvents will not be burned for any reason. Only light (#1 or #2) fuel oil is permitted to accelerate burning.

4. c. (S) Fuel oil should be handled in five-gallon safety cans.

K. SPECIAL REQUIREMENTS:

1. The disposal area and its operations shall be under the direct control and supervision of an experienced and trained individual charged with the supervisory responsibility for all activities within the area. During his/her absence, a competent qualified person will be designated to be in charge.

2. The following New York State Environmental Conservation restriction will be enforced IAW 6NYCRR 373 (Part 8 Subpart X):

a. Hazardous wastes, other than PCP will not be open burned.

b. Tires or similar material which cause visible emissions shall not be used to ignite or to sustain an open fire.

c. Tree trunks, stumps or roots shall not be burned.

d. A restricted open fire is allowed only when the prevailing winds are away from populated areas. Fires shall not be started during heavy winds.

e. There will be no open burning during any stage of an air pollution episode or when a period of high danger is announced by the State Commissioner of Environmental Conservation.

K. SPECIAL REQUIREMENTS cont'd:

f. The Fire Department will be notified prior to burning.

g. Rubbish piles will not be open burned.

h. All fires shall be attended from a safe distance and not left unattended as long as the fire is burning.

i. Restricted burning shall not cause contravention of any applicable ambient air quality standard or cause air pollution.

j. Seneca Army Depot Activity shall be liable for damage to trees or other property resulting from fires ignited by SEDA.

k. Restricted burning will be suspended if the conditions of the New York State Environmental Conservation Burning Permit are not followed.

l. Any questions on environmental requirements should be directed to the Environmental Protection Officer, Ext. 41-450.

3. The burning tray shall be inspected on a weekly basis to ensure the following: (1) all welds are in good condition, (2) The tray does not show significant signs of deterioration which would allow explosives or fuel oil to migrate to the underlying surface, (3) there is no unburned ammunition/ explosives or residual ash in the tray, (4) ensure that the burning tray cover is in good condition and will prevent precipitation from entering the burning tray. The demil ground supervisor and QASAS will perform the inspection. After daily use, the cover must be firmly secured onto the burning tray. The cage should also be inspected for structural integrity. Inspect for and repair any holes large enough to permit passage of ammunition items being burned. A memorandum documenting the weekly inspection will be sent to the Environmental Office for inspection.

4. Demil supervisor will record and maintain meteorological data on a checklist (Appendix A). If conditions on checklist are favorable, preparations for open burning may begin. Immediately prior to the execution of each operation the conditions required on checklist will be recorded. A copy of the meteorological data checklist will be submitted to the Environmental Protection Officer.

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

	ITEM	QTY	SPEC	NSN
1.	Hand tools, non-sparking	As Req'd		Various
2.	Safety shoes	" "	MIL-S-41321	Various
3.	Safety glasses	" "	ANSI-Z-87.1	Various
4.	Flame resistant coveralls	" "	MIL-C-14610	Various
5.	Face Shield	" "	L-F-36	Various
6.	Leather-palmed gloves or eqiv	" "	MIL-G-2366	Various
7.	Gloves, flame resistant	" "	MIL-C-43122	Various
8.	Non-sparking knife	" "	GGG-K-481	Various
9.	Scrap container	" "	locally fabricated	
10.	Forklift	" "		
11.	Combustible Material	" "		
12.	5-Gal Safety Can w/diesel/ fuel oil	" "		Various
13.	Burning Tray	" "	locally fabricated	
14.	Axe, maul, saw, sledgehammer	" "		Various
15.	First Aid Kit	1		

A. STANDING OPERATING PROCEDURE FOR: Demilitarization (By Burning)

B. OPERATION NO. 2

C. BAY NO. Burning Tray

D. SOP NO. SE-0000-H-005 DATE 14 Oct 94

E. REV NO. 5 DATE 28 JAN 1997

F. CHG NO. DATE

G. OPERATION: Prepare Propellant/Explosives/Pyrotechnics (PEP) for Burning

H. EXPLOSIVE LIMITS: UNITS: Various EXPLOSIVE LBS: 5,000 lbs

I. PERSONNEL LIMITS: OPERATORS: 6 TRANSIENTS: 4

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Receive from storage material to be demilitarized.	1. a. (QC)(O) Inspect outer pack for correct NSN, lot number, and nomenclature. Return incorrect items to storage. 1. b. (O)(S) Supervisor will designate one operator to raise red warning flag at the entrance of the burning grounds.
2.	Unload explosive material from carrier and remove from pallet.	2. a. (S) Personnel shall wear explosive handler's coveralls. 2. b. (O) Unload containers by hand or forklift. 2. c. (S) Operators using forklift will have a valid license. 2. d. (S) Operators unloading by hand will wear leather or leather-palmed gloves. 2. e. (S) Personnel performing banding operations will wear face shield, safety eyewear and leather or leather palmed gloves. Discarded metal banding will be placed in trash receptacles.

3. Open and pour bulk propellant from containers.	3. a. (S) Containers or pallets of bulk propellant to be destroyed shall be spotted and opened at least 10 feet from each other and from explosive material previously laid for destruction. This will prevent rapid transmission of fire in the event of premature ignition.
	3. b. (S) In the event hand tools are required to open containers, only non-sparking hand tools will be used. Ground metal containers to the tray with a grounding clip.
	3. c. (S) Spark producing equipment and tools will not be used near explosives unless specifically authorized.
	3. d. (S) Propellant will be leveled to a depth not greater than three (3) inches. (A rubber squeegee may be used to spread propellant.)
	3. e. (O) Ensure containers are completely empty. Replace cover on container and secure.
4. Remove bagged propellant from storage container and place in burning tray. NOTE: Remove igniter protector caps before burning.	4. a. (S) Propelling charges with igniters may be burned without slitting; but in all cases, igniter protector caps shall be removed from the charges to be burned.
	4. b. (O)(S) Propelling charges which have lead foil linings must not be burned without first removing the lead foil. Operators shall use a non-sparking knife to remove the lead foil portion. Lead foil residue shall be collected in containers approved by the Environmental Protection Officer (EPO). EPO shall provide disposition instructions.

4. c. (S) Propelling charges will not be stacked on top of one another, but shall be burned in a single layer of charges laid side by side. Propelling charges and igniter pads may be split open with a non-sparking knife.

4. d. (O)(S) Using non-sparking knife, operators may slit igniter pad(s) to collect igniter composition for later use in setting up the explosive train. Composition may be collected in any suitable "bag" (i.e, plastic, cloth, paper).

4. e. (O) If required, remove primer from container. Planning section shall provide disposition instructions (repack for storage, destroy in tray, etc.).

4. f. (S) Core ignitor type charges in the single layer should be separated one from the other by a distance equal to one caliber (i.e, charge width).

4. g. (O) Ensure containers are completely empty. Replace cover and secure.

5. Remove other PEP filled items from containers and place in tray.

5. a. (O) Other PEP filled items include, but are not limited to: non-propulsive rocket motors, expelling charges, illuminating cannisters, etc.

5. b. (S) Ensure containers are completely empty.

6. If required, place cage over the burning tray.

6. a. (O)(S) Cage will be utilized when material involved possesses a tendency of "popping" or "kicking out" when burning, i.e., expelling charges, 3.5" rocket motors (previously rendered-non-propulsive through disassembly).

6. b. (O)(S) Use forklift to position cage over the burning tray. Clip grounding strap attached to the tray to the cage.

7. Remove empty containers.

7. (O)(E) Ensure containers are completely empty. Remove containers from burning tray area. Containers may be returned to storage or turned in to DRMO. Operator may apply "EMPTY" stamp at this point. See Special Requirements for further specific turn-in details.

8. Close gate.

8. (O)(E) Supervisor will designate one operator to close Demo Grounds gate.

9. Post spotter.

9. a. (O) The demil supervisor will designate one operator to remain outside Bldg. 2104 and watch the sky around the Demo Grounds area for aircraft. If aircraft enter Demo Grounds area, the operation will stop until aircraft has left area.

9. b. (O) One operator should be posted at Bldg 2101 to observe for unauthorized personnel, grassfires etc.

10. Make appropriate notifications by phone.

10. (O) The supervisor or designated representative will notify the following:

Conv Ammunition Div	41-441
Security	41-448
Fire Department	41-316
Env Protection Ofcr	41-450
PSD	41-352
Airfield	41-414 *

*(may be unattended--if so, no further action required)

K. SPECIAL REQUIREMENTS:

1. The disposal area and its operations shall be under the direct control and supervision of an experienced and trained individual charged with the supervisory responsibility for all activities within the area. During his/her absence, a competent qualified person will be designated to be in charge.

2. Operations shall be restricted to periods when average surface windspeed is more than 3 miles per hour and less than 20 miles per hour, with gusts less than 30 miles per hour and from a direction which will not carry emission products over any publicly accessible area within 1 mile of the destruction site.

K. SPECIAL REQUIREMENTS cont'd:

3. Operations will not be conducted during electric storms, during periods of precipitation, or during periods of forecasted high probability (50 percent or more during the scheduled period of operation) of such. Operations will not be conducted during periods when visibility is less than 1 mile. Operations shall not be carried out when cloud cover is greater than 80% AND the cloud ceiling is less than 2,000 feet.

4. Open burning operations shall not be initiated until at least one-half hour after sunrise and will be concluded by at least one-half hour before sunset.

5. All ammunition/explosives must be approved for open burning by the New York State Department of Environmental Conservation. Written authorization will be obtained by the Environmental Coordinator.

6. The following New York State Environmental Conservation restriction will be enforced IAW 6NYCRR 373 (Part B subpart x):

a. Hazardous wastes, other than PEP will not be open burned.

b. Tires, or similar material which cause visible emissions shall not be used to ignite or to sustain an open fire.

c. Tree trunks, stumps or roots shall not be burned.

d. A restricted open fire is allowed only when the prevailing winds are away from populated areas. Fires shall not be started during heavy winds.

e. There will be no open burning during any stage of an air pollution episode or when a period of high danger is announced by the State Commissioner of Environmental Conservation.

f. The Fire Department will be notified prior to burning.

g. Rubbish piles to be ignited shall be isolated to prevent fire spreading.

h. All fires shall be attended to from a safe distance and not left unattended as long as the fire is burning.

i. Restricted burning shall not cause contravention of any applicable ambient air quality standard or cause air pollution.

j. Seneca Army Depot Activity shall be liable for damage to trees or other property resulting from fires ignited by SEDA.

k. Restricted burning will be suspended if the conditions of the New York State Environmental Conservation Burning Permit are not followed.

K. SPECIAL REQUIREMENTS cont'd:

1. Any question on environmental conservation is to be directed to the Environmental Protection Officer, Ext. 41-450.

7. Open burning of hexachloroethane (HC), illumination mixtures, colored smokes, white phosphorous (WP), red phosphorus (RP), and riot control munitions (e.g., CS and CN) is prohibited. Burning of colored smoke, WP, HC mixes, CS and CN requires specific prior approval of the Commander, AMC, ATTN: AMCSF.

8. Before turn-in to DRMO, all containers shall be inspected 100% to ensure they are explosive free. Where possible, (i.e., wood and metal boxes with top opening lids) containers shall be stamped "EMPTY" on the interior and exterior. The stamp should also include a number or other means of identifying the operator. Other types of containers should as a minimum be stamped on the exterior. Also, remove or obliterate all explosive labels/ markings prior to turn-in.

9. Ensure that uninspected containers remain segregated from those which have been certified as explosive free.

10. Containers certified as explosive free should be unitized prior to turn-in to DRMO. End opening containers should all be oriented in the same direction.

11. The following certification statements apply to turn-in of packing material to DRMO. They are a requirement and will be placed on all DD Forms 1348-1 (or other type turn-in documents) accompanying packing material to DRMO.

a. Inert material certification:

"I CERTIFY THAT THE ITEMS LISTED HEREON HAVE BEEN INSPECTED 100% BY ME AND, TO THE BEST OF MY KNOWLEDGE, CONTAIN NO ITEMS OF A HAZARDOUS NATURE."

Demil Supervisor _____ Date _____

K. SPECIAL REQUIREMENTS cont'd:

b. Inert material verification:

"I CERTIFY THAT BASED ON A SAMPLING INSPECTION, THE ABOVE CERTIFICATION IS VALID, AND THE ITEMS LISTED HEREON ARE TO THE BEST OF MY KNOWLEDGE EXPLOSIVE FREE."

QASAS _____ Date _____

12. QASAS shall conduct random sampling to verify the adequacy of the inspection process and assure that the certification of the Demil Supervisor is valid.

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

	ITEM	QTY	SPEC	NSN
1.	Hand tools, non-sparking	As Req'd	DA Pam 385-64	Various
2.	Safety shoes	" "	MIL-S-41821	Various
3.	Safety glasses	" "	ANSI-Z-87.1	Various
4.	Flame resistant coveralls	" "	MIL-C-14610	Various
5.	Combustible material	" "		
6.	Face shield	" "	L-F-36	Various
7.	Leather-palmed gloves or equivalent	" "	MIL-G-2366	Various
8.	Gloves, flame resistant	" "	MIL-C-43122	Various
9.	Forklift	" "		
10.	Scrap container	" "	locally fabricated	
11.	Nonsparking knife	" "	GGG-K-481	Various
12.	5-Gal Safety Can w/ diesel/fuel oil	" "		Various
13.	Strap Cutters	" "	GGG-E-835 or	Various
			GGG-C-835	Various
14.	Burning Tray	" "	locally fabricated	
15.	Cage	" "	locally fabricated	
16.	Rubber squeegee	" "		Various
17.	Stamp ("EMPTY")	" "	locally fabricated	
18.	Stamp (various numbers)		locally fabricated	
19.	Ink, stencil, black	" "	various	
20.	First Aid Kit	1		

A. STANDING OPERATING PROCEDURE FOR: Demilitarization (By Burning)

B. OPERATION NO. 3

C. BAY NO. Burning Tray

D. SOP NO. SE-0000-H-005 DATE 14 Oct 86

E. REV NO. 5 DATE 28 JAN 1997

F. CHG NO. _____ DATE _____

G. OPERATION: Non-electric Ignition of Combustible Bed

H. EXPLOSIVE LIMITS: UNITS: Various EXPLOSIVE LBS: 5,000 lbs

I. PERSONNEL LIMITS: OPERATORS 2 TRANSIENTS: 0

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Receive time fuse and igniters from storage or service magazine and prepare for test.	1. a. (O)(S) Verify NSN and lot number to assure time fuse is selected. 1. b. (O) Using a non-sparking knife, or cap crimper, cut and discard a six-inch length from the free end of the roll of time fuse. Discarded length of fuse should be placed in the ammunition/explosives to be ignited.
2.	Prepare time fuse for burn rate test.	2. a. (O) Cut off a three-foot length of time fuse. 2. b. (S) Time fuse test will be conducted a safe distance (a minimum of 100 feet) from all ammunition and explosives. 2. c. (O) With a stop watch or suitable substitute, determine the length of time the 3 feet of time fuse burns. Using that rate, calculate the number of feet required for the desired fuse burn time. 2. d. (O) Time fuse will be ignited using methods in Steps #3 or 4.

3. Ignite time fuse with M60 fuse igniter.	3. a. (O) Attach an igniter by unscrewing the fuse holder cap two or three turns BUT DO NOT REMOVE CAP. Press the shipping plug into the igniter to release the split collet, and rotate the plug as it is removed. Insert free end of time fuse until it rests against the primer and tighten cap.
	3. b. (O) As a back-up measure, it is preferred that more than one time fuse ignition device be arranged in combustible bed.
	3. c. (O) To fire: remove the safety pin from the M60 igniter, push plunger all the way in and turn release ring one quarter of a turn and pull. In the case of a misfire, repeat the above process. If igniter still fails to function, replace with a serviceable igniter and repeat above instructions.
4. Ignite time fuse with match.	4. a. (O) Split time fuse at the end, place the head of an unlit match in the powder train.
	4. b. (O) To fire, light the inserted match with a flaming match or by rubbing the abrasive on the match box against the match head.
5. Prepare time fuse for ignition of burning tray contents.	5. a. (O)(S) Use a non-sparking knife or cap crimper cut length of time fuse.
	5. b. (S) Time fuse as determined by test burn in step #2 will be of sufficent length to allow enough time for personnel to withdraw to Bldg 2104 or 2101.
	5. c. (S) In no case will the time fuse be less than 3 feet long or have a burn time of less than 120 seconds.
6. If a powder bag is to be used, attach to end of time fuse.	6. a. (O) The small quantity of propellant or other ignitable powder which had been collected in Operation 2 will be used.
	6. b. (O) Split end of time fuse and insert into propellant/powder bag.

5. c. (O) Secure bag to time fuse with tape.

5. d. (O) Place bag in the combustible ignition train.

7. Ignite time fuse.

7. a. (S) Extraneous personnel will evacuate to Bldg 2104 or 2101.

7. b. (O) Ignition of time fuse will be accomplished IAW steps 3 or 4 at the direction of the supervisor.

7. c. (O) Once time fuse has been ignited evacuate to Bldg 2104 or 2101.

8. Observe for signs of successful ignition.

8. a. (O)(S) Allow several minutes for explosives to ignite and start burning. If no smoke is observed, wait for at least 30 minutes before investigating.

8. b. (S) No more than two qualified personnel will be permitted to examine the misfire.

9. Repeat ignition procedure if first attempt failed.

9. a. (S)(O) Determine the cause of the misfire. If time fuse has only partially burned, replace with time fuse of the desired length.

9. b. (S)(O) Repeat Steps 2 thru 8. If the operation results in another misfire, follow the prescribed misfire procedure and repeat ignition procedure with a different lot of time fuse.

K. SPECIAL REQUIREMENTS:

1. The disposal area and its operations shall be under the direct control and supervision of an experienced and trained individual charged with the supervisory responsibility for all activities within the area. During his/her absence, a competent qualified person will be designated to be in charge.

2. A small propellant increment bag, such as those used for 4.2" mortar cartridges or similar components, may be used to attach to time fuse to ignite combustible bed.

3. Operations shall be restricted to periods when average surface windspeed is more than 3 miles per hour and less than 20 miles per hour, with gusts less than 30 miles per hour and from a direction which will not carry emission products over any publicly accessible area within 1 mile of the destruction site.

4. Operations will not be conducted during electric storms, during periods of precipitation, or during periods of forecasted high probability (50 percent or more during the scheduled period of operation) of such. Operations will not be conducted during periods when visibility is less than 1 mile. Operations shall not be carried out when cloud cover is greater than 80% AND the cloud ceiling is less than 2,000 feet.

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

	ITEM	QTY	SPEC	NSN
1.	Hand tools, non-sparking	As Req'd		Various
2.	Safety shoes	" "	MIL-S-41821	Various
3.	Safety glasses	" "	ANSI-Z-87.1	Various
4.	Face Shield	" "	L-F-35	Various
5.	Leather-palmed gloves or equiv	" "	MIL-G-2366	Various
6.	Gloves, flame resistant	" "	MIL-C-43122	Various
7.	Flame resistant coveralls	" "	MIL-C-14610	Various
8.	Nonsparking knife	" "	GGG-K-481	
9.	Scrap container	" "	locally fabricated	
10.	Forklift	" "		
11.	Bag, Plastic	" "	4"x6" approx	
12.	Combustible material	" "		
13.	Matches in container (M2A1 can or equivalent)	" "		Various
14.	Fuse, blasting time (Safety Fuse M700)	" "		1375-M670
15.	Igniter, M60	" "		1375-M766
16.	5-Gal Safety Can w/ diesel/fuel oil	" "		Various Various
17.	Powder, smokeless (1.3C)	" "		Various
18.	M2 Cap Crimpers/Cutters	" "	MIL-C-43436	5120-00-029-0683
19.	Stopwatch or equivalent	" "	Commercial	
20.	First Aid Kit	1		

A. STANDING OPERATING PROCEDURE FOR: Demilitarization (By Burning)

B. OPERATION NO. 4

C. BAY NO. Burning Tray

D. SOP NO. SE-0000-H-005 DATE 14 Oct 85

E. REV NO. 5 DATE 28 JAN 1997

F. CHG NO. _____ DATE _____

G. OPERATION: Inspection and Clean-up

H. EXPLOSIVE LIMITS: UNITS: Various EXPLOSIVE LBS: 5,000 lbs

I. PERSONNEL LIMITS: OPERATORS 6 TRANSIENTS: 4

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Perform a 100% visual inspection of the burning tray and area surrounding the tray.	1. a. (S) Operators shall wait one hour after smoke ceases to emanate before inspecting the tray and tray area.
		1. b. (O)(S) Demil supervisor and QASAS will perform inspection.
		1. c. (O)(S) Inspect inside, under and around burning tray for unburned items or explosives contamination.
		1. d. (O)(S) If used, burning tray cage will be inspected for unburned explosives lodged in the cage.
2.	Reprocess unburned ammunition.	2. (O) Unburned ammunition will be reprocessed IAW operation #3.
3.	Collect remaining ash and residue.	3. a. (O) All residue from open burning of explosives will be managed IAW SEDA-R 420-2, Hazardous Waste Management.
		3. b. (O) Using a vacuum equipped with a High Efficiency Particulate Air (HEPA) filter or by equivalent means collect residue in a DOT approved hazardous waste container. Seal container.
		3. c. (O) Container will be labeled with a Hazardous Waste label. Information for label can be obtained from Environmental Protection Officer (EPO).

3. d. (S) Operators involved in collection of ash residue will wear NIOSHA/MSHA approved respirators fitted by the Safety Office, in addition to explosive handler's coveralls and gloves.

3. e. (O) Containers will be transferred to Building 307 after EPO inspects containers and labels. Rejected drums will be repackaged as directed by the EPO.

3. f. (O)(Q) All material transferred to Bldg 307 will be accompanied by a DA Form 4508 with appropriate certification IAW SEDA-R 420-2.

4. Collect metal parts, if applicable.

4. a. (O) If the burn involved munitions whose PEP was contained in metal parts, collect such parts for mutilation as required and subsequent turn-in to DRMO. Note: 3.5" rocket motor casings must be crushed or have the threads mutilated.

4. b. (O)(S)(QC) Metal parts will be inspected 100% to ensure they are explosive free. Prepare documentation IAW Special Requirement #3.

K. SPECIAL REQUIREMENTS:

1. The disposal area and its operations shall be under the direct control and supervision of an experienced and trained individual charged with the supervisory responsibility for all activities within the area. During his/her absence, a competent qualified person will be designated to be in charge.

2. All metal scrap generated from the operation must be inspected 100% to ensure that it is free of PEP contamination. No PEP contaminated metal can be transferred to DRMO. Suspect items will be reprocessed before turn-in.

3. The following certification statements apply to turn-in of scrap to DRMO: *(See following page).*

K. SPECIAL REQUIREMENTS cont'd:

a. Demilitarization certification: The following certification is a requirement and will be placed on all DD Forms 1348-1 (or other suitable turn-in document) accompanying demilitarized material to DRMO:

"I CERTIFY THAT THE (fill in type of item) WERE DEMILITARIZED IN ACCORDANCE WITH DOD 4160.21-M-1, DEFENSE DEMILITARIZATION MANUAL, APPENDIX 4 AND/OR AMC-R 755-8."

SIGNATURE (Demil Supervisor) DATE

COUNTER SIGNATURE DATE

b. DD Forms 1348-1 (or other turn-in documents) accompanying the above items must also contain the statements listed below.

(1) Inert material certification:

"I CERTIFY THAT THE ITEMS LISTED HEREON HAVE BEEN INSPECTED 100% BY ME AND, TO THE BEST OF MY KNOWLEDGE, CONTAIN NO ITEMS OF A HAZARDOUS NATURE."

Demil Supervisor Date

(2) Inert material verification:

"I CERTIFY THAT BASED ON A SAMPLING INSPECTION, THE ABOVE CERTIFICATION IS VALID, AND THE ITEMS LISTED HEREON ARE TO THE BEST OF MY KNOWLEDGE EXPLOSIVE FREE."

QASAS Date

4. QASAS shall conduct random sampling to verify the adequacy of the inspection process and assure that the certification of the Demil Supervisor is valid.

K. SPECIAL REQUIREMENTS cont'd:

5. To identify the decontamination status of scrap in bulk containers, the containers will be physically numbered. Demil Supervisor will retain record of the contents of the containers.

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

	ITEM	QTY	SPEC	NSN
1.	Safety shoes	As Req'd	MIL-S-41821	Various
2.	Safety glasses	" "	ANSI-Z-87.1	Various
3.	Coveralls, Flame Resistant	" "	MIL-C-14610	Various
4.	Leather-palmed gloves or equivalent	" "	MIL-G-2366	Various
5.	Full face mask, air purifying respirator w/dust/mist filter	" "	NIOSH/MSHA Approved	
6.	Gloves, flame resistant	" "	MIL-C-43122	Various
7.	Hand tools, non-sparking	" "	AMC-R 385-100	Various
8.	Scrap container	" "		
9.	55 Gal. Drum (Sealable open top)	As Req'd	DOT approved hazardous waste container	
10.	Rake	" "		Various
11.	Shovel	" "		Various
12.	Pitchfork	" "		Various
13.	Broom and dust pan	" "		Various
14.	Forklift	" "		
15.	Vacuum-HEPA filter	" "	Commercial	
16.	First Aid Kit	1		

A. STANDING OPERATING PROCEDURE FOR: Demilitarization (By Burning)

B. OPERATION NO. 5

C. BAY NO. Burning Tray

D. SOP NO. SE-0000-H-005 DATE 14 Oct 88

E. REV NO. 5 DATE 28 JAN 1997

F. CHG NO. _____ DATE _____

G. OPERATION: Decontamination of Propellant, Explosives, and Pyrotechnics(PEP) Contaminated Equipment and Scrap

H. EXPLOSIVE LIMITS: UNITS: N/A EXPLOSIVE LBS: N/A

I. PERSONNEL LIMITS: OPERATORS 6 TRANSIENTS: 4

J. STEP NO.	DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety, Operational, Quality Checks)
1.	Prepare combustible bed.	1.a. (O) Prepare combustible bed which will produce sufficient flame and heat for high temperature flashing to assure complete decontamination.
		1.b. (O) Combustible bed (boxes, pallets, saw dust, etc.) will be laid out to accept material/equipment to be decontaminated.
		1.c. (O)(S) Ignition train of combustible material must be arranged to burn in the direction from which the wind is blowing.
		1.d. (O) NO (Pentachlorophenol) PCP-treated boxes or material will be used for combustible material or burned for any purpose.
2.	Pour fuel oil over combustible bed.	2.a. (O) To accelerate flashing/decontamination, light (#1 or #2) fuel oil may be poured on the underlying combustible material before ignition train is laid.
		2.b. (S) Volatile flammable liquids such as gasoline, acetone, benzene, etc. will not be used to accelerate burning. Flammable liquids or solvents will not be burned for any reason. Only light (#1 or #2) fuel oil is permitted to accelerate burning.

2. c. (S) Fuel oil will be handled in five gallon safety cans.

3. Place PEP contaminated scrap, components, equipment, etc. on combustible bed.

3. a. (O) Position contaminated material on combustible bed to allow the greatest and most effective exposure to fire.

3. b. (O) Equipment, components, scrap, etc. may be saturated or swabbed with fuel oil when it is determined that this will be necessary for effective decontamination.

3. c. (O)(QC) Inspect emptied containers to assure complete removal of all scrap, components etc.

3. d. (O)(QC) Containers/boxes may be returned to storage or turned in to DRMO. Assure containers/boxes destined for DRMO are properly certified as free of explosives or contamination IAW Special Requirements.

3. e. (S) All operators handling scrap, wood boxes, components etc. will wear leather or leather palmed gloves.

3. f. (O) If required, MHE (forklift, crane, etc.) may be used to place material on combustible bed.

4. Set up ignition train.

4. (O)(QC) Ignition train should be set up as outlined in Operation #2.

5. Close gate.

5. (O)(S) Supervisor will designate one operator to close burning grounds gate.

6. Make appropriate notifications by phone.

6. (O) The supervisor or designated representative will notify the following:

Conv Ammunition Div	41-441
Security	41-448
Fire Department	41-316
Env Protection Ofcr	41-450
ASD	41-352
Airfield	41-414 *

*(may be unattended--if so, no further action required)

7. Post spotter.	7. (O)(S) The supervisor will designate one operator to remain outside Bldg 2104 and watch the sky around the Demo Grounds area for aircraft. If aircraft enters Demo Grounds area, all operations will stop until aircraft has left area.
8. Ignite burning tray.	8. (O) Ignite burning tray as performed in Operation #3.
9. Observe for signs of successful ignition.	9. a. (O)(S)(QC) Allow several minutes for combustible bed to start burning. If no smoke is observed, wait for at least 30 minutes before investigating. 9. b. (S) No more than two qualified personnel will be permitted to examine the misfire.
10. Perform a 100% visual inspection of the burning tray, material inside of tray and tray area.	10. a. (S) Operators shall wait one hour after smoke ceases to emanate before inspecting the tray and tray area. 10. b. (O)(QC) Demil supervisor and QASAS will perform inspection. 10. c. (O)(S)(QC) Inspect inside, under and around burning tray for unburned items. 10. d. (S)(QC) Inspect decontaminated material to assure that all explosive residue has been sufficiently purged by fire. Take special care to inspect spaces wherein explosive materials might lodge. 10. e. (QC) In the event the Demil supervisor and/or QASAS judge that material has not been sufficiently flashed, the process will be repeated.
11. Collect decontaminated scrap, components, equipment, etc. and transfer to DRMO.	11. a. (O)(QC) See Special Requirements.

11. b. (S) All operators handling scrap, wooden boxes, components, equipment etc. will wear leather or leather palmed gloves.

11. c. (O)(S) All scrap, components, equipment, etc. will be properly contained and secured for shipment to DRMO.

11. d. (O) If required, MHE (forklift, crane, etc.) may be used to remove decontaminated material from burning tray.

12. Collect residual matter from burning tray.

12. a. (O)(S) All residue from decontamination will be managed IAW SEDA-R 420-2, Hazardous Waste Management.

12. b. (O) Using a vacuum equipped with a High Efficiency Particulate Air (HEPA) filter or by equivalent means collect residue in a DOT approved hazardous waste container. Seal container.

12. c. (O)(S) Container will be labeled with Hazardous Waste label. Information for label can be obtained from Environmental Protection Office (EPO).

12. d. (S) Operators involved in collection of ash residue will wear NIOSHA/MSHA approved respirators fitted by Safety Office representative, in addition to explosive handler's coveralls and gloves.

12. e. (O) Containers will be transferred to Building 307 after EPO inspects containers and labels. Rejected drums will be repackaged as directed by the EPO.

12. f. (O)(QC) All material transferred to Building 307 will be accompanied by a DA Form 4508 with appropriate certification.

K. SPECIAL REQUIREMENTS:

1. The disposal area and its operations shall be under the direct control and supervision of an experienced and trained individual charged with the supervisory responsibility for all activities within the area. During his/her absence, a competent qualified person will be designated to be in charge.

2. All metal scrap generated from the operation must be inspected 100% to ensure that it is free of PEP contamination. No PEP contaminated metal can be transferred to DRMO or released for general use. Suspect items will be reprocessed before mutilation, if required, and subsequent turn-in.

3. Before turn-in to DRMO, all containers shall be inspected 100% to ensure they are explosive free. Where possible, (i.e., wood and metal boxes with top opening lids) containers shall be stamped "EMPTY" on the interior and exterior. The stamp should also include a number or other means of identifying the operator. Other types of containers should as a minimum be stamped on the exterior. Also, remove or obliterate any explosive labels/ markings prior to turn-in.

4. Ensure that uninspected containers remain segregated from those which have been certified as explosive free.

5. Containers certified as explosive free should be unitized prior to turn-in to DRMO. End opening containers should all be oriented in the same direction.

6. The following certification statements apply to turn-in of scrap and packing material to DRMO:

a. Demilitarization certification: The following certification is a requirement and will be placed on all DD Forms 1348-1 (or other suitable turn-in document) accompanying demilitarized material to DRMO. Certification is not required if items do not require demilitarization as defined in DOD 4160.21-M-1.

"I CERTIFY THAT THE (fill in type of item) WERE DEMILITARIZED IN ACCORDANCE WITH DOD 4160.21-M-1, DEFENSE DEMILITARIZATION MANUAL, APPENDIX 4 AND/OR AMC-R 755-8."

SIGNATURE (Demil Supervisor) DATE

COUNTER SIGNATURE DATE

K. SPECIAL REQUIREMENTS cont'd:

b. DD Forms 1348-1 (or other turn-in documents) accompanying the above items must also contain the statements listed below. Turn-in documents for packing material must have these certification statements as well:

(1) Inert material certification:

"I CERTIFY THAT THE ITEMS LISTED HEREON HAVE BEEN INSPECTED 100% BY ME AND, TO THE BEST OF MY KNOWLEDGE, CONTAIN NO ITEMS OF A HAZARDOUS NATURE."

Demil Supervisor _____ Date _____

(2) Inert material verification:

"I CERTIFY THAT BASED ON A SAMPLING INSPECTION, THE ABOVE CERTIFICATION IS VALID, AND THE ITEMS LISTED HEREON ARE TO THE BEST OF MY KNOWLEDGE EXPLOSIVE FREE."

QASAS _____ Date _____

7. QASAS shall conduct random sampling to verify the adequacy of the inspection process and assure that the certification of the Demil Supervisor is valid.

8. To identify the decontamination status of scrap in bulk containers, the containers will be physically numbered. Demil Supervisor will retain record of the contents of the containers.

L. EQUIPMENT, TOOLS, GAUGES AND SUPPLIES:

	ITEM	QTY	SPEC	NSN
1.	Safety shoes	As Req'd	MIL-S-41821	Various
2.	Safety glasses	" "	ANSI-Z-87.1	Various
3.	Coveralls, Flame Resistant	" "	MIL-C-14610	Various
4.	Leather-palmed gloves or equivalent	" "	MIL-G-2366	Various

L. EQUIPMENT, TOOLS, GAUGES, AND SUPPLIES Cont'd:

	ITEM	QTY	SPEC	NSN
5.	Full face mask, air purifying respirator w/dust/mist filter	As Req'd	NIOSH/MSHA Approved	
6.	Gloves, flame resistant	" "	MIL-C-43122	Various
7.	Hand tools, non-sparking	" "		Various
8.	Stamp ("EMPTY)	" "	locally fabricated	
9.	Ink, stencil, black	" "	various	
10.	Scrap container	" "	locally fabricated	
11.	55 Gal. Drum (Sealable open top)	" "	DOT approved hazardous waste container	
12.	Rake	" "		Various
13.	Shovel	" "		Various
14.	Pitchfork	" "		Various
15.	Broom and dust pan	" "		Various
16.	Forklift	" "		
17.	Vacuum-HEPA filter	" "	Commercial	
18.	First Aid Kit	1		

APPENDIX A

METEROLOGICAL DATA CHECKLIST

Forecast data required to be logged when open burning:

DATA	DATA	SOURCE OF DATA
Date	Mo/Day/Yr	Supervisor
Time	24 hr clock	Supervisor
Wind Speed	MPH	NWS
Wind Direction		NWS
Temperature	Degree Far.	NWS
Relative Humidity	Percentage	NWS/Fire Dept
Visibility	Miles	NWS
Sky Condition (ceiling)	Feet	NWS
Barometric Pressure	Inches	NWS

(NWS: National Weather Service, Syracuse or Rochester Bureau or military equivalent)

Meteorological conditions required to perform open burning:

1. Probability of precipitation less than 50%.
2. Probability of thunderstorm less than 50%.
3. Wind speed between 3 and 20 miles per hour, with gusts less than 30 miles per hour.
4. Wind speed/direction will not carry emission products over any publicly accessible area within 1 mile of the destruction site.
5. Operations shall not be carried out when the cloud cover is greater than 80 percent AND the cloud ceiling is less than 2000 ft.
6. Visibility must be at least 1 mile.

Note: Weather symbols may be used to augment entries in the weather log as applicable. See the following pages of Appendix A for legend of symbols.

WEATHER SYMBOL LEGEND

ALTOCUMULUS, (thin patches)

ALTOCUMULUS (in bands and thickening)

ALTOCUMULUS, (double layered)

VISIBILITY (reduced by smoke)

HAZE

LIGHT FOG

HEAVY FOG, ICE FOG

DUST WHIRLS

DUST OR SAND STORM

TORNADO (Funnel Cloud)

TROPICAL STORM

HURRICANE

SQUALL

DRIZZLE

SLIGHT FREEZING DRIZZLE

SLIGHT RAIN, INTERMITTENT

SLIGHT RAIN, CONTINUOUS

MODERATE RAIN, INTERMITTENT

MODERATE RAIN, CONTINUOS

HEAVY RAIN INTERMITTENT

HEAVY RAIN CONTINUOUS

PRECIPITATION (during past hour)

INCREASED, (phenomenon during past hour)

DECREASED, (phenomenon, during past hour)

PRECIPITATION (not REACHING GROUND)

PRECIPITATION (landing far from station)

PRECIPITATION (landing near station)

SHOWERS

HAIL

RAIN SHOWERS (moderate or heavy)

WEATHER SYMBOL LEGEND

WIND
(calm)

WIND
(approx 1 mph)

WIND
(approx 6 mph)

WIND
(approx 12 mph)

WIND
(approx 58 mph)

WARM FRONT,
ALOFT

WARM FRONT,
SURFACE

COLD FRONT,
ALOFT

COLD FRONT,
SURFACE

OCCLUDED FRONT,
SURFACE

STATIONARY FRONT,
SURFACE

CLEAR SKY

SCATTERED CLOUDS,
0.1 or less

SCATTERED CLOUDS
0.2 or 0.3

SCATTERED CLOUDS,
0.4

SCATTERED CLOUDS,
0.5

BROKEN CLOUDS,
0.6 - 0.9

BROKEN CLOUDS,
0.6

BROKEN CLOUDS,
0.7 OR 0.8

BROKEN CLOUDS,
0.9

OVERCAST

OVERCAST,
COMPLETE

OVERCAST,
SKY OBSCURED

STRATUS and/or
FRACTOSTRATUS

FRACTOSTRATUS,
(fractocumulus [Scud])

ALTOSTRATUS,
(thin, semi-
transparent)

ALTOSTRATUS,
(thick)

STRATOCUMULUS
(spreading from
cumulus)

STRATOCUMULUS,
(not from cumulus)

CUMULUS, (little
vertical development)

CUMULUS and
STRATOCUMULUS

CUMULUS, (con-
siderable develop-
ment)

CUMULONIMBUS
(clear-cut tops
lacking)

CUMULONIMBUS
(clear top)

ALTOCUMULUS

WEATHER SYMBOL LEGEND

RAIN SHOWERS, (violent)

SLIGHT SHOWERS of SNOW PELLETS

SLIGHT SHOWERS of HAIL

LIGHTNING

THUNDERSTORM

THUNDERSTORM (moderate, with hail)

THUNDERSTORM (heavy, with hail)

ICE PRISMS

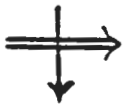
SNOW GRAINS

ICE PELLETS (sleet)

SNOW

STARLIKE SNOW CRYSTALS

DRIFTING SNOW (slight to moderate)



DRIFTING SNOW (heavy)

BLOWING SNOW (slight to moderate)

APPENDIX B

General Environmental Requirements

1. Waste paints, thinners, pentachlorophenol (PENTA) residues, oily rags, ash residue, and other hazardous materials will be disposed of as a hazardous waste IAW SEAD-R 420-2, Hazardous Waste Management.

2. If any evidence of unexploded explosive material (lumps, residue, etc.) or unburned propellant are found, the Environmental Protection Officer, (EPO) ext. 41-450, will be notified.

3. Pentachlorophenol (PENTA) treated pallets, ammunition boxes, or other wood will not be open burned (OB).

4. Except in emergency situations OB of HC, colored smoke, WP, RP, and riot control agents is prohibited. Specific approval is required by AMC, Department of Environmental Conservation (DEC), and EPA as appropriate for emergency situations.

5. All personnel involved with OB operations will be familiar with the requirements in Subpart X of 40 CFR Part 264. Personnel will comply with the specifications in the application and the permit itself when finalized.

6. All personnel involved with OB operations will attend SEDA's annual hazardous waste training refresher course.

7. An after action report will be provided to EPO whenever the general environmental requirements are not met. The report will state the cause/ reasons for not meeting the general environmental requirements and the actions taken.

8. As a standing policy, OB operations will not be conducted on the ground, but only in the tray. Any emergency situation which would require deviation from this policy will first be addressed with the Environmental Protection Officer.

9. The concrete pad will be inspected after each burn for any ash residues.

10. The Environmental Protection Officer, Ext. 41-450, will be notified if any ash residues are observed on the concrete pad.

11. Any ash residues on the concrete pad will be HEPA vacuumed as soon as can safely be accomplished after each burn.

12. Ash residues must be HEPA vacuumed prior to any rain occurring and prior to the end of each day. An exception follows in paragraph 15.

13. Ash residues which are too hot to HEPA vacuum may remain in the tray at the end of the day in accordance with Paragraph 17 of this appendix.

14. The cover will be placed on the tray after all operations when it is safe to do so, to prevent rainfall from entering the tray.

15. Ash residues in the tray will be HEPA vacuumed at the end of the day, if the tray has sufficiently cooled. If the tray is too hot to vacuum at the end of the day, the cover will be replaced, and the tray will be vacuumed at the start of the next available day.

16. Ash residues will be containerized as a hazardous waste. The hazardous waste label will state "Hazardous Waste Solid, N.O.S.",NA9189, Test Required (type of PEP). DOT approved containers smaller than 55 gallon drums may be used. EPO will test the residues IAW SEDA-R 420-2.

17. Only items on the pre-approved list will be open burned. New items/ munitions approval will be requested by memorandum to EPO on a routine (non-urgent) basis. EPO will request approval by DEC, and provide Chief, Conventional Ammunition Division with approval, when received. Urgent approvals will only be requested in EMERGENCY situations.

18. Appendix B contains the three applicable Land Disposal Restriction notification/certification statements. The Internal Notification Statement (page B-3) shall be submitted by Chief, Conventional Ammunition Division (or Chief, Conventional Storage Division) to the demil supervisor (with copy furnished to the Environmental Protection Officer). The Internal Certification Statement (page B-4) shall be submitted by the demil supervisor to the C/CAD (with copy furnished to the Environmental Protection Officer). The statement (with required entries) on page B-5 shall be submitted to the Environmental Protection Officer with turn in of hazardous wastes.

APPENDIX B

SENECA ARMY DEPOT ACTIVITY
Land Disposal Restriction Internal Notification
Open Burning/Open Detonation Treatment

1. EPA ID Number: NY0213820830

2. Waste type: _____

3. PEP type: _____

_____

_____

_____

4. Hazardous waste number: _____

5. Treatment standard expressed as specific technology: Deact

   a. Open burning: _____

   b. Open detonation: _____

The following statement must be signed by the supervisor or commanding officer who is responsible for the operation which generated the hazardous waste:

I certify under penalty of law that I personally have examined and am familiar with the waste, through analysis and testing or through knowledge of the waste, to support this certification that the waste complies with the treatment standards in Part 376, section 376.4, or all applicable prohibitions set forth in subdivision 376.3(b) of part 376 or Section 3004(d) of RCRA. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine or imprisonment.

_____
(Printed Name)

_____
(Signature)

_____
(Title)

_____
(Date)

SENECA ARMY DEPOT ACTIVITY
Land Disposal Restriction Internal Notification
Open Burning/Open Detonation Treatment

1. EPA ID Number: NY0213820830

2. Waste type: _____

3. PEP type: _____

_____

_____

_____

4. Hazardous waste number: _____

5. Treatment standard expressed as specific technology: Deact

   a. Open burning: _____

   b. Open detonation: _____

The following statement must be signed by the supervisor or commanding officer who is responsible for the operation which treated the hazardous waste:

I certify under penalty of law that the waste has been treated in accordance with the requirements of subdivision 376.4(c). I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine or imprisonment.

_____
(Printed Name)

_____
(Signature)

_____
(Title)

_____
(Date)

SDSTO-SEI Form 201-6, 28 March 94

Land Disposal Restriction Internal Notification and Certification

1. EPA ID Number: NY0213820830

2. Waste type: _____

3. Hazardous waste number: _____

4. Number of containers: _____

5. Generation point (building #): _____

6. Applicable treatment standards: _____

7. Expressed as concentrations in waste extract: _____

8. Expressed as specific technologies: _____

9. Expressed as waste concentration: _____

10. Waste Analysis Data attached: (Yes No)

The following statement must be signed by the supervisor or commanding officer who is responsible for the operation which generated the hazardous waste:

I certify under penalty of law that I personally have examined and am familiar with the waste being turned-in and that it is subject to the land disposal restrictions of 6 NYCRR Part 376. The waste does not meet the applicable treatment standards set forth in 6 NYCRR Part 376, section 376.4, or all applicable prohibitions set forth in subdivision 376.3(b) of part 376 or Section 3004(d) of RCRA. I believe that the information I submitted is true, accurate, and complete.

_____
(Printed Name)

_____
(Signature)

_____
(Title)

_____
(Date)

SDSTO-SEI Form 201-4, 28 March 94

APPENDIX 2

COMPOSITION OF PROPELLANTS, EXPLOSIVES AND PYROTECHNICS

TABLE 2-1

COMPOSITION OF PROPELLANT TREATED BY OPEN BURNING (OB)

Composition (% by wt.)

Propellant Designation:	M1	M2	M5	M6	M7	M8
Chemical:						
Nitrocellulose	85.0	77.45	81.95	87.0	54.6	52.15
Nitroglycerin	-	19.50	15.00	-	35.5	43.00
Nitroguanidine	-	-	-	-	-	-
Dinitrotoluene	10.0	-	-	10.0	-	-
Dibutylphthalate	5.0	-	-	3.0	-	-
Diethylphthalate	-	-	-	-	-	3.0
Diphenylamine	1.0*	-	-	1.0	-	-
Ethyl Centralite	-	0.60	0.60	-	0.9	0.60
Barium Nitrate	-	1.40	1.40	-	-	-
Potassium Nitrate	-	-	-	-	7.8	-
Lead Carbonate	1.0**	-	-	-	-	-
Potassium Sulfate	1.0**	-	-	1.0*	-	-
Tin	-	-	-	-	-	-
Carbon Black	-	-	-	-	1.2	-
Graphite	-	0.30	0.30	-	-	-
Cryolite	-	-	-	-	-	-
2-Dinitro-diphenyldiamine	-	-	-	-	-	-
Lead Stearate	-	-	-	-	-	-
Triacetin	-	-	-	-	-	-
Charcoal	-	-	-	-	-	-
Sulfur	-	-	-	-	-	-

Notes: *Added basis
**Added basis when specified

TABLE 2-1
(Cont.)

Composition (% by wt.)

Propellant Designation:	M9	M10	M12	M13	M14	M15
Chemical:						
Nitrocellulose	57.75	98.00	97.70	57.30	90.00	20.0
Nitroglycerin	40.00	-	-	40.00	-	19.0
Nitroguanidine	-	-	-	-	-	54.7
Dinitrotoluene	-	-	Coating	-	8.00	-
Dibutylphthalate	-	-	-	-	2.00	-
Diethylphthalate	-	-	-	-	-	-
Diphenylamine	-	1.0	0.80	0.20	1.00*	-
Ethyl Centralite	0.75	-	-	1.00	-	6.0
Barium Nitrate	-	-	-	-	-	-
Potassium Nitrate	-	-	-	-	-	-
Lead Carbonate	-	-	-	-	-	-
Potassium Sulfate	-	1.0	0.75	1.50	-	-
Tin	-	-	0.75	-	-	-
Carbon Black	-	-	-	0.05*	-	-
Graphite	-	Glaze 0.1	-	-	-	-
Cryolite	-	-	-	-	-	0.3
2-Dinitro-diphenyldiamine	-	-	-	-	-	-
Lead Stearate	-	-	-	-	-	-
Triacetin	-	-	-	-	-	-
Charcoal	-	-	-	-	-	-
Sulfur	-	-	-	-	-	-

Notes: *Added basis
**Added basis when specified

TABLE 2-1
(Cont.)

Composition (% by wt.)

Propellant Designation	M16	M17	M18	M26	M26 E1	M30	M30 A1
Chemical							
Nitrocellulose	55.50	22.0	80.00	67.25	68.70	28.00	28.00
Nitroglycerin	27.50	21.5	10.00	25.00	25.00	22.50	22.50
Nitroguanidine	-	54.7	-	-	-	47.70	47.00
Dinitrotoluene	10.50	-	-	-	-	-	-
Dibutylphthalate	-	-	-	-	-	-	-
Diethylphthalate	-	-	-	-	-	-	-
Diphenylamine	-	-	.70	-	-	-	-
Ethyl Centralite	4.00	1.5	-	6.00	6.00	1.50	1.50
Barium Nitrate	-	-	-	0.75	-	-	-
Potassium Nitrate	-	-	-	0.70	-	-	-
Lead Carbonate	-	-	-	-	-	-	-
Potassium Sulfate	1.50	-	-	-	-	-	1.00
Tin	-	-	-	-	-	-	-
Carbon Black	0.50	-	-	-	-	-	-
Graphite	-	Glaze 0.1	-	0.30	0.30	Glaze 0.10	-
Cryolite	-	0.3	-	-	-	0.30	-
2-Dinitro-diphenyldiamine	-	-	-	-	-	-	-
Lead Stearate	.505	-	-	-	-	-	-
Triacetin	-	-	-	-	-	-	-
Charcoal	-	-	-	-	-	-	-
Sulfur	-	-	-	-	-	-	-

Notes: *Added basis
**Added basis when specified

TABLE 2-1
(Cont.)

Composition (% by wt.)

Propellant Designation	M31	M31 A1	IMR	TZ	T8	T23	Black Powder
Chemical							
Nitrocellulose	20.00	20.00	90.00	57.50	58.00	67.25	-
Nitroglycerin	19.00	19.00	-	30.00	22.50	0.25	-
Nitroguanidine	54.70	54.00	-	-	-	-	-
Dinitrotoluene	-	4.50	9.00	4.50	2.50	-	-
Dibutylphthalate	-	-	-	-	-	-	-
Diethylphthalate	-	-	-	-	-	-	-
Diphenylamine	-	-	-	-	-	-	-
Ethyl Centralite	-	-	-	8.00	8.00	6.00	-
Barium Nitrate	-	-	-	-	-	0.75	-
Potassium Nitrate	-	-	-	-	-	0.70	74.00
Lead Carbonate	-	-	-	-	-	-	-
Potassium Sulfate	-	1.50	1.00*	1.50	-	-	-
Tin	-	-	-	-	-	-	-
Carbon Black	-	-	-	0.02*	-	-	-
Graphite	-	-	-	-	-	0.30	-
Cryolite	0.30	-	-	-	-	-	-
2-Dinitro-diphenyldiamine	1.50	-	-	-	-	-	-
Lead Stearate	-	-	-	0.50	0.50	-	-
Triacetin	-	-	-	-	8.50	-	-
Charcoal	-	-	-	-	-	-	15.60
Sulfur	-	-	-	-	-	-	10.40

Notes: *Added basis
**Added basis when specified

TABLE 2-2

CHEMICAL FORMULA OF EXPLOSIVES TREATED BY OPEN DETONATION (OD)

Primary Explosives - Chemical Name	Chemical Formula	Hazardous Waste ID Number
Lead Azide	N_6Pb (71% PB)	D003, D008
Mercury Fulminate	$C_2HgN_2O_2$ (79.8% Hg)	D003, D009
Diazodinitrophenol (DDNP)	$C_6H_2N_4O_5$	D003
Lead Styphnate	$C_6HN_3O_8Pb$ (44.2% Pb)	D003, D008
Tetracene	$C_{18}H_{12}$	D003
Potassium Dinitrobenaofuroxane (KDNBF)	$C_6H_2N_4O_6K$	D003
Lead Monomitroresorcinate (LMNR)	$C_6H_3NO_2Pb$ (57.5% Pb)	D003, D008
Lead Thiocyanate (fuel)	$Pb(SCN)_2$ (64% Pb)	D008
Antimony Sulfide (fuel)	Sb_2S_5	D003
Calcium Silicate (fuel)	$CaSiO_3$	D003, D001
Potassium Chlorate (oxidizer)	$KClO_3$	D003
Ammonium Perchlorate (oxidizer)	NH_4ClO_4	D003
Barium Nitrate	$Ba(NO_3)_2$	D003, D005

TABLE 2-2
(Cont.)

High Explosives - Chemical Name	Chemical Formula	Hazardous Waste ID Number
(Aliphatic Nitrate Esters)		
1,2,4-Butanetriol Trinitrate (BTN)	$C_4H_7N_3O_9$	D003
Diethyleneglycol Dinitrate (DEGN)	$C_4H_8N_2O_7$	D003
Nitroglycerine (NG)	$C_3H_5N_3O_9$	D003
Nitrostarch (NS)	$C_6H_{10}O_5NO_2$	D003
Pentaerythritol Tetranitrate (PETN)	$C_5H_8N_4O_{12}$	D003
Trimethylene Glycoldinitrate (TEGN)	$C_6H_{12}O_4N_2O4$	D003
1,1,1-Trimethylolethane Trinitrate (TMETN)	$C_5H_9O_{9N}3$	D003
Nitrocellulose (NC)	$C_{12}H_{16}(ONO_2)_4O_6$	D003
(Nitramines)		
Cyclotetramethylenete-Tranitramine (HMX)	$C_4H_8N_8O_2$	D003
Cyclotrimethylene-Trinitramine (RDX)	$C_3H_6N_6O_6$	D003
Ethylenediamine Dinitrate (EDDN: Haleite)	$C_2H_6N_4O_4$	D003
Nitroguanidine (NQ)	$CH_4N_4O_2$	D003
2,4,6-Trinitrophenyl-Methylnitramine	$C_7H_5N_5O_8$	D003

TABLE 2-2
(Cont.)

High Explosives — Chemical Name	Chemical Formula	Hazardous Waste ID Number
(Nitroaromatics)		
Ammonium Picrate (Explosive D)	$C_6H_3N_3O_7H_3N$	D003
1,3-Diamino-2,4,6-Trinitrobenzene (DATB)	$C_6H_4N_6O_6$	D003
2,2'4,4'6,6'-Hexanitroazobenzene (HNAB)	$C_{12}N_8O_{12}$	D003
Hexnitrostilbene (HNS)	$C_{14}H_2N_6O_{12}$	D003
1,3,5-Triamino-2,4,6-Trinitrobenzene (TATB)	$C_6H_6N_6O_6$	D003
2,4,6-Trinitroluene (TNT)	$C_7H_5N_3O_6$	D003
Ammonium Nitrate	HN_4NO_3	D003
Plastic Bonded Explosive (PBX)		
Explosives (see above) and polymer binder, plasticizer, and fuel (aluminum or iron)		
(Pyrotechnics)		
Combination of: Oxidizer - oxygen or fluorine Fuel - powdered aluminum or magnesium Binding Agents - resins, waxes, plastics, oils, retardants, waterproofing, color intensifier		

TABLE 2-2
(Cont.)

Explosives - Chemical Name	Chemical Formula	Percent
Black Powder	Potassium Nitrate	74.0
	Charcoal	15.6
	Sulfur	10.4
Composition B	60/40 Cyclotol	
	RDX	60
	TNT	39
	WAX	17
Photoflash	Laminac	96.8
	Lupersol, DDM	3.0
	Iron Oxide	.2
Composition C4	RDX	91.0
	Polyisobutylene	2.1
	Motor Oil	1.6
	Di-(2-Ethylhexyl) Sebacate	5.3
TPA Incendiary	Triethylaluminum	?
Amatol	Ammonium Nitrate	?
	TNT	?
Composition A3	RDX	91
	WAX	9
Explosive A4	RDX	97
	WAX	3
HBX-1.3 & 6	RDX	39.6
	TNT	37.8
	Aluminum	17.1
	Densitizer Comp D2	5.0
	CACL	.5
Octol	HMX	75
	TNT	25

TABLE 2-2
(Cont.)

Explosives - Chemical Name	Chemical Formula	Percent
PBX	RDX	?
	Polystyrene	?
	Dioclylphthalate	?
Pentolite	PETN	50
	TNT	50
Picratol	Explosive D	52
	TNT	48
Tetrytol	Tetryl	?
	TNT	?
Torpex	RDX	42
	TNT	40
	Aluminum	18
Tritonal	Aluminum	?
	TNT	?
Military Dynamite - Medium Velocity	RDX	75
	TNT	15
	Starch	5
	SAE No. 10 Oil	4
	Polysobutylene	1
Military Dynamite - Low Velocity	RDX/dye*	17.5
	TNT	67.8
	Tripentaery-Thritol	8.6
	Binder**	4.1
	Celluloseacetate	2.0

Notes: * The dye is 1 - methylamino-anthraquinone (1-MA) used in the amount of .5% of the RDX mixture

** The binder is vistac No. 1 consisting of polybutene and diotyseabacate

DEPARTMENT OF THE ARMY
HEADQUARTERS, U. S. ARMY MATERIEL COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333-0001

AMCSG-I (40-5e) 19 August 1991

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Potential Health Hazard Associated with Open Air Burning of M-6 and M-1 Propellants

1. References:

a. Message, DACS-SF, 261350Z Jul 91, subject as above (Encl 1).

b. Material Safety Data Sheet, Hercules Incorporated, 29 April 1991, subject: Propellant M-6 Standard (Encl 2).

2. Request expeditious, widespread dissemination of the referenced message throughout your command. The results of laboratory tests on the solid residue resulting from open-air burning of M-6 propellant indicate the substance is mutagenic in three of the four test systems used. This information concerning the residue's mutgenicity (i.e., capability of altering the genetic material in a living cell) must be inserted in pertinent material safety data sheets (MSDSs) (Encl 2). This information should also be provided to potentially exposed employees via your hazard communication program.

3. Recommend re-issuance of the message to all M-6 and M-1 propellant users. Recommend it be emphasized that all evidence must be carefully weighed on an individual basis before concluding that a given substance is harmful to man. Since it may take one to three years before small animal testing may yield any useful information, the Office of the Surgeon General had directed that screening tests be conducted, which require only a few days or weeks to provide preliminary results. These are called 'in vitro' or 'short term' tests; in which various types of cells growing in laboratory cultures are treated with a suspect toxic chemical to determine if subsequent growth is normal or abnormal. However, presently, none of these short term tests can be used to establish conclusively whether a compound will or will not be carcinogenic in humans or animals. Positive results suggest that extensive testing of the chemical be done in long-term animal studies. Negative results suggest, but do not prove, the safety of the compound.

4. Point of contact for this memorandum is Mr. John S. Svalina, AMCSG-I, Industrial Hygienist, DSN 284-9470.

FOR THE COMMANDER:

MANMOHAN V. RANADIVE, M.D., M.P.H.
Colonel, MC
Command Surgeon

2 Encls
as

AMCSG-I 19 August 1991

SUBJECT: Potential Health Hazard Associated with Open Air Burning of M-6 and M-1 Propellants

DISTRIBUTION:
B & C

CF:
AMCSF
AMCAM

	REGULAR TELEPHONE NO. (703)639-7294
CHEMICAL NAME N/A	EMERGENCY TELEPHONE NO. (703)639-7323
SYNONYMS: N/A	CHEMICAL FAMILY Single-Base Propellant
FORMULA: N/A	MOLECULAR WEIGHT ---

TRADE NAME AND SYNONYMS: Propellant M6 Standard

I. PHYSICAL DATA

BOILING POINT, 760mm. Hg N/A	FREEZING POINT N/A
SPECIFIC GRAVITY (H2O = 1) 1.4955	VAPOR PRESSURE @ °C Negligible
VAPOR DENSITY (AIR = 1) N/A	SOLUBILITY IN WATER, % BY WT @ °C Negligible
PERCENT VOLATILES BY VOLUME less than 0.6% maximum	EVAPORATION RATE (BUTYL ACETATE = 1) less than 1

APPEARANCE AND ODOR Hard cylinder, white to tan in color, black if graphite coated

II. HAZARDOUS INGREDIENTS

MATERIAL	CASE NO.	%	TLV (UNITS)
Nitrocellulose (Flammable Solid)		87	Not established
Dinitrotoluene (skin)	25321-14-6	10	1.5 mg/m3
Diphenylamine	122-39-4	1	10 mg/m3
Dibutylphthalate	84-74-2	3	5 mg/m3
Potassium Sulfate	7778-30-5	1	Not established

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (TEST METHOD) N/A		AUTOIGNITION TEMPERATURE	383°F
FLAMMABLE LIMITS IN AIR, % BY VOLUME	LOWER N/A	UPPER	N/A

EXTINGUISHING MEDIA: Self-oxidizing, deluge with water. May not be able to extinguish before all the material is consumed, unless quantities of water are us in very short time periods.

SPECIAL FIRE FIGHTING PROCEDURES: Evacuate the area.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Easily ignited, highly combustible; protect from fire, sparks and extr heat.

IV. HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE

Dinitrotoluene - Poison by ingestion and subcutaneous routes. An experimental tumo and teratogen. An irritant and an allergen can cause anemia, methemoglobinemia, cyanosis, and liver damage.

WARNING: M6 Propellant residue has been proven to be a substance capable of altering the genetic material of a living cell.

EMERGENCY & FIRST AID PROCEDURES:

Eyes: In case of contact, immediately flush with plenty of low pressure wate least 15 minutes. Remove any contact lenses to assure thorough flushi a physician.

Skin: Wash with soap and running water.

Inhalation: Remove to fresh air. Treat any irritation symptomatically. Call a phys

The components of this product are NOT listed as carcinogens by the National T Program (NTP). They are NOT regulated as carcinogens by the Occupational Safety a Administration (OSHA) and have NOT been evaluated by the International Agency for Re Cancer (IARC).

V. REACTIVITY DATA

STABILITY		
UNSTABLE	STABLE	CONDITIONS TO AVOID: Open flame, sparks, and heat
	X	

INCOMPATIBILITY (MATERIALS TO AVOID): Acids and bases (organic and inorganic)

HAZARDOUS DECOMPOSITION PRODUCTS: Toxic oxides of nitrogen and carbon

HAZARDOUS POLYMERIZATION		
MAY OCCUR	WILL NOT OCCUR	CONDITIONS TO AVOID: None.
	X	

VI. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Clean up all spills immediately using a soft bristle brush and a conductive rubber or plastic shovel. Use caution, material sens to impact, friction and electrostatic discharge.

WASTE DISPOSAL METHOD: Burn on open burning ground in accordance with state and local lations.

VII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)	Not required.			
VENTILATION	LOCAL EXHAUST	--	SPECIAL	--
	MECHANICAL (GENERAL)	--	OTHER	Adequate ventilation
PROTECTIVE GLOVES	cotton or leather		EYE PROTECTION	Safety glasses
OTHER PROTECTIVE EQUIPMENT	Flame retardant coveralls and conductive safety shoes.			

VIII. SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING	Nitrocellulose (flammable solid) Dinitrotoluene (skin) (121-14-2) Lead
OTHER HANDLING AND STORAGE CONDITIONS	Avoid prolonged temperatures above 52°C (125°F). Recommended storage: 21°C (70°F) at 50% humidity.

TRADE NAME: PROPELLANT M6 STANDARD

IX SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING:

Labeled and packaged in accordance with the Hazardous Materials Regulations of the De of Transportation for Class B Explosives.

WARNING! FLAMMABLE SOLID!
Keep away from heat, sparks, and open flame.
Keep containers closed.
Use with adequate ventilation.

FIRST AID:

EYES: In case of contact, immediately flush with plenty of low pressu for at least 15 minutes. Remove any contact lenses to assure flushing. Call a physician.

SKIN: Wash with soap and running water.

INHALATION: Remove to fresh air. Treat any irritation symptomatically. physician.

OTHER HANDLING AND STORAGE CONDITIONS:
Storage also must conform to local, state and Federal Regulations including OSHA 1910.109 and BATF, 27 CFR 55, Subpart K.

gl 0 D (Disclaimer HERCULES):
Hercules Incorporated has complied the information and recommendations conta in this Material Safety Data Sheet from sources believed to be reliable, and represent the most reasonable current opinion on the subject when the MSDS w prepared. No warranty, guaranty, or representation is made as to the correctness or sufficiency of the information. The user of this product mus decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmant regulatory compliance obligations under any applicable federal or state laws

APPENDIX E

SURVEILLANCE REQUIREMENTS

Qualified QASAS from the Ammunition Surveillance Division (ASD) will:

1. Provide support to Conventional Ammunition Division (CAD) as scheduled and coordinated by CAD prior to commencement of operations. CAD should notify ASD at least 24 hours prior to planned start of operations.

2. Assure discrepancies noted during surveys, inspections, and monitoring receive immediate corrective action when required. Unresolved problems will be reported immediately to the QASAS-in-charge IAW SB 742-1, para 11-7.c.(4).d.

3. Perform a pre-operational check IAW SB 742-1, para 11-7.c.(1).

4. Perform pre-inspection IAW SB 742-1, para 11-7.c.(2).

5. Conduct surveillance inspection/monitoring of the demilitarization operations IAW SB 742-1, para 11-7.c.(3) and AMC-R 755-8.

6. Report all non-conforming and unsafe actions or conditions on SDS Form 1139-R (Ammunition Operations Deficiency Report).

7. Conduct surveillance survey of site after operations IAW SB 742-1, para 11-7.c.(4).

8. Perform sampling inspection of residue, scrap, packing material, components, and equipment IAW SB 742-1, para 11-7.c.(5).c.

9. Record inspection results and retain copies of all CAD documentation, certification and verification statements IAW SB 742-1, para 11-8.