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FEB 18 1985

HAZARDOUS WASTE SECTION

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**RCRA PART B PERMIT APPLICATION  
CANNON AIR FORCE BASE  
DPDO - CANNON**

7 February 1985

**Prepared for**

**Defense Property Disposal Service  
Battle Creek, MI 49016**

**and**

**Cannon Air Force Base  
Clovis, NM 88103**

**Prepared by**

**Hazardous Materials Technical Center  
The Dynamac Building  
11140 Rockville Pike  
Rockville, MD 20852**

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**Operated by the Dynamac Corporation  
for the Defense Logistics Agency**

**TO VIEW THE MAP AND/OR  
MAPS WITH THIS DOCUMENT,  
PLEASE CALL THE  
HAZARDOUS WASTE BUREAU  
AT 505-476-6000 TO MAKE AN  
APPOINTMENT**

Date:  
Revision No.: 0  
Section: C  
Cannon

APPENDIX C-1

Group I Hazardous Wastes which may  
be Stored at DPDO-Cannon

Date:  
Revision No.: 0  
Section: C  
Cannon

APPENDIX C-1

Group I Hazardous Wastes which may  
be Stored at DPDO-Cannon

| <u>Chemical</u>                      | <u>Hazard</u> | <u>EPA Hazard Class</u>       |
|--------------------------------------|---------------|-------------------------------|
| 2,4 - Dichlorophenoxy<br>acetic acid | EP Toxic      | Characteristic Waste,<br>D016 |
| Insecticide, DDT                     | Toxic         | Listed Waste, U061            |

Date:  
Revision No.: 0  
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Cannon

APPENDIX C-2

Hazardous Wastes Which may be Stored at  
DPDO-Cannon as Group I or Group II Items

Date:  
Revision No.: 0  
Section: C  
Cannon

APPENDIX C-2

Hazardous Wastes Which may be Stored at  
DPDO-Cannon as Group I or Group II Items

| <u>Chemical</u>           | <u>Hazard</u>          | <u>EPA Hazard Class</u>             |
|---------------------------|------------------------|-------------------------------------|
| Acrylic lacquer           | Ignitable              | Characteristic Waste, D001          |
| Adhesive, liquid          | Ignitable              | Characteristic Waste, D001          |
| Adhesive, epoxy           | Ignitable              | Characteristic Waste, D001          |
| Adhesive primer           | Ignitable              | Characteristic Waste, D001          |
| Cleaning compound         | Ignitable              | Characteristic Waste, D001          |
| Cleaning compound         | Reactive               | Characteristic Waste, D003          |
| Cleaning compound solvent | Ignitable              | Characteristic Waste, D001          |
| Chromic acid              | Corrosive,<br>EP Toxic | Characteristic Waste,<br>D002, D007 |
| Calcium hypochlorite      | Reactive               | Characteristic Waste, D003          |
| Toluene                   | Toxic                  | Listed Waste, U220                  |
| Dimethylformamide         | Reactive               | Characteristic Waste, D003          |
| Polyurethane Paint        | Ignitable              | Characteristic Waste, D001          |
| Primer                    | Ignitable,<br>EP Toxic | Characteristic Waste,<br>D001, D007 |
| Thinner                   | Ignitable              | Characteristic Waste, D001          |
| Primer sealant            | Ignitable              | Characteristic Waste, D001          |
| Acetone                   | Ignitable              | Characteristic Waste, D001          |
| 934 structural sealant    | Ignitable              | Characteristic Waste, D001          |

Date:  
Revision No.: 0  
Section: C  
Cannon

APPENDIX C-2 (Continued)

Hazardous Wastes Which may be Stored at  
DPDO-Cannon as Group I or Group II Items

| <u>Chemical</u>      | <u>Hazard</u>    | <u>EPA Hazard Class</u>    |
|----------------------|------------------|----------------------------|
| Sulfuric acid        | Corrosive        | Characteristic Waste, D002 |
| Enamel thinner       | Ignitable        | Characteristic Waste, D001 |
| Lacquer thinner      | Ignitable        | Characteristic Waste, D001 |
| Methyl ethyl ketone  | Ignitable, Toxic | Listed Waste, U159         |
| Toluene thinner      | Ignitable        | Characteristic Waste, D001 |
| Naphtha thinner      | Ignitable        | Characteristic Waste, D001 |
| Epoxy primer         | Ignitable        | Characteristic Waste, D001 |
| Polyurethane coating | Ignitable        | Characteristic Waste, D001 |
| Lacquer              | Ignitable        | Characteristic Waste, D001 |
| Epoxy paint remover  | Corrosive        | Characteristic Waste, D002 |
| Xylene               | Ignitable, Toxic | Listed Waste, U239         |
| Potassium hydroxide  | Corrosive        | Characteristic Waste, D002 |
| Ethyl alcohol        | Ignitable        | Characteristic Waste, D001 |
| Trichloroethylene    | Toxic            | Listed Waste, U228         |
| Tetrachloroethylene  | Toxic            | Listed Waste, U210         |
| Batteries (mercury)  | Toxic            | Listed Waste, U151         |

Date:  
Revision No.: 0  
Section: C  
Cannon

APPENDIX C-2 (Continued)

Hazardous Wastes Which may be Stored at  
DPDO-Cannon as Group I or Group II Items

| <u>Chemical</u>                    | <u>Hazard</u>          | <u>EPA Hazard Class</u>             |
|------------------------------------|------------------------|-------------------------------------|
| Methyl alcohol                     | Ignitable, Toxic       | Listed Waste, U154                  |
| Carbon remover                     | Corrosive              | Characteristic Waste, D002          |
| Enamel                             | Ignitable              | Characteristic Waste, D001          |
| Enamel                             | Ignitable,<br>EP Toxic | Characteristic Waste,<br>D001, D007 |
| Bromochloromethane                 | Corrosive              | Characteristic Waste, D002          |
| Aqueous film forming foam          | Corrosive              | Characteristic Waste, D002          |
| 1,1,1 Trichloroethane              | Toxic                  | Listed Waste, U226                  |
| Naphtha                            | Ignitable              | Characteristic Waste, D001          |
| Potassium dichromate               | EP Toxic               | Characteristic Waste, D007          |
| Hydrochloric Acid                  | Corrosive              | Characteristic Waste, D002          |
| Mercury                            | Toxic                  | Listed Waste, U151                  |
| Zinc phosphide                     | Reactive, Toxic        | Listed Waste, P122                  |
| Paint, heat resistant              | Ignitable              | Characteristic Waste, D001          |
| Paint, latex                       | Ignitable              | Characteristic Waste, D001          |
| Paint, oil                         | Ignitable              | Characteristic Waste, D001          |
| Petroleum ether                    | Ignitable              | Characteristic Waste, D001          |
| Primer coating, epoxy<br>polyamide | Ignitable              | Characteristic Waste, D001          |

Date:  
Revision No.: 0  
Section: C  
Cannon

APPENDIX C-3

Laboratory Analysis Reports for Group II Wastes

LABORATORY ANALYSIS REPORT AND RECORD (General)

DATE  
April 18, 1983

|                                   |                                      |
|-----------------------------------|--------------------------------------|
| TO:<br>Brooks Air Force Base      | FROM:                                |
| SAMPLE IDENTITY<br>Waste Solvents | DATE RECEIVED<br>March 24, 1983      |
| SAMPLE FROM<br>Reese AFB, Texas   | LAB CONTROL NR<br>10905-10907, 10909 |
| TEST FOR<br>Bulk Identification   |                                      |

| Sample #<br>(OHEL #)                | Ignitability<br>at 60°C | pH | Bulk Components  | Bulk<br>Concentration (%)            |
|-------------------------------------|-------------------------|----|--|--------------------------------------|
| GM830036 - <i>BBL # 51</i><br>10905 | Yes                     | -  | Acetone<br>MEK<br>MIBK/Isobutyl acetate<br>Toluene<br>Xylenes<br>Butyl cellosolve<br>Solids/Paint resins   | 35<br>34<br>8<br>13<br>1<br>3<br>6   |
| GM83007 - <i>BBL # 52</i><br>10906  | Yes                     | -  | Aliphatic Hydrocarbons >C <sub>12</sub><br>Acetone<br>MEK<br>MIBK/Isobutyl acetate<br>Toluene<br>Isobutanol/n-butyl acetate<br>Solids/Paint resins | 3<br>39<br>34<br>6<br>10<br>4<br>4   |
| GM830038 - <i>BBL # 53</i><br>10907 | Yes                     | -  | Acetone<br>MEK<br>MIBK/Isobutyl acetate<br>Toluene<br>Xylenes<br>Cellosolve acetate<br>Solids/Paint resins   | 16<br>8<br>13<br>20<br>2<br>11<br>16 |

*James C. Jones*  
CHIEF, ENVIRONMENTAL CHEMISTRY BRANCH

BBLS 51, 52, & 53 FROM ~~LABORATORY CONTROL~~ SASA DLOS 59.

*11 29 apr 83*

## LABORATORY ANALYSIS REPORT AND RECORD (General)

DATE

19 Jan 84

|   |   |
|---|---|
| TO:   | FROM: USAF OEHL/SA<br>Brooks AFB TX 78235 |
| SAMPLE IDENTITY<br>GM830389-411 waste chemicals | DATE RECEIVED<br>27 Dec 83                |
| SAMPLE FROM<br>B 196 Drum Storage               | LAB CONTROL NR<br>65957-979               |
| TEST FOR<br>Analysis                            |   |

| Lab # | Sample # | Ignitability<br>at 140°F | Identification                  |
|-------|----------|--------------------------|---------------------------------|
| 65957 | 830389   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65958 | 830390   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65959 | 830391   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65960 | 830392   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65961 | 830393   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65962 | 830394   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65963 | 830395   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65964 | 830396   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65965 | 830397   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65966 | 830398   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65967 | 830399   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65968 | 830400   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65969 | 830401   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65970 | 830402   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65971 | 830403   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65972 | 830404   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65973 | 830405   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65974 | 830406   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65975 | 830407   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65976 | 830408   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65977 | 830409   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65978 | 830410   | yes                      | Toluene and Methyl Ethyl Ketone |
| 65979 | 830411   | yes                      | Toluene and Methyl Ethyl Ketone |

Note: The above are the major components as determined by a general qualitative infrared analysis. Cyclohexanone, Xylenes and MIBK are present as minor components in some samples. No halogenated solvents are present.

J.D. HILLSBERRY, GS-12  
Industrial Hygiene Analysis Function  
Occupational Chemistry Branch

REQUESTING AGENCY (Mailing Address)

USAF Hosp: SGFB  
Cannon AFB NM 88103

Date:  
Revision No.: 0  
Section: C  
Cannon

Appendix C-4

Munitions Found During Range Clearance

EXPENDED MUNITIONS LIST

The following munition items have been expended on Melrose Range and may be found during clearance operations:

1. MINIATURE PRACTICE BOMBS

- |           |             |
|-----------|-------------|
| a. MK 106 | d. AN MK 23 |
| b. BDU 33 | e. MB 2     |
| c. BDU 23 | f. MD 6     |

2. FULL SCALE PRACTICE BOMBS

- |                      |                    |
|----------------------|--------------------|
| a. AN M38A2 (100 lb) | e. M 117 (750 lb)  |
| b. AN M64A1 (500 lb) | f. MK 84 (2000 lb) |
| c. MK 81 (250 lb)    | g. BDU 38          |
| d. MK 82 (500 lb)    |                    |

3. BOMB FUZES USED

- |                |                |
|----------------|----------------|
| a. M100 series | d. M904 (nose) |
| b. M112 series | e. M905 (tail) |
| c. M103        |                |

4. FIRE BOMBS BLU 1/A/B

- |                       |                 |
|-----------------------|-----------------|
| a. FMU 7 fuze systems | c. M23 igniters |
| b. M173 fuze          |                 |

5. AIRCRAFT ROCKETS

- |                  |                         |
|------------------|-------------------------|
| a. 2.25" sub-cal | c. TDU 11 target rocket |
| b. 2.75" FFAR    |                         |

6. WARHEADS FOR AIRCRAFT

- |                             |                   |
|-----------------------------|-------------------|
| a. MK1 MOD 0 2.75" practice | c. MK5 2.75"      |
| b. M61 2.75" practice       | d. MK156 2.75" WP |

7. FLARES AND SIGNALS

- |                         |                          |
|-------------------------|--------------------------|
| a. M 9 Aircraft flares  | d. Slap flares           |
| b. MK24 Aircraft flares | e. MK13 Distress signals |
| c. penngun flares       | f. M18 Smoke signals     |

Date:  
Revision No.: 0  
Section: C  
Cannon

APPENDIX C-5

Soil Analysis of Melrose Range  
Thermal Treatment Area

**RADIAN**  
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Analytical Serv REPORT  
09/11/84 20:11:08

LAB # 84-08-181

PORT USAF/DEHL-SAN  
TO Brooks AFB  
TX 78235

PREPARED Radian Analytical Services  
BY 8501 MoPac Blvd.  
P. O. Box 9948  
Austin, Texas 78766

*Louise Newma*  
CERTIFIED BY

ATTEN L. L. Rodriguez

ATTEN  
PHONE (512) 454-4797

CONTACT CONOVER

CLIENT BROOKS D05 SAMPLES 2  
COMPANY Brooks AFB  
FACILITY DEHL

cc: USAF Hospital Cannon  
Cannon AFB, NM 88103  
ATTN: Nathan Floyd

WORK ID Cannon AFB, T84-24  
TAKEN 7/28/84, Nathan Floyd  
TRANS federal express  
TYPE soil  
P. O. # 212-027-05  
INVOICE under separate cover

SAMPLE IDENTIFICATION

- 1 SK-42157, GS840218
- 2 SK-42158, GS840219

Analytical Serv TEST CODES and NAMES used on this report

- SW8240 GCMS Volatiles - SW846
- SW827A GCMS Acid Semivol-SW846
- SW827B GCMS B/N Semivol-SW846

PAGE 2  
RECEIVED: 08/17/84Analytical Serv REPORT  
Results by Sample

LAB # 84-08-181

SAMPLE ID SK 42157, G5840218FRACTION 01ATEST CODE SW8240NAME GCMS Volatiles - SW846Date & Time Collected 07/28/84

Category \_\_\_\_\_

DATA FILE 4CU08181V01  
CONC. FACTOR 1DATE INJECTED 08/29/84ANALYST BWS  
INSTRUMENT F4VERIFIED BY LAK  
COMPOUNDS DETECTED 0

| NPDES | SCAN | EPA | COMPOUND                   | RESULT    | NPDES | SCAN | EPA | COMPOUND                    | RESULT    |
|-------|------|-----|----------------------------|-----------|-------|------|-----|-----------------------------|-----------|
|       | 1V   | 2V  | acrolein                   | <u>ND</u> | 17V   | 32V  |     | 1,2-dichloropropane         | <u>ND</u> |
|       | 2V   | 3V  | acrylonitrile              | <u>ND</u> | 18V   | 33V  |     | cis-1,3-dichloropropylene   | <u>ND</u> |
|       | 3V   | 4V  | benzene                    | <u>ND</u> | 18V   | 33V  |     | trans-1,3-dichloropropylene | <u>ND</u> |
|       | 6V   | 6V  | carbon tetrachloride       | <u>ND</u> | 19V   | 38V  |     | ethylbenzene                | <u>ND</u> |
|       | 7V   | 7V  | chlorobenzene              | <u>ND</u> | 22V   | 44V  |     | methylene chloride          | <u>ND</u> |
|       | 15V  | 10V | 1,2-dichloroethane         | <u>ND</u> | 21V   | 45V  |     | methyl chloride             | <u>ND</u> |
|       | 27V  | 11V | 1,1,1-trichloroethane      | <u>ND</u> | 20V   | 46V  |     | methyl bromide              | <u>ND</u> |
|       | 14V  | 13V | 1,1-dichloroethane         | <u>ND</u> | 5V    | 47V  |     | bromoform                   | <u>ND</u> |
|       | 28V  | 14V | 1,1,2-trichloroethane      | <u>ND</u> | 12V   | 48V  |     | dichlorobromomethane        | <u>ND</u> |
|       | 23V  | 15V | 1,1,2,2-tetrachloroethane  | <u>ND</u> | 30V   | 49V  |     | trichlorofluoromethane      | <u>ND</u> |
|       | 9V   | 16V | chloroethane               | <u>ND</u> | 13V   | 50V  |     | dichlorodifluoromethane     | <u>ND</u> |
|       | 4V   | 17V | bis (chloromethyl) ether   | <u>ND</u> | 8V    | 51V  |     | chlorodibromomethane        | <u>ND</u> |
|       | 10V  | 19V | 2-chloroethylvinyl ether   | <u>ND</u> | 24V   | 85V  |     | tetrachloroethylene         | <u>ND</u> |
|       | 11V  | 23V | chloroform                 | <u>ND</u> | 25V   | 86V  |     | toluene                     | <u>ND</u> |
|       | 18V  | 29V | 1,1-dichloroethylene       | <u>ND</u> | 29V   | 87V  |     | trichloroethylene           | <u>ND</u> |
|       | 35V  | 30V | 1,2-trans-dichloroethylene | <u>ND</u> | 31V   | 88V  |     | vinyl chloride              | <u>ND</u> |

**RADIAN**

CORPORATION

PAGE 3  
RECEIVED: 08/17/84Analytical Serv                      REPORT  
Results by SampleLAB # 84-08-181  
Continued From AboveSAMPLE ID SK 42157, GSB40218FRACTION 01A      TEST CODE SW8240NAME GCMS Volatiles - SWB46Date & Time Collected 07/28/84

Category \_\_\_\_\_

## NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

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Analytical Serv REPORT  
Results by Sample

LAB # 84-08-181

SAMPLE ID SK 42157, GS840218 FRACTION 01A TEST CODE SW827A NAME GCMS Acid Semivol-SW846  
Date & Time Collected 07/28/84 Category \_\_\_\_\_

DATA FILE 2CU08181501 DATE EXTRACTED 08/23/84 ANALYST BWS VERIFIED BY LAK  
CONC. FACTOR 100 DATE INJECTED 09/07/84 INSTRUMENT \_\_\_\_\_ COMPOUNDS DETECTED 0

| NPDES SCAN | EPA | COMPOUND              | RESULT | NPDES SCAN | EPA | COMPOUND             | RESULT |
|------------|-----|-----------------------|--------|------------|-----|----------------------|--------|
| 11A        | 21A | 2,4,6-trichlorophenol | ND     | 7A         | 58A | 4-nitrophenol        | ND     |
| 8A         | 22A | p-chloro-m-cresol     | ND     | 5A         | 59A | 2,4-dinitrophenol    | ND     |
| 1A         | 24A | 2-chlorophenol        | ND     | 4A         | 60A | 4,6-dinitro-o-cresol | ND     |
| 2A         | 31A | 2,4-dichlorophenol    | ND     | 9A         | 64A | pentachlorophenol    | ND     |
| 3A         | 34A | 2,4-dimethylphenol    | ND     | 10A        | 65A | phenol               | ND     |
| 6A         | 57A | 2-nitrophenol         | ND     |            |     |                      |        |

NOTES AND DEFINITIONS FOR THIS REPORT.  
SCAN = scan number or retention time on chromatogram.  
All results reported in ug/kg unless otherwise specified.  
ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

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Analytical Serv REPORT  
Results by Sample

LAB # 84-08-181

SAMPLE ID SK 42157, GSB40218

FRACTION 01A TEST CODE SW827B NAME GCMS B/N Semivol-SW846  
Date & Time Collected 07/28/84 Category

DATA FILE 2CU08181501  
COR. FACTOR 100

DATE EXTRACTED 08/23/84  
DATE INJECTED 09/07/84

ANALYST BWS  
INSTRUMENT

VERIFIED BY LAK  
COMPOUNDS DETECTED 0

| NPDES SCAN | EPA | COMPOUND                    | RESULT | NPDES SCAN | EPA | COMPOUND                   | RESULT |
|------------|-----|-----------------------------|--------|------------|-----|----------------------------|--------|
| 34B        | 1B  | acenaphthene                | ND     | 41B        | 61B | N-nitrosodimethylamine     | ND     |
| 34B        | 5B  | benzidine                   | ND     | 43B        | 62B | N-nitrosodiphenylamine     | ND     |
| 35B        | 8B  | 1,2,4-trichlorobenzene      | ND     | 42B        | 63B | N-nitrosodi-n-propylamine  | ND     |
| 38B        | 9B  | hexachlorobenzene           | ND     | 13B        | 66B | bis(2-ethylhexyl)phthalate | ND     |
| 36B        | 12B | hexachloroethane            | ND     | 15B        | 67B | butyl benzyl phthalate     | ND     |
| 11B        | 18B | bis(2-chloroethyl)ether     | ND     | 26B        | 68B | di-n-butyl phthalate       | ND     |
| 16B        | 20B | 2-chloronaphthalene         | ND     | 29B        | 69B | di-n-octyl phthalate       | ND     |
| 20B        | 25B | 1,2-dichlorobenzene         | ND     | 24B        | 70B | diethyl phthalate          | ND     |
| 21B        | 26B | 1,3-dichlorobenzene         | ND     | 25B        | 71B | dimethyl phthalate         | ND     |
| 22B        | 27B | 1,4-dichlorobenzene         | ND     | 5B         | 72B | benzo(a)anthracene A       | ND     |
| 23B        | 28B | 3,3'-dichlorobenzidine      | ND     | 6B         | 73B | benzo(a)pyrene             | ND     |
| 27B        | 35B | 2,4-dinitrotoluene          | ND     | 7B         | 74B | 3,4-benzofluoranthene *    | ND     |
| 27B        | 36B | 2,6-dinitrotoluene          | ND     | 9B         | 75B | benzo(k)fluoranthene *     | ND     |
| 27B        | 37B | 1,2-diphenylhydrazine       | ND     | 18B        | 76B | chrysene A                 | ND     |
| 31B        | 39B | fluoranthene                | ND     | 2B         | 77B | acenaphthylene             | ND     |
| 31B        | 40B | 4-chlorophenyl phenyl ether | ND     | 3B         | 78B | anthracene B               | ND     |

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Analytical Serv REPORT  
Results by Sample

LAB # 84-08-181  
Continued From Above

SAMPLE ID SK 42157, GS840218

FRACTION 01A TEST CODE SW827B NAME GCMS B/N Semivol-SW846  
Date & Time Collected 07/28/84 Category

| SCAN | RETENTION TIME | IDENTIFICATION              | RESULT | SCAN | RETENTION TIME | IDENTIFICATION         | RESULT |
|------|----------------|-----------------------------|--------|------|----------------|------------------------|--------|
| 14B  | 41B            | 4-bromophenyl phenyl ether  | ND     | 8B   | 79B            | benzo(ghi)perylene     | ND     |
| 12B  | 42B            | bis(2-chloroisopropyl)ether | ND     | 32B  | 80B            | fluorene               | ND     |
| 10B  | 43B            | bis(2-chloroethoxy)methane  | ND     | 44B  | 81B            | phenanthrene B         | ND     |
| 94B  | 52B            | hexachlorobutadiene         | ND     | 19B  | 82B            | dibenzo(a,h)anthracene | ND     |
| 95B  | 53B            | hexachlorocyclopentadiene   | ND     | 37B  | 83B            | indeno(1,2,3-cd)pyrene | ND     |
| 96B  | 54B            | isophorone                  | ND     | 45B  | 84B            | pyrene                 | ND     |
| 97B  | 55B            | naphthalene                 | ND     | 129B |                | dioxin                 | ND     |
| 98B  | 56B            | nitrobenzene                | ND     |      |                |                        |        |

LEGEND AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

\* = 3,4-benzofluoranthene and benzo(k)fluoranthene co-elute.

A = benzo(a)anthracene and chryseneco-elute together in high concentrations.

B = anthracene and phenanthrene co-elutetogether in high concentrations.

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Analytical Serv REPORT  
Results by Sample

LAB # 84-08-181

SAMPLE ID SK 42158, GS840219

FRACTION 02A

TEST CODE SW8240

NAME GCMS Volatiles - SW846

Date & Time Collected 07/28/84

Category

DATA FILE 4CU08181V02  
CONC. FACTOR 1

DATE INJECTED 08/29/84

ANALYST BWS  
INSTRUMENT #4

VERIFIED BY LAK  
COMPOUNDS DETECTED 0

| NPDES SCAN | EPA | COMPOUND                   | RESULT | NPDES SCAN | EPA | COMPOUND                    | RESULT |
|------------|-----|----------------------------|--------|------------|-----|-----------------------------|--------|
| 1V         | 2V  | acrolein                   | ND     | 17V        | 32V | 1,2-dichloropropane         | ND     |
| 2V         | 3V  | acrylonitrile              | ND     | 18V        | 33V | cis-1,3-dichloropropylene   | ND     |
| 3V         | 4V  | benzene                    | ND     | 18V        | 33V | trans-1,3-dichloropropylene | ND     |
| 6V         | 6V  | carbon tetrachloride       | ND     | 19V        | 38V | ethylbenzene                | ND     |
| 7V         | 7V  | chlorobenzene              | ND     | 22V        | 44V | methylene chloride          | ND     |
| 15V        | 10V | 1,2-dichloroethane         | ND     | 21V        | 45V | methyl chloride             | ND     |
| 27V        | 11V | 1,1,1-trichloroethane      | ND     | 20V        | 46V | methyl bromide              | ND     |
| 14V        | 13V | 1,1-dichloroethane         | ND     | 5V         | 47V | bromoform                   | ND     |
| 23V        | 14V | 1,1,2-trichloroethane      | ND     | 12V        | 48V | dichlorobromomethane        | ND     |
| 33V        | 15V | 1,1,2,2-tetrachloroethane  | ND     | 30V        | 49V | trichlorofluoromethane      | ND     |
| 9V         | 16V | chloroethane               | ND     | 13V        | 50V | dichlorodifluoromethane     | ND     |
| 4V         | 17V | bis (chloromethyl) ether   | ND     | 8V         | 51V | chlorodibromomethane        | ND     |
| 10V        | 19V | 2-chloroethylvinyl ether   | ND     | 24V        | 85V | tetrachloroethylene         | ND     |
| 11V        | 23V | chloroform                 | ND     | 25V        | 86V | toluene                     | ND     |
| 22V        | 29V | 1,1-dichloroethylene       | ND     | 29V        | 87V | trichloroethylene           | ND     |
| 25V        | 30V | 1,2-trans-dichloroethylene | ND     | 31V        | 88V | vinyl chloride              | ND     |

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Analytical Serv                      REPORT  
Results by Sample

LAB # 84-08-181  
Continued From Above

SAMPLE ID SK 42158, GS840219                      FRACTION 02A                      TEST CODE SW8240                      NAME GCMS Volatiles - SW846  
Date & Time Collected 07/28/84                      Category \_\_\_\_\_

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

# RADIAN

COMPANION

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Analytical Serv REPORT  
Results by Sample

LAB # 84-08-181

SAMPLE ID SK 42158, GS840219

FRACTION 02A TEST CODE SW827A NAME GCMS Acid Semivol-SW846  
Date & Time Collected 07/28/84 Category \_\_\_\_\_

DATA FILE 2CU08181502  
DILUTION FACTOR 100

DATE EXTRACTED 08/23/84  
DATE INJECTED 09/07/84

ANALYST BWS  
INSTRUMENT \_\_\_\_\_

VERIFIED BY LAK  
COMPOUNDS DETECTED 0

| NPDES | SCAN | EPA | COMPOUND              | RESULT    | NPDES | SCAN | EPA | COMPOUND             | RESULT    |
|-------|------|-----|-----------------------|-----------|-------|------|-----|----------------------|-----------|
| 11A   | 21A  |     | 2,4,6-trichlorophenol | <u>ND</u> | 7A    | 58A  |     | 4-nitrophenol        | <u>ND</u> |
| 8A    | 22A  |     | p-chloro-m-cresol     | <u>ND</u> | 5A    | 59A  |     | 2,4-dinitrophenol    | <u>ND</u> |
| 1A    | 24A  |     | 2-chlorophenol        | <u>ND</u> | 4A    | 60A  |     | 4,6-dinitro-o-cresol | <u>ND</u> |
| 2A    | 31A  |     | 2,4-dichlorophenol    | <u>ND</u> | 9A    | 64A  |     | pentachlorophenol    | <u>ND</u> |
| 3A    | 34A  |     | 2,4-dimethylphenol    | <u>ND</u> | 10A   | 65A  |     | phenol               | <u>ND</u> |
| 6A    | 57A  |     | 2-nitrophenol         | <u>ND</u> |       |      |     |                      |           |

## NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

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Analytical Serv REPORT  
Results by Sample

LAB # 84-08-181

SAMPLE ID SK 42158, GS840219 FRACTION 02A TEST CODE SWB27B NAME GCMS B/N Semivol-SW846  
Date & Time Collected 07/28/84 Category \_\_\_\_\_

DATA FILE 2CU08181S02  
CONC. FACTOR 100

DATE EXTRACTED 08/23/84  
DATE INJECTED 09/07/84

ANALYST BWS  
INSTRUMENT \_\_\_\_\_

VERIFIED BY LAK  
COMPOUNDS DETECTED 0

| NPDES | SCAN | EPA | COMPOUND                    | RESULT | NPDES | SCAN | EPA | COMPOUND                   | RESULT |
|-------|------|-----|-----------------------------|--------|-------|------|-----|----------------------------|--------|
| 1B    | 1B   |     | acenaphthene                | ND     | 41B   | 61B  |     | N-nitrosodimethylamine     | ND     |
| 4B    | 5B   |     | benzidine                   | ND     | 43B   | 62B  |     | N-nitrosodiphenylamine     | ND     |
| 46B   | 8B   |     | 1,2,4-trichlorobenzene      | ND     | 42B   | 63B  |     | N-nitrosodi-n-propylamine  | ND     |
| 33B   | 9B   |     | hexachlorobenzene           | ND     | 13B   | 66B  |     | bis(2-ethylhexyl)phthalate | ND     |
| 36B   | 12B  |     | hexachloroethane            | ND     | 15B   | 67B  |     | butyl benzyl phthalate     | ND     |
| 11B   | 18B  |     | bis(2-chloroethyl)ether     | ND     | 26B   | 68B  |     | di-n-butyl phthalate       | ND     |
| 16B   | 20B  |     | 2-chloronaphthalene         | ND     | 29B   | 69B  |     | di-n-octyl phthalate       | ND     |
| 20B   | 25B  |     | 1,2-dichlorobenzene         | ND     | 24B   | 70B  |     | diethyl phthalate          | ND     |
| 21B   | 26B  |     | 1,3-dichlorobenzene         | ND     | 25B   | 71B  |     | dimethyl phthalate         | ND     |
| 22B   | 27B  |     | 1,4-dichlorobenzene         | ND     | 5B    | 72B  |     | benzo(a)anthracene A       | ND     |
| 23B   | 28B  |     | 3,3'-dichlorobenzidine      | ND     | 6B    | 73B  |     | benzo(a)pyrene             | ND     |
| 27B   | 35B  |     | 2,4-dinitrotoluene          | ND     | 7B    | 74B  |     | 3,4-benzofluoranthene *    | ND     |
| 28B   | 36B  |     | 2,6-dinitrotoluene          | ND     | 9B    | 75B  |     | benzo(k)fluoranthene *     | ND     |
| 29B   | 37B  |     | 1,2-diphenylhydrazine       | ND     | 18B   | 76B  |     | chrysene A                 | ND     |
| 31B   | 39B  |     | fluoranthene                | ND     | 2B    | 77B  |     | acenaphthylene             | ND     |
| 17B   | 40B  |     | 4-chlorophenyl phenyl ether | ND     | 3B    | 78B  |     | anthracene B               | ND     |

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Analytical Serv REPORT  
Results by Sample

LAB # 84-08-181  
Continued From Above

SAMPLE ID SK 42158; GS840219

FRACTION 02A

TEST CODE SW827B

NAME GCMS B/N Semivol-SW846

Date & Time Collected 07/28/84

Category \_\_\_\_\_

|     |     |                             |           |     |      |                        |           |
|-----|-----|-----------------------------|-----------|-----|------|------------------------|-----------|
| 14B | 41B | 4-bromophenyl phenyl ether  | <u>ND</u> | 8B  | 79B  | benzo(ghi)perylene     | <u>ND</u> |
| 12B | 42B | bis(2-chloroisopropyl)ether | <u>ND</u> | 32B | 80B  | fluorene               | <u>ND</u> |
| 10B | 43B | bis(2-chloroethoxy)methane  | <u>ND</u> | 44B | 81B  | phenanthrene B         | <u>ND</u> |
| 34B | 52B | hexachlorobutadiene         | <u>ND</u> | 19B | 82B  | dibenzo(a,h)anthracene | <u>ND</u> |
| 35B | 53B | hexachlorocyclopentadiene   | <u>ND</u> | 37B | 83B  | indeno(1,2,3-cd)pyrene | <u>ND</u> |
| 38B | 54B | isophorone                  | <u>ND</u> | 45B | 84B  | pyrene                 | <u>ND</u> |
| 39B | 55B | naphthalene                 | <u>ND</u> |     | 129B | dioxin                 | <u>ND</u> |
| 40B | 56B | nitrobenzene                | <u>ND</u> |     |      |                        |           |

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

\* = 3,4-benzofluoranthene and benzo(k)fluoranthene co-elute.

A = benzo(a)anthracene and chryseneco-elute together in high concentrations.

B = anthracene and phenanthrene co-elutetogether in high concentrations.

**APPENDIX C-6**

**Example of a Material Safety Data Sheet**

U.S. DEPARTMENT OF LABOR  
Occupational Safety and Health Administration

Form Approved  
OMB No. 44-R1387

## MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

**SECTION I**

|   |  |
|---|--|
| MANUFACTURER'S NAME<br><b>Oklahoma Refining Company</b>   | EMERGENCY TELEPHONE NO.<br><b>405-424-2661</b> |
| ADDRESS (Number, Street, City, State, and ZIP Code)<br><b>P. O. Box 26386 Oklahoma City, Okla 73126</b> |  |
| TRADE NAME AND SYNONYMS<br><b>Apco 140, Amm 2</b>   | FORMULA  |
| CHEMICAL FAMILY   |  |

Type 2

**SECTION II - HAZARDOUS INGREDIENTS**

| PAINTS, PRESERVATIVES, & SOLVENTS                     | % | TLV (Units) | ALLOYS AND METALLIC COATINGS           | % | TLV (Units) |
|---|---|-------------|--|---|-------------|
| PIGMENTS  |   |             | BASE METAL                             |   |             |
| CATALYST  |   |             | ALLOYS                                 |   |             |
| VEHICLE   |   |             | METALLIC COATINGS                      |   |             |
| SOLVENTS  |   |             | FILLER METAL PLUS COATING OR CORE FLUX |   |             |
| ADDITIVES   |   |             | OTHERS                                 |   |             |
| OTHERS  |   |             |  |   |             |
| HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES |   |             |  | % | TLV (Units) |
|   |   |             |  |   |             |
|   |   |             |  |   |             |
|   |   |             |  |   |             |

**SECTION III - PHYSICAL DATA**

|   |     |                                       |
|---|-----|---------------------------------------|
| BOILING POINT (°F.)                     | 362 | SPECIFIC GRAVITY (P <sub>4</sub> O=1) |
| VAPOR PRESSURE (mm Hg.)                 |     | PERCENT VOLATILE BY VOLUME (%)        |
| VAPOR DENSITY (AIR=1)                   |     | EVAPORATION RATE (-----=1)            |
| SOLUBILITY IN WATER                     |     |                                       |
| APPEARANCE AND ODOR <b>clear- sweet</b> |     |                                       |

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA**

|  |                  |     |     |
|--|------------------|-----|-----|
| FLASH POINT (Method used) <b>TCC-o/F 139</b> | FLAMMABLE LIMITS | Lel | Uel |
| EXTINGUISHING MEDIA                          |                  |     |     |
| SPECIAL FIRE FIGHTING PROCEDURES             |                  |     |     |
| NO EXPLOSION HAZARDS                         |                  |     |     |

0000? R15

BARNETT OIL CO  
617 F 1st ST  
PO Box 1480  
CLOVIS NM  
88101

(Continued on reverse side)

**SECTION V - HEALTH HAZARD DATA**

**THRESHOLD LIMIT VALUE**  
 100 parts of vapor per million in air. This value is maximum adverage  
**EFFECTS OF OVEREXPOSURE**

**EMERGENCY AND FIRST AID PROCEDURES**

**Skin:** Wash with soap and water  
**Breathing:** Remove patient to fresh air  
**Eyes:** Flush with water for at least 15 minutes  
**Swallowing:** Call physician immediately. Do not induce vomiting.

**SECTION VI - REACTIVITY DATA**

|                                      |                |  |                     |
|--------------------------------------|----------------|--|---------------------|
| STABILITY                            | UNSTABLE       |  | CONDITIONS TO AVOID |
|                                      | STABLE         |  |                     |
| INCOMPATIBILITY (Materials to avoid) |                |  |                     |
| HAZARDOUS DECOMPOSITION PRODUCTS     |                |  |                     |
| HAZARDOUS POLYMERIZATION             | MAY OCCUR      |  | CONDITIONS TO AVOID |
|                                      | WILL NOT OCCUR |  |                     |

**SECTION VII - SPILL OR LEAK PROCEDURES**

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

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**WASTE DISPOSAL METHOD**

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**SECTION VIII - SPECIAL PROTECTION INFORMATION**

|  |                      |                |
|--|----------------------|----------------|
| <b>RESPIRATORY PROTECTION (Specify type)</b> |                      |                |
| VENTILATION                                  | LOCAL EXHAUST        | SPECIAL        |
|  | MECHANICAL (General) | OTHER          |
| PROTECTIVE GLOVES                            |                      | EYE PROTECTION |
| OTHER PROTECTIVE EQUIPMENT                   |                      |                |

**SECTION IX - SPECIAL PRECAUTIONS**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING** OSHA Class III A

Must be kept away from heat and open flame. Containers should be kept closed when not in use. (somewhat less hazardous than Kerosene)

**APPENDIX C-7**

**Calculations of Waste Paint and Wipe Down  
Constituents from Corrosion Control Operations**

CALCULATIONS OF WASTE PAINT AND WIPE DOWN CONSTITUENTS FROM CORROSION CONTROL OPERATIONS.

Calculations are based on estimates of materials used per aircraft paint job. Quantities are then extrapolated to the amount that would fill a 55 gallon drum, i.e. 50 gallons and converted to a weight for calculation of specific weight.

1. Wipe down uses 50% MEK mixed with 50% Toluene. 3 gallons are used  

$$\text{MEK } 1.5 \text{ gal} \times \frac{50 \text{ gal}}{3 \text{ gal}} \times \frac{0.806 \text{ lb. MEK}}{1 \text{ lb. H}_2\text{O}} \times \frac{8.33 \text{ lb. H}_2\text{O}}{1 \text{ gal. H}_2\text{O}} = 167.85 \text{ lb.}$$

Toluene  $1.5 \text{ gal} \times \frac{50 \text{ gal}}{3 \text{ gal}} \times \frac{0.806 \text{ lb. MEK}}{1 \text{ lb. H}_2\text{O}} \times \frac{8.33 \text{ lb. H}_2\text{O}}{1 \text{ gal. H}_2\text{O}} = 180.55 \text{ lb.}$   

$$\frac{348.40 \text{ lb.}}{50 \text{ gal.}} = 6.97 \text{ lb/gal.}$$

2. Paint slop

| Chemical  | Percentage | Liquid Amt  |
|---|------------|-------------|
| Equipment cleaning                              |            | 0.25 gal    |
| Methyl Ethyl Ketone                             | 100%       | 0.25 gal.   |
| Unused Paint - 1.5 gal (70% laquer, 30% enamel) |            |             |
| Laquer 1.05 gal.                                |            |             |
| Ethylene Glycol Monobutyl Ether                 | 5%         | 0.0525 gal  |
| Xylene  | 5%         | 0.0525 gal  |
| Methyl Isobutyl Ketone                          | 45%        | 0.4725 gal  |
| Toluene   | 45%        | 0.4725 gal  |
| Enamel 0.45 gal.                                |            |             |
| Cyclohexanone                                   | 20%        | 0.0900 gal  |
| Methyl Ethyl Ketone                             | 25%        | 0.1125 gal  |
| Isopropyl Alcohol                               | 5%         | 0.0225 gal  |
| Toluene   | 15%        | 0.0675 gal  |
| Lead  | 2.4%       | 0.0108 gal  |
| Chromate  | 1.1%       | 0.00495 gal |
| Water   | 31.5%      | 0.14175 gal |

MEK 0.25 gal + 0.1125 gal = 0.3625 gal.

$$0.3625 \text{ gal} \times \frac{50 \text{ gal}}{1.75 \text{ gal}} \times \frac{0.806 \text{ lb. MEK}}{1 \text{ lb. H}_2\text{O}} \times \frac{8.33 \text{ lb. H}_2\text{O}}{1 \text{ gal H}_2\text{O}} = 69.54 \text{ lb.}$$

Ethylene Glycol Monobutyl Ether  

$$0.0525 \times \frac{50}{1.75} \times .902 \times 8.33 = 11.27 \text{ lb.}$$

Xylene  

$$0.0525 \times \frac{50}{1.75} \times 0.865 \times 8.33 = 10.81 \text{ lb.}$$

Methyl Isobutyl Ketone  

$$0.4725 \times \frac{50}{1.75} \times 0.802 \times 8.33 = 90.19 \text{ lb.}$$

Toluene 0.4725 gal + 0.0675 gal = 0.54 gal

$$0.54 \times \frac{50}{1.75} \times 0.867 \times 8.33$$

= 111.43 lb.

Cyclohexanone

$$0.09 \times \frac{50}{1.75} \times 0.945 \times 8.33$$

= 20.24 lb.

Isopropyl Alcohol

$$0.0225 \times \frac{50}{1.75} \times 0.785 \times 8.33$$

= 4.20 lb.

Lead

$$0.0108 \times \frac{50}{1.75} \times 11.35 \times 8.33$$

= 29.17 lb.

Chromate

$$0.00495 \times \frac{50}{1.75} \times 5.2 \times 8.33$$

= 6.13 lb.

Water

$$0.14175 \times 50 \times 1 \times 8.33$$

=  $\frac{35.10 \text{ lb.}}{388.08 \text{ lb.}}$

$$\frac{388.08 \text{ lb.}}{50 \text{ gal.}} = 7.76 \text{ lb/gal}$$

#### Summary

| <u>Constituent</u>              | <u>Volume(gal)</u> | <u>%</u>      | <u>Reported %</u> |
|---------------------------------|--------------------|---------------|-------------------|
| <b>Wipe down</b>                |                    |               |                   |
| Methyl Ethyl Ketone             | 1.5                | 50            | 45 - 55           |
| Toluene                         | 1.5                | 50            | 45 - 55           |
| <b>Paint Slop</b>               |                    |               |                   |
| Methyl Ethyl Ketone             | 0.3265             | 20.71         | 19 - 23           |
| Ethylene Glycol Monobutyl Ether | 0.0525             | 3.00          | - 3               |
| Xylene                          | 0.0525             | 3.00          | - 3               |
| Methyl Isobutyl Ketone          | 0.4725             | 27.00         | 24 - 30           |
| Toluene                         | 0.54               | 30.86         | 28 - 34           |
| Cyclohexanone                   | 0.09               | 5.14          | - 5               |
| Isopropyl Alcohol               | 0.0225             | 1.29          | - 1               |
| Lead                            | 0.0108             | 0.62          | L.T. 1            |
| Chromate                        | 0.00495            | 0.28          | L.T. 1            |
| Water                           | 0.14175            | 8.10          | 7 - 9             |
|                                 | <u>1.75</u>        | <u>100.00</u> |                   |

**Appendix D-1**

**Department of Transportation and  
Corresponding Military Container Specifications**

## CONTAINER SPECIFICATIONS

| <u>DOT<br/>Specification</u> | <u>DOT<br/>Section</u> | <u>Federal and Military<br/>Specifications</u> | <u>DOT Title of<br/>Specification</u>  |
|------------------------------|------------------------|--|--|
| 1A                           | 178.1                  | PPP-B-585, PPP-B-621                           | Boxed carboys.   |
| 1B                           | 178.2                  | none   | Boxed lead carboys.  |
| 1C                           | 178.3                  | none   | Carboys in kegs.   |
| 1D                           | 178.4                  | PPP-B-621, PPP-B-601                           | Boxed glass carboys.   |
| 1E                           | 178.7                  | MIL-D-112                                      | Glass carboys in plywood drums.  |
| 1EX                          | 178.6                  | MIL-D-112                                      | Glass carboys in plywood drums.  |
| 1H                           | 178.13                 | none   | Polyethylene carboys in low carbon steel of equivalent metal crates.   |
| 1K                           | 178.14                 | none   | Glass carboys cushioned with expandable polystyrene in wooden wire-bound box outside container.                        |
| 1X                           | 178.5                  | PPP-B-601, PPP-B-621                           | Boxed carboys, 5 to 6½ gallons, for export only.   |
| 2A                           | 178.20                 | MIL-C-38756                                    | Inside containers; metal cans, pails and kits.   |
| 2C                           | 178.22                 | PPP-B-636, Type CF-DW<br>275                   | Inside containers, corrugated fiberboard carton.   |
| 2D                           | 178.23                 | UU-S-48  | Inside containers, duplex paper bags.  |
| 2F                           | 178.25                 | PPP-C-96                                       | Inside metal containers and liners.  |
| 2G                           | 178.26                 | MIL-C-3955, MIL-C-12804                        | Inside containers, fiber cans and boxes.   |
| 2J                           | 178.28                 | PPP-B-1055                                     | Inside containers, waterproof paper bags for linings.  |
| 2K                           | 178.29                 | none   | Inside containers, paper bags for lining.  |
| 2L                           | 178.30                 | none   | Lining for boxes.  |
| 2M                           | 178.31                 | none   | Waterproof paper lining.   |
| 2N                           | 178.32                 | none   | Inside containers, metal can.  |
| 2P                           | 178.33                 | none   | Inside nonrefillable metal containers.   |
| 2Q                           | 178.33A                | none   | Inside nonrefillable metal containers.   |
| 2R                           | 178.34                 | none   | Inside metal containers, metal tubes.  |
| 2S                           | 178.35                 | MIL-D-40030, Styles A&B                        | Polyethylene containers.   |
| 2SL                          | 178.35a                | PPP-C-569                                      | Molded or thermoformed polyethylene container.   |
| 2TL                          | 178.27                 | none   | Polyethylene container.  |
| 2T                           | 178.21                 | none   | Polyethylene container.  |
| 2U                           | 178.24                 | none   | Molded or thermoformed polyethylene containers having rated capacity of over 1 gallon, removable head containers, etc. |
| 3A                           | 178.36                 | MIL-C-7905, MIL-C-11732                        | Seamless steel cylinders, or 3AX; seamless steel cylinders of capacity over 1,000 pounds water volume.                 |

| <u>DOT<br/>Specification</u> | <u>DOT<br/>Section</u> | <u>Federal and Military<br/>Specifications</u>         | <u>DOT Title of<br/>Specification</u>   |
|------------------------------|------------------------|--|---|
| 3AA                          | 178.37                 | RR-C-901, MIL-C-11732,<br>MIL-C-7905                   | Seamless steel cylinders made<br>of definitely prescribed steels<br>or 3AAX; seamless steel cylinders<br>made of definitely prescribed<br>steels of capacity over 1,000<br>pounds water volume. |
| 3B                           | 178.38                 | none   | Seamless steel cylinders.   |
| 3BX                          | 178.39                 | none   | Seamless nickel cylinders.  |
| 3C                           | 178.40                 | none   | Seamless steel cylinders.   |
| 3D                           | 178.41                 | none   | Seamless steel cylinders.   |
| 3E                           | 178.42                 | none   | Seamless steel cylinders.   |
| 3A 480X                      | 178.43                 | none   | Seamless steel cylinders.   |
| 3HT                          | 178.44                 | none   | Inside containers, seamless steel<br>cylinders for aircraft use made<br>of definitely prescribed steel.   |
| 4                            | 178.48                 | none   | Forge-welded steel cylinders.   |
| 4A                           | 178.49                 | none   | Forge-welded steel cylinders.   |
| 4AA 480                      | 178.56                 | MIL-C-11733  | Welded steel cylinders made of<br>definitely prescribed steels.   |
| 4B                           | 178.50                 | RR-C-910   | Welded and brazed steel cylinders.  |
| 4BA                          | 178.51                 | none   | Welded or brazed steel cylinders<br>made of definitely prescribed<br>steels.  |
| 4B-240-ET                    | 178.55                 | none   | Welded and brazed cylinders made<br>from electric resistance welded<br>tubing.  |
| 4B-240-FLW                   | 178.54                 | none   | Welded or welded and brazed cylinders<br>with fusion-welded longitudinal<br>seam.   |
| 4BW                          | 178.61                 | none   | Welded steel cylinders made of<br>definitely prescribed steels<br>with electric arc welded longitudi-<br>nal seams.   |
| 4C                           | 178.52                 | none   | Welded and brazed steel cylinders.  |
| 4D                           | 178.53                 | none   | Inside containers, welded steel<br>for aircraft use.  |
| 4DA                          | 178.58                 | none   | Inside containers, welded steel<br>for aircraft use.  |
| 4DS                          | 178.47                 | none   | Inside containers, welded stainless<br>steel for aircraft use.  |
| 4E                           | 178.68                 | RR-C-910   | Welded aluminum cylinders.  |
| 4L                           | 178.57                 | none   | Welded cylinders, insulated.  |
| 5                            | 178.80                 | PPP-P-704, Type I, Class<br>8 and 12                   | Steel barrels or drums.   |
| 5A                           | 178.81                 | PPP-D-700, Type I                                      | Steel barrels or drums.   |
| 5B                           | 178.82                 | PPP-D-729, Type I; PPP-D-<br>705, Type I; Class 8 & 12 | Steel barrels or drums.   |
| 5C                           | 178.83                 | PPP-D-700, Type II                                     | Steel barrels or drums.   |
| 5D                           | 178.84                 | PPP-D-700, Type III                                    | Steel barrels or drums, lined.  |

| <u>DOT Specification</u> | <u>DOT Section</u> | <u>Federal and Military Specifications</u> | <u>DOT Title of Specification</u>  |
|--------------------------|--------------------|--|--|
| 5F                       | 178.85             | none                                       | Steel drums.   |
| 5H                       | 178.87             | none                                       | Steel drums or drums, lead-lined.  |
| 5K                       | 178.88             | none                                       | Nickel barrels or drums.   |
| 5L                       | 178.89             | MIL-C-1283, 5 gal cans                     | Steel barrels or drums.  |
| 5M                       | 178.90             | none                                       | Monel drums.   |
| 5P                       | 178.92             | none                                       | Lagged steel drums.  |
| 5X                       | 178.91             | none                                       | Steel drums, aluminum-lined.   |
| 6A                       | 178.97             | PPP-D-736                                  | Steel barrels or drums.  |
| 6B                       | 178.98             | PPP-D-736                                  | Steel barrels or drums.  |
| 6C                       | 178.99             | none                                       | Steel barrels or drums.  |
| 6D                       | 178.102            | none                                       | Cylindrical steel overpack, straight sided for inside plastic container.                                       |
| 6J                       | 178.100            | none                                       | Steel barrels or drums.  |
| 6K                       | 178.101            | none                                       | Steel barrels or drums.  |
| 6L                       | 178.103            | none                                       | Metal container for fissile radioactive material.  |
| 7A                       | 178.350            | none                                       | General packaging, Type A  |
| 8                        | 178.59             | MIL-C-3701                                 | Steel cylinders with approved porous filling for acetylene.  |
| 8AL                      | 178.60             | MIL-C-3701                                 | Steel cylinders with approved porous filling for acetylene.  |
| 9                        | 178.63             | none                                       | Inside containers, seamless or welded or brazed steel cylinders.   |
| 10A                      | 178.155            | none                                       | Wooden barrels and kegs (tight).   |
| 10B                      | 178.156            | none                                       | Wooden barrels and kegs (tight).   |
| 10C                      | 178.157            | none                                       | Wooded barrels and kegs (tight).   |
| 11A                      | 178.160            | NN-K-231                                   | Wooden barrels and kegs (slack).   |
| 11B                      | 178.161            | NN-K-231                                   | Wooden barrels and kegs (slack).   |
| 12A                      | 178.210            | none                                       | Fiberboard boxes.  |
| 12B                      | 178.205            | PPP-B-636, Type CF or SF                   | Fiberboard boxes.  |
| 12C                      | 178.206            | PPP-B-636, Type CF or SF                   | Fiberboard boxes.  |
| 12D                      | 178.207            | none                                       | Fiberboard boxes.  |
| 12E                      | 178.208            | none                                       | Fiberboard boxes.  |
| 12H                      | 178.209            | none                                       | Fiberboard boxes.  |
| 12P                      | 178.211            | none                                       | Fiberboard boxes, nonreusable containers for one inside plastic container greater than 1 gallon capacity, etc. |
| 12R                      | 178.212            | none                                       | Paper-faced expanded Polystyrene board boxes, nonreusable containers.  |
| 13                       | 178.140            | none                                       | Metal kegs.  |
| 13A                      | 178.141            | none                                       | Metal drums.   |
| 14                       | 178.165            | none                                       | Wooden boxes, nailed.  |
| 15A                      | 178.168            | PPP-B-621, Styles 1, 2, 2½, 3, 6, and 7.   | Wooden boxes, nailed.  |
| 15B                      | 178.169            | PPP-B-621, Styles 1, 2, 2½, 3, 6, and 7.   | Wooden boxes, nailed.  |
| 15C                      | 178.170            | PPP-B-621, Styles 1, 2, 2½, 3, 6, and 7.   | Wooden boxes, nailed.  |

| <u>DOT Specification</u> | <u>DOT Section</u> | <u>Federal and Military Specifications</u>                           | <u>DOT Title of Specification</u>   |
|--------------------------|--------------------|--|---|
| 15D                      | 178.171            | PPP-B-621, Styles 1, 2, 2½, 3, 6, and 7.                             | Wooden boxes, nailed.   |
| 15E                      | 178.172            | none   | Wooden boxes, fiberboard lined.   |
| 15L                      | 178.176            | none   | Wooden boxes with inside containers for desensitized liquid explosives.               |
| 15M                      | 178.177            | none   | Wooden boxes, metal lined, with inside containers for desensitized liquid explosives. |
| 15P                      | 178.182            | none   | Glued plywood, or wooden box for inside containers.                                   |
| 15X                      | 178.181            | none   | Wooden boxes for two 5 gallon cans.   |
| 16A                      | 178.185            | PPP-B-585  | Plywood or wooden boxes, wirebound.   |
| 16B                      | 178.186            | PPP-B-585  | Wooden boxes, wirebound.  |
| 16D                      | 178.187            | PPP-B-585  | Wooden wirebound overwrap for inside containers.                                      |
| 17C                      | 178.115            | PPP-P-704; Type I, Class 4 and 11                                    | Steel drums.  |
| 17E                      | 178.116            | PPP-D-729; PPP-D-705, Type I and II; PPP-P-704, Type I, Class 3 & 9. | Steel drums.  |
| 17F                      | 178.118            | none   | Steel drums.  |
| 17H                      | 178.118            | PPP-D-729, Type IV; PPP-D-705, Type V; PPP-P-704, Type II, Class 8.  | Steel barrels or drums.   |
| 17X                      | 178.119            | none   | Steel barrels or drums.   |
| 18E                      | 178.193            | none   | Wooden kits.  |
| 19A                      | 178.190            | PPP-B-601  | Wooden boxes, glued plywood, cleated.   |
| 19B                      | 178.191            | none   | Wooden boxes, glued plywood, nailed.  |
| 21P                      | 178.225            | none   | Fiber drum, overpack for inside plastic container.                                    |
| 21C                      | 178.224            | none   | Fiber drums.  |
| 22A                      | 178.196            | none   | Wooden drums, glued plywood.  |
| 22B                      | 178.197            | none   | Wooden drums, glued plywood.  |
| 22C                      | 178.198            | none   | Plywood drum for plastic inside container.  |
| 23F                      | 178.214            | PPP-B-636, Type CF & SF  | Fiberboard boxes.   |
| 23G                      | 178.218            | none   | Special cylindrical fiberboard box for high explosives.                               |
| 23H                      | 178.219            | PPP-B-636, Type SF   | Fiberboard boxes.   |
| 28                       | 178.8              | none   | Metal jacketed lead carboys.  |
| 28A                      | 178.9              | none   | Metal jacketed lead carboys.  |
| 29                       | 178.226            | PPP-T-495, Type I  | Marking tubes.  |
| 31                       | 178.15             | none   | Jugs in tubs.   |
| 32A                      | 178.146            | MIL-C-3082, Style C  | Metal cans, riveted or locked seamed.   |
| 32B                      | 178.147            | none   | Metal cases, welded or riveted.   |
| 32C                      | 178.149            | none   | Metal trunks.   |
| 32D                      | 178.148            | none   | Metal boxes for old and worn-out motion picture film no longer exhibitable.           |

| <u>DOT Specification</u> | <u>DOT Section</u> | <u>Federal and Military Specifications</u>         | <u>DOT Title of Specification</u>  |
|--------------------------|--------------------|--|--|
| 33A                      | 178.150            | none   | Polystyrene cases, nonreusable containers.   |
| 34                       | 178.19             | MIL-D-43703  | Reusable molded Polyethylene container for use without overpack, removable head not authorized.  |
| 34B                      | 178.12             | none   | Aluminum carboys.  |
| 36A                      | 178.230            | PPP-B-35   | Lined cloth bags (triplets).   |
| 36B                      | 178.233            | PPP-B-35   | Burlap bags, lined.  |
| 36C                      | 178.234            | PPP-B-35   | Burlap bags, paper lined.  |
| 37A                      | 178.131            | PPP-D-705; PPP-P-704,<br>Type II, Class 1, 3, & 5. | Steel drums.   |
| 37B                      | 178.132            | none   | Steel drums.   |
| 37C                      | 178.135            | none   | Steel drums.   |
| 37K                      | 178.130            | none   | Steel drums.   |
| 37M                      | 178.134            | none   | Cylindrical steel overpack, straight sided for inside plastic container; nonreusable containers. |
| 37P                      | 178.133            | PPP-C-1337   | Steel drums with polyethylene liner.   |
| 40                       | 178.66             | none   | Inside containers, non-refillable seamless or welded or brazed steel cylinders.                  |
| 41                       | 178.67             | none   | Inside containers, non-refillable seamless or welded or brazed steel cylinders.                  |
| 42B                      | 178.107            | none   | Aluminum drums.  |
| 42C                      | 178.108            | none   | Aluminum barrels or drums**.   |
| 42D                      | 178.109            | none   | Aluminum drums.  |
| 42E                      | 178.136            | none   | Aluminum drums.  |
| 42F                      | 178.110            | none   | Aluminum barrels or drums.   |
| 42G                      | 178.111            | none   | Aluminum drums.  |
| 42H                      | 178.112            | none   | Aluminum drums, removable head containers not authorized.  |
| 43A                      | 178.18             | none   | Rubber drums.  |
| 44B                      | 178.236            | none   | Multiwall paper bags.  |
| 44C                      | 178.237            | none   | Multiwall paper bags.  |
| 44D                      | 178.238            | none   | Multiwall paper bags.  |
| 44E                      | 178.239            | none   | Multiwall paper bags.  |
| 44P                      | 178.241            | none   | All plastic bags.  |
| 45B                      | 178.240            | none   | Bags, cloth and paper, lined.  |

Source: DLAM 4145.3 (CH-4) Attachment 2, 6 November 1981.

**Date:**  
**Revision No.:** 0  
**Section:** D  
**Cannon**

**Appendix D-2**  
**Incompatible Wastes**

Date:  
Revision No.: 0  
Section: D  
Cannon

Appendix D-2  
Incompatible Wastes

The mixing of a Group A waste with a Group B waste may have the potential consequences as noted.

Group 1-A

Acetylene sludge  
Alkaline caustic liquids  
Alkaline cleaner  
Alkaline corrosive liquids  
Alkaline corrosive battery fluids  
Caustic wastewater  
Lime sludge and other corrosive  
alkalies  
Lime wastewater  
Lime and water  
Spent caustic

Group 1-B

Acid sludge  
Acid and water  
Battery acid  
Chemical cleaners  
Electrolyte, acid  
Etching acid liquid or solvent  
Liquid cleaning compounds  
Pickling liquor & other  
corrosive acids  
Sludge acid  
Spent acid  
Spent mixed acid  
Spent sulfuric acid

Potential consequences: Heat generation, violent reaction.

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Date:  
Revision No.: 0  
Section: D  
Cannon

Appendix D-2 (Continued)  
Incompatible Wastes

The mixing of a Group A waste with a Group B waste may have the potential consequences as noted.

Group 2-A

Aluminum  
Beryllium  
Calcium  
Lithium  
Magnesium  
Potassium  
Sodium  
Zinc powder & other reactive  
metals & metal hydrides

Group 2-B

Any waste in Group 1-A  
or 1-B

Potential consequences: Fire or explosion; generation of flammable hydrogen gas.

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Group 3-A

Alcohols  
Water

Group 3-B

Any concentrated waste  
in Groups 1-A or 1-B  
Calcium  
Lithium  
Metal Hydrides  
Potassium  
Sodium  
SO<sub>2</sub>Cl<sub>2</sub>, SOCl<sub>2</sub>, PCl<sub>3</sub>,  
CH<sub>3</sub>SiCl<sub>3</sub> and other  
water-reactive wastes

Potential consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

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Appendix D-2 (Continued)  
Incompatible Wastes

The mixing of a Group A waste with a Group B waste may have the potential consequences as noted.

Group 4-A

Alcohols  
Aldehydes  
Halogenated hydrocarbons  
    reactive organic compounds & solvents  
Unsaturated hydrocarbons

Group 4-B

Concentrated Group 1-A or  
1-B Wastes  
Group 3-A Wastes

Potential consequences: Fire, explosion or violent reaction.

Group 5-A

Spent cyanide & sulfide solutions

Group 5-B

Group 1-B Wastes

Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.

Group 6-A

Chlorates & other strong oxidizers  
Chlorine  
Chlorites  
Chromic acid  
Hypochlorites  
Nitrates  
Nitric acid, fuming  
Perchlorates  
Permanganates  
Peroxides

Group 6-B

Acetic acid & other organic acids  
Concentrated mineral acids  
Group 2-B wastes  
Group 3-A wastes  
Group 5-A wastes & other flammable & combustible wastes

Potential consequences: Fire, explosion, or violent reaction.

SOURCE: "Laws, Regulations and Guidelines for Handling of Hazardous Waste"  
California Department of Health. February, 1975

APPENDIX D-3

CAFB Regulation 136-18  
Decontamination of Melrose Bombing/Gunnery Range  
and Disposal of Airmunitions

16 March 1984

Armament

DECONTAMINATION OF MELROSE BOMBING/GUNNERY RANGE AND DISPOSAL OF AIRMUNITIONS

This regulation establishes procedures for the removal and/or disposal of inert/live explosive ordnance from Melrose Bombing/Gunnery Range, and airmunitions approved for disposal on AF Form 191, Ammunition Disposition Report, by any approved method.

1. Responsibilities. The senior Explosive Ordnance Disposal (EOD) member, AFSC 464X0, of the team involved with the operation(s) and supervisors of supporting activities will be responsible for ensuring compliance with this regulation.

2. References. AFR 50-46, AFM 67-1, Vol VI, AFR 127-100, TACR 136-7, CAFBR 75-3, Technical Orders (T.O.s) 11A-1-42, 11A-1-46, 60A-1-1-31, and other applicable 60 series T.O.s.

3. Explosive limits. Explosive limits will be held to the minimum, consistent with safe operation. This includes transportation of dud ordnance to a disposal site, consolidation of duds in disposal site, disposal in place, airmunitions approved for disposal (AF Form 191) etc.

a. Consolidation of items. Charges prepared for disposal will be limited to 1000 pounds of Class II, Division II explosive.

b. Disposal in place. Explosive limits will be held to the minimum amount necessary to effect disposal of munition(s) encountered.

4. Location of operations - Melrose Bombing/Gunnery Range.

a. Monthly/Annual/5 year clearance. Targets are cleared in accordance with AFR 50-46, as supplemented.

b. EOD Disposal Site. 6000 feet south of the Main Tower and 4000 feet west of the east boundary fence of the range complex.

c. Holding area. 500 feet north-east of the Main Tower.

d. Burial Pit area. 4000 feet north of the Main Tower or as determined by Base Civil Engineering and Real Property Disposal Office.

5. Personnel limits.

a. Minimum.

(1) Munitions Disposal operations will be conducted under the supervision and control of a qualified and experienced supervisor, E-5 or above, possessing the AFSC 46470/4054B. Also, at least two qualified personnel, knowledgeable of the task to be performed, will be physically present at each disposal operation.

(2) A minimum of two EOD or assigned range personnel will be physically present during any range decontamination operation.

(3) At least one qualified EOD or assigned range personnel will be included in each range team working in a contaminated area.

b. Maximum. Personnel limits will be based on the type of range decontamination or area clearance to be performed. At no time will the number of personnel exceed the number that can be effectively controlled or supervised. When practical, individual teams will be limited to one qualified EOD or assigned range personnel for every seven team members.

Supersedes CAFBR 136-18, 12 April 1978. (See signature page for summary of changes.)

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## 6. Equipment requirements.

## a. EOD equipment.

- (1) Vehicle 4 X 4 six passenger, as required.
- (2) Spare tires, one per vehicle.
- (3) Intrabase radio, one per vehicle and one per operating team chief.
- (4) Range book, one each.
- (5) First aid kit, one per vehicle, plus augmentee vehicle.
- (6) Fire fighting equipment, as required.
- (7) Common hand tools, as required.
- (8) Pioneer tools, as required.
- (9) Stencils/stamps (inspector), one per qualified inspector.
- (10) Spray paint, as required.
- (11) Spray handles, as required.
- (12) Water cans, two each.
- (13) Paper drinking cups, as required.
- (14) Work gloves, one pair per EOD personnel.
- (15) Non-explosive demolition equipment, as required.
- (16) Augmentee briefing statement, as required.
- (17) Weapons (.38 cal or M-16), as determined by CAFBR 75-3.
- (18) Personal gear, individual.

## b. Equipment provided by 27CSG/OTR (Range Maintenance).

- (1) Dump trucks, as required.
- (2) Bus, one each.
- (3) Front end loader, as required.
- (4) Wrecker, as required.
- (5) Bulldozer, as required.
- (6) Grader, as required.
- (7) Gloves for augmentees, as required.
- (8) Goggles for augmentees, as required.
- (9) Dust mask for augmentees, as required.
- (10) Water cans for augmentees, as required.
- (11) Paper cups, as required.

## 7. Safety precautions.

## a. General

- (1) All applicable safety precautions listed in referenced publications will be complied with.

(2) All augmentee personnel having access to the range will be supervised by qualified or experienced individuals.

(3) Personnel will not work on the range unless properly briefed by EOD or safety personnel in accordance with AFR 50-46.

(4) At least two individuals will be present during any work in contaminated areas.

(5) During clearance operations, personnel will maintain safe distances and will assemble only in safe cleared areas.

(6) When doubt exists as to the condition of an item, the item will be considered hazardous until proven otherwise.

(7) Ordnance items other than small arms and 20mm Target Practice (TP) ammunition, will not be touched or picked up until inspected and certified as inert.

(8) When an unusual situation or safety deviation is noted, all work will be stopped and the senior EOD member or range NCOIC will be notified.

(9) Heavy equipment operators will not run over small ordnance items, such as small arms and miniature practice bombs. Items will be by-passed or removed by qualified personnel.

(10) Areas will be cleared of all ordnance prior to grading, plowing, etc. These areas include access roads and lead-in lines in, around, and through target areas.

(11) During range clearance operations, the senior EOD member will maintain radio communications with range tower by intrabase mobile/portable radio. Range crews and teams will maintain communications with senior EOD member or range tower.

(12) Areas where work is to be performed, will be checked by EOD personnel or the range NCOIC prior to dispatching work crews.

b. Emergency procedures.

(1) Cease all operations immediately and, as time permits, relay specific details to 27TFW Command Post by land line or by intrabase mobile radio through Cannon Rescue Control.

(2) Unscheduled aircraft. Depart the area immediately to a safe area using the safest and most direct route. Concurrently notify Range Tower or Cannon Control Tower by intrabase radio.

(3) Personnel injury. Administer first aid and request by land line or intrabase radio an ambulance or, if available, air evacuation.

(4) Range fires. Do not attempt to control grass fires in areas contaminated with explosive ordnance. Notify the senior firefighter and control fires in a safe area by means of firebreaks.

8. Responsibilities of support agencies.

a. 27CSG Operations and Training will:

(1) Notify and coordinate with the EOD Branch NCOIC, all range maintenance operations involving work in contaminated areas, except strafe target areas. Such operations include periodic range work clearance and grading access roads around and through conventional, nuclear, skip-bomb, and tactical targets.

(2) Clean and/or supervise the cleanup of strafe target areas as required by applicable directives. Cleanup will be limited to only practice training ammunition. This ammunition consists of small arms (up to and including 50 cal ammunition) and 20mm TP practice cartridges, cartridge cases, projectiles and hard objects which can be readily identified as being free of explosive hazards.

(3) Provide heavy equipment and operators for scheduled range clearance operations.

(4) Select munitions residue burial sites by coordinating with Base Civil Engineers.

(5) Prepare and maintain burial sites in accordance with T.O. 11A-1-60.

(6) Designate and control holding areas for munitions residue pending disposition by means other than burial.

(7) Not release any munitions residue from the range without the approval of the EOD Branch Chief.

(8) Ensure that all personnel assigned to the range complex receive required EOD briefings.

b. Defense Property Disposal Office (DPDO) will:

(1) Furnish guidance on disposition of munitions residue where specific instructions have not been issued. As a rule, items which can not be redistributed locally or sold with a monetary return equal to or greater than the cost, will be marked for burial.

(2) Determine storage location and classification of munitions residue pending local redistribution/sale to commercial buyers.

(3) Contact the EOD Branch prior to the release of any munitions material recovered from the range.

c. 27CSG Base Fire Department will provide fire fighting equipment, and personnel during disposal of explosive items and standby personnel when deemed necessary by the Base Fire Marshal.

d. USAF Hospital will provide an ambulance or a first aid vehicle staffed with qualified personnel trained to handle casualties that may occur during monthly, annual and other similar range clearance operations.

e. Munitions Storage Area will:

(1) Provide munitions inspectors for processing all small arms and 20mm brass (cartridge cases) for turn in to DPDO. Inspectors will also perform final outshipment inspection on these items.

(2) Provide personnel and transportation to transport munitions in accordance with CAFBR 75-3 to designated area when requested.

(3) Assign areas for holding airmunitions which are documented on the Ammunition Disposition Request or Report (ADR) and explosives required for operation, ensuring pre-inspection and accountability prior to range disposal operations.

f. EOD personnel will:

(1) Supervise all range clearance operations except those in strafe target areas.

(2) Inspect and certify all munitions except small arms and 20mm TP ammunition.

(3) Destroy all items containing explosives or other hazardous materials.

(4) Process all munitions residue for disposal.

(5) Coordinate with DPDO, the disposition of all munitions residue (burial, local redistribution, sale to commercial buyers, etc.).

(6) Perform or monitor final inspections on munitions residue released for local redistribution, sale to commercial buyer, etc.

g. Augmentees will:

(1) Report to area of operation with required safety equipment.

(2) Read, understand, and sign range safety briefing statement.

(3) Not remove any items from range complex.

(4) Perform assigned task as directed.

9. Sequence of operations.

a. Preliminary actions:

(1) Ensure specific dates and times for all range operations, including recovery of regular practice bombs, have been coordinated with 27CSG/OTR, 27TFW Command Post and 27TFW Scheduling.

(2) Upon notification of a range operation, determine personnel, equipment, and demolition explosive requirements.

(3) Coordinate with the following agencies the date of operation and action indicated (as applicable).

(a) Submit to 27EMS/MAEK type and quantity of demolition material required.

(b) Inform munitions inspection section and MAEK of the pre-inspection and accountability of all airmunitions authorized for disposal as specified on completed AF Form 191.

(c) Notify Munitions Control of the type, quantity, date, and time munitions will be picked up or delivered as required.

(d) Contact Base Fire Marshal and coordinate the type of fire fighting equipment to be provided.

(e) Contact USAF Hospital Emergency Room and coordinate with the Base Medical facility the type of equipment to be readily available during range operations.

(f) If explosives will be transported to the range, refer to CAFBR 75-3.

(g) Contact the range chief to coordinate heavy equipment requirements for transportation of munitions residue to burial site, DPDO, munitions storage area, etc.

(4) Notify all agencies involved of any change or cancellations.

(5) For explosive disposal operations, contact base weather one or two days prior to the proposed disposal date and obtain a preliminary weather forecast. Postpone or cancel the disposal operation when adverse conditions such as severe thunderstorms, winds exceeding 15 miles per hour for burning operations, etc., are expected during disposal period.

(6) Check vehicles for fuel, proper operating conditions, essential accessories, and ensure that all safety appliances are in good working order.

b. Prior to departure to Melrose Range:

(1) Comply with all requirements established by CAFBR 75-3, Movement of Non-nuclear Munitions Off Base

(2) If not already accomplished, notify the following agencies, as applicable. Inform each agency of location, type of operation and duration:

| <u>AGENCY</u>        | <u>REQUIREMENTS</u>                    |
|----------------------|--|
| Munitions Control    | see para 9a(3)(a)                      |
| Munitions Inspection | see para 9a(3)(a) & (b)                |
| Medical Facility     | see para 9a(3)(e)                      |
| Security Police      | see CAFBR 75-3 for escort requirements |
| Fire Department      | see para 9a(3)(d)                      |
| Base Operations      | notification only                      |
| Control Tower        | notification only                      |
| Command Post         | overflight restrictions are in effect  |
| Wing Safety          | notification only                      |

(3) Assemble personnel and required tools and equipment.

(4) When more than one vehicle is used, dispatch vehicles with required number of personnel to pick up weapon(s), if required, and demolition material.

(5) Load equipment in other vehicle(s) when available.

(6) Proceed to Munitions Storage Area (MSA) and assemble convoy at the main entrance gate, if applicable.

(7) Check vehicle(s) for proper loading and placarding requirements.

(8) Brief all personnel on convoy procedures. Refer to CAFBR 75-3.

c. Arrival at Melrose Range:

- (1) Notify security police of arrival, if applicable
- (2) Ensure medical and fire fighting personnel are available and proper equipment is operational.
- (3) Coordinate range operations with range NCOIC.
- (4) Brief EOD, range, medical, and fire department personnel on specific operations to be conducted, to include the following:
  - (a) Location of work, size and number of working parties, team chief, equipment requirements etc.
  - (b) Obtain range radio and establish communications with Base or other control point.
  - (c) Ensure range building is staffed by range personnel.
  - (d) Designate individual to administer EOD briefing of augmentees and, if required, range personnel.
- (5) Assemble personnel for EOD briefing and emphasize the following:
  - (a) Only personnel that have been properly briefed and have specific authorization will be allowed in target areas.
  - (b) All working parties/teams will be supervised by EOD or assigned range personnel.
  - (c) No one will touch or pick up any item without proper instruction and understanding of hazards.
  - (d) Augmentees will not touch or pick up any items except small arms, 20mm TP brass (cartridge cases) and items that can be readily identified as being free of explosives unless inspected and marked by EOD personnel for removal.
  - (e) Small arms and 20mm TP cartridges (unfired) will be handled only by assigned range or EOD personnel. Other personnel that may handle complete rounds are those that have been designated and briefed by the team chief, and understand specific hazards and safety precautions associated with the item.
  - (f) Munitions items will not be moved from the range for personal retention. Personnel will be subject to search prior to departing the range complex or encampment.
  - (g) Personnel will sign the EOD Briefing Statement only when instructions have been properly understood.
  - (h) Adherence to safety rules will be observed at all times.
  - (i) Violations of standards of conduct will be dealt with accordingly.
- (6) Divide augmentees into teams and assign working locations.
- (7) Dispatch working parties.

d. Clearance of targets:

- (1) Tactical targets.
  - (a) EOD personnel will line up and walk through an area to inspect and certify munitions for augmentee removal.
  - (b) Certify residue as follows:
    1. For BDU 33 and MK 106 - Dud fired/non-probable, remove and place in bed of truck and transport to EOD disposal site and dump/place in disposal pit.
    2. Expended munitions residue will be marked with white spray paint for removal by augmentees:

a. BDU 33 bomb bodies without fins will be placed in the bed of the truck and transported to the holding area for further inspection and marking in accordance with T.O. 11A-1-60 for disposition by DPDO.

b. BDU 33 with fins and MK 106 practice bombs will be placed in bed of the truck, transported to designated burial site and off loaded.

3. M/MK series bombs will be inspected to determine filler, sand or concrete and marked as follows:

a. Inspect nose and tail to determine filler. If INERT, bomb will be marked with white spray paint using inspectors initials and will be removed by range personnel to disposal area and 60 series procedures performed.

b. Item will be inspected same as paragraph a. above. If determination cannot readily be made, item will be staked off and disposal procedures performed using applicable 60 series technical data. Then item will be marked for removal.

e. Disposal of munitions on Melrose Range:

(1) Place/dump in approved burial pits items which cannot be redistributed locally or sold with a monetary return equal to or greater than the recovery cost. Following items will normally be included in this category:

- (a) MK 106 practice bombs.
- (b) Tail sections of BDU 33 practice bombs.
- (c) 20mm TP and small arms projectiles.
- (d) Concrete filled MK80 and M117 series practice bombs.
- (e) BDU 33 practice bombs with tail attached.

(2) BDU 33 practice bomb bodies will be placed in the range holding area as time permits for consolidation of items. They will be inspected, marked, transported, and processed through DPDO in accordance with T.O. 11A-1-60 and local directives.

(3) MK and M series practice bombs will be demilitarized in accordance with 60 series technical data and HQ TAC policy.

(4) Dud fired practice bombs and ADR airmunitions will be processed and transported to the EOD disposal site and disposed of in accordance with T.O. 11A-1-42 and applicable 60 series technical orders.

(5) Coordinate with range control and verify permission to conduct required operations, such as disposal in place, detonation on disposal range, burn operation etc.

f. Removal of munitions residue from Melrose Range by EOD:

- (1) Coordinate equipment requirements with range NCOIC.
- (2) Inspect outgoing loads of brass for extraneous items, transport brass to MSA and turn to inspection section.
- (3) Ensure all items except brass are 100 percent inspected and marked in accordance with T.O. 11A-1-60 prior to being loaded for removal.
- (4) Ensure loads are secure and materials will not break loose enroute.
- (5) Complete proper paperwork at DPDO, as applicable.

g. Release/sale of munitions residue by DPDO:

- (1) Contact the EOD Branch NCOIC as soon as shipments or release of munitions residue are scheduled.
- (2) Ensure outshipment inspections are performed prior to release of any range munitions residue.
- (3) Ensure paperwork is accomplished in accordance with T.O. 11A-1-60 and other applicable directives.

## h. Completion of range operations:

- (1) Inspect cleared and disposal areas.
- (2) When no longer required, release medical and fire fighting personnel to include augmentees.
- (3) Return unused explosives to MAEK supply.
- (4) Thoroughly clean disposal site, dispose of residue in accordance with T.O. 11A-1-60.
- (5) Accomplish required reports.
  - (a) DD Form 358.
  - (b) AF Form 191.
  - (c) AF Form 2005 (MSI).
  - (d) DD Form 1348-1.

1. If the identity of the item is not retained and a salable quantity of residue remains after disposal, ensure that the disposal statement reads: "Disposal has been accomplished. There is material which has been downgraded to scrap/waste."

2. If the identity of the item is not retained and a salable quantity of residue does not remain after disposal, ensure that the disposal statement reads: "Disposal has been accomplished. There is no residue material which has been downgraded to scrap/waste."

3. When engaged in a demilitarization operation, the word "disposal" will be deleted from the statement. The residue material portion of the statement will be accomplished as in paragraphs (a) and (b) above.

10. Distribution. This regulation will be readily available to all personnel concerned and will be available at the operating location.



ALEXANDER J. S. ANTE, Capt, USAF  
Chief, Base Administration

MARY N. TURNER, Colonel, USAF  
Commander

1 Attachment  
Expended Munitions List

## SUMMARY OF CHANGES

This regulation updates procedures for conducting monthly, annual, and 5 year clearance of Melrose Bombing/Gunnery Range Complex, while defining and adding support agencies responsibilities. Changes title and incorporates the disposal of airmunitions authorized for local disposition on AF Form 191. Expands responsibilities of munitions inspectors of residue generated from range operations while replacing CAFBR 136-1.

**APPENDIX D-4**

**Chapter 7 of "Explosives Safety Standards"**

**Air Force Regulation 127-100**

## Chapter 7

## TRANSPORTATION

**7-1. General.** This chapter gives safety requirements for the transportation of explosives and for the safe operation of vehicles and materials handling equipment in explosives locations. In-use ammunition items which must accompany security police or other defense forces are not governed by transportation rules; however, safety considerations should be applied to the extent possible as directed by the major commands.

**7-2. Federal Regulation.** Department of Transportation (DOT) Title 49, CFR, Hazardous Materials Regulation, Transportation, regulates commercial shipment of hazardous material, including explosives, by rail, motor vehicle, cargo aircraft, and ship within the United States (except maritime explosives).

**7-3. Basic Directives.** The following directives apply to military shipments of hazardous materials within the Air Force system.

a. AFRs 55-14, 71-4, 136-4, and AFMs 75-1 and 75-2. AFR 71-4 regulates transportation of hazardous materials (including explosives) by military air, including contract air carriers. The AFM 75-series cover other phases of transportation. The TO 11N-45-series regulate the movement of nuclear weapons and their applicable components.

b. These regulations parallel the Code of Federal Regulation, but due to the many special items required by the Department of Defense (DOD) and the controlled transportation conditions within DOD, these items are assigned hazard classifications by the services according to TO 11A-1-47. Tests determine the item hazard and the related packaging and handling requirements. The military services coordinate in the hazard classification assignments and forward the pertinent classification data to DOT.

**7-4. Application of Basic Directives.** DOT and Department of Health and Human Services regulations, as such, do not apply to the movement of explosives beginning and ending within the confines of a given military base or installation. DOT regulations do not apply to any shipment of DOD munitions in DOD vehicles operated by DOD personnel. However, to promote safety, parts of these regulations have been adopted for use by the USAF.

**7-5. Local Laws.** Each state and nearly all local and foreign governments have laws or ordinances regulating the transportation of explosives and other dangerous articles within their jurisdiction. The local laws must also be obeyed.

**7-6. Hazard Classification Requirements.** Explosives, to be acceptable for transportation by any mode, must have an assigned hazard classification (Q-D hazard class/

division; storage compatibility group; DOT class, markings, shipping name and label; and UN serial number).

a. Developmental or test items without an approved classification must be assigned an interim hazard classification by the major command that has the development or test responsibility. The classification is approved by HQ AFISC/SEV which provides descriptive, packaging, and assigned interim hazard classification data to the Department of Defense Explosives Safety Board and Military Traffic Management Command.

b. Commercial explosives items purchased for official use that do not have a proper hazard classification must be cleared through this interim hazard classification process prior to transportation and use. See paragraph 2-8 for an exception for fireworks. If the Bureau of Explosives has assigned classifications for labeling, class, and DOT markings, the DOD component will assign only a class, division, storage compatibility group, and UN serial number.

**7-7. Mailing Prohibition.** Explosives items, including those exempted under section 173.55, Title 49 CFR, will NOT be mailed. Provisions and penalties of the US Postal Manual about "nonmailable" matter apply to the US Air Force.

**7-8. Authorized Transportation.** Government explosives will be moved only in an approved manner in acceptable military and commercial rail, air, or surface vehicles.

**7-9. Compatibility of Explosives During Transportation.** Items that may be shipped in the same commercial railcar, motor vehicle, cargo aircraft, or vessel are listed in CFR Title 49. These regulations are reproduced by the American Trucking Association as ATA Hazardous Materials Tariff and the Association of American Railroads as Bureau of Explosives Tariff No. BOE-6000, Hazardous Materials Regulations of the Department of Transportation by Air, Rail, Highway, Water, and Military Explosives by Water, Including Specifications for Shipping Containers. Cargo-configured items that may be shipped in the same Air Force aircraft are listed in AFR 71-4 and TO 11N-45-51. Compatibility criteria for the movement of DOD munitions in DOD vehicles operated by DOD personnel will be according to chapter 4.

NOTE: Nothing in this paragraph is to be construed to prohibit:

a. The development of new items in an increased state of assembly or the standardizing of an assembled version of existing items to meet approved military characteristics or requirements. Such items will be subjected to the normal hazard classification procedure (TO 11A-1-47). Safety analysis will be done by the Nonnuclear Munitions Safety Board.

b. The movement of assembled or partially assembled explosives items between servicing explosives locations and aircraft loading points or other such locations where necessary to meet valid operational requirements.

c. The movement of minimum quantities of explosives items necessary for demolition operations, to include proficiency training. Blasting caps, demolition explosives, and unserviceable (but not dangerous) munitions may be transported in the same vehicle, subject to MAJCOM control. Dangerously unserviceable munitions should be transported in a separate vehicle or, when this is not possible, segregated and sandbagged from other explosives being transported.

d. The movement of complete round (item) component loads when essential to meet operational requirements, and when separate (unmixed) movement is not feasible. (See AFR 71-4 or AFM 75-2 for procedures where exceptions to such directives are required.)

**7-10. Shipping Containers.** Containers of explosives offered for shipment will comply with DOT regulations or AFR 71-4 specifications, as appropriate.

a. Locally made containers must meet the packing and marking specifications for the item being packed.

b. Each container must be marked to identify the contents; show the correct DOT marking as well as other required markings. See TO 11A-1-46, AFR 71-4, TO 11N-45-51, or the triservice hazard classification listing, as appropriate.

c. If the item is not listed in the above references or if it must be shipped to a United Nations country, contact OO-ALC/MMWRE, Hill AFB UT, for the required data.

d. Do not open or repair a container in a railcar, motor vehicle, or aircraft unless it is essential for inflight safety or to safely unload a damaged container. If a container is damaged or defective, remove it from the transporting vehicle at the earliest opportunity for repair. If it is held for repair, it must be stored properly.

**7-11. Shipment of Explosives Which Have Been Damaged or Failed to Function.** If it is necessary to ship a "live" explosives item that has been damaged, subjected to abnormal force, or has failed to function, ask the cognizant AFLC (prime ALC) or AFSC element for shipping, packing, marking, and safety instructions.

a. The item must be judged safe for shipment (within the meaning of the normal DOT category for the material involved) before being offered for movement by a commercial carrier or transported over a public transportation system by a government conveyance. The shipment must be carefully packed and blocked to prevent movement and shock in transit.

b. Items containing a small quantity of explosives that is so constructed or packaged that the effects of an explosion are self-contained are excepted from this paragraph.

**7-12. Guides for Controlling Incoming Explosives Shipments.** Personnel concerned with the operation of air-

craft and transportation of explosives must review the guidance in AFM 75-42 (Defense Logistics Agency Handbook 4510.3), Terminal Facilities Guide, United States Air Force. Notification procedures must clearly state the net explosives weight, by hazard class/division, that can be received at unloading facilities without violating approved explosives capacities. If amendments to this publication are needed, they must be processed promptly.

**7-13. Damaged or Improper Shipments.** Any shipment received in damaged or improper condition will be reported on SF 364, Report of Discrepancy, according to AFR 400-54. Transportation discrepancies will be reported on SF 361, Discrepancy in Shipment Report, according to AFR 75-18. (Also see TO 11A-1-10.)

**7-14. Selection of Operators.** Operators of vehicles and equipment used in transporting and handling explosives will be carefully selected, physically fit, trained, and tested in the operation of the type vehicle or equipment being used, and informed of the explosives hazards involved. Instructions are in AFR 50-24, AFM 75-2, and this regulation.

**7-15. Explosives Movement Routes on Base.** The safest possible primary and alternate explosives movement routes will be designated. Such routes will cover all phases of movement on base from the point of entry, storage, delivery to and on the flightline, etc. Routes and any limitations on quantities by hazard class/division of explosives will be set forth in base publications. Movement routes will avoid built-up areas and key, mission-oriented facilities and equipment to the maximum extent possible. **EXCEPTION:** Movements of munitions within a munitions storage area or to and from licenced storage locations are not restricted to designated routes.

**7-16. Temporary Storage:**

a. DOT or table 4-1 compatibility criteria will be used while explosives are in the transportation mode. Either of these criteria may also be used for the temporary mixing of explosives while undergoing packing/unpacking operations or while in temporary storage awaiting shipment. However, shipping, receiving, and storage facilities will comply with DOD quantity-distance criteria for the hazard class/division involved. For example, DOT Class C explosives which are classified as class/division 1.1 will be stored in facilities meeting class/division 1.1 Q-D criteria.

(1) Incoming shipments will be moved on or be sent to proper storage with a minimum of delay.

(2) The assembly of outgoing shipments should be scheduled to reduce to a minimum the holding time in the shipping/receiving building.

b. Rooms, other than those exempted under paragraph 4-10, used for the storage of explosives awaiting shipment will be separated from other rooms by substantial dividing walls.

c. The total quantity of explosives in buildings, on loading platforms, and on transporting vehicles will be used to determine Q-D requirements to other facilities.

#### 7-17. Vehicle and Materials Handling Equipment General Safety Requirements:

##### a. Passengers:

(1) No person will be allowed to ride on, or in the cargo compartment of, a motor vehicle transporting explosives.

(2) Passengers may ride in the compartments that do not contain explosives if they can be safely seated.

(3) Explosives will not be transported in a passenger compartment of a vehicle.

**EXCEPTION:** Under certain conditions, the minimum essential personnel and limited quantities of class/division 1.4, 1.3, and (04) 1.2 explosives, as approved by a local OI, may be transported together in the cargo portion of vehicles (including "Metro" types used on flightlines) or in vehicles used as RSUs. These conditions are:

(a) Explosives must be packed separately from other items and packed in closed, clearly identified, metal or wooden containers properly secured in the vehicle body.

(b) Seats must be provided for personnel.

(c) Smoking in the vehicle must be prohibited or controlled as prescribed in paragraph 2-13b.

(d) Explosives-laden vehicles must not be left unattended.

(e) Aircraft seats or survival kits with explosives devices installed must contain all of the required safety pins and devices, and all seats or survival kits must be secured to prevent movement during transit.

**b. Placarding of Vehicles.** Department of Transportation placards provide a general warning to all personnel and furnish specific guidance for firefighting forces and other personnel, such as disaster control, responding to an emergency. Shippers must furnish DOT placards. These placards also have been adopted for use on base and in areas outside of DOT jurisdiction in order to give a standard identification method of nonnuclear explosives-laden vehicles of all types.

(1) All commercial or military vehicles transporting DOT Class A or B explosives will display EXPLOSIVES A (SF 431 or facsimile) or EXPLOSIVES B (SF 432 or facsimile) placards according to DOT CFR Title 49 or Tariff No. BOE-6000-A.

(2) Placards are not required for DOT Class C explosives which do not require an EXPLOSIVE C label (SF 402 or facsimile). For items that require an EXPLOSIVE C label, a DANGEROUS placard (SF 430 or facsimile) must be used. If the quantity of DOT Class C material normally requiring a DANGEROUS placard is less than 1000 pounds gross weight, the DANGEROUS placard is not required.

(3) Vehicles transporting chemical agents or biological defense research material with or without explosive components will be properly placarded for the DOT class

of material involved as described in the DOT regulations or TO 11A-1-46. Section 172.504 Title 49, Code of Federal Regulations, includes situations where DOT placards are, or are not, required, depending upon the classes and quantities of material being transported.

(4) Display of Placards. One DOT placard will be conspicuously displayed on each side, back, and front of each vehicle transporting hazardous materials. The following exceptions apply:

(a) Commanders may omit placards where necessary to avoid attention of hostile forces. However, all personnel involved must be instructed in proper actions to take in an emergency.

(b) Placards are not required on the side of towing vehicles or tractors, unless such vehicles are actually loaded with material requiring placarding.

(c) If prohibited by local law, the front placard will be omitted during offbase transportation.

(d) Where tow vehicle and trailer combinations are used on base, placards may be omitted only from the "inside" ends of vehicles that are coupled together. The leading vehicle will be placarded on the front, and the last vehicle will be placarded on the rear. All loaded vehicles in between will be placarded on each side. All placards will reflect the most hazardous item being transported.

(e) Materials handling equipment will be placarded only when it is used in the same manner as a transport vehicle or trailer (that is, for point to point delivery outside the munitions storage area).

(f) Vehicles used as RSUs will not require DOT placards provided:

1. Pyrotechnics are transported in a closed, latched, and properly marked metal or wooden container.

2. Pyrotechnics are not stored or allowed to remain in the RSU while unattended.

3. Smoking is prohibited while pyrotechnics are in the RSU.

4. Vehicles are inspected for compliance with fire prevention requirements by the base fire chief who will issue a signed certificate of acceptability. Such certification will be reviewed annually, and a copy will be kept in the vehicle at all times.

(g) Placards will not be used on vehicles when transporting nuclear weapons on base but will be used on off-base convoy vehicles as required by TO 11N-series directives and DOT regulations. Nuclear weapons convoys need not stop just to apply/remove placards. In this case placards should be applied the last time the convoy stops prior to going off base and removed the first time the convoy stops after arriving on base.

(h) Placards will not be displayed on vehicles transporting or towing conventional explosives while in nuclear weapon or combined nuclear/conventional weapons storage/alert areas. The gate guard for the storage/alert area(s) will serve as a check point for the installation or removal of placards as needed.

(5) DOT placards will be used by US activities both on and offbase in host nation countries.

(a) Use of host nation placards in combination with US placards will be according to local agreements or major command direction in the absence of such agreements.

(b) In all instances, US munitions, missile, fire protection, transportation, and EOD personnel must be given appropriate training in the use of proper placards.

(c) When the host nation is responsible for on and offbase firefighting support, the host nation placarding system may be used exclusively.

(6) All placarding requirements will be coordinated with the Base Transportation Officer (BTO) to ensure compliance with DOT and base transportation regulations. When appropriate, a local agreement should be made with the BTO to supply required placards to the using units for on or offbase transportation activity.

**c. Fire Extinguishers:**

(1) Each item of powered materials handling equipment used to handle or transport explosives must have a fire extinguisher suitable for class B/C fires on the unit, except where a suitable extinguisher is available at the work site. For example, a bomb lift truck does not require an extinguisher while loading a combat aircraft because of the extinguisher provided for the aircraft.

(2) Each explosives-laden vehicle used for transportation or operated inside structures that contain explosives will be equipped with at least two portable fire extinguishers, each rated at least 2A:10BC.

(a) When two extinguishers are used on government vehicles, one should be mounted on the outside of the cab on the driver's side and the other in the cab.

(b) When trucks are equipped with an interior carbon dioxide flooding system, one vaporizing liquid extinguisher should be carried.

**d. Load Protection.** All lifting devices on vehicles or handling equipment used in explosives operations will have a serviceable mechanism designed to prevent the sudden dropping of the load in the event of power failure.

**e. Load Stability.** All explosives loaded on all types of vehicles and handling equipment must be stable and secure, consistent with the type of equipment being used, before movement.

**f. Vehicle Refueling.** Gasoline and diesel-powered vehicles and equipment will not be refueled inside any structure in the explosives storage area or in any facility, site, revetment, or other building containing explosives, regardless of location. When being refueled, vehicles will be at least 100 feet from structures or sites containing explosives. When refueling is completed, remove the refueling vehicle from the storage area.

(1) Use the smallest available size of refueling unit. If a vehicle of more than 500 gallons capacity must be used, the distance between refueling and explosives must be that required for POL storage in chapter 5.

(2) During refueling, maintain an electrically continuous path between the tank being filled and the tank being emptied. The entire system will be grounded.

(3) Do not allow smoking or open flame devices within 50 feet of gasoline or diesel refueling. At least one person must be present during the entire operation. During the refueling, stop the motors of both the vehicle being refueled and the refueling truck (unless the refueling truck motor drives the pump).

(4) In event of a fuel spill, immediately notify the base fire department. Do not start the motors of the refueling truck or unit being refueled until the area is rendered safe by the fire department.

(5) Refueling will not be done within 20 feet of a warehouse, inert storage building/loading dock.

**g. Flammable Vapor and Exposed Explosives Precautions:**

(1) Battery, gasoline, or diesel-powered vehicles and materials handling equipment will not be used inside any structure or building containing "exposed explosives" or where the flammable vapors level is greater than 90-percent of the lower explosive limit.

(2) Such vehicles or equipment may be used outside the structures or buildings, within the vicinity of or for transporting "exposed explosives." Gasoline or diesel-powered units must have exhaust system spark arrestors and carburetor flame arrestors (standard air cleaners).

(a) The vehicle operator must inspect the spark arrestors prior to each daily use and clean them if there is an excess of carbon particles.

(b) Spark arrestors must meet military specifications for the particular equipment and be installed so that they will not be clogged in normal operation. (See AFOSH Std 127-66 and TO 38-1-23.)

**h. Liquefied Petroleum (LP) Fueled Vehicles.** Motor vehicles or other equipment utilizing LP gas for propulsion will have a fuel system which complies with the current edition of the National Fire Code, Standard 58, Section 35, Engine Fuel Systems. Vehicles that do not meet this code will not be allowed in explosives areas or locations nor will they be used in transporting explosives.

**i. Safety Chains.** Safety chains will be fastened between towing vehicles and trailers carrying explosives when lunette and pintle fastenings are used. Safety chains are not required when other types of specifically designed "breakaway control" safety features, as prescribed by the pertinent TO, are used.

**j. Storage.** Battery, gasoline, or diesel-powered equipment may be stored in a magazine, storehouse, or other suitable location that contains only inert materials.

(1) The equipment should be at least 10 feet from any combustible material.

(2) Aisles will be kept clear at all times and individual pieces of equipment stored should be spaced to minimize the spread of fire from one unit to another.

(3) Equipment may be parked in fire-resistive buildings containing explosives, providing such equipment is essential to day-to-day operations. However, the following minimum requirements must be met:

(a) Equipment must be stored in an area that is suitably and completely separated (by firewalls and closed doors) from the bays, rooms, or cubicles that contain the explosives.

(b) Designed fire-resistant ratings for the enclosures containing explosives are not degraded.

(c) Battery charging should not be done. However, where it is essential, venting will be provided, and the operation will be monitored to prevent overcharging.

(d) The local situation will be reviewed by safety and fire protection personnel for any additional measures necessary to enhance safety.

(e) Base commander approval has been granted.

(f) Detailed safety rules or conditions are available to the immediate supervisors or posted in the parking area.

**k. Operating Inside Structures.** Hazardous concentrations of exhaust fumes can develop within 20 minutes from operating a properly serviced forklift inside a structure the size of a 60-foot igloo with the door open. Commanders and supervisors must ensure mission requirements are met without exposing workers to unsafe levels of these fumes. Exhaust fans, respirators, or alternate mechanical or electrical lifting devices may be needed. If gasoline or diesel-powered vehicles or equipment are operated inside buildings, the following precautions will be taken:

(1) The concentration of carbon monoxide (CO) in the operating area must not exceed the current threshold limit value (TLV). Consult the local environmental health services for a determination of time-weighted TLVs and short-term maximum exposure limits. Exhaust purifiers are authorized where necessary to reduce CO concentrations in locations where ventilation is inadequate (see AFOSH Std 161-2).

(2) The base bioenvironmental engineer will periodically check the area to monitor the adequacy of ventilation and recommend methods to control the hazard.

**7-18. Battery-Powered Materials Handling Equipment.** Battery-powered equipment is preferred for handling explosives and should be used whenever possible.

a. Battery-powered equipment used within an explosives area will have all electrical cables mounted to prevent catching on stationary objects or damage by cutting or abrasion. Cables will be protected to prevent short-circuiting as far as is practicable.

b. Batteries will be securely fastened. Battery boxes will give ample ventilation, with ventilation openings that prevent access to the cell terminals from the outside.

c. Battery-powered equipment must be equipped with a dead-man switch and a main service switch that can be operated from the driving position.

**7-19. Gasoline or Diesel-Powered Materials Handling Equipment Safety Precautions:**

a. Equipment for handling materials within an explosives storage area will have a standard air cleaner securely attached to the carburetor throat.

b. Gas caps must be in place.

c. If necessary, a deflector plate will be installed to prevent overflow from the fuel tank from reaching the motor or exhaust pipe.

d. On gravity feed fuel systems or on pump systems that can be siphoned, an emergency shutoff valve will be installed at the fuel tank, or in the feed line.

e. Fuel lines will be protected from rupture due to vibration.

f. All electrical connections will be securely fastened to prevent accidental disconnection which might result in sparks or fire.

g. This equipment will not be used in areas which are classified as hazardous locations for electrical equipment (see paragraph 6-2a).

#### 7-20. Motor Vehicle Transportation:

##### a. General:

(1) Existing specially designed equipment for explosives and specific weapons should be used where possible or required according to directives.

(2) Cargo-type trucks and tractor-drawn semitrailer vans are preferred for the general transportation of explosives. Other types of vehicles should not be used unless the items involved make handling by cargo vehicles or vans impractical. Cargo will be properly secured, regardless of the transportation used.

(3) Vehicle batteries and wiring will be located so that they will not come in contact with containers or explosives.

b. **Vehicle Body.** Exposed ferrous metal in the cargo compartment will be covered before transporting any explosives which are not packaged in DOT specification containers or equivalent. Except for flatbeds and specialized equipment, cargo compartments with open tops will have strong, securely fastened sides to insure that explosives are safely retained. If tops or coverings are needed, they should be of a noncombustible or flameproof material.

c. **Red Lights.** Red lights will not be used on the front of vehicles transporting explosives on or off base. A security police vehicle may use a flashing red light on and off base when escorting a convoy unless prohibited by local law.

d. **Inspection of Vehicles.** Government-owned motor vehicles used to transport explosives will be inspected before use to determine that:

(1) Fire extinguishers are filled and are in good working order.

(2) Electric wiring is in good condition and properly attached.

(3) Fuel tank and piping are secure and not leaking.

(4) Spark arrestors, when applicable, meet military specifications and are properly installed and clean.

(5) LP-fueled vehicles comply with the National Fire Codes.

(6) Safety chains or other breakaway control devices are properly installed, if applicable.

(7) Brakes, tires, steering, and other equipment are in good condition and tires are properly inflated.

(8) Exhaust system is free of oil, grease, and fuel.

**e. Operating Requirements.** Ensure safe operation of vehicles transporting explosives. The following applies:

(1) Use wheel chocks (in addition to brakes or gears as prescribed for the specific vehicle) when loading or unloading explosives from vehicles and trailers parked on any grade or ramp steep enough to cause the vehicle to roll.

(2) When it is necessary to transport explosives on routes where ferryboats, tunnels, or toll bridges will be encountered, ask the local or state officials what procedures must be followed to comply with their regulations.

(3) If a motor vehicle containing explosives is to use a ferryboat or other passenger-carrying vessel, the driver will be furnished an identification letter, signed by an officer, requesting transportation on the vessel. The letter will be presented to the master of the vessel or a representative. The letter will refer to the bill of lading (copy of which will be in the possession of the driver) and will state the truck license number and the name of the owner. (See CFR Title 49.)

(4) Trucks containing explosives should not be refueled within an explosives area of an installation, including refueling from mobile units. A central refueling station should be used. Trucks should be refueled before loading explosives.

(5) Explosives will not be loaded on or unloaded from a motor vehicle while the engine is running, except under the following conditions:

(a) Where the engine is required to provide power to vehicle mechanical handling equipment used in the loading and unloading of the vehicle.

(b) Where necessary for emergency operations or timing for exercises simulating execution of emergency plans. In this case, small loads or packages of explosives, requiring only momentary unloading time to be delivered to aircraft on the flightline, may be removed from a vehicle while the motor is running.

(c) Engines of diesel-powered vehicles (excluding commercial carriers) may continue to run during loading or unloading of explosives except when exposed explosives are involved.

(d) When the vehicle engine is being operated under (a), (b), or (c) above, the following conditions apply:

1. The exhaust gases from the motor must be emitted at least 6 feet from the point at which the loading operation is done and be directed away from this point.

2. The vehicle must be equipped with spark and flame arrestors where necessary according to paragraph 7-17h.

3. The vehicle must remain at the aircraft or storage location only as long as needed to complete the explosives loading or unloading operation. If a delay occurs, the vehicle must be moved away from the location.

4. The vehicle operator must set the brakes and remain in the driver's position or must set the brakes and chock the wheels and remain close to the vehicle.

(6) Vehicles containing explosives will not be operated until the cargo has been checked to ensure safe transportation. Explosives containers will be loaded, blocked, braced, tied down, or otherwise secured to the vehicle to prevent movement. Load-securing methods must not damage explosives or containers. Vehicles will have sideboards and tailgates as high as the load. These are not needed where item size would make such protection impractical (b above) or where the vehicle is specially designed or adapted for the item and the load is held securely.

(7) When transporting items containing EEDs, full consideration must be given to the hazards discussed in paragraph 6-21 where vehicles are equipped with transmitters or other electromagnetic radiation sources which may create exposures on the routes to be traveled.

(8) Explosives-laden vehicles will not be left unattended unless they are parked in a properly designated area, such as the weapons storage area, holding yard, or ready munitions area.

(9) Forklifts will use skids or pallets to transport containers of explosives, except when the containers are designed with fully enclosed stirrups (360°) for forklift tines.

(10) Unfuzed weapons may be carried on forklift forks when the weapon body is long enough to be firmly supported on both forks and strong enough to prevent damage.

#### **f. Offbase Explosives Shipments:**

(1) Inspection of Incoming Shipments. All incoming motor vehicles carrying DOT Class A and B explosives and poisons will be inspected at a designated inspection station by a representative of the commander.

(a) The inspection station should be as remote as practical from hazardous areas such as explosives or POL sites, populated areas, and flightlines.

(b) If the inspection station is used as a temporary explosives storage or operating location, it must meet Q-D criteria. Also, vehicle inspections must be stopped while storage or operations are in progress.

(c) The inspection station may be used as an interchange yard (see (4) below).

(d) Inspections will be done according to AFM 75-2, using DD Form 626, Motor Vehicle Inspection (Transporting Hazardous Material).

(e) Once a vehicle has passed the initial inspection, a visual inspection of the external condition of the cargo may be done at any suitable location, including the unloading point.

(f) Any vehicle found or suspected to be in a hazardous condition will be moved to a "suspect vehicle" area which is isolated from other locations by the appropriate Q-D unless it is more hazardous to move the vehicle. Prompt corrective action or a detailed inspection will be

done at this location to ensure that the vehicle and cargo are safe enough for further movement.

(2) Inspection of Outgoing Shipments. All vehicles to be used for offbase shipments of explosives will be inspected by shipping activities before and after loading for compliance with safety regulations.

(a) DD Form 626 will be filled out according to AFM 75-2.

(b) A record will be kept of the vehicle number, the type of explosives cargo, and the number of each seal applied to the vehicle.

(c) Drivers must be thoroughly familiar with the DOT Motor Carrier Safety Regulations.

(d) DD Form 836, Special Instructions for Motor Vehicle Drivers, will be used to instruct drivers on the nature of their cargo, firefighting methods, and other specific precautions for the particular shipment. Information on the preparation and use of DD Form 836 is in AFM 75-2.

(e) Overseas units should use bilingual instructions on DD Forms 626 and 836 where needed.

(f) Where special purpose vehicles are authorized to transport explosives loads, applicable technical data will be used.

(g) Use of DD Forms 626 or 836 is not required for military vehicles or drivers transporting explosives (assembled or partially assembled in a delivery mode) across or on public highways from one part of a base to another. For example, transportation of munitions from a preparation area across the highway to the main base flightline, or on the highway to a nearby auxiliary field. If this is a daily operation, there should be an agreement with local authorities on any local restrictions to be imposed. Driver qualification and motor vehicle inspection requirements of paragraphs 7-14 and 7-20d apply.

(3) Internal Shipments by Commercial Carrier. Commercial carriers used to move explosives over public highways from one area to another area of an installation will be externally inspected before entering the second area. This is not needed if they were escorted or under surveillance enroute.

(4) Interchange Yards. Where necessary, an interchange yard may be established in a remote area on the same basis, or together with the inspection station in (1) above. This location will be used for the exchange of tractor-trailers between the common carrier and the base activity involved. Explosives Q-D criteria will not be applied if the exchange is made and the vehicles removed promptly.

**g. Holding Yards.** If the explosives-loaded vehicles cannot be dispatched to unloading points immediately, they must be moved to a holding yard.

(1) The holding yard will be sited to meet Q-D criteria to all other facilities and exposures.

(2) Where possible, explosives-loaded vehicles should be separated from each other by the applicable aboveground magazine distance.

(3) If magazine distance between vehicles cannot be met, vehicles should be parked in groups, with magazine separation between each group. Distances to other exposures will then be based on the total amount of explosives within a group of vehicles.

(4) Where neither (2) nor (3) is possible, the total explosives weight of the all vehicles will be used to determine separation distances.

(5) Loaded vehicles should not remain in a holding yard for a period exceeding 24 hours.

(6) Holding yards may be used for interchange and inspection activities. However, when loaded vehicles are being held there, the yard may not be concurrently used for vehicle inspections.

#### **h. Maintenance of Vehicles Carrying Explosives:**

(1) Only operator inspection and maintenance normally related to the operation of a vehicle will be done on explosives-laden vehicles. Such maintenance includes servicing with fuel, oil, air, lubrication and water, changing tires, fuses, hoses and drive belts, etc.

(2) No maintenance will be done on an explosives-loaded vehicle or trailer that would increase the probability of fire or would require the use of heat-producing equipment.

(3) No restrictions are imposed on tractor maintenance when the tractor is physically separated by at least 50 feet from an explosives-loaded trailer.

(4) When tires are being changed, the vehicle or trailer must not be elevated so as to shift the load or place an excessive strain on the tiedowns.

(5) Vehicles carrying nuclear weapons are also subject to the maintenance restrictions in TO 11N-45-51.

#### **7-21. Transporting Dangerously Unserviceable Explosives Items for Disposal:**

a. Dangerously unserviceable items such as partially burned signals, markers, etc., should be packaged and marked as specified in item technical publications or EOD publications. In some cases the training and experience of EOD supervisors and unique hazards of a specific situation may dictate modification of packaging. Authorization for the modification of procedures is contained in TO 00-5-1.

b. It is not intended that only EOD personnel can transport these items; however, EOD should be consulted prior to transporting any dangerously unserviceable items other than as approved by DOT. Routine transportation of explosive item residue may be provided by any DOD personnel who are properly trained in procedures to be followed and specific hazards of the material.

**7-22. Railroad Transportation.** DOT safety regulations for safety devices, safeguards, design of equipment, etc., are mandatory for railway equipment transporting materials outside an installation. These regulations should also be followed within an installation. Special attention should be given to rail clearances to buildings, loading docks, overhead lines, etc.

**a. Locomotives.** Portable fire extinguishers will be carried on all locomotives and other self-propelled rail vehicles.

**b. Track Layout.** Railroad lines serving explosives areas should be looped to give at least two ways of exit.

**c. Movement of Railcars Containing Explosives:**

(1) By Engine. Before any movement of a car(s) containing explosives, the load will be secured and the air brakes will be cut-in. Cars should not be uncoupled while in motion or pulled apart by locomotive power. Safety precautions will be observed in breaking air hose connections.

(2) By Car Mover. An individual must be stationed at the hand brake during any manual movement of a car.

**d. Spotting Railcars:**

(1) When single cars are spotted, the hand brakes will be set and the wheels properly chocked. When more than one car is spotted and the engine detached, the hand brakes will be set on enough cars of a cut of cars to ensure adequate braking is provided. The hand brakes will be set on the downgrade end of the cut of cars. Do not rely on the automatic air brakes to hold spotted cars.

(2) Locomotives will not stop in front of buildings and loading docks containing hazardous materials longer than needed to "spot" cars for loading or unloading.

(3) Cars at a magazine or building should be located so that personnel may evacuate the building or car rapidly if necessary.

**e. Switching Railcars** Special care will be taken to avoid rough handling of cars.

(1) Cars must not be "cut off" while in motion. Cars will be coupled carefully to avoid unnecessary shocks. Other cars will not be "cut off" and allowed to strike a car containing explosives.

(2) Cars will be placed in yards or on sidings so that they may be removed from danger of fire quickly and will be handled as little as possible. They will not be placed under bridges or alongside passenger sheds of stations. Engines on a parallel track should not be allowed to stand opposite or near them.

(3) "Dropping," "humping," "kicking," or use of the "flying switch" is prohibited.

**f. Marking Railcars With Blue Flags or Signals.**

Blue flags or signals will be placed at both ends of a car or cut of cars when personnel are working in, on, or under the cars. Cars marked in this manner will not be coupled to or moved. The supervisor or foreman in charge of the personnel loading or unloading the car(s) will be responsible for placing and removing the blue flag or signal. Train crews will be informed of the use of blue flags or signals.  
**EXCEPTIONS:**

(1) Flags are not required when flat cars are involved and the presence of a working party is clearly evident.

(2) Flags or signals may be omitted from the end of a car located against or toward a dead end spur. This also applies to a loading ramp where no other rolling stock can approach from that direction.

**g. Control of Vegetation Along Railroad Right-of-Way.** Vegetation along the railroad right-of-way which presents a fire hazard to explosives-laden cars will be controlled on the base as directed in paragraph 3-6.

**h. Loading Railcars.** When a car arrives, it should be inspected thoroughly, inside and out, to determine its suitability to carry the type of explosives involved. The interior of the car should be "broom clean" before explosives are loaded into it.

(1) Protruding nails and bolt heads should either be removed or covered to prevent the packages from being damaged. Substantial gangways should be provided. Any obstructions that may prevent free entry to the car should be removed. The immediate area should be cleared of leaves, dry grass, and other flammable materials.

(2) During loading operations, the car and magazine doors should be closed when engines or speeders are passing.

(3) Cars should not be left partly loaded unless it is impossible to finish loading at one time. In this case, car doors will be securely locked. If it becomes necessary to move a partially loaded car before loading has been completed, the load will be braced.

(4) During and after loading, the shipment should be properly braced and stayed, the car properly sealed, and a permanent record of car numbers kept.

**i. Loading and Bracing Guidance.** When loading freight cars, consult Bureau of Explosives Pamphlets 6 and 6A for guidance unless specific instructions or car loading drawings are available for the items involved. These pamphlets govern the method of loading, staying, and bracing of carload and less than carload (LCL) shipments of explosives. Refer to Bureau of Explosives Pamphlet 6C for guidance in securing truck bodies or trailers on flat cars. Also see this pamphlet for loading, blocking, and bracing of the cargo within, or on, such vehicles or containers. The carrier or cargo must not shift under an impact of 8 miles per hour from either end.

**j. Placarding of Railcars.** Railcars transporting explosives will be placarded according to DOT regulations or those of the host nation involved.

(1) Placards will be displayed when the first container of explosives is loaded in the railcar. Placards will be removed when the last container of explosives is removed from the railcar. Four placards are required for each railcar. It is the responsibility of the shipper to furnish the needed placards.

(2) Commanders may omit placards on conclusion of suitable arrangements with the host nation or governmental agency involved, where necessary, to avoid attention of hostile forces. All involved (including essential train crews) must be instructed in proper emergency actions.

**k. Railcar Requirements.** Cars used for the shipment of material requiring placarding under DOT regulations must meet DOT standards for the class of material being shipped. Cars for DOT Class A explosives will be in-

spected before and after loading. Car certificates will be accomplished, distributed, and affixed to cars according to DOT regulations.

**l. Leaking Packages in Railcars.** A constant alertness will be maintained to detect leaking packages or leaking tank cars.

(1) Leaking packages should be removed from cars and repaired. In the case of tank cars, the contents should be transferred. Leaking tank cars containing compressed gases should be switched to a location distant from habitation and highways and action taken to transfer contents.

(2) Cars containing leaking packages or leaking tank cars will be protected to prevent ignition of liquid or vapors.

(3) Movement of a leaking car will be held to a minimum until the unsafe condition is corrected. If artificial light is necessary, only approved explosive-proof electric lights should be used.

**m. Tools for Loading and Unloading Railcars.** Steel tools may be used inside cars with reasonable care if explosives subject to initiation are not exposed. When explosives subject to initiation are exposed, special care will be taken to prevent sparks.

**n. Sealing Railcars.** Cars containing explosives will be sealed with railway-type car seals on which is stamped an identifying number. The shipper will keep a record of car numbers and seals (see AFM 75-2 for additional car seal regulations). If the seal is not in place when the car is received, the car will be thoroughly inspected at a suspect car site.

**o. Changing Car Seals.** When a car seal is changed on a car of explosives, a record will be made showing the following information:

- (1) Railroad.
- (2) Place.
- (3) Date.
- (4) Number or description of seal broken.
- (5) Number or description of seal used to reseal car.
- (6) Reason for opening car.
- (7) Condition of load.
- (8) Name and occupation of persons opening car.

This record will be shown on waybill or other form or memorandum that accompanies car to destination.

**p. Inspection of Incoming Loaded Railcars:**

(1) Railcars containing explosives will be inspected by a competent representative of the commander at a designated inspection station.

(a) The inspection station should be as remote as practical from any hazardous or populated area. It should not be near any POL sites, other explosives locations, and flightlines.

(b) Inspect the outside and underside of each car to detect damage (such as defective brakes, couplings, wheel flanges, or hot boxes) or unauthorized and suspicious articles. Check individual car numbers and seal numbers against bills of lading.

(c) Such inspections may be done from ground level if pits are not available. If sabotage is possible, an inspection pit should be provided.

(d) If rail traffic is heavy enough or in an emergency, a pit will help in inspecting and moving cars rapidly.

(2) Cars of explosives will be isolated for prompt corrective actions when foreign and suspicious articles have been attached outside or underneath the car. They will also be isolated when they have a defect that could affect the safety of the installation or contents of the car.

(a) Unless the problem prohibits, the car will be moved over the safest route to a location separated from other areas by proper inhabited building distances.

(b) Before the car and cargo are released from the designated "suspect car" site, the unsatisfactory conditions will be corrected unless a determination is made that they are safe to move.

(3) If the seal numbers on a car do not correspond to the numbers shown on the bill of lading, treat the car as a suspect car. Remove it to the suspect car siding for additional inspection, as under (2) above.

(4) Visual inspection of the external condition of the cargo in cars that pass the initial inspection may be done at any suitable place, including the unloading point. Such cars may be considered reasonably safe. However, care should be exercised in breaking seals and opening doors because of the possibility of shifting lading or leaking containers.

(5) If warranted by the inspection results, cars at the inspection station will be moved promptly from the site.

(6) The inspection station will not be used as an explosives location or holding yard unless Q-D criteria are applied. However, the inspection station may be used as an interchange yard (q below).

(7) Commercial carriers used to move explosives through a public access route, from one area to another area of the installation, will be externally inspected before entering the second area. This is not needed if it was escorted or under surveillance enroute.

**q. Rail Interchange Yard.** Rail interchange yards are set up and operated on the same basis as truck or trailer interchange yards. The rules in paragraph 7-20f(4) apply.

**r. Rail Holding Yards.** If the car cannot be dispatched immediately to the point where it is to be unloaded, it may be moved to a holding yard. Rail holding yards, where required, are set up and operated on the same basis as holding yards for motor vehicles. The rules in paragraph 7-20g apply. In developing large holding yards, consider the following layout guidance:

(1) Rail holding yards should be laid out on a unit car or explosives weight group basis. (For example, 50,000, 100,000, or 250,000 net pounds of class/division 1.1 explosives, regardless of the number of cars involved). Each such explosives quantity car group will be separated from all other groups by the intermagazine distance criteria.

(2) Yards may be formed by two parallel ladder tracks connected by diagonal spurs or by a "Christmas tree" arrangement (a ladder track with diagonal dead-end spurs projecting from each side at alternate intervals). Other arrangements tailored to the operation are allowed. However, parallel tracks and spurs of all types will be separated by intermagazine distances for the group quantities of explosives involved.

**s. Classification Yards.** A classification yard may be established, where the volume of rail traffic necessitates, for the primary purpose of receiving, classifying, switching, and dispatching explosives-laden rail cars. These rules apply:

(1) Intermagazine Q-D separation is required, as a minimum, between explosives locations of all types and the classification yard.

(2) Car inspection station activities under p above may be done in classification yards, if such yards are remotely located according to the cited paragraph.

(3) Interchange yard activities under paragraph 7-20f(4) and g above may be done in classification yards, if such yards are remotely located according to the cited paragraphs.

(4) Cars may be opened in the yard for removing documents or for visual inspection of the external condition of the cargo if the entrance can be done in the normal manner. Freeing or repairing a stuck or damaged car door or doing any work inside a car is prohibited unless Q-D requirements can be met.

(5) The Q-D criteria other than in (1) above do not apply to a classification yard used exclusively for the purposes outlined above. If yards are used for other purposes (such as placing or removing dunnage or explosives items into or from cars), Q-D criteria will apply.

**t. Trailers on Flat Cars (TOFC) or "Piggyback" Explosives Loading/Unloading Sites.** This transportation method is considered a "change-of-mode" during loading or unloading operations. It requires only the use of good judgment in the site choice and proper control of operations in the local environment. The following criteria govern the siting and use of explosives TOFC railheads.

(1) Location will be as remote as practical from hazardous or populated areas.

(2) Facilities will be adequate for the operation, and safe loading or unloading ramps will be designated.

(3) Loading or unloading operations will be controlled to reduce exposures to a minimum.

(4) Trailers will be removed quickly from the railroad car and sent at once to their destination or scheduled for prompt loading on arrival at the site. If there is an unforeseen delay in loading or unloading, an explosives-loaded trailer may be kept at the site for a short time. This holding period will not exceed 24 hours.

(5) Piggyback shipping trailers and containers will not be opened at the site unless an emergency or suspected emergency situation necessitates.

EXCEPTION: "Shipping and Storage Containers, Ballistic Missile" (SSCBM) received by TOFC may be opened at the site only for inspection and road transport preparation as required by pertinent TOs.

(6) Adequate tie-down of trailers to railcars and blocking and bracing of the explosives in the trailer to ensure cargo stability in transit is essential.

(7) All of the safety rules in this chapter on explosives-laden motor vehicles and their operation will be applied.

(8) The provisions of Bureau of Explosives Pamphlet 6C apply to explosives "Piggyback" operations (lists railcars and hitches approved for TOFC service).

(9) Operations other than the foregoing are not to be done on explosives items or explosives-laden containers, trailers, cars, etc., unless Q-D criteria can be met.

**u. Inspection of Outgoing Empty Railcars.** Cars transporting explosives will be inspected after unloading to make sure that they are clean and free from loose explosives and from other flammable materials. Ensure that placards and car certificates are removed.

**7-23. Movement of Explosives Shipments by Air.** Air transportation of explosives by commercial aircraft is regulated by Federal Aviation Administration (FAA) regulations which are now incorporated into DOT CFR Title 49. Instructions about explosives-laden military aircraft (and certain DOD contract airlift operations) are in AFRs 71-4 and 55-14, the applicable aircraft TO, and other parts of this regulation.

**7-24. Transportation of Explosives by Water.** Transportation of explosives and other hazardous materials by water in vessels engaged in commercial service is regulated by the United States Coast Guard. Shipments overseas will be made according to the regulations of the carrier, the United States Coast Guard, or the Department of the Army.

**APPENDIX D-5**

**Operational Procedures for the  
Melrose Range Thermal Treatment Area**

SECTION I.

Explosive Ordnance Disposal Branch

MEMO FOR RECORD

FROM: 27 EMS/MAEE

12 Dec 84

SUBJECT: Melrose Open Burning/Disposal Area

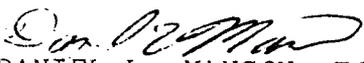
TO: Whom It May Concern

1. The following personnel are assigned to the 27th Equipment Maintenance Squadron (EMS) Explosive Ordnance Disposal (EOD) Branch:

| <u>NAME</u>            | <u>GRADE</u> | <u>AFSC</u> | <u>PHONE</u> |
|------------------------|--------------|-------------|--------------|
| Oller, Freddie B       | MSgt         | 46470       | 2908/2909    |
| Manson, Daniel L.      | TSgt         | 46470       | 2908/2909    |
| Painter, Davis E.      | SSgt         | 46450       | 2908/2909    |
| Newton, Michael D.     | SSgt         | 46450       | 2908/2909    |
| Jones, Timothy G.      | SSgt         | 46450       | 2908/2909    |
| Carson, Donnie L       | Sgt          | 46450       | 2908/2909    |
| Diaz, Hector P.        | Sgt          | 46450       | 2908/2909    |
| Bennett, Clifford R.   | SrA          | 46450       | 2908/2909    |
| Franks, Therman A. III | SrA          | 46430       | 2908/2909    |
| Hamilton, Steven N.    | A1C          | 46430       | 2908/2909    |
| Brown, Michael T.      | A1C          | 46430       | 2908/2909    |
| Vanderford, William R. | A1C          | 46430       | 2908/2909    |
| White, Robert J.       | A1C          | 46430       | 2908/2909    |
| Downing, Warren        | A1C          | 46430       | 2908/2909    |

2. The above personnel may be contacted at phone number listed or by the EOD Facility, Building 799, between 0700-1600 hours during normal duty days.

3. They will provide assistance on matters concerning the operation and maintenance of the Melrose Open Burning/Disposal Area, located at Melrose Bombing and Gunnery Range.

  
DANIEL L. MANSON, TSgt, USAF  
NCOIC EOD Branch

MEMO FOR RECORD

FROM: 27 EMS/MAEE

14 Dec 84

SUBJECT Melrose Open Burning/Disposal Area

TO: Whom It May Concern

1. The Melrose Open Burning/Disposal Area, ID# FNM 7572124454 1, is located within the confines of the Melrose Bombing and Gunnery Range.

a. The Open Burning/Disposal Area is located 6000 feet South of the Main Tower and 4000 feet West of the East boundary fence.

b. The holding area is located 500 feet North-East of the Main Tower.

2. All operations shall be conducted under the direct supervision of an E-5, SSgt, or above possessing the PAFSC 46470/4054B. Also, at least two qualified personnel, knowledgeable of the task to be performed, will be physically present at each operation, as detailed in CAFBR 136-13.

3. All safety requirements for general disposal of airmunitions will be in accordance with standards detailed in Technical Order (T.O.) 11A-1-42, T.O. 50A-1-1-31, AFR 127-100, and CAFBR 136-18.

  
DANIEL L. MANSON, TSgt, USAF  
NCOIC EOD Branch

OPEN BURNING/DISPOSAL AREA

OPERATIONAL PROCEDURES

OUTLINE

1. The following procedures shall be used pertaining to the operation of the Melrose Burning/Disposal Area.

2 Processing Airmunitions requiring disposal

a. Airmunitions shall be inventoried two to three days prior to scheduled range operations.

b. Cheking Airmunitions Disposal Report (ADR) against item for the following

(1) Proper quantity

(2) Proper nomenclature.

(3) Correct disposition action IAW TO 11A-1-42.

(4) Each item shall be listed on the inspection log for use during preperation for transportation.

c. Items shall be picked-up on day of operations and transported IAW CAFBR 75-3 and 27 TFW/MOI 136-10.

(1) Check for accuracy of ADR, 1348's, and inspection log.

(2) Assure no additions or delations have taken place prior to operation.

(3) Secure all items in bed of vehicle. Items of different storage group identification may be transported in one vehicle due to operational requirement IAW AFR 127-100.

(4) Assure proper D.O.T placards are attached to vehicle when required

(5) Items shall be taken to the Open Burning/Disposal Pit Area at the end of scheduled range clean-up operations.

3. Scheduling of operations and inspections.

a. Operations and inspections shall be conducted per Melrose Range Clearance schedule. This is normally scheduled for the third Saturday of each month. Follow up inspections shall be conducted on the following Monday and documented on the Inspection Log sheet

4. Range Operations sequence (BURN)

a. Area shall be inspected for safety and security.

b. Pit area cleared and cleaned as required.

c. Pit preparation shall be IAW TO 11A-1-42

(1) Dunnage placed in pit approximately two feet high using scrap wood and wood pallets

(2) Bombs recovered off days operation shall be placed on top of dunnage.

(3) Airmunitions slotted for burning shall be positioned on dunnage and intermingled with other items.

NOTE

If an operational requirement exist which requires items to be disposed of by detonation. That operation shall commence prior to continuing pit preparation.

(4) Spray an appropriate amount of non-flammable fuel, usually 50 to 100 gallons of diesel, over munitions items and dunnage.

(5) Prepare a dual initiation set up a minimum of 25 feet from pit IAW TO 11A-1-42.

(6) Place dual initiation charges at strategic locations to assure ignition.

d. Commencing operation:

(1) Obtain clearance from Main Range Tower to initiate charges, via Range radio

(2) After clearance is obtained initiate charges and depart area.

(3) Maintain a current time hack for initiation of charges to assure successful ignition.

(4) Stand by at a safe distance and assure proper fire intensity and allow for a partial burn down prior to departing area.

WARNING

Area will not be re-entered until a minimum of 12 hours has passed. This is to allow for full burning to take place.

5. Emergency procedures:

a. At the time of the emergency all operations will be discontinued and following accomplished:

(1) Personnel shall assist others if injured.

(2) Depart the area

(3) Notify central agency. i.e. Main Tower, Cannon Command Post, and Safety as a minimum.

(4) Secure area for post investigation, allowing for a safety factor of items being disposed of.

(5) Return all munitions items not involved to the Munitions Storage Area.

(6) Follow other directives pertaining to the operation.

6. Post inspection of Burning/Disposal Area after a minimum of 12 hours has elapsed.

a. Firefighting equipment will act as safety back up.

b. One individual shall inspect area for through burning.

c. When determined safe have firefighting individual proceed.

d. Have area hosed down using firefighting equipment to eliminate any further potential fire hazards.

e. Secure area and depart until further inspection the following Monday.

Date:  
Revision No.: 0  
Section: F  
Cannon

Appendix F-1

Inspection Log Sheets

| INSPECTION LOG   |   |                        |       |    |    | *LEGEND                        |                              |
|--|---|------------------------|-------|----|----|--------------------------------|------------------------------|
| DATE   | AREA/BLDG (Specify when HM/HW is stored off-site of DPDO) | SIGNATURE OF INSPECTOR |       |    |    | SIGNATURE OF DPDO              |                              |
| HAZARDOUS PROPERTY STORAGE FACILITIES<br>(Weekly) (Daily when loading/unloading) |   | SAT                    | UNSAT | NA | NI | LOCATION AND PROBLEMS OBSERVED | DATE CORRECTIVE ACTION TAKEN |
|  | Security of Doors   |                        |       |    |    |                                |                              |
|  | Security of Windows                                       |                        |       |    |    |                                |                              |
|  | Security of Gates   |                        |       |    |    |                                |                              |
|  | Security of Fences/Warning Signs                          |                        |       |    |    |                                |                              |
|  | Evidence of Leaks (Drums/ Containers)                     |                        |       |    |    |                                |                              |
|  | Evidence of Tampering                                     |                        |       |    |    |                                |                              |
|  | Evidence of Damage  |                        |       |    |    |                                |                              |
|  | Temperature Control                                       |                        |       |    |    |                                |                              |
|  | Drainage and Spill Containment                            |                        |       |    |    |                                |                              |
|  | Water Pressure/Volume                                     |                        |       |    |    |                                |                              |
|  | Sprinkler Systems (Flammables)                            |                        |       |    |    |                                |                              |
|  | "No Smoking" Signs  |                        |       |    |    |                                |                              |
|  | Other - Deterioration of Concrete                         |                        |       |    |    |                                |                              |
|  | Other   |                        |       |    |    |                                |                              |
|  | Other   |                        |       |    |    |                                |                              |
|  | PERSONAL PROTECTIVE EQPT/SPILL SUPPLIES<br>(Weekly)       |                        |       |    |    |                                |                              |
|  | Eye Wash Operation  |                        |       |    |    |                                |                              |
|  | Alarm Operation   |                        |       |    |    |                                |                              |
|  | Communication System Operation                            |                        |       |    |    |                                |                              |

| PERSONAL PROTECTIVE EQPT/SPILL SUPPLIES<br>CON'T (Weekly) | SAT | UNSAT | NA | NI | LOCATION AND PROBLEMS OBSERVED | DATE CORRECTIVE<br>ACTION TAKEN |
|---|-----|-------|----|----|--------------------------------|---------------------------------|
| Fire Extinguishers  |     |       |    |    |                                |                                 |
| MHE Operable/Safe for HM/HW                               |     |       |    |    |                                |                                 |
| Absorbents Available                                      |     |       |    |    |                                |                                 |
| Eye Shields Available/in use                              |     |       |    |    |                                |                                 |
| Emergency Clothing Available                              |     |       |    |    |                                |                                 |
| Deluge Shower Operation                                   |     |       |    |    |                                |                                 |
| Other   |     |       |    |    |                                |                                 |
| Other   |     |       |    |    |                                |                                 |
| <b>HAZARDOUS MATERIAL AND/OR WASTES<br/>(Weekly)</b>      |     |       |    |    |                                |                                 |
| Leaks/Spills Detected or Observed                         |     |       |    |    |                                |                                 |
| Odors/Fumes Detected or Observed                          |     |       |    |    |                                |                                 |
| Evidence of Tampering/Damage                              |     |       |    |    |                                |                                 |
| Evidence Property Stolen or Missing                       |     |       |    |    |                                |                                 |
| Other - Deterioration of Drums                            |     |       |    |    |                                |                                 |
| Other - Number of Containers                              |     |       |    |    |                                |                                 |
| Other - Aisle Space                                       |     |       |    |    |                                |                                 |
| - Height of Stacking                                      |     |       |    |    |                                |                                 |
| - Quantities of Each Waste Type                           |     |       |    |    |                                |                                 |
|   |     |       |    |    |                                |                                 |
|   |     |       |    |    |                                |                                 |
|   |     |       |    |    |                                |                                 |

Date:  
Revision No.: 0  
Section: F  
Cannon

APPENDIX F-2

Explosive Ordnance Disposal Reports

|  |   |   |  |
|--|---|---|--|
| <b>EXPLOSIVE ORDNANCE DISPOSAL REPORT</b>  |   | LOCAL CONTROL NO.<br><b>83-27EMS-2</b>  | REPORT CONTROL SYMBOL<br><b>LOG-LOW(AR) 711c</b> |
| TO: Det 6300-ALC<br>Naval EOD Facility<br>Indian Head MD 20640                     | THRU (MAJ/COMD)<br><b>1B) TAC/LWME</b><br>Langley AFB, VA 23665 |   | FROM: <b>27TFW/MAEE</b><br>Cannon AFB, NM 88103  |
| <b>REPORTING INFORMATION</b>   |   |   |  |
| 1. REPORTED BY<br><b>Major Hockemeir</b><br><b>27 CSG/OT</b>                       |   | 2. REPORTED   |  |
|  |   | TIME  | DATE   |
|  |   | <b>0600</b>   | <b>19 Feb 83</b>                                 |
|  |   | START   | <b>19 Feb 83</b>                                 |
|  |   | STOP  | <b>1500</b>                                      |
|  |   | 3. MAN-HOURS<br><b>95</b>   |  |
| <b>EXPLOSIVE ORDNANCE DISPOSAL INFORMATION</b>                                     |   |   |  |
| 4. TEAM CHIEF<br><b>TSgt Freddie B. Olier</b>                                      |   | 5. TECHNICAL DATA USED<br><b>60B-2-2-11</b><br><b>60B-2-2-11-3</b><br><b>60B-2-2-11-4</b> |  |
| TOTAL NO. EOD PARTICIPATING<br><b>9</b>  |   | TOTAL NO. OF OTHERS<br><b>21</b>  |  |
|  |   | 6. RENDER SAFE PROCEDURE (check)  |  |
|  |   | YES   |  |
|  |   | NO  |  |
|  |   | NOT APPLICABLE <input checked="" type="checkbox"/>  |  |
| <b>ORDNANCE INVOLVED</b>   |   |   |  |
| QUANTITY   | TYPE  | NATIONALITY   | NOMENCLATURE                                     |
|  | A. SMALL ARMS AMMUNITION  |   |  |
| <b>175</b>   | B. BOMB/ <del>ROCKET</del>                                      | <b>2</b>  | <b>See Block 10</b>                              |
|  | C. DISPENSERS/CLUSTERS/BOMBLETS                                 |   |  |
|  | D. PROJECTILES  |   |  |
|  | E. GRENADES   |   |  |
|  | F. ROCKETS  |   |  |
|  | G. GUIDED MISSILES  |   |  |
|  | H. LAND MINES   |   |  |
|  | J. AIRCRAFT EXPLOSIVE DEVICES                                   |   |  |
| <b>4</b>   | K. PYROTECHNICS   | <b>2</b>  | <b>See Block 10</b>                              |
|  | L. IMPROVISED EXPLOSIVE DEVICES                                 |   |  |
|  | M. MISCELLANEOUS EXPLOSIVE ITEMS                                |   |  |
|  | N. NUCLEAR ORDNANCE   |   |  |
|  | Q, R, S. NAVAL MINES/MARKERS, TORPEDOES, DEPTH CHARGES          |   |  |
| 8. TYPE OF INCIDENT (check)  |   | 9. IMPROVISED EXPLOSIVE DEVICE INCIDENT   |  |
| A. VIP SUPPORT   |   | A. SOURCE   |  |
| B. ROUTINE PICKUP/DISPOSAL   |   | B. RESULTS OF SEARCH  |  |
| C. ACFT CRASH/INFLIGHT EMERGENCY   |   | TELEPHONE   | ACTUAL DEVICE                                    |
| <input checked="" type="checkbox"/>  | D. RANGE CLEARANCE  | SUSPECT OBJECT/PERSON   | HOAX DEVICE                                      |
|  | E. IMPROVISED EXPLOSIVE DEVICE INCIDENT                         | OTHER (specify)   | NEGATIVE FIND                                    |
|  | F. MONTHLY REPORT   | C. ASSISTANCE TO OTHER AGENCIES   |  |
|  | G. VEHICLE ACCIDENT   | LOCAL AUTHORITIES   |  |
|  | H. ENEMY ATTACK   | FEDERAL AUTHORITIES   |  |
|  | I. ACCIDENTAL ARMING, FIRING OR RELEASE                         | OTHER MILITARY SERVICES   |  |
|  | J. JETTISON   |   |  |
|  | K. TEST SUPPORT   |   |  |
|  | L. STORAGE AREA INCIDENT  |   |  |
|  | M. OTHER (Specify)  |   |  |
| 10. NARRATIVE (Continue on reverse)  |   |   |  |
| 1. <u>NAME OF PARENT RANGE COMPLEX:</u> <b>Melrose Bombing &amp; Gunnery Range</b> |   |   |  |
| 2. <u>SUB-RANGE OR NUMBER/TYPE TARGETS AND ACREAGE CLEARED:</u>                    |   |   |  |
| a. <u>Sub-Range Name or Number:</u> <b>N/A</b>                                     |   |   |  |
| (cont. reverse)  |   |   |  |
| 11. NO. OF ATCH <b>0</b>   | 12. SIGNATURE OF ORIGINATOR                                     | 13. SIGNATURE OF EOD SUPERVISOR   | 14. DATE<br><b>1 Mar 83</b>                      |
| 15. SIGNATURE OF MAJCOM STAFF MANAGER  |   |   | 16. DATE   |

BLOCK 10 (Cont.)

b. Type Target and Acreage Cleared:

| <u>TYPE TARGET</u>          | <u>QUANTITY</u> | <u>ACREAGE CLEARED</u> |
|-----------------------------|-----------------|------------------------|
| T-1 Runway                  | 1               | 61                     |
| T-2 thru T-6 Taxiway        | 5               | 53                     |
| T-20 Nuclear Target         | 1               | 72                     |
| T-21 Conventional Target    | 1               | 18                     |
| T-22 APC Target             | 1               | 18                     |
| T-30 thru T-33 Revetted A/C | 4               | 48                     |
| T-34 Helicopter on R/W      | 1               | 18                     |
| T-35 A/C on R/W             | 1               | 18                     |
| T-36 & T-37 A/C on T/W      | 2               | 36                     |
| T-50 AAA Site               | 1               | 6                      |
| T-60 thru T-65 POL Target   | 6               | 24                     |
| T-68 Base Ops               | 1               | 18                     |
| T-74 thru T-78 MSA          | 5               | 11                     |

3. TYPE CLEARANCE PERFORMED: Monthly

4. NUMBER OF MUNITIONS REQUIRING RSP/DISPOSAL:

| <u>MUNITIONS NOMENCLATURE</u> | <u>QUANTITY</u> |
|-------------------------------|-----------------|
| EDU-33 Practice Bomb          | 172             |
| MK-106 Practice Bomb          | 3               |
| MK 4 Signal                   | 4               |

5. DISPOSAL OF MUNITIONS RESIDUE:

| <u>QUANTITY</u>  | <u>DISPOSITION</u>         |
|--|----------------------------|
| 10,000 lbs of scrap metal consisting of EDU-33 and MK-106 practice bombs | Placed in range burial pit |
| 69 inert MK 82 practice bombs  | Marked for range pick-up   |

6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: None

7. PARTICIPATING PERSONNEL (EOD):

|              |                |
|--------------|----------------|
| TSgt Oller   | Sgt Polchinski |
| SSgt Painter | SrA Carson     |
| SSgt Lopez   | A1C Hiller     |
| SSgt French  | A1C Bennett    |
| Sgt Newton   |                |

BLOCK 10 (cont.)

2. Routine Pick-Up of Ordnance Items:

- a. MK-106 Practice Bomb - 1 ea - Awaiting Disposal
- b. Riot Control Canister - 2 ea - Awaiting Disposal

3. Routine Disposal of ADR and Other Recovered Munitions:

- a. Number of Disposal Operations: 1
- b. Person-hours Expended: 20
- c. Items Disposed of:

| <u>QUANTITY</u> | <u>NATIONALITY</u> | <u>NOMENCLATURE</u>  |
|-----------------|--------------------|----------------------|
| 2 ea            | 2                  | SMDC Line 1105       |
| 1 ea            | 2                  | SMDC Line 1289       |
| 2 ea            | 2                  | SMDC Line 1363       |
| 1 ea            | 2                  | .50 cal Ball         |
| 75 ea           | 2                  | .38 cal Ball         |
| 3 ea            | 2                  | NK 13 Signal         |
| 1 ea            | 2                  | F-111 Initiator      |
| 3 ea            | 2                  | M237 Fire Ext. Cart. |
| 3 ea            | 2                  | MD66E Ctg.           |
| 1 ea            | 2                  | FMU 26B/B            |
| 1 ea            | 2                  | Impulse Cart.        |
| 5 ea            | 2                  | F382E-A /BSTR/T T46  |
| 3 ea            | 2                  | FY53E BSTR FZU2B     |
| 1 ea            | 2                  | M189 Ctg. ARD 863-1  |

4. Previous EOD Report Control Numbers of Munitions Destroyed:

a. Report #82-27EMS-19, Items listed in Block 10, para A were destroyed with ADRs. All reasonable efforts to account for explosive/hazardous items pertaining to this incident have been expended. Recommend this incident be closed. This recommendation has been coordinated with local authorities.

b. Report #83-27EMS-2, Items listed in Block 10, para 4 were destroyed with ADRs.

7 MAR 1983

HQ TAC/LGWME ~~Remarks~~/Recommendations:  
Concur with ~~remarks~~/recommendations of the  
reporting unit.

*John C. Frisley*  
John C. Frisley, SMSgt, USAF  
CMD Mgr EOD Progs/ Resources

|   |                                 |   |
|---|---------------------------------|---|
| <b>EXPLOSIVE ORDNANCE DISPOSAL REPORT</b> | LOCAL CONTROL NO.<br>83-27TMS-3 | REPORT CONTROL SYMBOL<br>LOG-LOW(AR) 7118 |
|---|---------------------------------|---|

|   |  |   |
|---|--|---|
| TO: (1) 100 ALC<br>110D Eddy<br>Head MB 20640 | THRU: (1) 100 ALC<br>HQ TAC/ICRME<br>Langley AFB, VA 23065 | FROM:<br>27TFW/MAEE<br>Cannon AFB, NM 88103 |
|---|--|---|

|  |             |             |             |                    |
|--|-------------|-------------|-------------|--------------------|
| REPORTING INFORMATION                              |             |             |             |                    |
| REPORTED BY<br>Consolidated Report for February 83 | 2. REPORTED | TIME<br>N/A | DATE<br>N/A | 3. MAN-HOURS<br>36 |
|  | START       | 0001        | 1 Feb 83    |                    |
|  | STOP        | 2400        | 28 Feb 83   |                    |

|   |                          |  |  |  |
|---|--------------------------|--|--|--|
| EXPLOSIVE ORDNANCE DISPOSAL INFORMATION |                          |  |  |  |
| TEAM CHIEF<br>TSgt Freddie B. Oller     |                          | 5. TECHNICAL DATA USED<br>11A-1-42<br>60B-2-2-11-3<br>60J-2-2-20-1 |  | 6. RENDER SAFE PROCEDURE (check)                   |
| TOTAL NO. EOD PARTICIPATING<br>10       | TOTAL NO. OF OTHERS<br>0 |  |  | YES <input type="checkbox"/>                       |
|   |                          |  |  | NO <input type="checkbox"/>                        |
|   |                          |  |  | NOT APPLICABLE <input checked="" type="checkbox"/> |

| ORDNANCE INVOLVED |  |             |              |        |
|-------------------|--|-------------|--------------|--------|
| QUANTITY          | TYPE   | NATIONALITY | NOMENCLATURE | FUZING |
| 76                | A. SMALL ARMS AMMUNITION                               | 2           | See Block 10 | N/A    |
| 1                 | B. <del>XXXX</del> BOMB FUZES                          | 2           | See Block 10 | N/A    |
|                   | C. DISPENSERS/CLUSTERS/BOMBLETS                        |             |              |        |
|                   | D. PROJECTILES   |             |              |        |
|                   | E. GRENADES  |             |              |        |
|                   | F. ROCKETS   |             |              |        |
|                   | G. GUIDED MISSILES                                     |             |              |        |
|                   | H. LAND MINES  |             |              |        |
| 22                | J. AIRCRAFT EXPLOSIVE DEVICES                          | 2           | See Block 10 | N/A    |
|                   | K. PYROTECHNICS  | 2           | See Block 10 | N/A    |
|                   | L. IMPROVISED EXPLOSIVE DEVICES                        |             |              |        |
|                   | M. MISCELLANEOUS EXPLOSIVE ITEMS                       |             |              |        |
|                   | N. NUCLEAR ORDNANCE                                    |             |              |        |
|                   | Q. R. S. NAVAL MINES/MARKERS, TORPEDOES, DEPTH CHARGES |             |              |        |

|   |                            |   |                      |  |
|---|----------------------------|---|----------------------|--|
| TYPE OF INCIDENT (check)                |                            | 9. IMPROVISED EXPLOSIVE DEVICE INCIDENT |                      |  |
| A. VIP SUPPORT                          | B. ROUTINE PICKUP/DISPOSAL | A. SOURCE                               | B. RESULTS OF SEARCH |  |
| C. ACFT CRASH/INFLIGHT EMERGENCY        | D. RANGE CLEARANCE         | TELEPHONE                               | ACTUAL DEVICE        |  |
| E. IMPROVISED EXPLOSIVE DEVICE INCIDENT | F. MONTHLY REPORT          | SUSPECT OBJECT/PERSON                   | HOAX DEVICE          |  |
| G. VEHICLE ACCIDENT                     | H. ENEMY ATTACK            | OTHER (specify)                         | NEGATIVE FIND        |  |
| I. ACCIDENTAL ARMING, FIRING OR RELEASE | J. JETTISON                | C. ASSISTANCE TO OTHER AGENCIES         |                      |  |
| K. TEST SUPPORT                         | L. STORAGE AREA INCIDENT   | LOCAL AUTHORITIES                       |                      |  |
| M. OTHER (Specify)                      | M. OTHER (Specify)         | FEDERAL AUTHORITIES                     |                      |  |
|   |                            | OTHER MILITARY SERVICES                 |                      |  |

10. NARRATIVE (Continue on reverse)

1. Response to A/C In-Flight/Ground Emergencies:

a. Number of Responses: 4

b. Person-hours Expended: 9

(cont. reverse)

|   |  |   |                      |
|---|--|---|----------------------|
| 11. NO. OF ATCH<br>1  | 12. SIGNATURE OF ORIGINATOR<br><i>Freddie B. Oller</i> | 13. SIGNATURE OF EOD SUPERVISOR<br><i>John C. Frigley</i> | 14. DATE<br>2 Mar 83 |
| 15. SIGNATURE OF MAJCOM STAFF MANAGER<br><i>John C. Frigley</i> |  | 16. DATE<br>7 MAR 1983                                    |                      |

|  |  |   |  |
|--|--|---|--|
| <b>EXPLOSIVE ORDNANCE DISPOSAL REPORT</b>                      |  | LOCAL CONTROL NO.<br><b>83-27EMS-7</b>              | REPORT CONTROL SYMBOL<br><b>LOG-LOW(AR) 7118</b> |
| TO: Det 6300 ALC<br>Naval EOD Facility<br>Indian Head MD 20640 | THRU (MAJ COMD)<br><b>HQ TAC/LGWME<br/>Langley AFB, VA 23665</b> | FROM:<br><b>27TFW/MAEB<br/>Cannon AFB, NM 88103</b> |  |

| REPORTING INFORMATION  |             |                     |                          |
|--|-------------|---------------------|--------------------------|
| 1. REPORTED BY<br><b>Major Hutchinson<br/>27TFW/DOV CAFB</b> | 2. REPORTED | TIME<br><b>1515</b> | DATE<br><b>22 Apr 83</b> |
|  | START       | <b>1515</b>         | <b>22 Apr 83</b>         |
|  | STOP        | <b>0830</b>         | <b>23 Apr 83</b>         |
| 3. MAN-HOURS<br><b>7</b>                                     |             |                     |                          |

| EXPLOSIVE ORDNANCE DISPOSAL INFORMATION |   |                                  |          |
|---|---|----------------------------------|----------|
| 4. TEAM CHIEF<br><b>SSgt French</b>     | 5. TECHNICAL DATA USED<br><b>60A-1-1-31, 60C-2-2-36-3<br/>60F-2-2-1-1, 60F-2-2-1-2<br/>60F-2-3-32</b> | 6. RENDER SAFE PROCEDURE (check) |          |
| TOTAL NO. EOD PARTICIPATING<br><b>2</b> | TOTAL NO. OF OTHERS<br><b>0</b>   | YES                              |          |
|   |   | NO                               | <b>X</b> |
|   |   | NOT APPLICABLE                   |          |

| 7. ORDNANCE INVOLVED |  |             |                             |             |
|----------------------|--|-------------|-----------------------------|-------------|
| QUANTITY             | TYPE   | NATIONALITY | NOMENCLATURE                | FUZING      |
|                      | A. SMALL ARMS AMMUNITION                               |             |                             |             |
|                      | B. BOMB/BOMB FUZES                                     |             |                             |             |
|                      | C. DISPENSERS/CLUSTERS/BOMBLETS                        |             |                             |             |
|                      | D. PROJECTILES   |             |                             |             |
|                      | E. GRENADES  |             |                             |             |
| <b>2</b>             | F. ROCKETS   | <b>2</b>    | <b>2.75 PYAR/H156 wp wh</b> | <b>M423</b> |
|                      | G. GUIDED MISSILES                                     |             |                             |             |
|                      | H. LAND MINES  |             |                             |             |
|                      | J. AIRCRAFT EXPLOSIVE DEVICES                          |             |                             |             |
|                      | K. PYROTECHNICS  |             |                             |             |
|                      | L. IMPROVISED EXPLOSIVE DEVICES                        |             |                             |             |
|                      | M. MISCELLANEOUS EXPLOSIVE ITEMS                       |             |                             |             |
|                      | N. NUCLEAR ORDNANCE                                    |             |                             |             |
|                      | Q, R, S. NAVAL MINES/MARKERS, TORPEDOES, DEPTH CHARGES |             |                             |             |

| 8. TYPE OF INCIDENT (check)         |   | 9. IMPROVISED EXPLOSIVE DEVICE INCIDENT |                      |
|-------------------------------------|---|---|----------------------|
| <input type="checkbox"/>            | A. VIP SUPPORT                          | A. SOURCE                               | B. RESULTS OF SEARCH |
| <input type="checkbox"/>            | B. ROUTINE PICKUP/DISPOSAL              | TELEPHONE                               | ACTUAL DEVICE        |
| <input type="checkbox"/>            | C. ACFT CRASHING/LIGHT EMERGENCY        | SUSPECT OBJECT/PERSON                   | HOAX DEVICE          |
| <input type="checkbox"/>            | D. RANGE CLEARANCE                      | OTHER (specify)                         | NEGATIVE FIND        |
| <input type="checkbox"/>            | F. IMPROVISED EXPLOSIVE DEVICE INCIDENT | C. ASSISTANCE TO OTHER AGENCIES         |                      |
| <input type="checkbox"/>            | F. MONTHLY REPORT                       | LOCAL AUTHORITIES                       |                      |
| <input type="checkbox"/>            | G. VEHICLE ACCIDENT                     | FEDERAL AUTHORITIES                     |                      |
| <input type="checkbox"/>            | H. ENEMY ATTACK                         | OTHER MILITARY SERVICES                 |                      |
| <input checked="" type="checkbox"/> | I. ACCIDENTAL ARMING, FIRING OR RELEASE |   |                      |
| <input type="checkbox"/>            | J. JETTISON                             |   |                      |
| <input type="checkbox"/>            | K. TEST SUPPORT                         |   |                      |
| <input type="checkbox"/>            | L. STORAGE AREA INCIDENT                |   |                      |
| <input type="checkbox"/>            | M. OTHER (Specify)                      |   |                      |

10. NARRATIVE (Continue on reverse)

During the Coronet Roadrunner Exercise on Melrose Bombing Range, a LAU 591A was inadvertently jettisoned from a OA-37.

The rocket pod was damaged to such an extent that safing of the two rockets inside was not possible.

The pod was destroyed as requested by Major Hutchinson.

|                                       |                             |                                 |                              |
|---------------------------------------|-----------------------------|---------------------------------|------------------------------|
| 11. NO. OF ATTCH<br><b>NONE</b>       | 12. SIGNATURE OF ORIGINATOR | 13. SIGNATURE OF EOD SUPERVISOR | 14. DATE<br><b>28 Apr 83</b> |
| 15. SIGNATURE OF MAJCOM STAFF MANAGER |                             |                                 | 16. DATE                     |

|  |  |  |
|--|--|--|
| <b>EXPLOSIVE ORDNANCE DISPOSAL REPORT</b>                      | LOCAL CONTROL NO.<br><b>83-27EMS-9</b>                           | REPORT CONTROL SYMBOL<br><b>LOG-LOW(AR) 7118</b>   |
| TO: Del 6300-AIC<br>Naval EOD Facility<br>Indian Head MD 20640 | THRU (MAJ/COMD)<br><b>HQ TAC/LGWME<br/>Langley AFB, VA 23665</b> | FROM<br><b>27TFW/MABZ<br/>Cannon AFB, TX 88103</b> |

| REPORTING INFORMATION                                 |             |                     |                          |                            |
|---|-------------|---------------------|--------------------------|----------------------------|
| 1. REPORTED BY<br><b>Major Hockemeir<br/>27CSC/OT</b> | 2. REPORTED | TIME<br><b>0500</b> | DATE<br><b>30 Apr 83</b> | 3. MAN. HOURS<br><b>68</b> |
|   | START       | <b>0500</b>         | <b>30 Apr 83</b>         |                            |
|   | STOP        | <b>1615</b>         | <b>30 Apr 83</b>         |                            |

| EXPLOSIVE ORDNANCE DISPOSAL INFORMATION       |   |  |                                  |          |
|---|---|--|----------------------------------|----------|
| 4. TEAM CHIEF<br><b>TSgt Freddie B. Oller</b> | 5. TECHNICAL DATA USED<br><b>60B-2-2-11<br/>60B-2-2-11-3<br/>60B-2-2-11-4</b> |  | 6. RENDER SAFE PROCEDURE (check) |          |
| TOTAL NO. EOD PARTICIPATING<br><b>6</b>       | TOTAL NO. OF OTHERS<br><b>14</b>  |  | YES                              |          |
|   |   |  | NO                               |          |
|   |   |  | NOT APPLICABLE                   | <b>X</b> |

| 7. ORDNANCE INVOLVED |  |             |                     |            |
|----------------------|--|-------------|---------------------|------------|
| QUANTITY             | TYPE   | NATIONALITY | NOMENCLATURE        | FUZING     |
| <b>2</b>             | A. SMALL ARMS AMMUNITION                               | <b>2</b>    | <b>See Block 10</b> | <b>N/A</b> |
| <b>295</b>           | B. BOMB/ <del>BARREL</del>                             | <b>2</b>    | <b>See Block 10</b> | <b>N/A</b> |
|                      | C. DISPENSERS/CLUSTERS/BOMBLETS                        |             |                     |            |
| <b>7</b>             | D. PROJECTILES   | <b>2</b>    | <b>See Block 10</b> | <b>N/A</b> |
|                      | E. GRENADES  |             |                     |            |
|                      | F. ROCKETS   |             |                     |            |
|                      | G. GUIDED MISSILES                                     |             |                     |            |
|                      | H. LAND MINES  |             |                     |            |
|                      | J. AIRCRAFT EXPLOSIVE DEVICES                          |             |                     |            |
| <b>3</b>             | K. PYROTECHNICS  | <b>2</b>    | <b>See Block 10</b> | <b>N/A</b> |
|                      | L. IMPROVISED EXPLOSIVE DEVICES                        |             |                     |            |
|                      | M. MISCELLANEOUS EXPLOSIVE ITEMS                       |             |                     |            |
|                      | N. NUCLEAR ORDNANCE                                    |             |                     |            |
|                      | Q, R, S. NAVAL MINES/MARKERS, TORPEDOES, DEPTH CHARGES |             |                     |            |

| 8. TYPE OF INCIDENT (check) |   | 9. IMPROVISED EXPLOSIVE DEVICE INCIDENT |                      |  |
|-----------------------------|---|---|----------------------|--|
| A.                          | VIP SUPPORT                             | A. SOURCE                               | B. RESULTS OF SEARCH |  |
|                             | B. ROUTINE PICKUP/DISPOSAL              | TELEPHONE                               | ACTUAL DEVICE        |  |
|                             | C. ACFT CRASH/INFLIGHT EMERGENCY        |   | HOAX DEVICE          |  |
| <b>X</b>                    | D. RANGE CLEARANCE                      | SUSPECT OBJECT/PERSON                   | NEGATIVE FIND        |  |
|                             | E. IMPROVISED EXPLOSIVE DEVICE INCIDENT | OTHER (specify)                         |                      |  |
|                             | F. MONTHLY REPORT                       |   |                      |  |
|                             | G. VEHICLE ACCIDENT                     |   |                      |  |
|                             | H. ENEMY ATTACK                         | ASSISTANCE TO OTHER AGENCIES            |                      |  |
|                             | I. ACCIDENTAL ARMING, FIRING OR RELEASE | LOCAL AUTHORITIES                       |                      |  |
|                             | J. JETLISON                             | FEDERAL AUTHORITIES                     |                      |  |
|                             | K. TEST SUPPORT                         | OTHER MILITARY SERVICES                 |                      |  |
|                             | L. STORAGE AREA INCIDENT                |   |                      |  |
|                             | M. OTHER (Specify)                      |   |                      |  |

10. NARRATIVE (Continue on reverse)

1. NAME OF PARENT RANGE COMPLEX: **Melrose Bombing and Gunnery Range**

2. SUB-RANGE OR NUMBER/TYPE TARGETS AND ACREAGE CLEARED:

a. Sub-Range Name or Number: **N/A** (cont. reverse)

|                                       |                             |                                 |                             |
|---------------------------------------|-----------------------------|---------------------------------|-----------------------------|
| 11. NO. OF ATCH<br><b>0</b>           | 12. SIGNATURE OF ORIGINATOR | 13. SIGNATURE OF EOD SUPERVISOR | 14. DATE<br><b>6 May 83</b> |
| 15. SIGNATURE OF MAJCOM STAFF MANAGER |                             |                                 | 16. DATE                    |

Block 10 (cont.)

b. Type Target and Acreage Cleared:

| <u>TYPE TARGET</u>          | <u>QUANTITY</u> | <u>ACREAGE</u> |
|-----------------------------|-----------------|----------------|
| T-1 Runway                  | 1               | 61             |
| T-2 thru T-6 Taxiway        | 5               | 53             |
| T-20 Nuclear Target         | 1               | 18             |
| T-21 Conventional Target    | 1               | 18             |
| T-22 thru T-24 APC Target   | 3               | 18             |
| T-30 thru T-33 Revetted A/C | 4               | 48             |
| T-35 A/C on Runway          | 1               | 18             |
| T-42 thru T-48 SAM Site     | 7               | 18             |
| T-60 thru T-65 POL Target   | 6               | 24             |
| T-75 thru Y-78 MSA Target   | 4               | 11             |

3. TYPE CLEARANCE PERFORMED: Monthly

4. NUMBER OF MUNITIONS REQUIRING RSP/DISPOSAL:

| <u>MUNITION NOMENCLATURE</u> | <u>QUANTITY</u> |
|------------------------------|-----------------|
| BDU-33 Practice Bomb         | 284             |
| MK106 Practice Bomb          | 11              |
| 20mm ammunition              | 7               |
| MK4 Signal                   | 2               |
| Slap Flare                   | 1               |
| .50 cal ammunition           | 1               |
| 7.62mm ammunition            | 1               |

5. DISPOSAL OF MUNITIONS RESIDUE:

| <u>QUANTITY</u>   | <u>DISPOSITION</u>         |
|---|----------------------------|
| 25,000 lbs of scrap metal consisting of BDU-33 and MK106 practice bombs | Placed in Range Burial Pit |
| 120 inert MK82 Practice Bombs   | Marked for Range Pick-Up   |

6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: N/A

7. PARTICIPATING EOD PERSONNEL:

|             |             |
|-------------|-------------|
| TSgt Oller  | SSgt French |
| TSgt Manson | Sgt Newton  |
| SSgt Lopez  | A1C Bennett |

# EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT OF THE  
DISPOSAL

|   |   |   |
|---|---|---|
| TO: MAJCOM<br>27CSG/OT<br>Major Hockemeir<br>27CSG/OT | FROM: HQ TAC/LGWME<br>Langley AFB, Va 23665 | FROM: 271FW/MAEE<br>Cannon AFB, NM 88103          |
| REPORTING OFFICER: Major Hockemeir<br>27CSG/OT        |   | REPORTING TIME: 0600<br>START: 0600<br>STOP: 1400 |

|             |    |          |      |                    |        |             |
|-------------|----|----------|------|--------------------|--------|-------------|
| PART NUMBER | MH | INCIDENT | TYPE | SPECIAL IDENTIFIER | INJURY | PROPERTY IN |
| 7           | 48 |          | 014  | 060101010101       | 01     | 01          |
| 18          | 63 |          |      |                    |        |             |

| NATE A | CLASS B | QUANTITY C | NOMENCLATURE D              | RSP E | DP F | TECHNICAL DATA USED G |
|--------|---------|------------|-----------------------------|-------|------|-----------------------|
| 02     | 01      | 13         | 7.62mm Ammunition           | 03    | 02   | 60D-2-1-6             |
| 02     | 04      | 102        | BDU-33 Practice Bomb        | 03    | 02   | 60B-2-2-11-4          |
| 02     | 04      | 11         | MK 106 Practice Bomb        | 03    | 02   | 60B-2-2-11-3          |
| 02     | 07      | 2          | 20mm Ammunition             | 03    | 02   | 60D-2-2-28            |
| 02     | 14      | 12         | MK 4 Signal                 | 03    | 02   | 60B-2-2-11-3          |
| 02     | 09      | 1          | 2.75" RKT WHD SMOKE WP M156 | 03    | 03   | 60F-2-2-1-7           |
|        |         |            |                             |       |      |                       |
|        |         |            |                             |       |      |                       |
|        |         |            |                             |       |      |                       |
|        |         |            |                             |       |      |                       |

1. NAME OF PARENT RANGE COMPLEX: Mcrose Bombing and Gunnery Range

2. SUB-RANGE OR NUMBER/TYPE TARGETS AND ACREAGE CLEARED:

- a. Sub-Range Name or Number: N/A
- b. Type Target and Acreage Cleared:

| TARGET                      | QUANTITY | ACREAGE |
|-----------------------------|----------|---------|
| T-1 Runway                  | 1        | 61      |
| T-2 thru T-6 Taxiway        | 5        | 53      |
| T-20 Nuclear Target         | 1        | 18      |
| T-21 Conventional Target    | 1        | 18      |
| T-22 thru T-24 APC Target   | 3        | 18      |
| T-30 thru T-33 Revetted A/C | 4        | 48      |
| T-35 A/C on Runway          | 1        | 18      |
| T-42 thru T-48 SAM Site     | 7        | 18      |
| T-60 thru T-65 POL Target   | 6        | 24      |
| T-75 thru T-78 MSA Target   | 4        | 11      |

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3. TYPE CLEARANCE PERFORMED: Monthly

4. NUMBER OF MUNITIONS REQUIRING RSP/DISPOSAL: See Block 7

DISPOSAL OF MUNITIONS RESIDUE:

(cont. next page)

|                                      |   |   |                      |
|--------------------------------------|---|---|----------------------|
| 9 NUMBER OF ATTACHMENTS<br>0         | 10 SIGNATURE OF TEAM CHIEF<br><i>Daniel L. Manson</i><br>DANIEL L. MANSON, TSgt | 11 SIGNATURE OF EOD SUPERVISOR<br><i>Freddie B. Oller</i><br>FREDDIE B. OLLER, TSgt                             | 12 DATE<br>25 May 83 |
| 13 SIGNATURE OF MAJCOM STAFF MANAGER |   | 14 MAJCOM COMMENTS TO UNIT RECOMMENDATION<br><input type="checkbox"/> CONCUR <input type="checkbox"/> NONCONCUR | 15 DATE              |

Block 8 continued:

5.

| <u>QUANTITY</u>   | <u>DISPOSITION</u>         |
|---|----------------------------|
| 6,000 lbs of scrap metal consisting of BDU-33 and MK 106 practice bombs | Placed in range burial pit |
| 39 inert MK 82 practice bombs   | Marked for range pick-up   |

6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: N/A

7. PARTICIPATING EOD PERSONNEL:

TSgt Manson  
SSgt Lopez  
SSgt French  
Sgt Newton  
SrA Carson  
SrA Hiller  
A1C Bennett

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EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT CONTROL SYMBOL  
EXPLOSIVE ORDNANCE

|                                       |  |                                    |   |
|---------------------------------------|--|------------------------------------|---|
| HQ TAC LGWME<br>Langley AFB, Va 23665 |  | 27TFW/MAEE<br>Cannon AFB, NM 88103 |   |
| Consolidated Report for<br>May 1983   |  | 85-27EMS-13                        | REPORTED: TIME: N/A DATE: N/A<br>START: 0001 1 May 83<br>STOP: 2400 31 May 83 |

|         |         |     |                 |  |
|---------|---------|-----|-----------------|--|
| 10<br>0 | 22<br>0 | 011 | 016011011013011 | INJURY: A 011<br>PROPERTY INFORMATION: R 011 |
|---------|---------|-----|-----------------|--|

| DATE | QUANTITY | DESCRIPTION | HSP | LP | TECHNICAL DATA USED |
|------|----------|-------------|-----|----|---------------------|
| A    | B        | C           | E   | F  | G                   |
| 02   | 01       | 23          | 03  | 01 | 11A-1-42            |
| 02   | 02       | 30          | 03  | 01 | "                   |
| 02   | 12       | 80          | 03  | 01 | "                   |
| 02   | 13       | 9           | 03  | 01 | "                   |
| 02   | 14       | 4           | 03  | 01 | "                   |

1. Response to Aircraft In-Flight/Ground Emergencies:

- a. Number of responses: 8
- b. Person-hours expended for month: 14

2. Routine Pick-Up of Ordnance Items: N/A

3. Routine Disposal of ADR and Other Recovered Munitions:

- a. Number of disposal operations: 1
- b. Person-hours expended for month: 8
- c. Items disposed of:

| QUANTITY | NOMENCLATURE                |
|----------|-----------------------------|
| 38       | Fire Extinguisher Cartridge |
| 38       | Impulse Cartridge           |
| 22       | 5.56mm Ammunition           |
| 30       | M905 Tail Fuze              |

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(cont. next page)

|                                    |   |   |                   |
|------------------------------------|---|---|-------------------|
| NUMBER OF ATTACHMENTS:<br>0        | SIGNATURE OF TEAM CHIEF:<br><i>Freddie B. Oller</i><br>FREDDIE B. OLLER, MSgt | SIGNATURE OF SUPERVISOR:<br><i>Freddie B. Oller</i><br>FREDDIE B. OLLER, MSgt | DATE:<br>2 Jun 83 |
| SIGNATURE OF MAJ/COM/STAFF MANAGER |   | SIGNATURE OF MAJ/COM/STAFF MANAGER  |                   |

Block 8 (cont)

| <u>QUANTITY</u> | <u>DESCRIPTION</u>                   |
|-----------------|--------------------------------------|
| 4               | Shielded Mine Detonating Cord (SMDC) |
| 9               | Signal Flares                        |
| 4               | Riot Control Canister                |
| 1               | .30 cal Blank Cartridge              |

4. Previous EOD Report Control Numbers of Munitions Destroyed: 83-27ENS-9.

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# EXPLOSIVE ORDNANCE DISPOSAL REPORT

FORM 100-100-100-100  
100-100-100

|   |  |  |
|---|--|--|
| 1. REPORTING OFFICER<br>Major Hockemeir<br>27CSG/OT | 2. LOCATION<br>HQ TAC/LGWME<br>Langley AFB, Va 23665 | 3. UNIT<br>27TFW/MAEE<br>Cannon AFB, NM 88101                                      |
| 4. REPORT NUMBER<br>83-27EMS-14                     |  | 5. REPORTED<br>0600 18 Jun 83<br>START<br>0600 18 Jun 83<br>STOP<br>1400 18 Jun 83 |

|                 |       |             |         |                        |            |                          |
|-----------------|-------|-------------|---------|------------------------|------------|--------------------------|
| 6. HAZARD CLASS | 7. MH | 8. INCIDENT | 9. TYPE | 10. SPECIAL IDENTIFIER | 11. INJURY | 12. PROPERTY INFORMATION |
| 7               | 48    |             | A 0 4   | B 0 6 0 1 0 1 0 1 0 1  | A 0 1      | B 0 1                    |

| ORDNANCE INCLUDED |       |          |                      |     |    |                     |
|-------------------|-------|----------|----------------------|-----|----|---------------------|
| DATE              | CLASS | QUANTITY | NOMENCLATURE         | RSP | OP | TECHNICAL DATA USED |
| A                 | B     | C        | D                    | E   | F  | G                   |
| 02                | 04    | 71       | BDU-33 Practice Bomb | 03  | 01 | 60B-2-2-11-4        |
| 02                | 04    | 43       | MK 106 Practice Bomb | 03  | 01 | 60B-2-2-11-3        |
| 02                | 08    | 1        | M18 Smoke Grenade    | 03  | 01 | 60E-2-2-1-10        |
| 02                | 14    | 19       | MK 4 Signal          | 03  | 01 | 60B-2-2-11-3        |
|                   |       |          |                      |     |    |                     |
|                   |       |          |                      |     |    |                     |
|                   |       |          |                      |     |    |                     |
|                   |       |          |                      |     |    |                     |
|                   |       |          |                      |     |    |                     |
|                   |       |          |                      |     |    |                     |
|                   |       |          |                      |     |    |                     |

1. NAME OF PARENT RANGE COMPLEX: Melrose Bombing and Gunnery Range
2. SUB-RANGE OR NUMBER/TYPE TARGETS AND ACREAGE CLEARED:
- a. Sub-Range Name or Number: N/A
- b. Type Target and Acreage Cleared:
- | TARGET                      | QUANTITY | ACREAGE |
|-----------------------------|----------|---------|
| T-1 Runway                  | 1        | 61      |
| T-2 thru T-6 Taxiway        | 5        | 53      |
| T-20 Nuclear Target         | 1        | 18      |
| T-21 Conventional Target    | 1        | 18      |
| T-22 thru T-24 APC Target   | 3        | 18      |
| T-30 thru T-33 Revetted A/C | 4        | 48      |
| T-35 A/C on Runway          | 1        | 18      |
| T-42 thru T-48 SAM Site     | 7        | 18      |
| T-60 thru T-65 POL Target   | 6        | 24      |
| T-75 thru T-78 MSA Target   | 4        | 11      |

3. TYPE CLEARANCE PERFORMED: Monthly (cont. next page)

|                                       |  |  |                       |
|---------------------------------------|--|--|-----------------------|
| 9. NUMBER OF ATTACHMENTS<br>0         | 10. SIGNATURE OF TEAM CHIEF<br><i>Freddie B. Oller</i><br>FREDDIE B. OLLER, MSgt, USAF | 11. SIGNATURE OF EOD SUPERVISOR<br><i>Freddie B. Oller</i><br>FREDDIE B. OLLER, MSgt, USAF   | 12. DATE<br>24 Jun 83 |
| 13. SIGNATURE OF MAJCOM STAFF MANAGER |  | 14. MAJCOM COMMENTS TO UNIT<br>RECOMMENDATION <input type="checkbox"/> CONCUR<br><input type="checkbox"/> NONCONCUR <input type="checkbox"/> N/A |                       |
|                                       |  | 15. DATE   |                       |

# EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT NUMBER: 00000000  
FORM NO. 1000-101

|   |  |  |          |      |           |       |      |           |      |      |           |
|---|--|--|----------|------|-----------|-------|------|-----------|------|------|-----------|
| TO: HQ TAC/LGWME<br>Langley AFB, Va 23665 | FROM: 27TFW/MAEE<br>Cannon AFB, NM 88101 |  |          |      |           |       |      |           |      |      |           |
| Major Hockemeir<br>27CSG/OT               | 83-27EMS-14                              | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">REPORTED</td> <td style="width: 15%;">0600</td> <td style="width: 15%;">18 Jun 83</td> </tr> <tr> <td>START</td> <td>0600</td> <td>18 Jun 83</td> </tr> <tr> <td>STOP</td> <td>1400</td> <td>18 Jun 83</td> </tr> </table> | REPORTED | 0600 | 18 Jun 83 | START | 0600 | 18 Jun 83 | STOP | 1400 | 18 Jun 83 |
| REPORTED                                  | 0600                                     | 18 Jun 83  |          |      |           |       |      |           |      |      |           |
| START                                     | 0600                                     | 18 Jun 83  |          |      |           |       |      |           |      |      |           |
| STOP                                      | 1400                                     | 18 Jun 83  |          |      |           |       |      |           |      |      |           |

|         |   |    |       |    |    |             |      |         |                        |                     |                              |        |                 |       |       |
|---------|---|----|-------|----|----|-------------|------|---------|------------------------|---------------------|------------------------------|--------|-----------------|-------|-------|
| 1. DATE | 7 | 27 | 2. MH | 48 | 81 | 3. INCIDENT | TYPE | A 0 1 4 | 4. SPECIAL IDENTIFIERS | 0 6 0 1 0 1 0 1 0 1 | 5. INJURY DAMAGE INFORMATION | INJURY | PROPERTY DAMAGE | A 0 1 | B 0 1 |
|---------|---|----|-------|----|----|-------------|------|---------|------------------------|---------------------|------------------------------|--------|-----------------|-------|-------|

| NO. | CLASS | QUANTITY | NOMENCLATURE         | RSP | DP | TECHNICAL DATA USED |
|-----|-------|----------|----------------------|-----|----|---------------------|
| 02  | 04    | 71       | BDU-33 Practice Bomb | 03  | 01 | 60B-2-2-11-4        |
| 02  | 04    | 43       | MK 106 Practice Bomb | 03  | 01 | 60B-2-2-11-3        |
| 02  | 08    | 1        | M18 Smoke Grenade    | 03  | 01 | 60E-2-2-1-10        |
| 02  | 14    | 19       | MK 4 Signal          | 03  | 01 | 60B-2-2-11-3        |
|     |       |          |                      |     |    |                     |
|     |       |          |                      |     |    |                     |
|     |       |          |                      |     |    |                     |
|     |       |          |                      |     |    |                     |
|     |       |          |                      |     |    |                     |
|     |       |          |                      |     |    |                     |
|     |       |          |                      |     |    |                     |

1. NAME OF PARENT RANGE COMPLEX: Melrose Bombing and Gunnery Range

2. SUB-RANGE OR NUMBER/TYPE TARGETS AND ACREAGE CLEARED:

a. Sub-Range Name or Number: N/A

b. Type Target and Acreage Cleared:

| TARGET                      | QUANTITY | ACREAGE |
|-----------------------------|----------|---------|
| T-1 Runway                  | 1        | 61      |
| T-2 thru T-6 Taxiway        | 5        | 53      |
| T-20 Nuclear Target         | 1        | 18      |
| T-21 Conventional Target    | 1        | 18      |
| T-22 thru T-24 APC Target   | 3        | 18      |
| T-30 thru T-33 Revetted A/C | 4        | 48      |
| T-35 A/C on Runway          | 1        | 18      |
| T-42 thru T-48 SAM Site     | 7        | 18      |
| T-60 thru T-65 POL Target   | 6        | 24      |
| T-75 thru T-78 MSA Target   | 4        | 11      |

c. TYPE CLEARANCE PERFORMED: Monthly

(cont. next page)

|                                       |  |  |                       |
|---------------------------------------|--|--|-----------------------|
| 9. NUMBER OF ATTACHMENTS              | 10. SIGNATURE OF TEAM CHIEF<br><i>Freddie B. Oller</i><br>FREDDIE B. OLLER, MSgt, USAF   | 11. SIGNATURE OF EOD SUPERVISOR<br><i>Freddie B. Oller</i><br>FREDDIE B. OLLER, MSgt, USAF | 12. DATE<br>24 Jun 83 |
| 13. SIGNATURE OF MAJCOM STAFF MANAGER | 14. MAJCOM COMMENTS TO UNIT<br>RECOMMENDATION <input type="checkbox"/> CONCUR<br><input type="checkbox"/> NONCONCUR <input type="checkbox"/> N/A |  | 15. DATE              |

Block 8 (continued)

4. NUMBER OF MUNITIONS REQUIRING RSP/DISPOSAL: See Block 7
5. DISPOSAL OF MUNITIONS RESIDUE: 4,000 lbs of scrap metal consisting of BDU-33 and MK 106 practice bombs were placed in the range burial pit.
6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: N/A
7. PARTICIPATING EOD PERSONNEL:

MSgt Oller  
SSgt Lopez  
SSgt French  
Sgt Newton  
SrA Carson  
SrA Hiller  
A1C Bennett

# EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT COVER NUMBER  
12-00000000

|                                      |                                       |   |
|--------------------------------------|---------------------------------------|---|
| Consolidated Report for<br>June 1983 | HQ TAC/LGWME<br>Langley AFB, Va 23665 | FROM:<br>27TFW/MAEE<br>Cannon AFB, NM 88103         |
|                                      | 83-27EMS-15                           | 3. REPORTED: N/A<br>4. START: 0001<br>5. STOP: 2400 |

|         |       |             |         |                       |                              |
|---------|-------|-------------|---------|-----------------------|------------------------------|
| 1. DATE | 2. MM | 3. INCIDENT | 4. TYPE | 5. SPECIAL IDENTIFIER | 6. INJURY DAMAGE INFORMATION |
| 11      | 9     |             |         | 10161011011013011     |                              |
| N/A     | N/A   | A 1011      |         |                       | A 01                         |

| LINE | CLASS | QUANTITY | NOMENCLATURE | RSP | DP | TECHNICAL DATA USED |
|------|-------|----------|--------------|-----|----|---------------------|
| 02   | 12    | 25       | SEE BLOCK 8  | 03  | 01 | T.O. 11A-1-42       |
| 02   | 12    | 9        | " " "        | 03  | 01 | "                   |
| 02   | 12    | 1        | " " "        | 03  | 01 | "                   |
| 02   | 14    | 1        | " " "        | 03  | 01 | "                   |
|      |       |          |              |     |    |                     |
|      |       |          |              |     |    |                     |
|      |       |          |              |     |    |                     |
|      |       |          |              |     |    |                     |
|      |       |          |              |     |    |                     |
|      |       |          |              |     |    |                     |
|      |       |          |              |     |    |                     |

**1. Response to Aircraft In-flight/Ground Emergencies:**

- a. Number of responses: 5
- b. Person-hours expended for month: 7

**2. Routine Pick-Up of Ordnance Items: N/A**

**3. Routine Disposal of ADR and Other Recovered Munitions:**

- a. Number of disposal operations: 1
- b. Person-hours expended for month: 2
- c. Items disposed of:

| QUANTITY | NOMENCLATURE               |
|----------|----------------------------|
| 25       | Fire Extinguisher Cart.    |
| 9        | Impulse Cart.              |
| 1        | Junction Fitting           |
| 1        | M36 Riot Control Dispenser |

**4. Previous EOD Report Control Numbers of Munitions Destroyed: N/A**

|                                       |   |   |                       |
|---------------------------------------|---|---|-----------------------|
| 9. NUMBER OF ATTACHMENTS<br>N/A       | 10. SIGNATURE OF TEAM CHIEF<br><i>Fredrick A. Alker</i> | 11. SIGNATURE OF EOD SUPERVISOR<br><i>Fredrick A. Alker</i>   | 12. DATE<br>5 July 83 |
| 13. SIGNATURE OF MAJCOM STAFF MANAGER |   | 14. MAJCOM COMMENTS TO UNIT<br>RECOMMENDATION: <input type="checkbox"/> CONCUR <input type="checkbox"/> NONCONCUR<br><input type="checkbox"/> N/A | 15. DATE              |

# EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT NUMBER: 83-27EMS-16  
 DATE: 16 Jul 83

|   |  |
|---|--|
| TO: HQ TAC/LGWME<br>LANGLEY AFB, VA 23665 | FROM: 27TFW/MAEE<br>CANNON AFB, NM 88103 |
| REPORTED: 0600                            | DATE: 16 Jul 83                          |
| START: 0600                               | 16 Jul 83                                |
| STOP: 1500                                | 16 Jul 83                                |

|                                 |                            |
|---------------------------------|----------------------------|
| TO: Major Hockemeir<br>27CSG/OT | REPORT NUMBER: 83-27EMS-16 |
| DATE: 6                         | TIME: 54                   |
| QUANTITY: 25                    | WEIGHT: 112.5              |
| TYPE: 04                        | IDENTIFICATION: 0601010101 |
| INJURY: A 01                    | PROPERTY: B 01             |

| NATE A | CLASS B | QUANTITY C | DESCRIPTION D                | RSP E | OP F | TECHNICAL DATA USED G |
|--------|---------|------------|------------------------------|-------|------|-----------------------|
| 02     | 04      | 118        | BDU-33 Practice Bomb         | 03    | 01   | 60B-2-2-11-4          |
| 02     | 04      | 45         | MK-106 Practice Bomb         | 03    | 01   | 60B-2-2-11-3          |
| 02     | 14      | 16         | Signal, MK 4                 | 03    | 01   | 60B-2-2-11-3          |
| 02     | 01      | 31         | 7.62mm                       | 03    | 01   | 11A-1-42              |
| 02     | 01      | 1          | 5.56mm                       | 03    | 01   | 11A-1-42              |
| 02     | 12      | 5          | Cartridge, Fire Extinguisher | 03    | 01   | 11A-1-42              |
| 02     | 02      | 2          | Fuze, M904                   | 03    | 01   | 11A-1-42              |
| 02     | 02      | 2          | Fuze, M905                   | 03    | 01   | 11A-1-42              |

1. NAME OF PARENT RANGE COMPLEX: Melrose bombing and gunnery range
2. SUB-RANGE OR NUMBER/TYPE TARGETS AND ACREAGE CLEARED:
- a. Sub-range name or number: N/A
- b. Type target and acreage cleared:

| TARGET                      | QUANTITY | ACREAGE |
|-----------------------------|----------|---------|
| T-1 Runway                  | 1        | 61      |
| T-2 thru T-6 Taxiway        | 5        | 53      |
| T-20 Nuclear Target         | 1        | 18      |
| T-21 Conventional Target    | 1        | 18      |
| T-22 APC Target             | 1        | 18      |
| T-30 thru T-33 Revetted A/C | 4        | 48      |
| T-35 A/C on Runway          | 1        | 18      |
| T-42 thru T-48 SAM Site     | 7        | 18      |
| T-60 thru T-65 POL Target   | 6        | 24      |
| T-75 thru T-78 MSA Target   | 4        | 11      |

3. TYPE CLEARANCE PERFORMED: Monthly

(Continued Next Page)

|                                       |  |  |                    |
|---------------------------------------|--|--|--------------------|
| 9 NUMBER OF ATTACHMENTS: 0            | 10 SIGNATURE OF TEAM CHIEF: DANIEL L. MATSON, TSgt, USAF   | 11 SIGNATURE OF EOD SUPERVISOR: DANIEL L. MATSON, TSgt, USAF | 12 DATE: 18 Jul 83 |
| 13 SIGNATURE OF MAJCOM STAFF MANAGER: | 14 MAJCOM COMMENTS TO UNIT RECOMMENDATION: <input type="checkbox"/> CONCUR <input type="checkbox"/> NONCONCUR <input type="checkbox"/> N/A |  | 15 DATE:           |

4. NUMBER OF MUNITIONS REQUIRING RSP/DISPOSAL:

| <u>NOMENCLATURE</u>          | <u>QUANTITY</u> |
|------------------------------|-----------------|
| BDU-33 Practice Bomb         | 118             |
| MK-106 Practice Bomb         | 45              |
| Signal, MK 4                 | 16              |
| Small Arms Ammo, 7.62mm      | 31              |
| Small Arms Ammo, 5.56mm      | 1               |
| Cartridge, Fire Extinguisher | 5               |
| Fuze, Tail M905              | 2               |
| Fuze, Nose M904              | 2               |

5. DISPOSAL OF MUNITIONS RESIDUE:

| <u>QUANTITY</u>   | <u>DISPOSITION</u>         |
|---|----------------------------|
| 5,000 lbs of scrap metal consisting of BDU-33/MK-106 practice bombs | Placed in range burial pit |

6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: N/A

7. PARTICIPATING EOD PERSONNEL:

TSgt Manson  
SSgt Lopez  
SSgt French  
Sgt Jones  
SrA Carson  
AIC Bennett

# EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT CONTROL SYMBOL  
LOG LOWARD 218

*(Continued on Block 5, Form 17, if necessary)*

|  |  |  |           |          |      |      |  |  |      |           |  |       |      |           |  |      |      |           |
|--|--|--|-----------|----------|------|------|--|--|------|-----------|--|-------|------|-----------|--|------|------|-----------|
| EOD CONTROL CENTER<br>NAVFAC PENSACOLA<br>3000 HEADLAND BLVD | FROM MAJCOM<br>HQ TAC/LGWME<br>Langley AFB, Va 23665 | FROM<br>27TFW/MAEE<br>Cannon AFB, NM 88101   |           |          |      |      |  |  |      |           |  |       |      |           |  |      |      |           |
| REPORTED BY<br><b>Major Hockemeir</b><br>27CSG/CT            | REPORT CONTROL NUMBER<br>83-27EMS-20                 | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">3</td> <td style="width: 10%;">REPORTED</td> <td style="width: 10%;">TIME</td> <td style="width: 10%;">DATE</td> </tr> <tr> <td></td> <td></td> <td>0600</td> <td>20 Aug 83</td> </tr> <tr> <td></td> <td>START</td> <td>0600</td> <td>20 Aug 83</td> </tr> <tr> <td></td> <td>STOP</td> <td>1600</td> <td>20 Aug 83</td> </tr> </table> | 3         | REPORTED | TIME | DATE |  |  | 0600 | 20 Aug 83 |  | START | 0600 | 20 Aug 83 |  | STOP | 1600 | 20 Aug 83 |
| 3  | REPORTED   | TIME   | DATE      |          |      |      |  |  |      |           |  |       |      |           |  |      |      |           |
|  |  | 0600   | 20 Aug 83 |          |      |      |  |  |      |           |  |       |      |           |  |      |      |           |
|  | START  | 0600   | 20 Aug 83 |          |      |      |  |  |      |           |  |       |      |           |  |      |      |           |
|  | STOP   | 1600   | 20 Aug 83 |          |      |      |  |  |      |           |  |       |      |           |  |      |      |           |

|                 |     |          |         |                        |        |                      |                             |
|-----------------|-----|----------|---------|------------------------|--------|----------------------|-----------------------------|
| 4 PARTICIPATING | M H | INCIDENT | TYPE    | SPECIAL IDENTIFIER     | INJURY | PROPERTY INFORMATION | 6 INJURY DAMAGE INFORMATION |
| EOD             | 6   | 60       | A 10 14 | B 10 6 0 1 0 1 0 1 0 1 | A 0 1  | B 0 1                |                             |
| OTHERS          | 27  | 175      |         |                        |        |                      |                             |

| ORDNANCE INVOLVED |            |               |                       |          |         |                          |
|-------------------|------------|---------------|-----------------------|----------|---------|--------------------------|
| DATE<br>A         | CLASS<br>B | QUANTITY<br>C | NOMENCLATURE<br>D     | RSP<br>E | DP<br>F | TECHNICAL DATA USED<br>G |
| 02                | 04         | 85            | BDU-33 Practice Bomb  | 03       | 01      | 60B-2-2-11-4             |
| 02                | 04         | 136           | MK-106 Practice Bomb  | 03       | 01      | 60B-2-2-11-3             |
| 02                | 14         | 31            | MK 4 Mod 3 Signal     | 03       | 01      | 60B-2-2-11-3             |
| 02                | 01         | 5             | 7.62mm Ammo           | 03       | 01      | 11A-1-42                 |
| 02                |            |               | See Block 8 for ADR's |          |         |                          |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |

1. NAME OF PARENT RANGE: Melrose Bombing and Gunnery Range

2. SUB-RANGE OR NUMBER/TYPE TARGETS AND ACREAGE CLEARED:

- a. Sub-range name or number: N/A
- b. Type target and acreage cleared:

| TARGET                  | QUANTITY | ACREAGE |
|-------------------------|----------|---------|
| T-1 Runway              | 1        | 61      |
| T-2 thru T-6 Taxiway    | 5        | 53      |
| T-20 Nuclear            | 1        | 18      |
| T-21 Conventional       | 1        | 18      |
| T-22 APC                | 1        | 18      |
| T-35 A/C on Runway      | 1        | 18      |
| T-42 SAM Site           | 1        | 18      |
| T-60 thru T-65 POL      | 6        | 24      |
| T-67 Heavy Weight       | 1        | 18      |
| T-75 thru T-78 MSA      | 4        | 11      |
| T-90 Lateral Toss Heavy | 1        | 18      |

3. TYPE CLEARANCE PERFORMED: Monthly

(Continued next page)

|                                      |   |   |                          |
|--------------------------------------|---|---|--------------------------|
| 9 NUMBER OF ATTACHMENTS<br><br>8     | 10 SIGNATURE OF TEAM CHIEF<br><br><i>Daniel L. Manson</i><br>DANIEL L. MANSON, TSgt, USAF | 11 SIGNATURE OF EOD SUPERVISOR<br><br><i>Daniel L. Manson</i><br>DANIEL L. MANSON, TSgt, USAF   | 12 DATE<br><br>23 Aug 83 |
| 13 SIGNATURE OF MAJCOM STAFF MANAGER |   | 14 MAJCOM COMMENTS TO UNIT<br>RECOMMENDATION <input type="checkbox"/> CONCUR<br><input type="checkbox"/> NONCONCUR <input type="checkbox"/> N/A |                          |
|                                      |   | 15 DATE   |                          |

Block 8 (continued)

4. NUMBER OF MUNITIONS REQUIRING RSP/DISPOSAL:

| <u>NOMENCLATURE</u>         | <u>QUANTITY</u> |
|-----------------------------|-----------------|
| M1A1 Firing Pin             | 1               |
| M113 Initiator              | 2               |
| CCU-42a                     | 75              |
| Generator, Gas Pressure     | 136             |
| .22 cal., Long Rifle        | 37              |
| ARD 446-1                   | 1               |
| ARD 863-1                   | 5               |
| RR-141 A/C Chaff            | 11              |
| M-2 Fire Starter            | 32              |
| Fire Extinguisher Cartridge | 3               |

5. DISPOSAL OF MUNITIONS RESIDUE:

| <u>QUANTITY</u>   | <u>DISPOSITION</u>         |
|---|----------------------------|
| 6,000 lbs of scrap metal consisting of BDU-33/MK-106 Practice Bombs | Placed in range burial pit |

6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: N/A

7. PARTICIPATING EOD PERSONNEL:

TSgt Manson  
Sgt Newton  
Sgt Jones  
SrA Carson  
A1C Bennett  
A1C Hamilton

EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT CONTROL SYMBOL  
LOG GEN 44-1118

|  |  |                |
|--|--|----------------|
| TO: HQ TAC/LG/ME<br>LANGLEY AFB, VA 23665            | FROM: 27TFW/MAEE<br>CANNON AFB, NM 88103   |                |
| REPORTING UNIT: Cannon AFB consolidated Command Post | REPORT CONTROL NUMBER: 83-27EMS-23<br>21-A |                |
| 3 REPORTED   | TIME: 1430                                 | DATE: 2 Sep 83 |
| START  | 0700                                       | 24 Sep 83      |
| STOP   | 1600                                       | 24 Sep 83      |

|               |     |            |                    |                            |  |                             |        |
|---------------|-----|------------|--------------------|----------------------------|--|-----------------------------|--------|
| 1. FAULT TYPE | M H | 5 INCIDENT | SPECIAL IDENTIFIER |                            |  | E INJURY DAMAGE INFORMATION |        |
| EOD           | 10  | 100        | TYPE               | E 1016 1011 1011 1013 1011 |  |                             | A 1011 |
| OTHERS        | 1   | 9          | A 110              | B 1011                     |  |                             | B 1011 |

| NATE A | CLASS B | QUANTITY C | NOMENCLATURE D      | RSP E | DP F | TECHNICAL DATA USED G |
|--------|---------|------------|---------------------|-------|------|-----------------------|
| 02     | 05      | 6          | MK-82 500lb GP Bomb | 03    | 01   | 60B-02-2-03           |
| 02     | 02      | 6          | M-904, Nose Fuze    | 03    | 01   | 60B-02-3-12           |
| 02     | 02      | 6          | B-905, Tail Fuze    | 03    | 01   | 60B-02-3-27           |
|        |         |            |                     |       |      |                       |
|        |         |            |                     |       |      |                       |
|        |         |            |                     |       |      |                       |
|        |         |            |                     |       |      |                       |
|        |         |            |                     |       |      |                       |
|        |         |            |                     |       |      |                       |
|        |         |            |                     |       |      |                       |
|        |         |            |                     |       |      |                       |

Access to bombs was achieved with the aid and use of a Front end Loader. Five bombs were located 18 feet from hole of entry and at a depth of 8½ feet. The other bomb was directly below impact point and had turned with nose facing down and to the North and was at a depth of 6 feet. Disposal was accomplished IAW T.O. 60B-02-2-03, para 2-2b (1) (a) 1. This closes out previous report 83-27EMS-21.

- EOD personnel participating:
- |              |            |                |
|--------------|------------|----------------|
| MSGT OLLER   | SSGT LOPEZ | SGT POLCHINSKI |
| TSGT MANSON  | SGT NEWTON | SRA CARSON     |
| SSGT PAINTER | SGT JONES  | A1C BENNETT    |
|              |            | A1C HAMILTON   |

23

|                              |   |   |                     |
|------------------------------|---|---|---------------------|
| 9 NUMBER OF ATTACHMENTS<br>0 | 10 SIGNATURE OF TEAM CHIEF<br><i>Daniel L. Manson</i><br>DANIEL L. MANSON, TSgt, USAF | 11 SIGNATURE OF EOD SUPERVISOR<br><i>Freddie B. Oller</i><br>FREDDIE B. OLLER, MSgt, USAF | 12 DATE<br>6 Oct 83 |
|------------------------------|---|---|---------------------|

|   |  |                        |
|---|--|------------------------|
| 13 SIGNATURE OF MAJCOM STAFF MANAGER<br><i>John C. Fridley</i><br>John C. Fridley, SMSgt, USAF<br>CMD Mgr EOD Proms/Resources | 14 MAJCOM COMMENTS TO UNIT RECOMMENDATION<br>NONCONCUR <input checked="" type="checkbox"/> CONCUR <input checked="" type="checkbox"/><br>D NONCONCUR <input type="checkbox"/> C N A <input type="checkbox"/> | 15 DATE<br>17 OCT 1983 |
|---|--|------------------------|



# EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT CONTROL SYMBOL  
LOG LOWARD 1111

|   |   |   |           |          |      |      |  |  |      |           |  |       |      |           |  |      |      |          |
|---|---|---|-----------|----------|------|------|--|--|------|-----------|--|-------|------|-----------|--|------|------|----------|
| DTIC/DTIC/MLC<br>NAVEDPTECH/EN<br>INDIAN HEAD, MD 20640 | THRU/MAJCOM<br>HQ TAC/LGWE<br>Langley AFB, Va 23665 | FROM<br>27TFW/MAEE -<br>Cannon AFB NM 88103   |           |          |      |      |  |  |      |           |  |       |      |           |  |      |      |          |
| 1 REPORTED BY<br>Major Hookemeir<br>27CSG/OT            | 2 UNIT CONTROL NUMBER<br>83-27EMS-24                | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center;">3</td> <td style="width: 10%; text-align: center;">REPORTED</td> <td style="width: 15%; text-align: center;">TIME</td> <td style="width: 15%; text-align: center;">DATE</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">0600</td> <td style="text-align: center;">24 Sep 83</td> </tr> <tr> <td></td> <td style="text-align: center;">START</td> <td style="text-align: center;">0600</td> <td style="text-align: center;">24 Sep 83</td> </tr> <tr> <td></td> <td style="text-align: center;">STOP</td> <td style="text-align: center;">1400</td> <td style="text-align: center;">1 Oct 83</td> </tr> </table> | 3         | REPORTED | TIME | DATE |  |  | 0600 | 24 Sep 83 |  | START | 0600 | 24 Sep 83 |  | STOP | 1400 | 1 Oct 83 |
| 3   | REPORTED  | TIME  | DATE      |          |      |      |  |  |      |           |  |       |      |           |  |      |      |          |
|   |   | 0600  | 24 Sep 83 |          |      |      |  |  |      |           |  |       |      |           |  |      |      |          |
|   | START   | 0600  | 24 Sep 83 |          |      |      |  |  |      |           |  |       |      |           |  |      |      |          |
|   | STOP  | 1400  | 1 Oct 83  |          |      |      |  |  |      |           |  |       |      |           |  |      |      |          |

|                 |     |            |                               |
|-----------------|-----|------------|-------------------------------|
| 4 PARTICIPATING | MFI | 5 INCIDENT | 6 INJURY/DAMAGE INFORMATION   |
| EOD             | 11  | 586        | INJURY                        |
| OTHERS          | 52  | 1440       | PROPERTY INFORMATION          |
|                 |     | TYPE       | SPECIAL IDENTIFIER            |
|                 |     | A 0 1 4    | B 0 1 6 0 1 0 1 1 0 1 1 0 1 1 |

| 7 ORDNANCE INVOLVED |            |               |                      |          |         |                          |
|---------------------|------------|---------------|----------------------|----------|---------|--------------------------|
| DATE<br>A           | CLASS<br>B | QUANTITY<br>C | NOMENCLATURE<br>D    | RSP<br>E | DP<br>F | TECHNICAL DATA USED<br>G |
| 02                  | 04         | 1441          | BDU-33 Practice Bomb | 03       | 01      | 60B-2-2-11-4             |
| 02                  | 04         | 188           | MK-106 Practice Bomb | 03       | 01      | 60B-2-2-11-3             |
| 02                  | 14         | 91            | MK-4 Mod 3 Signal    | 03       | 01      | 60B-2-2-11-3             |
| 02                  | 01         | 10            | .50 cal ammo         | 03       | 01      | 11A-1-42                 |
| 02                  | 01         | 1             | .22 cal ammo         | 03       | 01      | 11A-1-42                 |
| 02                  | 01         | 50            | 7.62 mm ammo         | 03       | 01      | 11A-1-42                 |
| 02                  | 02         | 3             | FMU 7 Fuze           | 03       | 01      | 60B-2-3-39               |
| 02                  | 02         | 2             | M103 Fuze            | 03       | 01      | 60B-2-3-6                |
|                     | 02         | 1             | MK181 Mod 1 Fuze     | 03       | 01      | 60F-2-3-25               |
| 02                  | 07         | 30            | 20mm HEI             | 03       | 01      | 11A-1-42                 |

8 NARRATIVE (Use additional sheet if necessary)  
 BLOCK 7 cont.  
 02 07 04 20mm TP 03 01 11A-1-42

1. NAME OF PARENT RANGE: Melrose Bombing and Gunnery Range
2. SUB-RANGE OR NUMBER/TYPE TARGETS AND AVERAGE CLEARED:
  - a. Sub-range name or number: N/A
  - b. Type target and acreage cleared: All areas and targets of Melrose as outlined in attached range map.
3. TYPE CLEARANCE PERFORMED: Annual/Monthly
4. NUMBER OF MUNITIONS REQUIRING RSP/DISPOSAL: See block 7 for items found on range. ADR items follow:
  - Fire extinguisher cart 5ea
  - MK 4 Mod 3 Signal cart 2ea
  - 5.56 mm ammo 2ea
  - ARD 863-1 cart 1ea
  - Engine Starter cart 1ea
  - SMDC line 2ea
  - Slap flare 6ea
  - Pistol flare 6ea
5. DISPOSITION OF MUNITIONS RESIDUE:  
 Approximately 52½ tons of scrap metal consisting of BDU-33 and MK 106 practice bombs, tail fin assemblies, and misc, scrap components.
6. UNRESOLVED, SIGNIFICANT DIFFICULTIES ENCOUNTERED: N/A  
 Attached Bond paper.

|                              |   |   |                     |
|------------------------------|---|---|---------------------|
| 9 NUMBER OF ATTACHMENTS<br>1 | 10 SIGNATURE OF TEAM CHIEF<br><i>Freddie B. Oller</i><br>FREDDIE B. OLLER, MSgt, USAF | 11 SIGNATURE OF EOD SUPERVISOR<br><i>Freddie B. Oller</i><br>FREDDIE B. OLLER, MSgt, USAF | 12 DATE<br>3 Oct 83 |
|------------------------------|---|---|---------------------|

|  |   |         |
|--|---|---------|
| 13 SIGNATURE OF MAJCOM STAFF MANAGER<br><br>24 | 14 MAJCOM COMMENTS TO UNIT RECOMMENDATION<br><input type="checkbox"/> CONCUR<br><input type="checkbox"/> NONCONCUR <input type="checkbox"/> N/A | 15 DATE |
|--|---|---------|

7 cont.

EOD Personnel Participating:

MSGT OLLER  
TSGT MANSON  
TSGT CANNON  
SSGT PAINTER  
SSGT LOPEZ  
SGT NEWTON  
SGT JONES  
SGT POLCHINSKI  
SRA CARSON  
A1C BENNETT  
A1C HAMILTON

|   |   |
|---|---|
| <b>EXPLOSIVE ORDNANCE DISPOSAL REPORT</b> | REPORT CONTROL NUMBER<br>LOG LOW AR 015 |
|---|---|

|   |   |   |           |          |      |      |  |  |     |     |  |       |      |          |  |      |      |           |
|---|---|---|-----------|----------|------|------|--|--|-----|-----|--|-------|------|----------|--|------|------|-----------|
| REPORT MADE BY<br>HQ TAC/LC/WE<br>Langley AFB, VA 23665 | FROM<br>27 TFW/MAEE<br>Cannon AFB, TX 79103 |   |           |          |      |      |  |  |     |     |  |       |      |          |  |      |      |           |
| REPORTED BY<br>Consolidated Report for<br>Nov 83        | FUNCTION ORIGIN NUMBER<br>83-27EMS-29       | <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">3</td> <td style="width: 10%;">REPORTED</td> <td style="width: 10%;">TIME</td> <td style="width: 10%;">DATE</td> </tr> <tr> <td></td> <td></td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td></td> <td>START</td> <td>0001</td> <td>1 Nov 83</td> </tr> <tr> <td></td> <td>STOP</td> <td>2400</td> <td>30 Nov 83</td> </tr> </table> | 3         | REPORTED | TIME | DATE |  |  | N/A | N/A |  | START | 0001 | 1 Nov 83 |  | STOP | 2400 | 30 Nov 83 |
| 3   | REPORTED                                    | TIME  | DATE      |          |      |      |  |  |     |     |  |       |      |          |  |      |      |           |
|   |   | N/A   | N/A       |          |      |      |  |  |     |     |  |       |      |          |  |      |      |           |
|   | START                                       | 0001  | 1 Nov 83  |          |      |      |  |  |     |     |  |       |      |          |  |      |      |           |
|   | STOP  | 2400  | 30 Nov 83 |          |      |      |  |  |     |     |  |       |      |          |  |      |      |           |

|                 |     |     |            |     |                    |     |                             |     |        |   |                      |   |     |
|-----------------|-----|-----|------------|-----|--------------------|-----|-----------------------------|-----|--------|---|----------------------|---|-----|
| 4 PARTICIPATING |     | M H | 5 INCIDENT |     |                    |     | 6 INJURY DAMAGE INFORMATION |     |        |   |                      |   |     |
| EOD             |     |     | TYPE       |     | SPECIAL IDENTIFIER |     |                             |     | INJURY |   | PROPERTY INFORMATION |   |     |
| OTHERS          | N/A | N/A | A          | 011 | B                  | 011 | 011                         | 011 | 011    | A | 011                  | B | 011 |

| ORDNANCE INVOLVED |            |               |                       |          |         |                          |
|-------------------|------------|---------------|-----------------------|----------|---------|--------------------------|
| NATL<br>A         | CLASS<br>B | QUANTITY<br>C | NOMENCLATURE<br>D     | RSP<br>E | DP<br>F | TECHNICAL DATA USED<br>G |
| 02                | 01         | 5             | 20 mm TP              | 01       | 01      | 11A-1-42                 |
| 02                | 01         | 3             | .50 cal Ball          | 01       | 01      | 11A-1-42                 |
| 02                | 01         | 60            | 5.56 mm Blank         | 01       | 01      | 11A-1-42                 |
| 07                | 04         | 2             | MK 4 Signal Cartridge | 01       | 01      | 60B-2-2-11-4             |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |
|                   |            |               |                       |          |         |                          |

8 NARRATIVE (Use additional sheet if necessary)

1. Response to Aircraft In-Flight/Ground Emergencies:
  - a/ Number of Responses: 4
  - b. Person-Hours expended for the month: 3.5
2. Routine Pick-up of Ordnance items; N/A
3. Routine disposal of ABR and other recovered munitions: Included in Report #83-27EMS-29 monthly range clearance.
4. Previous EOD Report Control Numbers of Munitions Destroyed: N/A

|                                      |  |   |                      |
|--------------------------------------|--|---|----------------------|
| 9 NUMBER OF ATTACHMENTS<br>1         | 10 SIGNATURE OF TEAM CHIEF<br><br>FREDDIE B. OLLER, MSgt, USAF | 11 SIGNATURE OF EOD SUPERVISOR<br><br>FREDDIE B. OLLER, MSgt, USAF  | 12 DATE<br>28 Nov 83 |
| 13 SIGNATURE OF MAJCOM STAFF MANAGER |  | 14 MAJCOM COMMENTS TO UNIT RECOMMENDATION<br><input type="checkbox"/> CONCUR<br><input type="checkbox"/> NONCONCUR <input type="checkbox"/> N/A | 15 DATE              |

**EXPLOSIVE ORDNANCE DISPOSAL REPORT**

REPORT CONTROL SYMBOL:  
LOG LOWAR/718

| 1. TITLE OF A/C:<br>NAVAL DITCHEN<br>(MILITARY HEADQUARTERS)  | 2. DIRM/MAJCOM:<br><b>HQ TAC/LOWIE</b><br><b>Langley AFB, VA 23065</b> | FROM:<br><b>27 TFW/MADE</b><br><b>Cannon AFB, TX 75103</b>  |      |      |             |                  |       |             |      |             |
|---|--|---|------|------|-------------|------------------|-------|-------------|------|-------------|
| 3. REPORTED BY:<br><b>Major Hockstler</b><br><b>27TFW/BOX</b> | 4. UNIT CONTROL NUMBER:<br><b>51-27RMS-25</b>                          | 3. REPORTED<br><table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>TIME</th> <th>DATE</th> </tr> <tr> <td><b>1400</b></td> <td><b>19 Nov 83</b></td> </tr> <tr> <td>START</td> <td><b>0700</b></td> </tr> <tr> <td>STOP</td> <td><b>1400</b></td> </tr> </table> | TIME | DATE | <b>1400</b> | <b>19 Nov 83</b> | START | <b>0700</b> | STOP | <b>1400</b> |
| TIME  | DATE   |   |      |      |             |                  |       |             |      |             |
| <b>1400</b>   | <b>19 Nov 83</b>   |   |      |      |             |                  |       |             |      |             |
| START   | <b>0700</b>  |   |      |      |             |                  |       |             |      |             |
| STOP  | <b>1400</b>  |   |      |      |             |                  |       |             |      |             |

|                   |            |                                  |                              |
|-------------------|------------|----------------------------------|------------------------------|
| 4. PARTICIPATING: | MH         | 5. INCIDENT                      | 6. INJURY DAMAGE INFORMATION |
| EOD               | <b>9</b>   | TYPE                             | INJURY                       |
| OTHER             | <b>22</b>  | A <b>215</b>                     | PROPERTY INFORMATION         |
|                   | <b>123</b> | B <b>116 117 118 119 120 121</b> | A <b>111</b> B <b>111</b>    |

| 7. ORDNANCE INVOLVED |            |               |                        |          |         |                          |
|----------------------|------------|---------------|------------------------|----------|---------|--------------------------|
| NATL<br>A            | CLASS<br>B | QUANTITY<br>C | NOMENCLATURE<br>D      | RSP<br>E | DP<br>F | TECHNICAL DATA USED<br>G |
| 02                   | 04         | 127           | Bomb, Practice, BDB-33 | 03       | 02      | 60B-02-2-11-04           |
| 02                   | 04         | 10            | Bomb, Practice, MK 106 | 03       | 02      | 60B-02-2-11-03           |
| 02                   | 13         | 5             | Signal, MK-4           | 03       | 02      | 60B-02-2-11-03           |
|                      |            |               |                        |          |         |                          |
|                      |            |               |                        |          |         |                          |
|                      |            |               |                        |          |         |                          |
|                      |            |               |                        |          |         |                          |
|                      |            |               |                        |          |         |                          |
|                      |            |               |                        |          |         |                          |
|                      |            |               |                        |          |         |                          |
|                      |            |               |                        |          |         |                          |

8. NARRATIVE (Use additional sheet if necessary)

- NAME OF PARENT RANGE: Helrova Bombing and Gunnery Range
- SUB-RANGE OR NUMBER/TYPE TARGETS AND ACRESAGE CLEARED:
  - Sub-range name or number: *n/a*
  - Type target and acreage cleared:

| <u>TARGET</u>             | <u>QUANTITY</u> | <u>ACRESAGE</u> |
|---------------------------|-----------------|-----------------|
| T-1 Runway                | 1               | 61              |
| T-2 thru T-6 Taxiway      | 5               | 53              |
| T-20 Nuclear              | 1               | 18              |
| T-21 Conventional         | 1               | 18              |
| T-22 APC                  | 1               | 13              |
| T-35 A/C on Runway        | 1               | 13              |
| T-42 SAM Site             | 1               | 18              |
| T-60 thru T-65            | 6               | 24              |
| T-67 Heavy Weight         | 1               | 13              |
| T-75 thru T-78 NSA        | 4               | 11              |
| T-90 Interrial Toss Heavy | 1               | 18              |
- TYPE CLEARANCE PERFORMED: Monthly

28

|                                       |  |  |                              |
|---------------------------------------|--|--|------------------------------|
| 9. NUMBER OF ATTACHMENTS<br><b>1</b>  | 10. SIGNATURE OF TEAM CHIEF<br><b>DANIEL L. HANSON, TSgt, USAF</b> | 11. SIGNATURE OF EOD SUPERVISOR<br><b>DANIEL L. HANSON, TSgt, USAF</b>   | 12. DATE<br><b>21 Nov 83</b> |
| 13. SIGNATURE OF MAJCOM STAFF MANAGER |  | 14. MAJCOM COMMENTS TO UNIT<br>RECOMMENDATION <input type="checkbox"/> CONCUR<br><input type="checkbox"/> NONCONCUR <input type="checkbox"/> N/A |                              |
|                                       |  | 15. DATE   |                              |

4. NUMBER OF MUNITIONS REQUIREING RSP/DISPOSAL: See block 7 for items found on the range. ADR items follow:

|                             |        |
|-----------------------------|--------|
| Impluse cartridge CCU 44/B  | 9 ea.  |
| Pressure cartridge          | 5 ea.  |
| Fire Extinguisher cartridge | 2 ea.  |
| Chaff package 141B/AC       | 27 ea. |
| Cartridge 863-1             | 1 ea.  |
| Personnel Distress Kit      | 4 ea.  |
| 5.56mm Ball M193            | 24 ea. |

5. DISPOSITION OF MUNITIONS RESIDUE: Approximately 5 tons of scrap metal consisting of BDU-33 and MK 106 practice bombs, tail fin assemblies , and misc scrap metal.

6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: N/A

7. EOD PERSONNEL PARTICIPATING:

MSgt Oller  
TSgt Manson  
SSgt Painter  
SSgt Lopez  
Sgt Newton  
Sgt Polchinski  
SRA Carson  
A1C Hamilton  
A1C Bennett

# EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT DATE: 17 DEC 83  
 REPORT BY: [ ]

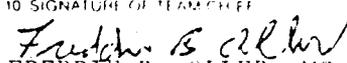
|  |   |   |
|--|---|---|
| TO: DIRECTOR, AFCE<br>10000 WOODHOLLOW DRIVE<br>WASHINGTON, DC 20331 | FROM: HQ TAC/LGWME<br>Langley AFB, VA 23665 | FROM: 27 TFW/MAEE<br>Cannon AFB, NM 88103   |
| REPORTING OFFICER:<br>Capt. Bache<br>27 CSG/OT                       | REPORT NUMBER:<br>83-27 EMS-30              | REPORTING PERIOD:<br>REPORTED: N/A 17 Dec 83<br>START: 0700 17 Dec 83<br>STOP: 1400 17 Dec 83 |

|               |     |         |                     |        |                      |                              |
|---------------|-----|---------|---------------------|--------|----------------------|------------------------------|
| 1. PARTS PAID | MII | ELEMENT | SPECIAL IDENTIFIER  | INJURY | PROPERTY INFORMATION | 6. INJURY/DAMAGE INFORMATION |
| EGD: 9        | 63  |         |                     |        |                      |                              |
| OTHERS: 26    | 182 | A 014   | 011 011 011 011 011 | A 011  | B 011                |                              |

| DATE<br>A | CLASS<br>B | QUANTITY<br>C | NOMENCLATURE<br>D    | RSP<br>E | DP<br>F | TECHNICAL DATA USE<br>G |
|-----------|------------|---------------|----------------------|----------|---------|-------------------------|
| 02        | 04         | 110           | Bomb Practice BDU-33 | 03       | 02      | 60B-02-2-11-04          |
| 02        | 04         | 15            | Bomb Practice MK 106 | 03       | 02      | 60B-02-2-11-03          |
| 02        | 13         | 2             | Signal MK 4          | 03       | 02      | 60B-02-2-11-03          |
|           |            |               |                      |          |         |                         |
|           |            |               |                      |          |         |                         |
|           |            |               |                      |          |         |                         |
|           |            |               |                      |          |         |                         |
|           |            |               |                      |          |         |                         |
|           |            |               |                      |          |         |                         |
|           |            |               |                      |          |         |                         |
|           |            |               |                      |          |         |                         |

1. NAME OF PARENT RANGE: Melrose Bombing and Gunnery Range
2. SUB-RANGE OR NUMBER/TYPE TARGETS AND ACREAGE CLEARED:
- a. Sub-range name or number: N/A
  - b. Type target and acreage cleared:

| <u>TARGET</u>           | <u>QUANTITY</u> | <u>ACREAGE</u> |
|-------------------------|-----------------|----------------|
| T-1 Runway              | 1               | 61             |
| T-2 Thru T-6 Taxiway    | 5               | 53             |
| T-20 Nuclear            | 1               | 18             |
| T-21 Conventional       | 1               | 18             |
| T-22 APC                | 1               | 18             |
| T-35 A/C on Runway      | 1               | 18             |
| T-42 Sam Site           | 1               | 18             |
| T-60 Thru T-65          | 6               | 24             |
| T-67 Heavy weight       | 1               | 18             |
| T-75 Thru T-78 MSA      | 4               | 11             |
| T-90 Lateral Toss Heavy | 1               | 10             |

|                                       |  |   |                       |
|---------------------------------------|--|---|-----------------------|
| NUMBER OF ATTACHMENTS<br>1            | 10. SIGNATURE OF TEAM CHIEF<br><br>FREDDIE B. OLLER, MSgt, USAF | 11. SIGNATURE OF EOD SUPERVISOR<br><br>FREDDIE B. OLLER, MSgt, USAF | 12. DATE<br>14 DEC 83 |
| 13. SIGNATURE OF MAJCOM STAFF MANAGER |  | 14. MAKE COMMENTS TO UNIT<br>IN COLLABORATION WITH CONCUR<br>(ENDORSE CONCUR) OR IN A   |                       |

3. TYPE CLEARANCE PERFORMED: Monthly

4. NUMBER OF MUNITIONS REQUIRING RSP/DISPOSAL: See block 7 for items found on the range.  
ADR items follow:

|                             |       |
|-----------------------------|-------|
| Pressure Source Cartridge   | 4 ea  |
| 22 LR                       | 13 ea |
| CCU-43/B                    | 3 ea  |
| Fire Extinguisher Cartridge | 1 ea  |

5. DISPOSITION OF MUNITIONS RESIDUE: Approximately 4 tons of scrap metal consisting of BDU-33 and MK 106 practice bombs, tail fins assemblies, and misc. scrap metal.

6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: N/A

7. EOD PERSONNEL PARTICIPATING:

MSgt Oller  
TSgt Manson  
SSgt Lopez  
Sgt Newton  
Sgt Polchinski  
SRA Carson  
AIC Bennett  
AIC Hamilton  
AIC Franks

# EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT CONTROL SYMBOL  
LOG-LOW ARJITA

|  |   |  |
|--|---|--|
| TO: DIRECTOR, EOD<br>AIRCRAFT ENGINEERING<br>2210 W. W. R. ROAD, W. W. | THE MAJCOM<br>HQ TAC/LAWHE<br>Langley AFB, VA 23665 | FROM<br>27 TFW/MAER<br>Cannon AFB, NM 88103                      |
| REPORTED BY<br>Capt. Satche<br>27 CAG/OT                               | ORDNANCE NUMBER<br>34-27ENS-2                       | 3 REPORTED<br>TIME DATE<br>0700 18 Feb 84<br>STOP 1500 18 Feb 84 |

|                 |    |            |  |
|-----------------|----|------------|--|
| 1 PARTICIPATING | MM | 5 INCIDENT | 6 INJURY DAMAGE INFORMATION                      |
| EGG             | 10 | 80         | INJURY<br>A 0 1<br>PROPERTY INFORMATION<br>B 0 1 |
| OTHER           | 25 | 200        |  |

| ORDNANCE INVOLVED |         |            |                      |       |      |                       |
|-------------------|---------|------------|----------------------|-------|------|-----------------------|
| MATERIAL A        | CLASS B | QUANTITY C | NOMENCLATURE D       | RSP E | DP F | TECHNICAL DATA USED G |
| 02                | 04      | 110        | Bomb Practice EDU-33 | 03    | 02   | 60B-02-2-11-04        |
| 02                | 04      | 17         | Bomb Practice MK 100 | 03    | 02   | 60B-02-2-11-03        |
| 02                | 13      | 5          | Signal Mk 4          | 03    | 02   | 60B-02-2-11-01        |
|                   |         |            |                      |       |      |                       |
|                   |         |            |                      |       |      |                       |
|                   |         |            |                      |       |      |                       |
|                   |         |            |                      |       |      |                       |
|                   |         |            |                      |       |      |                       |
|                   |         |            |                      |       |      |                       |
|                   |         |            |                      |       |      |                       |
|                   |         |            |                      |       |      |                       |

**NARRATIVE** (Use additional sheet if necessary)

1. NAME OF PARENT RANGE: Malrose Bombing and Gunnery Range
2. SUB-RANGE OR NUMBER/TYPE TARGETS AND ACREAGE CLEARED:
  - a. Sub-range name or number: N/A
  - b. Type target and acreage cleared:

| TARGET                  | QUANTITY | ACREAGE |
|-------------------------|----------|---------|
| T-1 Runway              | 1        | 61      |
| T-2 Thru T-6 Taxiway    | 5        | 53      |
| T-20 Nuclear            | 1        | 18      |
| T-21 Conventional       | 1        | 18      |
| T-22 APC                | 1        | 18      |
| T-35 A/C on runway      | 1        | 18      |
| T-42 Sen Site           | 1        | 18      |
| T-60 Thru T-65          | 6        | 24      |
| T-67 Heavy weight       | 1        | 18      |
| T-75 Thru T-78 MAA      | 4        | 11      |
| T-90 Lateral Toss Heavy | 1        | 10      |

TYPE CLEARANCE PERFORMED: Monthly

|                                      |   |   |                             |
|--------------------------------------|---|---|-----------------------------|
| 9 NUMBER OF ATTACHMENTS<br><b>1</b>  | 10 SIGNATURE OF TEAM CHIEF<br><b>FREDDIE B. OLLER, MSgt, USAF</b> | 11 SIGNATURE OF EOD SUPERVISOR<br><b>FREDDIE B. OLLER, MSgt, USAF</b>   | 12 DATE<br><b>22 Feb 84</b> |
| 13 SIGNATURE OF MAJCOM STAFF MANAGER |   | 14 MAJCOM COMMENTS TO UNIT RECOMMENDATION<br><input type="checkbox"/> CONCUR<br><input type="checkbox"/> NONCONCUR <input type="checkbox"/> N/A |                             |
|                                      |   | 15 DATE   |                             |

4. NUMBER MUNITIONS REQUIRING RSP/DISPOSAL: See block 7 for items found on the range.

ADR ITEMS FOLLOW

|  |        |
|--|--------|
| Guillotine                                       | 1 ea   |
| Pressure souce cartridge                         | 7 ea   |
| Fire extinguisher cartridge                      | 1 ea   |
| .22 cal ball                                     | 11 ea  |
| Impulse cartridge                                | 8 ea   |
| Chaff package RR 141                             | 1 ea   |
| SMDC   | 2 ea   |
| FMU 56B  | 1 ea   |
| Ejection initiator                               | 1 ea   |
| Parachute and Auxillery flotation initiator      | 1 ea   |
| Severance flotation and recovery chute initiator | 1 ea   |
| M781 40mm cartridge                              | 928 ea |
| Cartridge assembly                               | 4 ea   |
| .20 guage shotgun shell                          | 16 ea  |
| Riot control canisters                           | 56 ea  |
| FMU 26 Fuze                                      | 2 ea   |

5. DISPOSITION OF MUNITIONS RESIDUE: Approximately 1.5 ton of scrap metal consisting BDU 33 and MK 106 practice bombs, tail fin assemblies, and misc. scrap metal.

6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: N/A

7. EOD PERSONNEL PARTICIPATING:

MSgt Oller  
TSgt Manson  
SSgt Painter  
SSgt Newton  
Sgt Carson  
AIC Bennett  
AIC Hamilton  
AIC Franks  
AIC Brown  
AIC Vanderford



4. NUMBER OF MUNITIONS REQUIRING RSP/DISPOSAL: See block 7 for items found on the range.

ADR items follows

|                             |        |
|-----------------------------|--------|
| Kit personnel distress      | 10 ea  |
| MXU 4A/A Engine Start Cart  | 3 ea   |
| MK 124 Signal Flare         | 196 ea |
| Chaff Package RR 141/AL     | 6 ea   |
| Cartridge Impulse ARD 446-1 | 1 ea   |
| Cartridge CCU 44/B          | 7 ea   |
| MK 13 Signal Flare          | 24 ea  |
| Cartridge MK 2 Mod 1        | 2 ea   |
| Cartridge Fire Extinguisher | 1 ea   |
| Ammo .30-.30 Cal            | 10 ea  |
| Ammo .22 Cal                | 240 ea |
| Ammo .357 Cal               | 46 ea  |

5. DISPOSITION OF MUNITIONS RESIDUE: Approximately 11.5 tons of scrap metal consisting of BDU 33, MK 106, and MK82 Practice Bombs, tail fin assemblies, and misc. scrap metal.

6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: N/A

7. EOD PERSONNEL PARTICIPATING:

Oiler  
TSgt Manson  
SSgt Painter  
SSgt Newton  
Sgt Jones  
Sgt Carson  
AIC Bennett  
AIC Hamilton  
AIC Franks  
AIC Brown  
AIC Vanderford

(3)

# EXPLOSIVE ORDNANCE DISPOSAL REPORT

REPORT CONTROL SYMBOL  
100100000000

|  |                                       |   |
|--|---------------------------------------|---|
| TO: DIRECTOR<br>NAVY/DEFENSE<br>INFORMATION CENTER | HQ TAG/ICWME<br>Langley AFB, VA 23665 | FROM<br>27 TFW/MAEE<br>Cannon AFB, NM 88103   |
| REPORTED BY<br>Capt Bache<br>27 CSG/OT             | ORDNANCE TYPE<br>84-27 EMS-8          | 3 REPORTED<br>TIME<br>N/A<br>DATE<br>N/A<br>START<br>0600<br>21 Apr 84<br>STOP<br>1400<br>21 Apr 84 |

|       |        |                              |
|-------|--------|------------------------------|
| 4 TAG | 5 DATE | 6 INJURY/DAMAGE INFORMATION  |
| 10    | 80     | INJURY<br>A 0 1 1<br>F 0 1 1 |
| 25    | 140    |                              |

| NAME<br>A | CLASS<br>B | QUANTITY<br>C | DESCRIPTION<br>D     | RSP<br>E | DP<br>F | TECHNICAL DATA<br>G |
|-----------|------------|---------------|----------------------|----------|---------|---------------------|
| 02        | 04         | 137           | Bomb Practice BDU-33 | 03       | 02      | 60B-02-2-11-04      |
| 02        | 04         | 42            | Bomb Practice MK 106 | 03       | 02      | 60B-02-2-11-03      |
| 02        | 04         | 6             | Signal MK 4          | 03       | 02      | 60B-02-2-11-03      |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |
|           |            |               |                      |          |         |                     |

8. NARRATIVE (use additional sheet if necessary)
1. NAME OF PARENT RANGE: Melrose Bombing and Gunnery Range.
  2. SUB-RANGE OR NUMBER/TYPE TARGETS AND ACERAGE CLEARED:
    - a. Sub-range name or number: N/A
    - b. Type target and acerage cleared:

| TARGET                  | QUANTITY | ACERAGE |
|-------------------------|----------|---------|
| T-1 Runway              | 1        | 61      |
| T-2 Thru T-6            | 5        | 53      |
| T-20 Nuclear            | 1        | 18      |
| T-21 Conventional       | 1        | 18      |
| T-22 APC                | 1        | 18      |
| T-35 A/C on runway      | 1        | 18      |
| T-42 Sam Site           | 1        | 18      |
| T-60 Thru T-65          | 6        | 24      |
| T-67 Heavy Wight        | 1        | 18      |
| T-75 Thru T-78 MSA      | 6        | 11      |
| T-90 Lateral Toss Heavy | 1        | 10      |

3. TYPE RANGE CLEARANCE PERFORMED: Monthly

|  |   |                   |
|--|---|-------------------|
| TO: DIRECTOR OF DEFENSE<br>INFORMATION CENTER<br><i>Freddie B. Olier</i> | SIGNATURE OF RESPONSIBLE OFFICER<br><i>Freddie B. Olier</i><br>FREDDIE B. OLIER, MSgt, USAF | DATE<br>26 Apr 84 |
|--|---|-------------------|

4. NUMBER OF MUNITIONS REQUIRING RSP/DISPOSAL: See Block 7 for items found the range

ADR ITEMS FOLLOW

|                   |        |
|-------------------|--------|
| 5.56mm Ball ammo  | 429 ea |
| M905 Tail fuze    | 1 ea   |
| CHAFF package     | 3 ea   |
| Impluse cartridge | 19 ea  |
| MK 124 signal     | 36 ea  |
| SMDC              | 1 ea   |

5. DISPOSITION OF MUNITIONS RESIDUE: Approximately 1.5 tons of scrap metal consisting of BDU-33, MK 106, tail fin assemblies, and misc. scrap metal.

6. UNRESOLVED SIGNIFICANT DIFFICULTIES ENCOUNTERED: None

7. EOD PERSONNEL PARTICIPATING

MSgt Oller  
TSgt Manson  
SSgt Painter  
Sgt Jones  
Sgt Carson  
A1C Bennett  
A1C Hamilton  
A1C Franks  
A1C Brown  
A1C Vanderford

Date:  
Revision No.: 0  
Section: F  
Cannon

APPENDIX F-3

Section I - "Safety and Accident Prevention"  
from  
General Instructions for Disposal of Conventional  
Munitions (T.O. 11A-1-42)

## SECTION I

## SAFETY AND ACCIDENT PREVENTION

1-1. GENERAL.

1-2. These safety requirements and precautions will be complied with by munitions personnel during disposal of conventional munitions. All personnel engaged directly as well as indirectly in operations in which a munition is involved shall be thoroughly trained in explosives safety and capable of recognizing hazardous explosive exposures. Thinking safety and working safely must become a firmly established habit when working with or in the vicinity of items capable of creating a hazard due to the nature of their explosive, flammable or toxic fillers.

1-3. GENERAL REQUIREMENTS.

1-4. The Explosives Safety Standards, AFR 127-100 will be followed. The absence of a safety requirement in this technical manual, in a specific technical order covering a given item, or in AFR 127-100 does not necessarily indicate that no safeguards are required. Prompt action will be taken to control any hazard. If an immediately dangerous explosive item is encountered, all operations in the immediate vicinity will be shut down, personnel evacuated to a safe location, and EOD personnel called to render assistance in eliminating the hazard. Operations will not be resumed until the hazard has been eliminated.

1-5. If transmitting antenna of radio, radar, or other electromagnetic generating devices are in the vicinity of items covered in this manual, the appropriate section of AFR 127-100 will be consulted. The applicable safety distances for electromagnetic devices will be followed.

1-6. When an abnormal condition is noted, and pertinent procedures contained herein do not specifically relate to the noted irregularity, work shall be stopped and technically qualified guidance will be obtained before continuing the operation.

1-7. All disposal operations will be conducted in accordance with approved procedures as required by AFR 127-100 and this manual. Written procedures will be prepared covering disposal operations and will include applicable safety requirements. No attempt will be made to dispose of any items using less than the amount of explosives specified in disposal methods.

1-8. Some munitions are comparatively difficult to explode; therefore, a search of the area will be made after each detonation for any material that has not been detonated. Use caution when investigating post-firing results. Misfired charges may be present even though the shot appeared to be normal.

1-9. AFR 127-100 provides basic damage data and information concerning hazards to personnel and damage to facilities that may be expected at given distances. These distances do not provide protection to personnel in the open from fragments and debris.

1-10. Fire prevention is an integral part of any munitions disposal operation. At locations where a high fire hazard exists, such factors as weather and local environmental conditions become critical. When the fire department is contacted, the local fire hazard potential will be evaluated and a determination made as to additional protective measures

necessary to ensure effective fire prevention. If adequate fire preventive/protective measures cannot be taken, disposal operations will not be conducted.

1-11. Disposal actions will be completed in the safest most expeditious, and cost effective manner available at a particular disposal site. Items with compatible characteristics and similar disposal methods should be disposed of in a single operation whenever possible. In disposal operations completed by detonation, consideration should be given to utilizing items with a high explosive content to enhance efficiency and cost effectiveness. Mixing of bulk explosives will not be permitted during burning operations.

1-12. The maximum quantity of explosives that may be disposed of at one time will include the net explosives weight of the item(s) to be disposed of plus the weight of the demolition charge. The established explosive limit for the range will not be exceeded and safety distances will not be violated.

1-13. The disposal of munitions by burning or detonation involves the release of toxic fumes. A covered pit may effectively limit the range of fragments; but the control of fumes is dependent upon a number of factors, each of which must be carefully assessed for the particular material being destroyed at the time and place the operation is conducted.

1-14. Chemical munitions will be destroyed in an open space (preferably on a hilltop) and there should be no woods or heavy brush that might trap the fumes close to the operation, especially in the downwind direction.

1-15. A pit should be used to limit fragments. The pit will be a minimum

of 1.22 meters (four feet) deep and the item to be destroyed covered with 0.61 meters (two feet) or more of earth. Pits are not required when disposal takes place on a bombing range. If pits or similar aids are not used to limit fragments, cautions will be taken to protect personnel and equipment. The use of a pit or barricade or other means of confinement is mandatory where ranges do not have 732 meters (2400 feet) of clearance.

1-16. Inert filled items will not be disposed of or released for sale as scrap metal until internal fillers are exposed and unconfined. Heat generated during a reclamation operation can cause the filler, moisture and air to expand and burst sealed casings. Venting or exposure may be accomplished in any way necessary to preclude rupture due to confined pressure.

#### 1-17. RANGE REQUIREMENTS.

1-18. All disposal ranges will be sited in accordance with AFR 127-100. A typical disposal range is shown in figure 1-1.

1-19. Regulations of host nations concerning disposal operations will not be violated. When Army/Navy disposal ranges are utilized by the Air Force, Army/Navy range requirements will control.

1-20. Bombing ranges may be utilized for disposal operations when authorized by the agency having operational control over them. Requirements of the range controlling activity will be adhered to; however, all safety criteria in this regulation must be followed. Normally, signs and warning devices employed during active range periods are adequate for disposal operations and need not be duplicated.

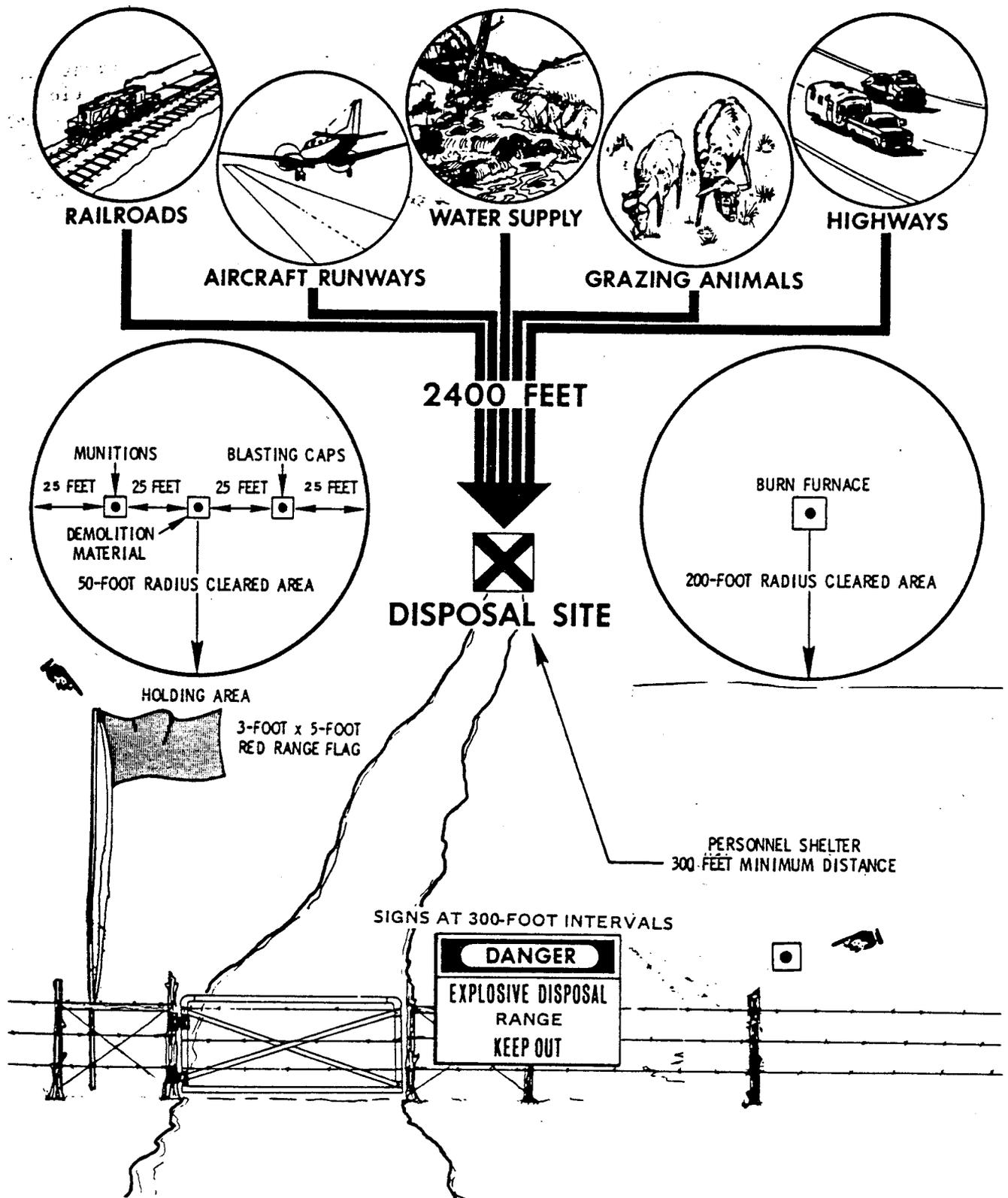


Figure 1-1. Typical Disposal Range

1-21. All dry grass, leaves, and other combustible materials within a radius of 61 meters (200 feet) will be removed from point of burning/detonating site. The radius may be reduced, commensurate with fire hazards, for recognized burning furnace sites provided written approval from Major Air Command has been received. Under no circumstances will the radius be reduced to less than 15 meters (50 feet). The site will be free of deep cracks in which unburned explosives or agents may lodge. The use of concrete pads for burning or detonation is not permissible.

1-22. A holding area will be provided to accept initial deliveries of munitions for disposal and demolition materials. The holding area will be located within the disposal range, but at a suitable distance from disposal sites to preclude uncontrolled destruction of the material by flying fragments, grass fires or burning embers. All dry grass, leaves and combustible material will be removed within a 15 meter (50-foot) radius of the holding area. Munitions to be disposed of, demolition material, and blasting caps will be separated by a minimum of 7.6 meters (25 feet) within the holding area. After initial deli-

very to the holding area, munitions for disposal and the necessary demolition material will be delivered to the actual disposal site as required. If a disposal range is not large enough to provide an absolutely safe holding area, munitions will only be delivered to the disposal site in quantities for immediate disposal.

1-23. Tools and equipment to be employed during disposal operations will be afforded protection to prevent damage. Safety equipment/clothing will be readily available but must be protected from damage.

1-24. A first aid kit, NSN 6545-00-116-1410, or suitable substitute, will be immediately available during disposal operations. An ambulance or first aid vehicle, manned by personnel trained to handle casualties that may occur during disposal of specific munitions, will be on hand or on call. Type of equipment for specific munitions being disposed of will be coordinated with the Base Medical Facility.

1-25. Fire fighting equipment will be present at the scene to combat grass, brush or equipment fires. Type of equipment and any additional protective measures deemed necessary in high fire risk areas/periods will be coordinated with the Base Fire Marshal.

1-26. A means of communication with both base facilities and disposal personnel will be established. Communication may be by the most convenient method (radio, telephone, walkie-talkie, etc); but the equipment used will be in good working order prior to commencing any disposal operation.

1-27. Where operations require the use of a personnel shelter, the shelter will be located not less than 91 meters (300 feet) from the disposal site and will afford substantial fragment-proof overhead cover and frontal protection.

1-28. The following minimum requirements are to be employed during a disposal operation:

a. Red range flag to be flown during disposal operations and removed only after the range has been declared safe. The flag will be a minimum of 0.91 meters (three feet) wide by 1.52 meters (five feet) long. Flag must be displayed at a height to where it will be a visible warning from a safe distance at all points of access to explosive operation.

b. AFTO Forms 61, with legend "Danger - Explosive Disposal Range - Keep Out" imprinted in them may be ordered in amounts needed through proper channels. AFTO Form 61 is listed in AFR 0-9. These forms will be posted at entrances and at 91 meter (300 feet) intervals around perimeter of range. Any additional required multilingual information will be posted below forms in black letters 5.08 centimeters (two inches) on a white background. See figure 1-1.

c. Barricades, gates or guards at all entrances.

d. In areas where disposal ranges are not under constant control of US Armed Forces, the provisions of preceding subparagraphs a, b, and c may be waived, provided the following safety requirements are strictly adhered to:

(1) Prior to starting disposal operations, the disposal range will be searched for unauthorized personnel.

(2) Guards will be posted to prevent entry into the area prior to and throughout the disposal operation. Guards will be afforded adequate protection from fragments.

#### 1-29. PERSONNEL REQUIREMENTS.

1-30. Personnel requirements and restrictions listed below are the minimum requirements for personnel assigned to disposal operations. Persons not necessary to the operation being conducted will be barred from the disposal area. The number of personnel engaged in disposal operations will be kept to a minimum but in no case less than two.

1-31. Commanders will ensure that care is exercised in the assignment of personnel to disposal duties. All personnel employed in disposal activities will be thoroughly trained in the nature of the material being handled, the hazards involved, and the applicable operating safety procedures and precautions to be observed. The danger of using shortcuts will be thoroughly instilled in the minds of all personnel.

1-32. Supervisory Personnel. Disposal procedures will be performed under the supervision of personnel qualified and highly proficient in such activities. The supervisor will be present during all disposal operations and will be charged with the control of all firing

devices and will be responsible for preparation, placement, and firing of charges. Responsibility will not be divided. Supervisory responsibilities include, but are not limited to, the following actions:

a. Have at the site approved written procedures covering the specific munition being disposed of and enforce strict compliance with procedures as written.

b. Instill in all personnel the dangers of shortcuts or deviations from written procedures.

c. Take corrective action in all violations of procedures or orders whether or not an accident occurs.

d. Direct construction and use of personnel shelters if and where necessary.

e. Ensure availability of required protective equipment; that personnel are familiar with the use of such equipment; and enforce, if necessary, use of such equipment.

f. Ensure that sufficient personnel are trained in treatment of casualties and will advise all personnel of any self-aid measures to minimize or prevent injury.

g. Be knowledgeable of the characteristics of chemical agents and methods of detecting leakage.

h. Be thoroughly familiar with the influence of weather conditions on disposal operations.

i. Contact Explosive Ordnance Disposal (EOD) personnel whenever hazardous conditions are encountered.

1-33. Protective measures regarding personnel and equipment will be strictly enforced during all disposal operations.

Additional guidance for explosive items and chemical agents may be found in AFR 127-100, AFM 160-12, Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries, and the specific item technical manual. The following agencies, as a minimum, will be notified prior to accomplishing disposal procedures listed in this manual:

- a. Medical Facility
- b. Security Police
- c. Fire Department
- d. Base Operations
- e. EOD (When available on base)

1-34. At minimum safe distances in AFR 127-100, personnel in the open may be exposed to some fragments and debris. Therefore, greater distances should be used; explosive weights lowered; or action taken to reduce hazards by:

- a. Confinement of the explosive results at the source to the extent possible.
- b. Use of barricades adjacent to the exposure or the source or both.
- c. Evacuation of personnel not essential to the disposal operation.
- d. Employment of overhead and frontal cover for personnel involved.

1-35. Personnel engaged in disposal work shall be afforded ample time to reach a safe distance prior to detonation. The signal for detonation shall be given by the supervisor after all personnel in the vicinity are protected by substantial cover or have reached a safe distance. Safety distances will be observed by all personnel.

1-36. WEATHER PRECAUTIONS.

1-37. No disposal operation will be conducted during an electrical storm or when such a storm is approaching within 4.8 kilometers (3 miles). Additionally, disposal by detonation using an electrical firing system will not be conducted during sand, dust, or snow storms.

1-38. Disposal by open burning will not be conducted when wind velocity exceeds 15 miles per hour.

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APPENDIX F-4

Environmental Considerations in the DPDS Disposal Process,

DPDS-M 6050.1, Change No. 10

dated 10 February 1984 - List of Chemical Substances

| Basic Group | Comparable HMIS Code   |
|-------------|------------------------|
| F           | F1, F2, F3, F4, F5, F6 |
| B           | B1, B2                 |
| T           | P1, P2, T3, T4         |
| A           | C1, C2*                |
| O           | R1                     |
| R           | R3                     |
| PCB         | T2**                   |
| G           | L1, N1, J1***          |

F. There are items in some HMIS categories which the DPDO does not normally accept (see DoD 4160.21-M Chapter VI and DPDS-H 4160.3 Volume I, Chapter III). These categories are as follows:

|            |                              |
|------------|------------------------------|
| A          | Radioactives                 |
| E1, E2, E3 | Explosives Classes A, B, & C |
| T5         | Etiological Agents           |
| R4         | Pyrophorics                  |

\* When storing acids (C1 & C2) make sure that they are kept separated when placing them in the same storage area.

\*\* The PCBs are listed in HMIS as having storage code T2 and must be stored in a manner which is in compliance with the Toxics Substance Control Act (TSCA). Other bioaccumulatives (such as lead and other heavy metals) may be stored in the most appropriate way.

\*\*\* Those items which are in HMIS storage codes L1, N1, and J1 can normally be stored in general warehousing.

HMIS storage codes for gases are G1, G2, G3, G4, G5, G6, and G7. These gases will be stored in accordance to the guidance in DoD 4145.19-R-1.

The HMIS storage for carcinogens is T1. These will be stored in accordance with DLAM 1000.1.

On all items which carry an HMIS storage code of S1 (Special hazard/multiple hazard) call your regional environmentalist for storage guidance.

LIST OF CHEMICAL SUBSTANCES

A. This lists chemical substances that may be found in hazardous waste streams.

B. The list consists of three (3) columns. The first column lists the chemical or trade names of the materials in alphabetical order. The trade names are denoted by asterisks (\*). The second column lists the synonyms or common names of the chemical substance when available. The third column lists the basic group to which the material is assigned. These include flammable (F), toxic (T), base (B), acid (A), oxidizer (O), reactive (R), and general warehousing (G). There are some chemicals which are listed as explosive (E) which the DPDO will normally not accept (see DoD 4160.21-M and DPDS-M 4160.3 Volume I). The double asterisk (\*\*) after the BG denotes a strong reducing agent while a triple asterisk (\*\*\*) behind the BG denotes a substance which will polymerize vigorously under certain conditions. When either (\*\*) or (\*\*\*) is encountered special storage, conditions may be necessary. Call your Regional Environmental Specialist for guidance on categories not identified.

| <u>NAMES</u>            | <u>SYNONYMS</u>         | <u>BG</u> |
|-------------------------|-------------------------|-----------|
| Abate*                  |                         | G         |
| Acenaphthene            |                         | G         |
| Acetamide               |                         | G         |
| Acetaldehyde            |                         | F         |
| Acetic Acid             |                         | A         |
| Acetic anhydride        |                         | R         |
| Acetone                 | Dimethyl ketone         | F         |
| Acetone cyanohydrin     | Hydroxyisobutyronitrile | T         |
| Acetonitrile            | Methyl cyanide          | F         |
| Acetophenone            |                         | G         |
| Acetoxybutane           | Butyl acetate           | F         |
| Acetoxypentane          | Amyl acetate            | F         |
| Acetyl acetone          | 2,4-Pentanedione        | G         |
| Acetyl azide            |                         | E         |
| Acetyl benzoyl peroxide |                         | O         |
| Acetyl bromide          |                         | R         |
| Acetyl chloride         |                         | R         |
| Acetylene               |                         | F         |
| Acetyl nitrate          |                         | E         |
| Acetyl peroxide         |                         | O         |
| Acrolein                | Aqualin                 | F***      |
| Acrylic acid            |                         | A***      |
| Acrylonitrile           |                         | F***      |
| Adhesive                |                         | F         |
| Adhesive, liquid cement |                         | F         |
| Adhesive, plastic       |                         | G         |
| Adhesive, rubber cement |                         | F         |
| Adhesive, resin epoxy   |                         | G         |

| <u>NAMES</u>                     | <u>SYNONYMS</u>       | <u>BG</u> |
|----------------------------------|-----------------------|-----------|
| Ethylene cyanohydrin             | Hydroxypropionitrile  | T         |
| Ethylene diamine                 |                       | T         |
| Ethylene dibromide               | Dibromoethane         | T         |
| Ethylene dichloride              | Dichloroethane        | F         |
| Ethylene glycol                  |                       | G         |
| Ethylene glycol dinitrate        | Glycol dinitrate      | E         |
| Ethylene glycol monomethyl ether |                       | F         |
| Ethyleneimine                    | Aziridine             | F***      |
| Ethylene oxide                   | Epoxyethane           | F***      |
| Ethyl formate                    |                       | F         |
| 2-Ethylhexyl acrylate            |                       | F***      |
| Ethyl mercaptan                  | Ethanethiol           | F         |
| Ethyl nitrate                    |                       | E         |
| Ethyl nitrite                    |                       | E         |
| Ethyl propionate                 |                       | F         |
| Ethyl trichlorosilane            |                       | R         |
| Exothion                         | Endithion             | T         |
| Eugenol                          |                       | F         |
| Fensulfothion                    | Bayer 25141, Dasanit* | T         |
| Ferbam                           |                       | T         |
| Ferric arsenate                  |                       | T         |
| Ferric sulfide                   |                       | G         |
| Ferrous sulfide                  |                       | F**       |
| Flouranthrene                    |                       | F         |
| Fluorent                         |                       | F         |
| Fluorine                         |                       | R         |
| Fluorine azide                   |                       | E         |
| Fluorine monoxide                | Oxygen difluoride     | R         |
| Fluoroacetanilide                |                       | T         |
| Fluoroacetic acid                |                       | A         |
| Fluoroboric acid                 |                       | A         |
| Fluorosulfonic acid              | Fluosulfonic acid     | R         |
| Fluosulfonic acid                | Fluorosulfonic acid   | R         |
| Flusilicic acid                  |                       | A         |
| Fonofos                          | Dyfonate*             | T         |
| Formaldehyde                     | Methanal              | F         |
| Formamide                        |                       | T         |
| Formetanate hydrochloride        |                       | T         |
| Formic acid                      | Methanoic acid        | A         |
| Fostion*                         | Prothoate             | T         |
| Freon*                           |                       | T         |
| Fumaric acid                     |                       | A         |
| Fumarin                          | Coumafuryl            | T         |
| Fumazone*                        | Dibromochloropropane  | T         |
| Furadan*                         | Carbofuran            | T         |
| Furan                            | Furfuran              | F         |
| Furfural                         |                       | F         |

Date:  
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Cannon

APPENDIX G-1

Coordination Agreements

5-11-83 RECEIVED 241100  
S. J. JONES 1000  
VANCE 21 FEB 1983  
SG  
SGA

ANNEX 2 TO ANNEX 1  
USAF HOSP CANCANN - DEFENSE JOINT JOI PLAN  
AGREEMENT FOR MUTUAL SUPPORT DURING DISASTERS

(Curry and Roosevelt County Hospitals)

THIS AGREEMENT is made and effective 1 February 1983 between Clovis High Plains Hospital and Roosevelt General Hospital, both are organized and existing under the laws of the State of New Mexico and USAF Hospital Cannon, operating under the guidelines and regulations of the United States Air Force and the Department of Defense.

NOW, THEREFORE, IN CONSIDERATION of the mutual advantages occurring to the parties hereto, each facility hereby covenants and agrees with each other as follows:

ARTICLE I - AUTONOMY:

The Governing Bodies of the facilities shall continue to have exclusive control of the management, assets, and affairs of their respective facilities, and neither party by virtue of this agreement shall assume any liability for any debts or obligations which have been or which may be incurred by the other party to this agreement.

ARTICLE II - TRANSFER OF PATIENTS:

In the event of a major catastrophe or other events affecting major portions of the communities population which could result in the caring for large numbers of injuries, diseases or other infirmities which exceed the capacity of the aforementioned facilities, each hospital would make available to each other resources to include facilities, personnel, supplies and equipment and transportation assets in order to reduce loss of life, limb or prevent undue suffering. This support will be subject to resources available and in no way be allowed to degrade the existing health care program or circumvent the charter or directives of the parent organization. Support will be provided by all facilities without regard to race, color, creed or national origin. The requesting facility shall give notice to the other facilities as far in advance as possible of any potential or actual situation requiring assistance. In the case of the USAF Hospital Cannon, requests for assistance will be referred to the Commander, Cannon Air Force Base, who will decide whether, and to what extent, support may be provided. In the event of actual transfer of patients, every effort will be made to provide

the receiving facility with current diagnosis and medical care provided prior to transfer. The transfer of patient valuables and personal effects will not be effected until such time as the situation has stabilized.

#### ARTICLE III - FINANCIAL AGREEMENT

Charges for services performed by one party for patients transferred from the other party pursuant to this agreement shall be collected by the party rendering such services directly from the patient or from the sources normally billed. Neither party shall have any liability to the other for such charges, except to the extent that such liability would exist separate and apart from this agreement. Nor shall either party receiving a transferred patient be responsible for collecting any account receivable of the other party from such patient which still may be outstanding after such transfer takes place.

#### ARTICLE IV - TERMINATION:

This agreement may be terminated by either party at any time upon the giving of at least 60 days prior written notice. Notwithstanding any notice which may have been given, however; this agreement shall be automatically terminated whenever either party shall have its license to operate revoked, suspended or non-renewed.

#### ARTICLE V - ADVERTISING AND PUBLICITY:

Neither party shall use the name of the other party in any promotional or advertising material unless review and approval of the intended shall first be obtained from the party whose name is to be used. The requirements of the Privacy Act will be followed by each facility.

#### ARTICLE VI - NON-EXCLUSIVE CLAUSE:

Nothing in this agreement shall be construed as limiting the right of either party to affiliate or contract with any other hospital, on either a limited or general basis, while this agreement is in effect.

#### ARTICLE VII - MODIFICATION:

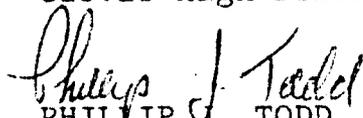
This agreement may be modified, amended, or supplemented by agreement of both parties, but no such ratification,

amendment, or supplement shall be binding on either party unless and until the same is attached hereto in writing and signed by authorized officials of each facility.

AGREED:

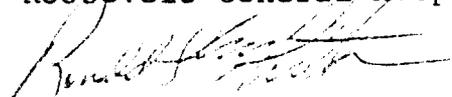
FACILITY: Clovis High Plains Hospital

DATE 2-8-83

  
PHILLIP J. TODD  
Hospital Administrator

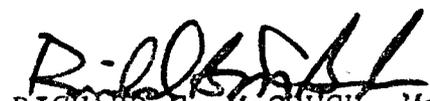
FACILITY: Roosevelt General Hospital

DATE 8 Feb 83

  
RONALD L. McARTHUR  
Hospital Administrator

FACILITY: USAF Hospital Cannon

DATE 1 Feb 83

  
RICHARD G. MCGOUGH, Major, USAF, MSC  
Hospital Administrator

AGREEMENT FOR MUTUAL AID IN  
FIRE PROTECTION

This agreement, entered into this 15 day of August 1983, between the Secretary of the Air Force acting pursuant to the authority of 42 U.S.C. (1856(A)) and the City of Clovis, New Mexico Fire Department is for securing to each the benefits of mutual aid in fire prevention, in the protection of life and property from fire, and in fire fighting. It is agreed that:

a. On request to a representative of the Cannon Air Force Base Fire Department by a representative of the City of Clovis, NM Fire Department, fire fighting equipment and personnel of the Cannon Air Force Base Fire Department will be dispatched to any point within the area for which the City of Clovis, NM Fire Department normally provides fire protection as designated by the representatives of the City of Clovis, NM Fire Department.

b. On request to a representative of the City of Clovis, NM Fire Department by a representative of the Cannon Air Force Base Fire Department, fire fighting equipment and personnel of the City of Clovis, NM Fire Department will be dispatched to any point within the fire fighting jurisdiction of the Cannon Air Force Base Fire Department as designated by the representative of the Cannon Air Force Base Fire Department.

c. Any dispatch of equipment and personnel pursuant to this agreement is subject to the following conditions:

(1) Any request for aid hereunder shall include a statement of the amount and type of equipment and personnel requested, and shall specify the location to which the equipment and personnel are to be dispatched, but the amount and type of equipment and number of personnel to be furnished shall be determined by a representative of the responding organization.

(2) The responding organization shall report to the officer in charge of the requesting organization at the location to which the equipment is dispatched and shall be subject to the orders of that official.

(3) A responding organization shall be released by the requesting organization when the services of the responding organization are no longer required or when the responding organization is needed within the area for which it normally provides fire protection.

(4) In the event of a crash of aircraft owned or operated by the United States or military aircraft of any foreign nation within the area for which the City of Clovis, NM Fire Department normally provides fire protection, the chief of the Cannon Air Force Base Fire Department or his or her representative may assume full command on arrival at the scene of the crash.

d. The City of Clovis, NM Fire Department may claim reimbursement for the direct expenses and losses which are additional fire fighting costs above the normal operating costs incurred while fighting a fire under this agreement as provided in 44 C.F.R., Part 151.

e. Each party waives all claims against every other party for compensation for any loss, damage, personal injury or death occurring as a consequence of the performance of this agreement.

f. All equipment used by the City of Clovis, NM Fire Department in carrying out this agreement will, at the time of action hereunder, be owned by it; and all personnel acting for the City of Clovis, NM Fire Department under this agreement will, at the time of such action, be an employee or volunteer member of the City of Clovis, NM Fire Department.

For City of Clovis, New Mexico

*Donald E. Clifton*

DONALD E. CLIFTON  
CITY MANAGER

For the Secretary of the Air Force

*Mary N. Turner*

MARY N. TURNER, Colonel, USAF  
Commander

Date:  
Revision No.: 0  
Section: H  
Cannon

**APPENDIX H-1**

**Hazardous Waste Management Training Program**

HAZARDOUS WASTE MANAGEMENT TRAINING PROGRAM

DEPARTMENT OF THE AIR FORCE

TACTICAL AIR COMMAND

27TH TACTICAL FIGHTER WING

CANNON AIR FORCE BASE

NEW MEXICO

LT RICHARD M. BRUBAKER, DIRECTOR

27TH CIVIL ENGINEERING SQUADRON

ENGINEERING AND ENVIRONMENTAL PLANNING BRANCH

ENVIRONMENTAL PLANNING SECTION

AUGUST 1984

# HAZARDOUS WASTE MANAGEMENT TRAINING PROGRAM

## OUTLINE

### I. Overview

#### A. Training Purpose

#### B. Course Structure

##### 1. Training Type

##### 2. Frequency

##### 3. Documentation

#### C. Course Content

##### 1. Hazardous Waste Management Program Requirements

##### 2. Resource Conservation and Recovery Act - A Legal Perspective

##### 3. Hazardous Waste Management

##### 4. Medical Briefing

##### 5. Personnel Safety

##### 6. Fire Safety

##### 7. Contingency Plan/Emergency Response

### II. Hazardous Waste Management Program Requirements

#### A. Waste/Hazardous Waste Identification/Classification

##### 1. Waste

##### 2. Hazardous Waste

###### a. Characteristic Waste

###### b. Listed Waste

#### B. Accumulation Points Identification

#### C. Hazardous Waste Management Plan

#### D. Training Requirements

E. Hazardous Waste Management

1. Storage and Handling

III. Hazardous Waste Laws and Regulations

A. Scope of Problem

1. Other Environmental Concerns

a. Clean Air

b. Clean Water

B. Provisions of Resource Conservation and Recovery Act

1. Definitions

a. Hazardous Waste

b. Small Generator

c. Recycled Waste

d. Conforming Storage

2. Procedural Requirements

a. On-site Storage Limitations

b. Permit System

c. Manifest System

C. Department of Defense Responsibilities

1. Defense Logistics Agency Responsibilities

2. Department of Defense Component Responsibilities

IV. Hazardous Waste Management

A. Accumulation Point Management

1. Accumulation Point

a. Destination/Location

b. Approval/Coordination

c. Inspection

2. Accumulation Point Manager

- a. Destination
- b. Responsibilities

3. Storage and Handling

- a. Waste Container Selection
- b. Waste Container Use
- c. Turn-in Procedures
- d. Labeling
- e. Record Keeping

V. Medical Briefing

- A. Base Hazardous Chemicals
- B. Chemical Information Sheet
- C. Physical, Health Hazard, and Compatibility Data
- D. Waste Analysis
  - 1. Requirements
  - 2. Frequency
  - 3. Responsibilities

VI. Personnel Safety

- A. Personal Protective Equipment
- B. Material Handling
- C. Training

VII. Fire Safety

- A. Accumulation Points Location
- B. Safety Precautions
- C. First Aid Fire Fighting

**VIII. Contingency Plan/Emergency Response**

**A. Spill Preparation**

**B. Spill Response**

**C. Awaiting Assistance Procedure**

**IX. Summary/Wrap-Up**

# HAZARDOUS WASTE MANAGEMENT TRAINING PROGRAM

## AGENDA

### Opening Comments

Understanding the Hazardous Waste Problem

### Overview

Hazardous Waste Management Program Requirements

Hazardous Waste Laws and Regulations

Hazardous Waste Management

Accumulation Point Management

Accumulation Point

Accumulation Point Manager

Hazardous Waste Storage and handling

Waste Container Selection and Use

Turn-in Procedures

Labeling

Record Keeping

Medical Briefing

Personnel Safety

Fire Safety

Contingency Plan/Emergency Response

## THE HAZARDOUS WASTE PROBLEM

### Handout I

#### I. Introduction

A. Over the past three decades, public awareness of this country's problems with hazardous wastes has surfaced. There have been many reports in the media of harm to the environment and public health caused by improper handling of these wastes. An example is the Love Canal environmental emergency in western New York state, where chemicals buried thirty years ago have resurfaced. This has resulted in relocation of families, abandonment of homes, and suspected health problems, including birth defects and miscarriages. As public interest increased, changes were demanded in the way hazardous waste were handled.

B. The Air Force generates large quantities of hazardous wastes that must be handled and disposed of in an environmentally acceptable manner. In view of the Air Force's extensive involvement in this area, regulatory requirements, the need to protect people from hazardous wastes, and the high level of public concern, a Hazardous Waste Management Plan has been developed for the base. Air Force personnel at hazardous waste facilities should be familiar with the requirements of this plan, especially with their specific role. Most importantly, employees must be aware of the problems and handling techniques associated with these wastes.

C. There are several major problem areas associated with hazardous wastes that all personnel who handle or manage these substances should be aware of. What a hazardous waste handler or manager does can cause these problems or can result in someone else being faced with them.

1. Safety and immediate (acute) health effects. Problems in this area directly affect the worker, coworkers, or others who may handle the waste later.

2. Long-term (chronic) health effects. Chronic effects may not show up for years but are, in many cases, just as harmful as acute effects.

3. Environmental effects. The world around us--air, water, land, wildlife, and humans can be greatly affected by how hazardous wastes are handled. These wastes not only affect our environment but also the environment of generations to follow.

4. Laws and regulations. Many laws and regulations have been passed concerning hazardous materials and wastes. Employees of the Air Force are subject to both civil and criminal penalties for noncompliance with the laws covering hazardous materials and wastes.

5. Public relations. Because of the intense public interest in this area, the military, along with others, is closely watched by citizens' groups, state officials, and the news media. Hazardous waste problems, even when not

severe enough to violate laws or regulations, may nonetheless create a public outcry. Thus, Air Force employees must be especially careful when dealing with these wastes.

## II. Safety and Immediate (acute) Health Effects.

A. The consequences of safety problems, usually accidents, are events such as chemical burns, spills, inhalation of toxic fumes, and fires. All affect the health and well being of the worker and his coworkers. In addition, if hazardous wastes are not properly packaged, handled, labeled, stored, and transported, not only the worker, but others who handle the waste in the future may be injured. Most accidents and their associated adverse health effects can be prevented. The following lists indicate safety problems associated with hazardous waste handling.

1. Safety hazards that could cause accidents.
  - (a) Inadequate or unused safety and protective equipment.
  - (b) Failure to follow facility operating procedures, including observing safety zones.
  - (c) Not knowing the dangers of what you're working with.
  - (d) Not knowing who to call or exactly what to do if there is an accident or spill.
  - (e) New people who haven't been properly trained and oldtimers who think they'll never get burned.
  - (f) Poor housekeeping.
  - (g) Ineffective or infrequent safety inspections.
  - (h) Not enough space for proper compatible storage; building not designed for hazardous waste handling.
  - (i) Cracked pallets or deficiencies in materials handling equipment.
2. Safety hazards related to the hazardous wastes.
  - (a) Inadequate labeling of containers.
  - (b) Improper, corroded, or leaking containers.
  - (c) Storing incompatible wastes together.
  - (d) Heat or spark sources too close to flammable wastes.

(e) Careless or improper transfer of wastes.

(f) Improper or insufficient spill cleanup materials.

B. An example of a disastrous result from a safety hazard was the fire at the Norfolk Naval Supply Center. The events of this fire are outlined in the Navy Lifeline article titled "3,000 Degrees of Mean" (located at the end of this chapter). The following list gives several valuable lessons to be learned from this fire.

1. Small errors and mistakes can result in disaster.

2. Chemical fires are extremely destructive and generate intense heat.

3. Hazardous wastes must be kept away from combustibles.

4. Training for hazardous waste handlers is very important. The following areas should be included in training:

(a) Hazards of specific chemicals at their activity.

(b) Proper storage of hazardous wastes including segregation.

5. Hazardous wastes must be stored with labels visible.

6. Expired, damaged, and deteriorated chemicals are very dangerous.

### III. Long-Term (chronic) Health Effects.

A. Long-term health effects are sometimes less apparent, but often just as serious as the immediate results of accidents. Long term effects may result from the careless handling of hazardous wastes and may not appear for several years. We must be just as concerned about these effects. Chronic effects can be avoided by proper handling procedures. Some of these effects are:

1. Chronic illness.

2. Family illness or behavioral changes due to wastes carried on workers clothing.

3. Induced disease after a latent (waiting) period.

4. Cancer.

5. Birth defects.

6. Sterility or other reproductive difficulty.

#### IV. Environmental Effects.

A. The mishandling of hazardous wastes can adversely affect plants and animals as well as people. Also, chemicals from spills or unsafe disposal practices may reach plants, animals, and people by transmittal through surface and/or ground waters.

B. The following are some aspects of how the environment works and how hazardous wastes may effect it.

1. Food chains. The environment is made up of a network of food chains. Plants absorb the energy from the sun, animals eat the plants, and other animals eat these animals. Food chains make different parts of the natural world dependent on each other.

2. Bioaccumulation. Each time an organism becomes food for another organism, some of the stored materials in its body are transferred. These materials may include persistent hazardous chemicals. Some chemicals can be used by the organism (metabolized), thus leaving the food chain. However, some hazardous chemicals build up in the tissue of the organism. This build-up is known as bioaccumulation. Biaccumulated chemicals may remain in the food chain forever.

3. Biomagnification. The introduction of the small quantity of some hazardous chemical into a lower level of a food chain may cause significant harm due to biomagnification. This process occurs when chemicals bioaccumulate in low level organisms and the organisms that depend on them. When biomagnification occurs, a higher concentration of the chemical is found in an animal at the top of the food chain than was present in the organisms lower on the chain.

4. Chemical persistence. Many chemicals do not easily decompose or degrade in the environment. They may still be hazardous even if they get into a food chain long after they are first released into the environment.

5. Synergistic effects. Some chemicals acting together may have greater health effects than either chemical acting alone in the human and animal body. This is a synergistic effect.

6. Groundwater. Spilled chemicals move slowly through the soil and may ultimately reach the ground water table. Ground water also moves slowly, therefore, contamination could persist for centuries. The contaminated water may be pumped out through wells to water livestock, irrigate crops, or provide drinking water to humans. Ground water also may flow into ponds, lakes, and streams.

7. Ecosystems. Are usually more complicated than the simple food chains mentioned above. They consist of webs or networks of interrelating food chains. Since we humans are part of these food webs, effects on natural ecosystems may directly or indirectly affect us as well. We don't know how much chemical disturbance major ecosystems can sustain before they are permanently harmed.

C. Environmental effects can be serious and long lasting. They can be magnified as they pass through the ecosystem and can be transmitted over great distances.

Harmful effects can be avoided by preventing entry of dangerous chemicals into the environment. This can be done by preventing spills and fires, ensuring that hazardous wastes are disposed of properly, and protecting critical parts of the environment such as ground water and surface water.

#### V. Laws and Regulations Pertaining to Hazardous Materials/Waste.

A. Federal laws and regulations have been developed to protect the environment and our health from hazardous chemicals. The Air Force has implemented these laws and regulations. Both the federal laws and regulations and the Air Force hazardous materials management program are important because they affect how you and your supervisors do your jobs. Failure to follow the procedures and requirements of these regulations may result in fines and jail terms.

1. Occupational safety and health. The Occupational Safety and Health Act of 1970 set requirements for worker safety and health. Since 1980, this act has applied to Federal civilian employees. Among other things, it regulates the levels of chemicals workers may be exposed to in the workplace, requires safety equipment in certain situations, and requires standards be set for materials handling equipment.

2. Labeling of chemicals. The Hazardous Materials Transportation Act of 1975 authorized the Department of Transportation (DOT) to issue shipping, labeling, and marking regulations for use during transport of hazardous chemicals. (DOT also requires reporting of spills which occur during transportation of regulated chemicals.)

#### 3. Environmental and health protection.

(a) The Clean Water Act allows EPA to set water quality and effluent discharge standards for water pollutants. The implementing regulations specify the quantities of listed substances which must be reported if spilled in US waters. They also require potential dischargers to have spill prevention, readiness, and response plans.

(b) The Resource Conservation and Recovery Act (RCRA) controls the management of hazardous wastes. The RCRA regulations set standards for generators, transporters, and owners or operators of treatment, storage, and disposal facilities. A tracking system for hazardous wastes, called "manifesting," is required by the RCRA regulations. Another requirement is annual training. This course and annual refresher training, satisfies this training requirement.

(c) The Toxic Substance Control Act (TSCA) of 1976, gave EPA the authority to regulate chemicals used in commerce. The TSCA regulations cover manufacture, distribution, use and disposal of any chemical substance. TSCA makes special provisions for storing and handling chemicals called polychlorinated biphenyls (PCB).

(d) The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (Superfund), requires reporting of hazardous material disposal sites and areas made hazardous by old spills, including those on Federal property. It requires us to report spills on land as well as water, and expands the definitions of hazardous substances to cover those defined as hazardous by other laws. Therefore many more types of hazardous materials must now be reported if spilled.

B. All of these laws not only regulate how you may do things as handlers of hazardous wastes, but also prescribe fines and jail terms for failure to act properly. These may be levied directly against the Air Force, the activity commander, and the handler. Criminal action can be taken against an individual who knowingly and willfully violates various sections of these regulations.

C. To comply with these laws and regulations, the Air Force has adopted policies and prepared requirements which detail how the Air Force will handle, store, and arrange for the disposal of hazardous waste. The key to safe handling of all chemicals is to incorporate good planning and information on specific hazardous substances into facility operations. Many of the problems associated with handling hazardous wastes can be planned for, identified and prevented.

#### VI. Public Relations.

Public relations is another area in which hazardous waste can become a problem. Given the potential for hazardous waste accidents, and stories about problems like Love Canal, it is not surprising that communities are sensitive about chemicals transported on their streets or stored nearby. People may appreciate an Air Force activity for its contributions to their local economy, but they will still be concerned about how that installation carries out its mission. Thus, any Air Force activity that handles hazardous wastes may have a future public relations problem if those wastes are not properly managed.

#### VII. Summary.

Hazardous wastes pose a number of very serious problems to individuals, society, and the environment. The Air Force generates large quantities of hazardous wastes but it is the "Handler" of these wastes who is responsible for preventing these serious problems. The purpose of this course is to make certain that you, the handler, have the training you need to safely work with hazardous waste.

#### VIII. References

A. "3000 Degrees of Mean", an article by Diane Hamblen from the May/June 1982 issue of Navy Lifeline.

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# 3,000 degrees of MEAN

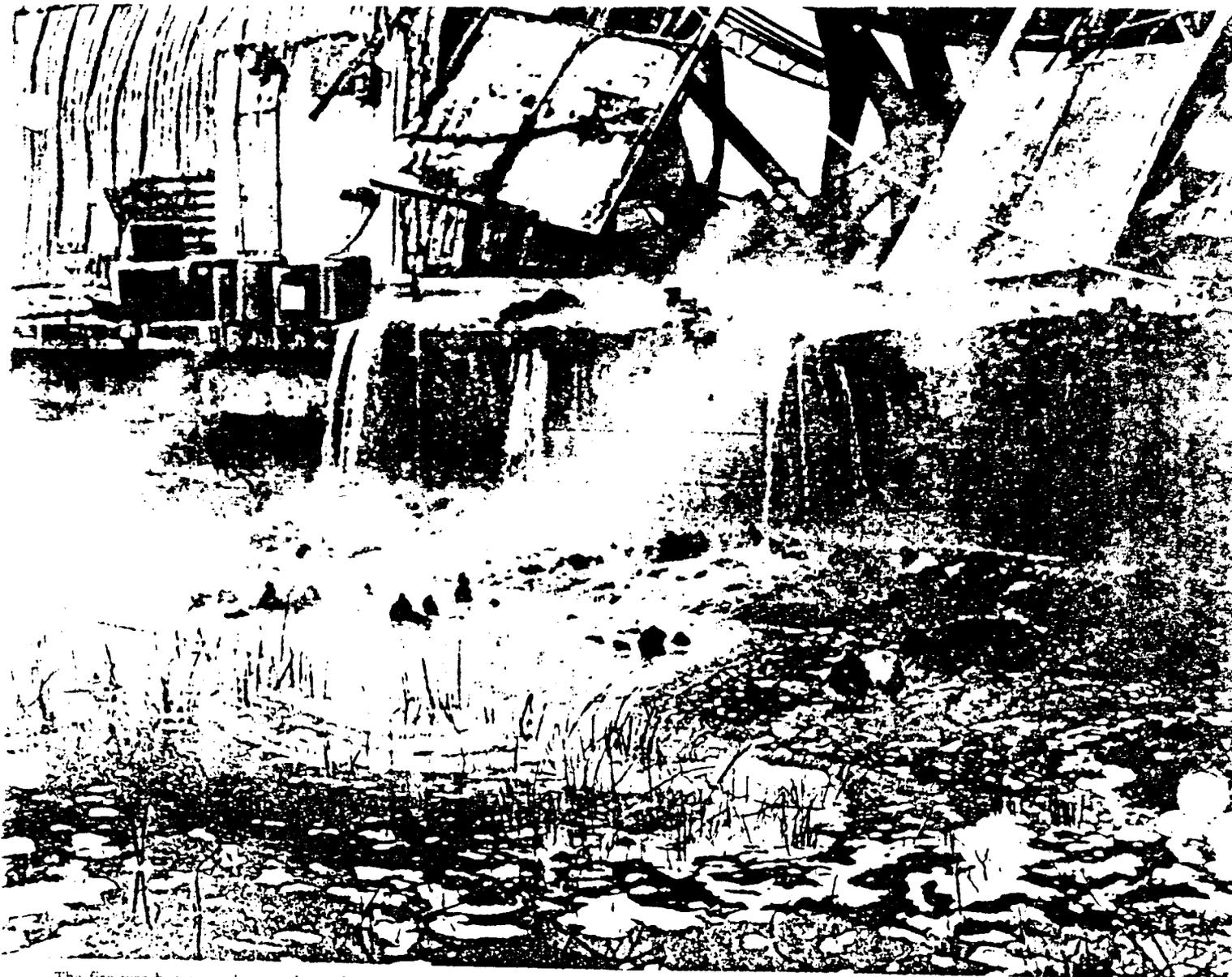


By Diane Har

Firefighters were powerless to stop the destruction of C.H. 6. One of their final jobs was to back up their greatest ally in this blaze — the 40-year old firewalls which helped contain the fire — by cooling adjacent roofs.

NAVY LIFELINE

I-7



The fire was hot enough to melt steel beams. It attacked a chemistry set of combustibles. These elements produced an alien landscape outside the burning warehouse. Firefighters pumped 400,000 gallons of water into and around the blaze. One firefighter suffered serious chemical burns on her legs when caustic runoff leaked into her boots.

THE best way to motivate people to learn about the hazardous materials they work with is by showing them what happens when they don't quite know enough. Small errors and minor mistakes usually take care of themselves, but every once in a while they mushroom into disaster.

That's exactly what happened last August at the Norfolk Naval Supply Center's hazardous material storage warehouse, Building SDA-215. It's a 40-year-old single-story warehouse made of corrugated metal on steel. It squats solidly on a raised concrete slab. Two-foot-thick brick firewalls divide the building into nine 80 x 100-foot cells. These firewalls would be key players in the events which followed.

In the first four cells, the local public works center stores hazardous wastes which are awaiting disposal. The supply center uses the other cells to receive and store ready to issue, damaged, or expired chemicals and hazardous materials. There are more than 3,000 hazardous chemical substances in the supply center inventory.

On that August afternoon two warehousemen were dealing with just one: calcium hypochlorite (CHC), a powerful oxidizer used primarily to purify potable water and in sewage waste treatment.

The workers were transferring deteriorated cardboard boxes of expired 6-ounce containers of CHC from pallets into new triple-wall cardboard containers. The small plastic bottles were cracked and brittle, having been apparently exposed to high heat and humidity at their previous location. Using a forklift to lift the pallets, they pushed the bottles and cartons off the pallets by hand into the new containers. When both boxes were full, the workers left to get more triwalls.

A few minutes later a transportation driver from Norfolk Naval Shipyard arrived at Cell 6 to pick up a batch of chemicals. He entered the cell from the east door and noticed one triwall container had "fumes and vapors coming off it like there was a fan blowing them up from the bottom." He raced out of the cell to find the acting supervisor. On the way he



The calcium hypochlorite arrived at the supply center warehouse in deteriorated cardboard boxes. The plastic containers were so brittle they cracked under light pressure.

and two other workers what was happening. Three PWC  
sprinkler maintenance mechanics working in a nearby building  
saw the flames and smoke. They pulled the fire alarm on  
the north end of their building.

When the alarms rang in the stations, firefighters reacted  
instantly. "As soon as the dispatcher said SDA-215, they  
realized the hazards. We knew it could be a biggie," Clarence  
Rout recalls. Rout is the head fire marshal for the Naval  
Facilities Engineering Command's Atlantic division. Flames  
and smoke were shooting 1,000 feet in the air only minutes  
after the fire exploded.

Firefighter Debbie Bailey was inspecting a building on the  
side of the Naval Air Station. SDA-215 rang a bell with her.  
Almost every day someone would say, "I hope that one never  
comes." As she sped along the highway behind the wheel of the  
fire truck, she was hoping it was just another faulty sprinkler  
stem. "When the first unit on the scene reported heavy  
smoke and flame visible, we knew it was the real thing," she  
continues. She could see the column of smoke from the crest  
of an overpass 3 miles from the site.

Station One fire chief Ellis Owens was first on the scene. He  
rushed the building and began positioning the trucks. When  
a firefighter pulled up to the building and got out to start  
the pumps, Owens ordered him to move the truck back.  
"I was walking toward the back of the truck when the cell  
blew," the firefighter recalls. "I turned and ran back  
toward the cab, knowing if I didn't get that truck out of there  
I'd lose it. I was shielding my face with my arm, and I knew  
I was burned," he continues. Since turnout gear is too bulky  
to wear when driving a truck, there is always a few minutes of  
exposure. He was out of work for 45 days recovering from a  
second burn on his arm.

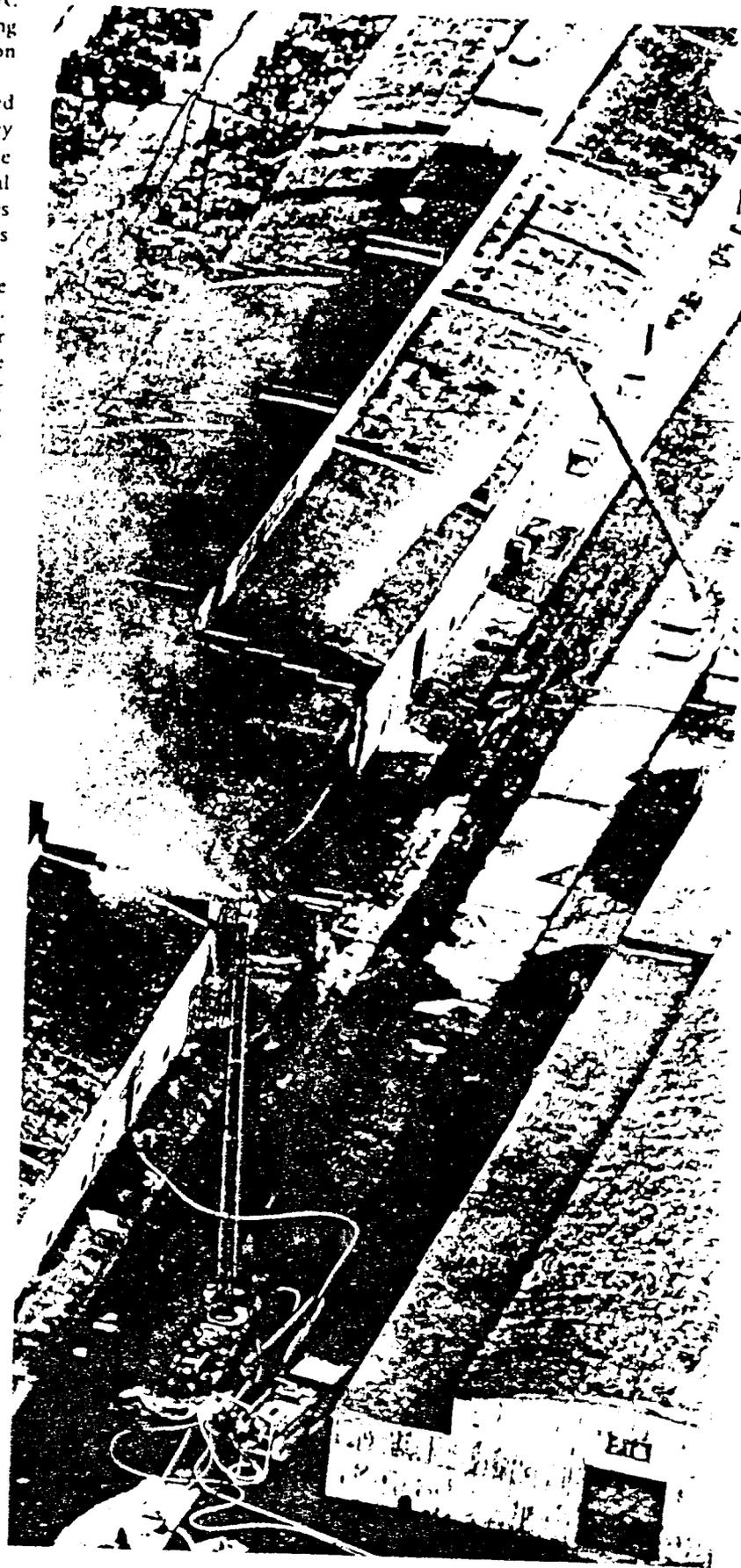
This incident shows the extraordinary heat and destructive  
power of chemical fires. "This is the first fire I've investigated  
where I've seen that kind of metal damage," Rout says. "It  
melted 3-inch iron and cut sprinkler pipes in half. The melted  
metal looked like lava. We figured the fire hit 3,000 degrees,  
which is hot as a steel mill furnace. The average wood fire  
is only 900 degrees.

When a fire as hot as this one is cooking, firemen use almost  
nothing as a shield from the heat. They took refuge behind  
only 55-gallon drums which had been dropped off for  
use rather than that day. What they didn't know was that  
the drums were full of methyl ethyl ketone, a highly explosive  
liquid. The drums were properly labeled with DOT flame  
and liquid warnings, but the labels were turned to the inside  
of the drums.

If these drums had exploded, they would have had all the  
effectiveness of flame throwers, burning everyone in their  
path and sucking oxygen from those they couldn't reach,"  
says APT Sam Barbo, head of the Naval Safety Center's  
Occupational Health Division.

In any fire involving hazardous materials, the poten-  
tial for creating deadly toxic gases was uppermost in every-  
one's mind. Without an accurate inventory of what chemicals  
were present, it was decided to treat the situation as a "worst  
case scenario." Luckily, with an assist from Mother  
Nature, the worst case failed to materialize. The cloud of  
toxic gases generated by the fire went straight up and out over the

site. Two hours after the first alarm, the fire was out. It was a



fast, furious, and dirty 3 hours which left the firemen exhausted.

Then began the questions. Finding answers took a good deal longer than 3 hours. The NAVFAC fire investigation report listed the cause of the fire as CHC in contact with a combustible material, leading to rapid oxidation and ignition. It noted the triwalls were "wax-coated." Presumably the organic material in the wax served as the trigger.

"We still have some real questions about what caused that fire," Jim Bradley says. He is safety manager of Norfolk Naval Supply Center. "We know CHC was a major factor, but could it have reacted with the box that violently? We've talked to several chemists and industrial hygienists who aren't convinced. The triwall boxes looked like regular cardboard. Calling them 'wax-coated' may be technically correct, but you couldn't see or feel it. The plastic bottles originally came packed in cardboard inserts in a wooden crate, so there didn't seem to be much of a reason to think we couldn't put it back in cardboard. We were handling it in a hazardous material facility. We had it stored according to the guidelines in the Consolidated Hazardous Items List. The workers were wearing respirators, so they were aware of the health hazards of the material."

The NAVFAC report points out that workers who handle hazardous materials should know enough to "avoid interaction of chemicals with ordinary combustibles." It recommends "accelerated training."

"As far as CHC goes, the information available to the field wasn't very extensive," Bradley says. "Even if we'd sent our people to all the available classes we aren't sure anyone would have stressed this particular hazard. Classes about transporting and packing hazardous materials are pretty complete, but storage classes aren't. We've done a lot of research and still can't find anything that meets our specific needs here."

"One lesson we learned about training is that if you're going to have good training programs you have to develop your own. We give 3 hours of training to everyone who comes in contact with hazardous materials, more to supervisors. We stress the principles of segregation and separation. We teach them how to recognize both the DOT and NFPA labels. The main point of the training is 'How do you handle a hazardous material?' Often it boils down to simple things like don't mix red labels with yellow labels. But there are hundreds of oxidizers, flammables, and corrosives. Will we teach them every property of every material? There isn't any way to turn a warehouseman into a chemist. We try to teach the basics."

"This fire certainly reminded us that expired or damaged chemicals are more dangerous," he continues. "Deteriorated material demands extra precautions. We're segregating things a little differently now in this warehouse - we store the reactives to issue material by itself."

The fire can also serve as a million dollar reminder to the rest of us about the importance and complexity of controlling hazardous materials. Labels must be accurate and visible. Workers must understand what those labels mean and follow the rules to the letter. Routine housekeeping becomes more important - one way to account for the rapid ignition of the CHC fire is by theorizing the triwall box was damp. Boxes and pallets must be handled and moved with greater care. None of these lessons is particularly new or startling.

The firewalls installed 4 decades earlier kept this fire from becoming even more serious. The things that cause or prevent similar disasters are never quite as tangible as brick walls. They involve information systems and general awareness and personal habits. "If I stay in this department for 20 years, I hope I never see anything like that again," one firefighter observes. When we become aware of the potential, we're on the way to prevention.

# HAZARDOUS WASTE MANAGEMENT TRAINING PROGRAM

## Handout II

### I. Overview

#### A. Training Purpose

1. Required for all personnel exposed to or handling hazardous waste at the treatment, storage, and disposal (TSD) facilities and accumulation points
2. Must meet the criteria specified in Title 40, code of Federal Regulations, Part 265.16
3. Will insure that accumulation point personnel and hazardous waste storage personnel are able to respond effectively to emergency situations by using equipment and emergency systems
4. To protect human health and the environment

#### B. Course Structure

##### 1. Training Type

- a. Training requirements may be met by a combination of classroom and on-the-job training.
- b. It is the responsibility of the accumulation point managers and the Off-Site Branch (OSB) hazardous waste storage facility manager to insure these training requirements are met.

##### 2. Frequency

- a. Training sessions will be held at least annually for all personnel who handle or are exposed to hazardous waste.
- b. New or transferred employees will receive formal initial training within six months of employment date or assignment. Employees will receive Air Force Occupational Safety and Health (AFOSH) training and mini briefing prior to assignment of duty.

##### 3. Documentation

- a. Training will be documented, recorded, and filed in the office of the accumulation point managers and the hazardous waste storage facility manager.



b. Training records will be kept on the following personnel:  
(1) Present employees until closure of the facility  
(2) Former employees for three years after termination or transfer

c. Records will list the following:  
(1) All employees who handle or are exposed to hazardous waste by name, job title, and position description as it relates to hazardous waste  
(2) Dates of initial training and follow-up training

C. Course Content

1. Hazardous Waste Management Program Requirements
2. Resource Conservation and Recovery Act - A Legal Perspective
3. Hazardous Waste Management
4. Medical Briefing
5. Personnel Safety
6. Fire Safety
7. Contingency Plan/Emergency Response

# HAZARDOUS WASTE MANAGEMENT PROGRAM REQUIREMENTS

## HANDOUT III

### 1. INTRODUCTION

a. Thousands of hazardous substances are currently being used by the Air Force. It is impossible to deal with each one individually; therefore, some method of classification is essential. A classification system groups substances with common characteristics. In this course, you will be taught the Department of Transportation (DOT) and the United Nations (UN) classification systems. The following are included in these systems. (UN Class Number with the corresponding DOT classification):

- (1) Class 1 - Explosives.
- (2) Class 2 - Gases (compressed, liquefied or dissolved under pressure).
- (3) Class 3 - Flammable liquids.
- (4) Class 4 - Flammable solids or substances.
- (5) Class 5 - Oxidizing substances.
- (6) Class 6 - Poisonous and infectious substances.
- (7) Class 7 - Radioactive substances.
- (8) Class 8 - Corrosives.
- (9) Class 9 - Miscellaneous dangerous substances.

b. The classification system developed by the DOT is for hazardous materials. This system also applies to hazardous wastes. A labeling system is used to identify the different hazard classes. (We will discuss labeling later in this handout). The RCRA regulations require that hazardous wastes be labeled in accordance with the DOT classification system.

### 2. DEFINITION OF TERMS

a. The terms "hazardous waste" and "hazardous material" are often incorrectly interchanged. The distinction should be clear in your mind because different procedures and regulations apply when handling wastes or materials.

b. There is no simple definition for hazardous waste or hazardous material. The following is an attempt to clarify these definitions for you.

(1) Hazardous Waste. Hazardous wastes are regulated by RCRA. Hazardous wastes are defined in these regulations. However, their definition is very complicated. To simplify this definition we will divide the term hazardous waste in two and define each part separately.

(a) Waste: A useless by-product of an operation; any material which is to be disposed; any material which can no longer be used.

(b) Hazardous: A waste which is listed as hazardous in the RCRA regulations; a mixture that includes a listed hazardous waste; a waste which exhibits any of four characteristics (ignitability, corrosivity, reactivity, or EP toxicity) listed in the RCRA regulations.

(2) Hazardous Material. Hazardous materials are controlled by DOT and other regulations. DOT defines hazardous materials as substances the Secretary of Transportation determines are an unreasonable risk to safety, health, and property during transportation. (These are listed in the DOT Hazardous Materials Table 49 CFR 172.101).

c. The Department of Defense defines hazardous material as follows: Material is hazardous when because of its quantity, concentration, or physical, chemical, or infectious characteristics, it may: (a) cause, or significantly contribute to, an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

d. Accumulation Points Identification:

(1) Work Area Evaluation

(a) Parts Cleaning Operations

(b) Degreasing Operations

(c) Wheel and Tire Maintenance

(d) Painting/Corrosion Control Operations

(2) Hazardous Materials/Hazardous Waste Identification

(a) Carbon Remover

(b) Halogenated Solvents

(c) Paint Stripper

(d) Paints, Solvents, Thinners

e. Hazardous Waste Management Plan

(1) Purpose:

(a) Provides guidance for the control and management of hazardous materials from the point it becomes waste products.

(b) Provides guidance for the control and management of hazardous wastes at the point of generation to the point of ultimate disposal.

(c) Fulfills the requirements of proper hazardous waste storage and disposal according to the

1 Environmental Protection Agency (EPA)

2 Resource Conservation and Recovery Act (RCRA) of 1976  
(Title 40 Code of Federal Regulations, Parts 260-265)

3 Department of Transportation (DOT) Hazardous Materials regulations (Title 49 Code of Federal Regulations, Parts 171-199)

f. Hazardous Material Classes (DOT):

(1) Class 1 - Explosives. Explosives are defined in 49 CFR 173.50 as any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion, i.e., with substantially instantaneous release of gas and heat, unless such compound, mixture, or device is otherwise specifically classified. Four classes of explosives exist:

- (a) Explosive A
- (b) Explosive B
- (c) Explosive C
- (d) Blasting Agent

NOTE: A following section, Identification and Labeling, will go into detail on the definitions of these explosive classes and give examples of each class.

(2) Class 2 - Gases (compressed, liquefied or dissolved under pressure). Any material or mixture having a container pressure exceeding 40 psia at 70° F or a pressure exceeding 104 psia at 130° F, or a liquid flammable material having a vapor pressure exceeding 40 psia at 100° F.

(a) Non-flammable compressed gas. A compressed gas that will not ignite under certain test requirements. Examples: carbon dioxide, chlorine, and helium.

(b) Flammable compressed gas. Any compressed gas (a mixture of 13% or less by volume) when mixed with air forms a flammable mixture or whose flammability range with air is greater than 12 percent. Examples: hydrogen, acetylene, ethylene, and carbon monoxide.

(c) Hazards.

1 The nature of the contents may present hazards due to toxicity or flammability.

2 Pressurized containers may become projectiles if the pressure is suddenly released.

3 Boiling liquid expanding vapor explosion (BLEVE) occurs when a liquefied flammable gas container ruptures due to the exposure of the container to fire. The fire causes the liquid to boil, increasing the pressure inside the container and causing it to rupture. The resulting explosion may be very spectacular. The additional hazard of pieces of the container being flung hundreds of feet also exists.

4 Acetylene cylinders should always be stored in an upright position in a well-ventilated area. Valves on "empty" cylinders must be closed securely to prevent evaporation of the acetone solvent which is flammable. Acetylene cylinders should never be stored within 100 feet of oxygen cylinders unless separated by an approved firewall. "No smoking" signs must be posted in and around areas where acetylene is stored. Filled acetylene cylinders stored in a single bay of a facility should be limited to a total volume of 2,000 cubic feet of acetylene (14.5 cubic feet of acetylene weights approximately one pound).

5 Never consider a compressed gas cylinder empty unless the valve is removed or the tank is punctured.

6 Avoid any activity around flammable material which could generate a static electricity spark. Such a spark could set off an explosion in areas where vapors have accumulated due to spills.

(3) Class 3 - Flammable Liquids.

(a) Flammable liquids are any liquids having a flashpoint below 100° F.

1 Examples include acetone, benzene and rubber cement.

2 Hazards are fire and explosion potential when stored in enclosed areas where vapors may accumulate.

(b) Combustible liquids are any liquids having a flashpoint at or above 100° F and below 200° F.

1 An example is kerosene.

2 The hazard is fire.

(c) Pyrophoric liquids are liquids that ignite spontaneously in dry or moist air at or below 130° F.

1 An example is pentaborane.

2 The hazard is fire.

(4) Class 4 - Flammable Solids or Substances. These are materials which may be ignited and that continue to burn once ignited. These include substances capable of spontaneous combustion.

(a) Examples include wood, paper, carbon, and metallic calcium.

(b) The hazard is fire.

(5) Class 5 - Oxidizing Substances.

(a) Oxidizers are substances that yield oxygen readily to stimulate combustion.

1 Examples include chemicals containing chlorates, permanganates, and nitrates.

2 These substances present an extreme fire hazard. Normal firefighting procedures may not be effective because the burning material is supplying its own oxygen.

(b) Organic peroxides are derivatives of hydrogen peroxide ( $H_2O_2$ ) with one or more of the hydrogen atoms replaced by organic radicals. An example is Benzoyl peroxide  $(C_6H_5CO)_2O_2$ .

1 The organic peroxides are potentially dangerous because they are considered unstable chemicals. Unstable chemicals may react with themselves or decompose, producing a violent reaction. Heat, shock, or friction may stimulate the reaction. The degree of violence of the reaction depends on the specific chemical and the temperature. Methyl ethyl ketone peroxide, for example, may detonate. The organic peroxides are combustible and, therefore, increase the intensity of a fire. In cold weather, solutions of organic peroxides may form sensitive crystals which may explode when disturbed.

2 The following ethers form ether peroxides which pose a hazard: diethyl ether, ethyl tertiary butyl ether, ethyl tertiary amyl ether, and diisopropyl ethers. So far, there seems to be no way to completely eliminate peroxide formation, although proper containers and storage help. Organic peroxides should be stored in separate buildings away from all sources of heat including direct sunlight.

(6) Class 6 - Poisonous and Infectious Substances.

(a) Poisonous materials.

1 Poison A - extremely dangerous poisons. These include poisonous gases or liquids of such a nature that a very small amount of the gas or vapor of the liquid when mixed with air, is dangerous to life. Examples: phosgene, nitrogen peroxide, and nitric oxide.

2 Poison B - less dangerous poisons. These substances are liquids or solids (other than class A poisons or irritating materials) which are known to be so toxic to man that they present a hazard to health. Examples: tetraethyl lead, aldrin, calcium arsenate, arsenic sulfide, and nicotine (liquid).

(b) Irritating material. These are liquid or solid substances which, upon contact with fire or exposure to air, give off dangerous or intensely irritating fumes. These do not include any poisonous materials. Example: tear gas.

(c) Infectious substances and etiologic agents. Viable microorganisms, or their toxins, which may cause human disease.

(7) Class 7 - Radioactive Substances. These are materials that spontaneously emit ionizing radiation, and have a specific activity greater than 0.002 microcuries per gram. Examples include: Cesium 137, cobalt 60, and uranium 233.

(a) Three classes of radioactive substances exist:

- 1 Radioactive I
- 2 Radioactive II
- 3 Radioactive III

(b) A following section on Identification and Labeling will go into detail on the differences between these classes.

(8) Class 8 - Corrosives. Any liquid or solid that causes visible destruction of human skin tissue, or a liquid that has a severe corrosion rate on steel. This includes acids and bases.

EXAMPLES:

Inorganic Acids Organic Acids

Nitric Acetic  
Sulfuric Butyric  
Hydrochloric Formic  
Chromic  
Hydrofluoric

CAUSTIC (BASES) ORGANIC SOLVENTS

Ammonia Dichloroethylene  
Sodium Hydroxide Ethylene chlorohydrin  
Potassium Hydroxide Methyl ethyl ketone  
Perchloroethylene

(a) Hazard: Corrosive materials may act on the body through a number of pathways, including direct contact with skin, direct contact with eyes, inhalation, and ingestion. Corrosive material may be a solid, liquid, or gas. The hazards associated with each are a little different. It is very important that proper safety precautions and protective equipment be used when dealing with corrosives.

(b) Corrosive liquids. These are the most frequently encountered corrosives. They may include acids, bases, and organic materials. The skin and eyes are the most frequently affected. Corrosives can cause irritation and actual destruction of tissue, depending on concentration and length of time of exposure. Some corrosives produce vapors which are particularly harmful to the lungs. Caustics (bases) are particularly damaging to the eyes.

(c) Corrosive solids (sodium hydroxide, phenol, elemental sodium, and phosphorous). The dusts of these materials are particularly dangerous to skin, eyes, and respiratory system.

(d) Corrosive gases (formaldehyde, ammonia, sulfur dioxide, chlorine, ozone, and nitrogen dioxide). These are particularly hazardous to the respiratory system. Those which are very soluble (such as ammonia) affect the upper respiratory tract. Less soluble materials (such as sulfur dioxide) affect the bronchial tubes. The least soluble material (such as ozone) affect the air sacs (alveoli) deep in the lungs where oxygen enters the bloodstream.

(9) Class 9 - Miscellaneous dangerous substances. Any material that may pose an unreasonable risk to health, safety, or property when transported in commerce and that does not meet any of the definitions of the other hazard classes specified. These substances are generally known as Other Regulated Materials (ORM).

EXAMPLES: ORM-E Pentachlorophenol (PCP)  
Polychlorinated biphenyl (PCB)  
Potassium chromate  
Ferric fluoride  
Ferrous sulfate

ORM-C Asbestos

ORM-B Mercury (metallic)  
Barium oxide  
Calcium oxide

### 3. CONTENTS:

- a. Definitions
- b. Tasks
- c. Public Affairs Planning
- d. Identification of Regulated Materials/Waste, Generators, and Treatment, Storage, Disposal Facilities
- e. Treatment, Storage, Disposal Facility Management
- f. Accumulation Point Management
- g. Waste Analysis Plan

- h. Packaging and Labeling
- i. Turn-in Procedures
- j. Recordkeeping Requirements
- k. Emergency/Contingency Plan
- l. Training
- m. Closure Plan

## HAZARDOUS WASTE LAWS, REGULATIONS, AND POLICIES

### Handout IV

#### 1. Introduction.

a. In the past decade or two, Congress has passed much legislation in an attempt to deal with the growing quantity of toxic and hazardous wastes. The following Federal laws relate to this topic:

- (1). Resource Conservation and Recovery Act (RCRA)
- (2). Toxic Substance Control Act (TSCA)
- (3). Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund)
- (4). Clean Water Act

b. The Federal laws provide a framework within which our society will attempt to deal with a very complex and controversial problem. At the base level, the commanding officer has the responsibility for compliance with these laws and their regulations. The commanding officer designates an environmental coordinator to serve as a focal point to coordinate activity hazardous material/waste management programs. This coordinator develops a plan that describes how to handle hazardous wastes to remain in compliance with the laws and regulations.

c. Those who actually handle hazardous wastes at the activity play a key role in this plan. Their actions, to a large extent, determine the activity's compliance with applicable regulations. The way they handle hazardous wastes affects their own health and the health and environment of the people at the activity.

d. The hazardous waste handler is in a very important position, one which should be supported and respected by everyone. Handlers need not know the specifics of the federal laws mentioned above, but a knowledge of the laws' basic requirements can help them do their job.

e. The hazardous waste problem is complex and controversial for a number of reasons. For example:

(1) Our society has grown accustomed to a chemical environment. We know that chemicals of various types are very useful and desirable. In many cases, however, we lack sufficient knowledge and background to make independent decisions on the use and disposal of specific chemicals.

(2) Economic and political pressures work against change.

(3) Disposal methods for toxic and hazardous wastes are not completely satisfactory. For example:

(a) Incineration is an effective but expensive disposal method. It may also create air quality problems.

(b) Deep-well injection is basically a storage method and it may contaminate ground-water if geology is not considered, or if operation is not properly managed.

(c) Chemical landfills-similar to sanitary landfills, except engineered to prevent leachate from leaving disposal site, are expensive and may not entirely prevent leachate from contaminating ground water.

(d) Ocean dumping is relatively inexpensive, but may be heavily regulated in the future.

(e) Recycling of wastes is an ideal solution but may require expensive redesigning of processes and additional management requirements.

(f) "Midnight dumping" is very popular, and cheap for the dumper. But it is very expensive for the rest of the society that it poisons.

4. Because of the way toxic and hazardous substances are being handled during manufacturing, use, and disposal, people are becoming more and more aware of the possibility of personal exposure. The scientific community is not unified on the effects of toxic and hazardous substances on health and the environment. It is difficult for people to determine which chemicals they may be exposed to, what the health effects may be, the type of personal protective equipment they should use and how significant their exposure may be.

## 2. Resource Conservation and Recovery Act (RCRA).

### a. Overview of the Act.

RCRA is the law that has the most impact on how people handle hazardous waste (HW). Under subtitle "C" of RCRA, Congress gave EPA the job of developing and implementing a national plan to control hazardous waste. In February and May 1980, EPA published the first of its HW regulations in the Federal Register. The basic purpose of these regulations is to protect human health and the environment from improperly managed HW. Participants in the system will include waste generators, waste transporters, and the owners and operators of waste treatment, storage, and disposal facilities.

### b. Overview of the Regulations.

#### (1) HW Identification.

(a) A waste is any material which has served its original purpose. This includes materials intended for reuse, recycling, and recovery even if sold for this purpose.

(b) Solid wastes are solid, liquid, semisolid, or gaseous materials, except:

- Domestic sewage or mixtures of domestic sewage and other wastes going to a publicly owned treatment works (POTW).

- Point source discharges subject to section 402 of the Clean Water Act.

- Irrigation return flows.

- Material subject to the Atomic Energy Act.

- Mining materials not removed from the ground as part of the extraction process.

(c) HWs are defined as solid wastes which:

- Exhibit the characteristics of ignitability, corrosivity, reactivity, or toxicity (contain certain listed contaminants after solvent extraction); or

- Are a listed waste or contain a listed waste (EPA listed approximately 400 chemicals and 85 process wastes in the regulations).

- In addition, a waste may be declared hazardous by applying knowledge of the materials or the processes used.

(2) HW generators are required to:

(a) Have notified EPA that they generate HW's, by 18 August 1980. All generators who notified EPA received an EPA identification number.

(b) Determine if wastes are HWs.

(c) Prepare HW shipments for transport in accordance with EPA/Department of Transportation (DOT) shipping regulations. Requirements for labeling and marking waste containers, and providing placards for transport vehicles are included in the regulations. Wastes stored temporarily (less than 90 days) outside of permitted storage facilities, must be placed in DOT shipping containers, or in storage tanks meeting storage facility requirements. The container must also be marked with the starting date of accumulation of waste. (NOTE: Personnel training, emergency equipment, and contingency plan requirements are the same for temporary storage as for permitted storage facilities.)

(d) Prepare manifests meeting EPA minimum requirements for HW destined for off-installation treatment, storage, or disposal (TSD) facilities. The receiving facility and the transporter must be designated on the manifest, and the generator must ensure that both the transporter and the receiving facility have EPA identification numbers and are properly permitted to receive the wastes being shipped. Manifest requirements apply to shipments

of HW from one location to another wherever public highways or right-of-ways are used. Since there is no uniform manifest, a shore facility shipping HW across several states may have to prepare different manifests for each state.

(e) Prepare and submit an annual report of HW shipped off-site. Maintain records of HW analyses, copies of manifests, and exception reports (reports to EPA of failures to receive signed manifests from the designated TSD facility within 45 days).

(3) Requirements for Transporters of HW.

(a) An EPA ID number must be obtained. The transporter becomes responsible for spill cleanup and for delivery of the entire quantity of HW to the designated TSD facility upon signing the manifest. Responsibility is transferred to the TSD facility only when the manifest is dated and signed by the authorized representative of the TSD facility.

(b) In the event of a discharge of HW, the transporter must take immediate action to protect human health and the environment (for example, notify Federal, state, and local authorities, and take action as required or approved by these authorities).

(4) Requirements for Owners/Operators of HW TSD Facilities.

(a) Standards applicable to TSD facilities will be published in several phases. The first phase included interim status standards (40 CFR 265), effective until TSD facility permits are issued. It also includes some of the standards which will be included in the TSD facility permits, required under 40 CFR 264. Additional Part 264 standards will be published as they are developed for specific wastes and industries.

(b) Compliance with Federal standards does not override the requirement to comply with applicable state and local regulations. States will be awarded primacy for HW control upon demonstration to EPA that the state program is equivalent to the Federal program.

(c) Under the interim status standards, the following actions were required by 19 November 1980:

- Put into effect a written waste analysis plan for detailed chemical and physical analysis of each waste sufficient to allow for proper treatment, storage and/or disposal of the waste. The TSD facility operator may require that this data be submitted by the generator, but the operator must be prepared to verify the data when necessary.

- Follow a written schedule for inspecting all monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps) important in preventing, detecting, or responding to environmental or human health hazards.

- Develop contingency plans. Existing contingency plans may require minor modifications.

- Develop written closure plans to identify the steps necessary to completely close the facility at any point during its intended life and at the end of its intended life. This requirement also applies to TSD facilities which are closed rather than upgraded to meet HW facility permit requirements. Plans must be submitted to EPA for approval not later than 180 days before the expected start of closure activities.

- Initiate operating records which describe wastes received for treatment, storage or disposal, waste location, dates of operation, results of analyses, emergency incident reports, and inspection and monitoring reports.

- Upgrade personnel records for personnel handling HW to include job title, job description, training requirements, and training received. All personnel must complete training requirements (either in the classroom or on the job) in routine and emergency HW management operations not later than mid-May 1981. New personnel hired after 19 November 1980 must complete training prior to working unsupervised with HW.

- Upgrade security in order to prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portions of the facility. This requirement may be satisfied if the facility or plant where the active portion of the TSD facility is located has its own surveillance system, or a barrier, and means to control entry.

- Provide emergency response facilities and equipment to ensure that employees have immediate access to internal alarm or communication systems, and that adequate emergency control equipment and water supplies are available.

- Ensure that uncovered tanks have at least two feet of freeboard, and for continuous waste feed operations, install waste feed cutoff or bypass mechanisms. Impoundments require at least two feet of freeboard and protective covers, such as grass, shale, or rock, to minimize wind and water erosion and to preserve their structural integrity.

- Submit Part A of the RCRA permit for HW facilities. Information required includes a topographic map extending at least one mile beyond property boundaries and showing facility outlines, locations of HW TSD facilities, springs, rivers, and other surface water bodies. Additionally, descriptions of the nature of HW activities; descriptions, and quantities of HW; and photographs and drawings of the facilities are required. Submission of Part B of the permit, which will include hydrogeology surveys, operating and other plans, and waste analyses, will be required six months after notification by EPA, which could occur six months to several years after submission of Part A.

(d) Submit an annual report of HW activities. The annual report will include quantities and types of wastes received and processed, whether the HW was treated, stored and/or disposed and groundwater monitoring data.

Groundwater monitoring applies only to those facilities that treat, store, or dispose of hazardous waste in surface impoundments, waste piles, land treatment units, or landfills.

(e) The following actions were required by November 1981:

- Install, operate, and maintain a groundwater monitoring system of at least four wells, one upgradient, for determining the facility's impact on the quality of groundwater in the uppermost aquifer underlying the facility. Separate monitoring systems for each waste management component of a facility are not required, provided that provisions for sampling upgradient and downgradient water quality will detect any discharge from the waste management area.

- Develop and implement a groundwater sampling and analysis plan to include quarterly background sampling for one year. Continue reduced sampling frequencies after the first year.

- Prepare an outline of a groundwater quality assessment program which would identify pollutant concentrations and the rate and extent of contaminant migration. Upon discovery and confirmation of significant increases of indicator parameters over background levels, EPA must be notified within seven days.

- Upgrade landfills to provide for run-on diversion, run-off collection, and wind control. Place waste piles on an impermeable base and treat as if they were landfills, or provide protection from precipitation and run-on, and cease disposal of liquids and wastes containing free liquids in the pile.

(f) RCRA makes management restrictions for HW containers, tanks, land treatment, incinerators, and other facilities. Special restrictions are established for management of ignitable and reactive HW:

- Containers must be located at least 15 meters (50 feet) from the facility's property line.

- Wastes may not be placed in tanks, surface impoundments, land treatment, landfills, or treatment facilities unless the waste is treated before or immediately after placement so the resulting material no longer meets the definition of ignitable or reactive waste. Waste may be deposited in a tank or surface impoundment in an emergency.

### 3. Toxic Substances Control Act (TSCA).

This law, effective 1 January 1977, authorizes EPA to regulate chemicals used in commerce. The regulation covers manufacture, distribution, use, and disposal of any chemical substance. It was estimated that EPA would have jurisdiction over approximately 50,000 commercial chemicals manufactured or processed in 115,000 establishments in the United States. The following are some of the basic provisions of this legislation.

a. EPA was required to publish an inventory of all chemicals produced or processed in the United States, including location and volume. This inventory was published on 1 June 1979 and contained approximately 50,000 entries.

b. EPA must be informed by a premanufacture notification 90 days before a new chemical is introduced into commerce. A new chemical is defined as any chemical not included in the inventory.

c. Manufacturers and processors may be required to do additional testing if more information is required about a new chemical.

d. Manufacturers and processors are required to maintain records concerning adverse health or environmental effects of their chemicals.

e. EPA has the responsibility to control or eliminate Polychlorinated biphenyls (PCB's). EPA is now in the process of accomplishing this task.

4. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980-The Superfund.

a. The purpose of this act is to assign liability, and provide compensation, cleanup, and emergency response for hazardous substances released into the environment and for the cleanup of inactive hazardous waste disposal sites. Although CERCLA funds are not available to federal facilities, this law does affect the way those facilities operate, especially in the area of hazardous substance spills. The act requires a revision of the national contingency plan which was originally required by the Clean Water Act. The following new terms may result in new requirements in the national contingency plan:

(1) Release. Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment. This excludes workplace exposure, release of various nuclear materials, and normal application of fertilizers.

(2) Environment. The navigable waters, waters of the contiguous zone, some ocean waters, other surface waters, ground waters, drinking water supply, land surface, subsurface strata, or the ambient air, within the United States, or under the jurisdiction of the United States.

(3) Listed Hazardous Substance. Any substance designated under sections 307(A) and 311 (B)(2)(A) of the Clean Water Act, section 112 of the Clean Air Act, and section 7 of the Toxic Substances Control Act, and RCRA Hazardous Wastes.

(4) Facility.

(a) Any building, structure, installation, equipment, pipe or pipeline, well, pit, pond, lagoon, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft.

(b) Any site or area where a hazardous substance has been deposited, stored, disposed of or placed, or otherwise come to be located. This does not include any consumer product.

(5) A Reportable Spill. Any release (other than a federally permitted release) into the environment of a listed hazardous substance in quantities equal to or greater than listed quantities.

#### 5. Clean Water Act.

a. The basic objective of this act is to ensure that surface waters remain suitable for human uses. Congress has established some goals in the current legislation. They are:

(1) By July 1983, the waters of the United States will be clean to the point that they are "fishable" and "swimmable."

(2) by 1985, we will have no discharge of pollutants into the waters of the United States.

At this point, no one expects these goals to be met.

b. The requirements of the Clean Water Act that apply to toxic/hazardous materials are:

(1) A permit system to provide a mechanism for regulating the pollutants discharged into water from a point source. At first, very few toxic substances were regulated by this mechanism. But then four environmental groups sued EPA for not controlling toxics properly. EPA lost the suit and the court required EPA to regulate 65 families of toxic chemicals by the permit system and by other provisions of the law.

(2) Hazardous substances spills. The act requires the preparation of a National Contingency Plan for the removal of spilled oil and hazardous substances. The EPA has published a list designating "reportable quantities" of hazardous substances when they are spilled in water. The list has over 250 entries and the maximum that may be spilled without reporting varies from one to 5,000 pounds.

## HAZARDOUS WASTE MANAGEMENT

### Handout V

#### 1. ACCUMULATION POINT MANAGEMENT.

##### a. Accumulation Point

###### (1). Destination/Location

(a) The accumulation point is that area in or near the generating activity or work place where hazardous waste or used hazardous materials are accumulated prior to turn in to the DPDO.

(b) The accumulation point will be located such that incidental spills and discharge will not flow into sanitary or storm water run-off systems or must be surrounded by a six inch high curb with provisions for draining.

(c) Storage areas should be impervious to leaks and spills.

(d) Storage areas must be located to control run-on and run-off of materials.

(e) Storage areas should be located out of traffic patterns.

###### (2). Approval/Coordination

(a) Each generating activity accumulating hazardous waste in fifty-five gallon containers will coordinate the temporary storage location with Ground Safety, Fire Department, and Bioenvironmental Engineering.

(b) The approval/coordination must be in written form. One copy of the written approval must be sent to the Environmental Planning Office and one copy kept on file at the generating activity.

###### (3). Inspection

(a) Accumulation points are inspected weekly.

(b) The inspections are recorded on the Accumulation Point Facility Inspection Log.

##### b. Accumulation Point Manager

###### (1). Destination

(a) A manager will be identified for each accumulation point.



(b) The following information will be provided by letter to the Environmental Protection Specialist annually no later than 15 January or at any time the manager is changed:

- 1 Accumulation Point Manager
- 2 Grade/Rank
- 3 Duty Title
- 4 Duty Telephone
- 5 Facility Number and Nomenclature
- 6 Organization/Duty Section
- 7 Command

(2) Responsibilities

- (a) Location of the accumulation facilities.
- (b) Assurance that all hazardous waste is placed in proper containers and the date accumulation begins is posted on the container.
- (c) Assurance that the containers are kept closed.
- (d) Assurance that inspection of containers is made at least weekly and that remedial actions are initiated to correct leaks, spills, or improper storage.
- (e) Insurance of inspection documentation.
- (f) Preparation of all documentation required for hazardous waste, packaging and labeling, and the transportation and turn-in of all accumulated hazardous waste.

2. WASTE CONTAINER SELECTION AND USE. Much of the difficulty that an Air Force base has with handling, storing, and transporting hazardous waste could be reduced if the importance of packaging was recognized. It's more likely that leaks will be prevented and worker injuries and environmental damage reduced if an item is packaged with an understanding of its hazardous characteristics. During this unit of instruction, we will review common packaging deficiencies encountered and how to recognize a hazardous waste packaging problem; proper packaging procedures; Department of Transportation (DOT) regulations on labeling, marking, and packaging hazardous material prior to transportation; types of DOT-approved containers available; and the importance of understanding local procedures for handling hazardous waste packaging problems.

a. Policy Considerations. There are specific DOT regulations governing the transportation of hazardous material over the public highways (as well as other modes of transportation). These regulations, although developed for the transportation of hazardous material, are referenced in the RCRA regulations and therefore are applicable to hazardous waste also. These regulations will be discussed in more specific detail later, but generally are concerned with insuring that hazardous waste is packaged, labeled, marked, and placarded in ways so that transportation-related accidents and spills can be avoided. Obviously, the basis of these regulations is that some methods of packaging, labeling, marking, and placarding are better than others. If an item is packaged in accordance with DOT regulations, it's less likely to leak, spill, or react with other items to cause a serious safety problem. If this is true, shouldn't all items to be stored be packaged in accordance with DOT regulations? After all, this could reduce safety and environmental problems. A realistic consideration is that money for materials and manpower is in short supply. However, if no attention were paid to the packaging of hazard items, there would be serious safety and environmental problems. Therefore, some middle way must exist to reduce the problems caused by the packaging of hazardous waste yet still be practical in terms of available resources.

b. Common Packaging Problems. If an important method of preventing safety and environmental problems is early identification of potential packaging problems, then it's necessary for workers to be able to recognize such problems. They can then take action in accordance with local policy to prevent spills from occurring. There are both obvious and not so obvious things to look for when evaluating the packaging of hazardous waste. Some of these areas of concern are reviewed below:

(1) DOT checklist. DOT has published a checklist of things to be reviewed to check compliance with DOT hazardous waste regulations. The list can be helpful to raise questions regarding the adequacy of labeling, packaging, and marking of waste. It can also be useful when trying to determine if waste being transported is being done so legally.

(a) Packaging (containers in general).

1 Use of DOT specification containers which are not authorized for the commodity being shipped.

2 Use of containers that are leaking.

3 Manufacturing and marking containers as meeting a DOT specification when it does not meet the specification.

4 Containers improperly marked.

5 Offering for shipment improperly packaged waste.

(b) Containers (miscellaneous).

1 Steel.

- Labeled containers (without further overpack) with no DOT specification marking.

(b) You should also identify procedures that need to be changed to minimize similar future problems. This could include improved storage procedures (do not put boxes in locations where they can get wet and do not stack so that containers are damaged). These changes will not be easy; it will require hard work on the part of all workers. It may not cause immediate benefits that higher management can measure and praise but it will, in the long run, increase productivity and reduce accidents and spills.

c. Overpack Drums: Overpack drums are used to store or dispose of leaking containers. Rather than completely repackage leaking hazardous waste containers, they can be placed in overpack drums, thereby eliminating health and environmental problems. These drums are slightly larger than a standard 55-gallon drum and can be used to hold leaking drums, other leaking containers, and spill or other contaminated materials.

(1) Procurement. Overpack drums are now in the Federal supply system. There are two types available. Both types meet DOT standards and are 16-gauge steel. Type 1 is a one-trip drum designed for disposal purposes. It has no lining and is not suitable for long-term storage. Type 2 is a reusable drum. It has a sprayed-on epoxy phenolic lining designed for long term storage and disposal purposes. It can be triple-rinsed for reuse.

(a) NSN 8110-01-101-4055, 85-gallon disposal drum.

(b) NSN 8110-01-101-4056, 85-gallon recovery drum.

d. Labeling and Marking.

(1) Labeling. As you remember, one of the key requirements under the DOT system of hazardous material regulations is that proper labels be used to identify the hazards of the item being shipped. Understanding what these labels mean is very important to workers because it lets them know what the dangerous characteristics of an item are. With this information, it's possible to identify storage and waste handling problems and therefore, reduce the change of a spill or accident. If there is a spill or fire, it is imperative the workers be able to quickly identify the contents of the containers. Without proper labels/markings, this may be impossible. In addition, proper labels/markings assist in determining whether wastes are stored compatibly. As packages are moved about, it becomes increasingly difficult to keep track of where everything is and in many cases you may not have time to look it up; therefore, each package must be able to be identified quickly and easily. All facility personnel should, therefore develop and use an understanding of labeling requirements to identify potential packaging problems.

(2) Marking. If hazardous waste is transported in accordance with the DOT hazardous material regulations, it must contain specific markings to include such things as the shipping names, technical names, consignee's name/address; gross weight; "this side up" and ORM (other regulated material) designations. You should have an understanding of the DOT markings since this information can help you in determining:

(d) Special packing requirements. Reusable and other special purpose containers usually require special consideration when packing the contents into the container. For instance, in reusable containers, the blocking and cushioning must be arranged so that it may be easily removed and when replaced still adequately protect the contents.

(3) Realistic concerns. All of the things discussed above should be considered in packing any item, therefore, it is important that even more care be taken with hazardous waste. Yet there are a number of factors that can lead to less attention being given this area. For example:

(a) Does the generator understand why proper packaging is important?

(b) Packing something correctly takes more time and effort initially than just doing enough to get by. If you do not understand why proper packaging is important and think it takes resources that could be spent elsewhere, you will probably choose not to follow proper packing procedures.

c. Common Packaging Problems. If an important method of preventing safety and environmental problems is early identification of potential packaging problems, then it's necessary for workers to be able to recognize such problems. They can then take action in accordance with local policy to prevent spills from occurring. There are both obvious and not so obvious things to look for when evaluating the packaging of hazardous waste. Some of these areas of concern are reviewed below:

(1) DOT checklist. DOT has published a checklist of things to be reviewed to check compliance with DOT hazardous waste regulations. The list can be helpful to raise questions regarding the adequacy of labeling, packaging, and marking of waste. It can also be useful when trying to determine if waste being transported is being done so legally.

(a) Packaging (containers in general).

1 Use of DOT specification containers which are not authorized for the commodity being shipped.

2 Use of containers that are leaking.

3 Manufacturing and marking containers as meeting a DOT specification when it does not meet the specification.

4 Containers improperly marked.

5 Offering for shipment improperly packaged waste.

(b) Containers (miscellaneous).

1 Steel.

- Labeled containers (without further overpack) with no DOT specification marking.

- Containers of hazardous wastes with temporary repairs (damaged, sealed with tape, putty, chewing gum, or screws) or shipped upside down.

- Labeled containers that are dented, rusted, or corroded.

(NOTE: These are judgmental decisions.)

- Labeled containers on which specification markings are illegible.

- Labeled reused containers marked STC and/or 17C, 17E, and 17H with no reconditioner's marking.

## 2 Corrugated fiberboard.

- Boxes with no DOT specification marking when inside containers are larger than the limited quantity exception for the commodity.

- Boxes marked with DOT specification markings which are poorly constructed (gaps, uneven closures, seams, and joints separating).

- Boxes damaged by water.

- Improperly closed boxes (look for masking tape, cellophane tape, and string).

- Leaking containers.

- Non-DOT specification fiberboard box used in lieu of using specification container when required.

## 3 Polyethylene containers.

- Illegibly marked containers.

- Leaking containers offered for shipment.

## 4 Fiber drums.

- Non-DOT specification fiber drums.

- Fiber drums constructed of materials weaker than required by the specification.

- Use of fiber drum marked DOT-21A without inside polyethylene liner.

- Using fiber drum marked STC more than once for hazardous wastes.

- Fiber drum damaged by forklift truck.  
- Improper markings on containers for the commodity being shipped.

5 Cylinders.

- 39.
- Reuse of single-use cylinders such as DOT Specification
  - Cylinders beyond test date.
  - Cylinders in improper conditions (no valve protection, bulge in side, dented or corroded, defective valve).
  - Cylinders improperly marked (duplication of serial numbers).
  - Cylinders offered for transportation without proper identification of contents.
  - Illegible cylinder markings.

6 Portable tanks.

- Name of owners or lessee omitted on tank.
- No labels and/or placards displayed on container containing hazardous wastes.

(c) Labeling.

1 No labels on outer container to represent mixed packages of hazardous wastes.

2 Label on the container not consistent with the hazard class on the shipping papers.

3 Use of obsolete labels.

4 Color and/or size of label does not meet the standards of title 49, CFR, section 172.407.

(d) Marking of containers.

1 No commodity description (proper shipping name) on the container.

2 No DOT exemption number on containers shipped under DOT exemptions.

3 Container markings not in a contrasting color.

4 container of liquid hazardous waste not marked on outside THIS END UP or THIS SIDE UP.

5 Reconditioned drums improperly marked.

6 Portable tanks not marked with proper name of the hazardous waste.

(2) Common observations. Anyone walking through an area where waste is stored or reviewing reports of accidents/spills will notice certain common problems associated with the packaging of hazardous wastes. Personnel should be especially alert to these problems and correct them as soon as possible. These include:

- (a) Pallets made of defective material--weak, broken boards.
- (b) Fiberboard containers weakened by water or spills of other waste.
- (c) Incompatible wastes packaged together.
- (d) Use of incompatible cushioning material with packaged item.
- (e) Improper stacking of containers--overhand on pallets; containers stacked too high; crushing of packages on bottom; stacks leaning.
- (f) Package not labeled when waste is hazardous.
- (g) Package incorrectly labeled.
- (h) Drums overfilled--no room for expansion (outage).
- (i) Leaking containers.
- (j) Corroded, rusty drums.
- (k) Drums not closed correctly; damaged chimes.
- (l) Incompatible packages of hazardous waste stored together (we will talk more about this problem in another unit of instruction).

(3) Local procedures.

(a). Assuming that you have observed one or more of the above problems, what action should you take next? Again, realistically, you may be restricted by resource constraints but you should realize that some ways of handling the situation are better than others. Ideally, steps should be taken to upgrade the packaging of the waste so that it can be safely handled, stored, and eventually transported. This implies that a capacity to do this should be available at your facility.

(b). You should also identify procedures that need to be changed to minimize similar future problems. This could include improved storage procedures (do not put boxes in locations where they can get wet and do not stack so that containers are damaged). These changes will not be easy; it will require hard work on the part of all workers. It may not cause immediate benefits that higher management can measure and praise but it will, in the long run, increase productivity and reduce accidents and spills.

d. Overpack Drums. Overpack drums are used to store or dispose of leaking containers. Rather than completely repackage leaking hazardous waste containers, they can be placed in overpack drums, thereby, eliminating health and environmental problems. These drums are slightly larger than a standard 55-gallon drum and can be used to hold leaking drums, other leaking containers, and spill or other contaminated materials.

(1) Procurement. Overpack drums are now in the Federal supply system. There are two types available. Both types meet DOT standards and are 16-gauge steel. Type 1 is a one-trip drum designed for disposal purposes. It has no lining and is not suitable for long-term storage. Type 2 is a reusable drum. It has a sprayed on epoxy phenolic lining designed for long-term storage and disposal purposes. It can be triple-rinsed for reuse.

(a) NSN 8110-01-101-4055, 85-gallon disposal drum.

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e. Labeling and Marking.

(1) Labeling. As you remember from previous units of instruction, one of the key requirements under the DOT system of hazardous material regulations is that proper labels be used to identify the hazards of the item being shipped. Understanding what these labels mean is very important to workers because it lets them know what the dangerous characteristics of an item are. With this information, it's possible to identify storage and waste handling problems and, therefore, reduce the chance of a spill or accident. If there is a spill or fire, it is imperative the workers be able to quickly identify the contents of the containers. Without proper labels/markings this may be impossible. In addition proper labels/markings assist in determining whether wastes are stored compatibly. As packages are moved about, it becomes increasingly difficult to keep track of where everything is and in many cases you may not have time to look it up; therefore, each package must be able to be identified quickly and easily. All facility personnel should, therefore, develop and use an understanding of labeling requirements to identify potential packaging problems.

(2) Marking. If hazardous waste is transported in accordance with the DOT hazardous material regulations, it must contain specific markings to include such things as the shipping names, technical names, consignee's name/address; gross weight; "this side up" and ORM (other regulated material) designations. You should have an understanding of the DOT markings since this information can help you in determining:

(a) What hazards are associated with the item (by enabling you to use technical information sources such as the DOT Commodity List or the Hazardous Materials Information System).

(b) If the packaging is adequate.

(c) If the waste is stored properly.

f. DOT Specification Containers. You should be able to recognize what DOT specified containers look like. If you can tell if a container meets DOT requirements, you can predict whether or not packaging or storage problems are likely. You can also tell if your facility is storing hazardous wastes correctly under RCRA regulations. Since DOT containers are required for storing or transporting hazardous wastes, you can also determine if hazardous waste is being shipped in accordance with DOT regulations. While actual specifications for approved DOT containers are complex, they must be followed by manufacturers to meet DOT requirements.

### 3. TURN IN PROCEDURES:

a. The generating activity must properly package, label and prepare for shipment hazardous materials prior to turn-in to DPDO. The Disposal Turn-In Document (DTID) for processing hazardous materials to DPDO is DD Form 1348-1. An original and five copies of the DTID are required. A sample DTID is shown on page V-11.

b. The generating activity shall contact DPDO and request turn-in for the hazardous material. DPDO will inspect the material and the DTID at the accumulation point to insure compliance with regulations. No material will be transported to DPDO for turn-in without this pre-inspection and approval for acceptance from DPDO. If the material of DTID is not acceptable for turn-in, the generating activity will take the necessary corrective action and request a follow on inspection.

c. Once approved, the generating activity will arrange transportation of the hazardous material to DPDO (Bldg 215) through 27TFW/LGTO (Vehicle Operations). Generating activities are not authorized to transport hazardous material to DPDO. The generating activity will telephone DPDO (2435) prior to turn-in to alert them of the incoming hazardous material. Turn-in will only be accepted during the hours of 0730-1500 on Monday through Thursday and 0730-1200 on Fridays.

d. DPDO will sign and date the DTID, signifying receipt and accountability of the hazardous material and return one copy for the generator's files. DPDO will return a second copy of the DTID to the generator when final disposition of the hazardous material is determined (i.e., resale, recycling, reuse or disposal of hazardous waste). The generator shall file the second copy with the first IAW Section XIII (Record Keeping) of this plan.

|   |  |                            |                        |                       |      |      |               |               |                 |               |                     |        |        |                       |        |      |              |         |          |                |        |    |                    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
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| WAREHOUSE LOCATION                          | TYPE OF CARGO                                    | UNIT PACK                  | UNIT WEIGHT            | UNIT CUBE             | UFC  | NMPC | FREIGHT RATE  | DOCUMENT DATE | MAT COND        | QUANTITY      | TOTAL PRICE DOLLARS | E      |        |                       |        |      |              |         |          |                |        |    |                    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| SUBSTITUTE DATA (ITEM ORIGINALLY REQUESTED) | FREIGHT CLASSIFICATION NOMENCLATURE              | ITEM NOMENCLATURE          |                        |                       |      |      |               |               |                 |               |                     |        |        |                       |        |      |              |         |          |                |        |    |                    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| SELECTED BY AND DATE                        | TYPE OF CONTAINER(S)                             | TOTAL WEIGHT               | RECEIVED BY AND DATE   | INSPECTED BY AND DATE |      |      |               |               |                 |               |                     |        |        |                       |        |      |              |         |          |                |        |    |                    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| PACKED BY AND DATE                          | NO. OF CONTAINERS                                | TOTAL CUBE                 | WAREHOUSED BY AND DATE | WAREHOUSE LOCATION    |      |      |               |               |                 |               |                     |        |        |                       |        |      |              |         |          |                |        |    |                    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
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| FIRST DESTINATION ADDRESS                   | DATE SHIPPED                                     | FF                         | GG                     |                       |      |      |               |               |                 |               |                     |        |        |                       |        |      |              |         |          |                |        |    |                    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| TRANSPORTATION CHARGEABLE TO                | LOADING, AWB, OR RECEIVER'S SIGNATURE (AND DATE) | RECEIVER'S DOCUMENT NUMBER |                        |                       |      |      |               |               |                 |               |                     |        |        |                       |        |      |              |         |          |                |        |    |                    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

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DOD SINGLE LINE ITEM RELEASE/RECEIPT DOCUMENT

NOTE: In addition to completing the DTID IAW Para 5-5 of DOD 4160.17M, MILSTRIP, specific additional information is required as follows.

1. The Cannon AFB EPA identification number NM7572124454 shall be included.

2. Include the designation HM (hazardous material) or HW (predetermined hazardous waste).

3. Include the "Freight Classification Number." Attachment 5 Hazardous Waste Management Plan provides a listing of freight classification numbers.

4. Include the DOT specification of the container the material/waste is stored in.

5. This statement must be included on all turn-in documents. It shall be signed by the generator.

e. Labeling and Marking:

(1). All containers of used/waste hazardous materials must be properly labeled to ensure safe and proper handling. The appropriate labels are listed below:

| <u>HAZARDOUS MATERIAL</u> | <u>LABEL</u>      |
|---------------------------|-------------------|
| Acetone                   | Flammable Liquid  |
| Acetic Acid               | Corrosive         |
| Chlordane                 | Flammable Liquid  |
| Corrosives                | Corrosive         |
| Dichloromethane           | ORM-A (Stencil)   |
| Dimethylformamide         | St. Andrews Cross |
| Hydrazine                 | Corrosive         |
| MEK                       | Flammable Liquid  |
| Mercury                   | ORM-B (Stencil)   |
| Naphtha                   | Flammable Liquid  |
| Sulfuric Acid             | Corrosive         |
| Toluene                   | Flammable Liquid  |
| Trichloroethane           | ORM-A (Stencil)   |
| Trichloroethylene         | ORM-A (Stencil)   |
| Xylene                    | Flammable Liquid  |

(2). Proper labels can be obtained through 27CSG/DAPD (Pubs/Forms Distribution). The Flammable Liquids Label is Standard Form 405 and the Corrosive Label is Standard Form 416. Form numbers for other labels, if ever required, are listed in AFR 71-4, Chapter 13. There is no label for "ORM-A" or "ORM-B", it must be stenciled on the container. The letters shall be at least 1-inch high and placed within a rectangle that is approximately 1/4-inch larger on each side than the letters.

f. In addition to the required labels, all containers must have certain information stenciled on them at the time they are first used to accumulate the used/waste hazardous materials. The information will be clearly stenciled on the side of the container in letters at least 1-inch high. The following information shall be included:

- (1). Date material began to be stored in container.
- (2). Name of material.
- (3). Organization symbol of shop accumulating material.

g. Before hazardous waste is transported off base, the containers will be labeled with the following information:

"Hazardous Waste-Federal law prohibits improper disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency, Department of Defense, Cannon AFB, NM 88103. Manifest Document Number \_\_\_\_\_ (leave blank until turn-in or transport documentation is prepared).

#### 4. RECORD KEEPING PROCEDURES:

a. Each hazardous waste management function will maintain files and records necessary to comply with EPA requirements. All records must be maintained for three years from date of recorded action. The following records are required:

##### (1). Generators:

(a) Manifests: This will be a copy of the DTID. Under normal circumstances, the generator will turn in materials as used hazardous materials and DPDO will determine if they must be declared hazardous waste. To ensure proper tracking of the material, the generator will maintain three copies of the DTID. The first copy will be that received from transportation when the material is transported to DPDO. The second will be the copy returned by DPDO to indicate receipt and accountability of the material. The third will be the copy returned by DPDO to indicate final disposition of the material (i.e., resale, reuse, recycling or disposal as hazardous waste).

(b) Annual Reports: Each generator will provide DEEV an annual report on the amounts and types of hazardous material turned in to DPDO. The report will cover the calendar year and must be submitted to DEEV NLT 15 January of the following year.

(c) Exception Reports: Exception reports are required when acknowledgement of receipt of hazardous waste shipment is not received within a specified time period. Since DPDO normally takes accountability for hazardous wastes, they will be responsible for making this report. If DPDO makes an Exception Report, they will provide information copies of the report to

each generator who had hazardous material included in the shipment. If a generator does ship a hazardous waste, it will be responsible for making an Exception Report, if required, IAW Para 3 (b) below. DEEV will be notified of any Exception Reports that are required.

(d) Waste Analysis and Test Results: When needed, a generator must contact SGPB to obtain a chemical analysis to determine the constituents of an unknown waste. Copies of the test results must be kept on file with the generator and SGPB.

(e) Training Records: The generator must maintain training records which include:

1 The job title for each position related to hazardous waste management and the name of the person filling the position.

2 A written job description for each position.

3 A written training plan for introductory and continuation (annual) training.

4 Documentation of training received, including date of training, instructor(s) and hours of training.

(f) Inspection Reports.

(g) Contingency Plan: A copy of this management plan and any shop/section OIs related to emergency response/reporting.

(2). Transportation (27TFW/LGT):

(a) Manifests: The transportation office will maintain file copies of the DTID for all materials transported to DPDO for turn-in.

(b) In the event LGT becomes involved in bulk shipments of hazardous waste by rail or water, copies of the shipping papers must be maintained.

(3). TSD Facilities:

(a) Manifests: TSD facility operators shall maintain file copies of all manifests. The file will be organized in two sections: (1) a file of "open" manifests, i.e., copies of the original manifest being held pending return of the completed original from the transporter or disposer, and (2) a file of completed manifests where the returned manifest is matched with the "open" file copy and the two are filed together for use in the annual report.

(b) Exception Reports: A facility operator who ships a hazardous waste for storage or disposal and does not receive a signed copy of the manifest from the owner or operator of the designated receiving site within 35 days of the date the waste was accepted for transportation must contact the transporter and/or site/operator to determine the status of the hazardous waste shipment. If a properly signed manifest has not been received within 45

days, the facility operator must submit an Exception Report to the EPA Regional Administrator, Region VI. The report must include: (1) a legible copy of the manifest for which confirmed delivery has not been received and (2) a cover letter signed by the Base Commander or his authorized representative explaining the efforts taken to locate the hazardous waste and the results of those efforts. DEEV will be contacted to coordinate on the Exception Report submittal. Copies of the Exception Report will be maintained on file.

(c) Chronological Log: A log will be maintained which outlines all hazardous waste transactions using the manifest as the initiation entry when waste is received for treatment or storage at the facility, a dispatch entry when waste is sent from the facility to another site and a culmination entry when waste is delivered to another site. The culmination entry will be based on receipt of a properly signed and dated manifest from the designated treatment or disposal site.

(d) Inspection Records: A file copy of the facility inspection plan and inspection reports.

(e) Training Records: This file will include all training documents outlined in paragraph A1(e) above.

(f) Site Document File: This file will include a copy of the operating permit, annual reports (prepared IAW paragraph A1(b)), copies of any waste analysis testing and test results, and a copy of the base Hazardous Waste Management Plan.

(g) Tickler File: Each operator must maintain a date-organized file of future events that need action. Such events would include annual reports, training sessions, inspections, exception reports (based on non-receipt of manifests, etc.).

(4). Environmental Planning (DEEV): DEEV will maintain the following files for the Base Commander:

- (a) Operating Permits
- (b) Annual Reports
- (c) Exception Reports
- (d) Accident/Incident Reports

5. HAZARDOUS WASTE STORAGE. The subject of hazardous waste storage is complex and yet very important. Wastes in storage can cause injuries, spills, and damage to property even if they were originally packaged and handled properly. In this section we will cover some of the concepts that are applicable to the safe storage of hazardous waste. We will discuss the importance of compatible storage and describe storage aids available to assist you in doing your job.

a. Compatible Storage and Conforming Storage. These concepts are important to understand because they relate directly to whether or not you are storing hazardous wastes in a safe manner.

(1) Conforming Storage. According to the Department of Defense (DOD) Consolidated Hazardous Material/Hazardous Waste Disposal Guidance, conforming storage is, "a facility or location which conforms to regulations of the Environmental Protection Agency (EPA) and other regulatory authorities governing the storage of hazardous material."

(a) What makes some buildings better than others? Common sense can illustrate several of the criteria to be used in determining which of several buildings has the most conforming storage. For example, which building has the best nonleaking roof? Which building has the most solid, level floor which will prevent spills from escaping into the environment? Which building has a berm around the storage area to contain the entire amount of spilled waste? Which building has the best nonleaking walls to protect stored waste from the elements? Which building has the best ventilation system to prevent hazardous waste fumes from accumulating? Which building has fire protection equipment, emergency eyewashes/showers, and explosion-proof electrical systems?

(b) While many hazardous wastes are not covered by specific regulations on how they must be stored, the regulations for polychlorinated biphenyls (PCB) highlight several points to be evaluated in determining the best storage site for a specific hazardous waste. The PCB storage regulations issued by the EPA require, for example:

(1) Adequate roof and walls to prevent water from reaching the stored items.

(2) A floor which has a minimum curb of 6 inches. The floor and curb must be able to contain two times the volume of the largest item or 25 percent of the volume of all the items and containers stored.

(3) Floor and curbing constructed of continuously smooth and impervious materials such as Portland cement, concrete, or steel, to prevent or minimize penetration of PCBs.

(4) No drain valves, floor drains, expansion joints, sewer-lines, or other openings that would permit liquids to flow from the curbed area.

(5) A site that is above the 100-year floodwater elevation.

(c) Compatible Storage. Some wastes will react with each other to produce fires, explosions, toxic vapors, or corrosion. In planning to store hazardous wastes, this fact must be recognized. A major problem is that to be reasonably safe, a number of separate areas must be maintained. You should separate incompatible hazardous wastes as much as possible.

b. Storage Safety Considerations. There are a number of important things to be aware of when storing hazardous wastes. Below are a few of the general safety precautions you should practice in housekeeping, general storage and hazardous waste storage.

(1) Good housekeeping practices are essential to safety as well as to efficient storage operations. Many potential accidents and fires are prevented when inside and outside storage areas are maintained in a clean and orderly condition.

(a) Provide adequate lighting so that workers can easily read labels and clearly see what they are doing.

(b) Keep machines, equipment, and working surfaces clean and orderly.

(c) Provide adequate storage for tools and safety equipment and maintain it in neat order.

(d) Provide enough approved waste containers.

(e) Systematically remove and dispose of scrap and waste.

(f) Clean up work areas as soon as work is completed. Remove hazardous objects from the floor or ground areas during work. Clean up chemical residues and spilled wastes immediately so that they are not spread around the facility.

(g) Remove broken straps, exposed nails, and wires from containers or unit loads to avoid personnel injury and to prevent containers from being punctured.

(h) Allow eating only in authorized places. This is especially important when workers and food may be contaminated by dangerous chemicals.

(i) Keep offices and restrooms in orderly condition.

(j) Clean up immediately any spilled flammable liquids, greases, or other dangerous substances from working floors or panel areas.

(k) Use containers, pallets, and units of sound construction.

(l) Maintain proper and safe storage of hazardous packing materials such as excelsior, sawdust, wood cellulose, preservative liquids, and chemicals.

(m) Eliminate tripping hazards.

(n) Place flammable waste (such as oily rags, steel wool, and sweeping of excelsior) in special covered metal containers and dispose of regularly.

(o) Store dunnage material in an orderly manner.

(p) For inside storage areas:

1 Maintain proper clearances at fire doors, and near overhead sprinklers and bulkheads.

2 Keep floors dry.

3 Prohibit smoking near entrances to prevent discarded cigarettes from being blown in.

4 Do not block established fire doors. Do not block access to fire extinguishers, alarms, eyewashes, or shower facilities.

(2) General Rules for Safe Storage. There are a number of general rules you should follow for any material; when the material is a hazardous waste, these rules become even more significant.

(a) All waste containers should be placed and secured in a safe manner.

(b) All pallet loads should be squared to achieve a four-point level top. Superimposed loads should be placed squarely and firmly to prevent rocking or tipping.

(c) Partially loaded pallets should be stored in pallet racks or at the top of stacks. A full load should not be superimposed on a partial load and a large load should not be superimposed on a small load. Heavy loads should not be stored on top of a light load or on material which could be broken or damaged.

(d) Nonsecured top loads of tall cylindrical units stacked on end, or any type of unit which has a tendency to lean or settle outwards, should be tied with cord or tape. When stacked vertically, loads with cylinders of compressed gas should be strapped and collared.

(e) Broken or damaged pallets should be replaced with pallets in safe condition.

(f) Where it is necessary to stack heavy waste containers in open storage on muddy or soft ground or on asphalt-type paved surfaces that soften in hot weather, sufficient base dunnage of broad dimensions should be provided to prevent tipping or settling of the container.

(g) For regions where strong winds occur, noncapped or non-strapped stacks of lumber or empty drums in open storage should be tied to prevent top units from being blown off.

(h) Pallet loads should be stacked with 2 inches of clearance on all sides to prevent dislocation of adjacent units.

(i) Crushable containers should have vertical supports placed in such a manner that the weight of material stored above will not be supported entirely by the containers.

(j) Cylindrical units stored in horizontal position should be blocked, nested or separated by notched horizontal spacers.

(k) In bulk storage, corner markers at main and cross-aisle intersections should be used to prevent damage to containers.

(l) All loose straps or wire from loads in storage should be removed to prevent injury to worker. All nails sticking out from dunnage should be pounded level or removed.

(m) Floor load limits should be observed whether a facility is single or multistory.

(3) Safe Storage of Flammable Wastes. Follow safety rules when storing this type of waste.

(a) When storing flammable wastes:

- 1 Use end bays when possible.
- 2 Handle containers carefully to avoid breakage.
- 3 Maintain accessibility to the stack interior for fire-fighting purposes.
- 4 Ensure that proper ventilation is maintained for wastes which give off flammable vapors.
- 5 Avoid storing in any location where spilled liquids may come in contact with sparks or flames.
- 6 Use only electric materials handling equipment that is spark-enclosed.
- 7 Post "NO SMOKING" signs and enforce them.

(b) In addition to the above rules, if you are storing waste in a standard flammable storage building:

- 1 Keep all doors and windows open. This will help ventilation during work operations.
- 2 Keep unauthorized people out of the building.
- 3 Investigate any unusual odor at once.
- 4 Use a combustible gas indicator when spills, leaks, or vapors occur to determine if the area is safe.

5 Keep firefighting equipment available and in operating order.

6 Remove and repair leaky containers.

7 Store gas cylinders (such as acetylene, chlorine, and sulfur dioxide) upright to prevent damage to valves.

8 Keep valves on all cylinders containing compressed gases tightly closed.

(4) Safe Acid Storage.

(a) Isolation. All acids should be stored inside. Acids may be stored outside, but must be protected from the direct rays of the sun in covered sheds or under tarps. Acids should be protected against freezing, whether inside or out, to prevent breakage of containers. Drums should be stored with bungs up. Isolation of acids from other materials (such as paper, excelsior, sawdust, wood scrap, cellulose cloth, textiles, or flammable liquids) should be maintained to prevent fire. Acid drums should be isolated from other chemicals (such as hydrogen sulfide, turpentine, carbides, metallic powders, and combustible materials).

(b) Ventilation. All inside areas should be well ventilated. Good ventilation should be maintained constantly while people are working in acid storage areas. If leaks and spills of acids occur, the area should be well flushed with large quantities of water. If water is not immediately available, use clean dry sand or gravel to cover the spill. Smoking should not be allowed in or near acid storage areas. Acids should be stored away from metal material, because of the corrosive action of acid vapors.

(c) Venting of Drums. Drums of acid in storage should be vented weekly or more often in hot weather to release the pressures that may have built up. Extreme caution should be used when plugs in drums are being loosened; a long-handled pipe or plug wrench should be used. Workers should face away from the plug and turn the plug only one turn until the pressure has equalized. Drums should be handled carefully, especially in warm weather, to prevent bumping sharply against each other. Tools must not be permitted to strike the drums or plugs sharply which may cause sparking. Open flames must not be permitted to contact drums or tanks. This is because hydrogen, a highly flammable gas, is often given off by acids as they sit in drums. Sulfuric acid must be especially well ventilated to prevent vapor accumulation.

(d) Inspection of Containers. All carboys and drums of acid should be carefully inspected for possible leaks. Set aside leaking or damaged containers for special handling. Do not walk a carboy on the edges of its box, use trailers or specially designed handtrucks. Do not handle carboys by the neck. Never attempt to remove carboy stopper wire by twisting or prying; use a wirecutter. Be sure closures on filled or empty carboys are

fastened securely before moving. Unwashed empty carboys must be handled as carefully as filled containers. If acid containers are stored together or on top of one another, special care must be taken to clean up any leaks so that leaking acid does not corrode metal caps of nearby containers.

(5) Storage of Empty Drums.

(a) Definitions.

1 Container. Any portable device in which a material is stored, transported, disposed, or otherwise handled.

2 Hazardous Previous Contents Containers. Containers that have previously contained materials that are hazardous by any Federal (DOT/EPA/ Occupational Safety and Health Act (OSHA)) or state definition.

3 Acutely Hazardous Previous Contents. Containers that have previously contained any material listed in the Resource Conservation and Recovery Act (RCRA) regulations as acutely hazardous (40 CFR 261-33(e)). This list covers those hazardous wastes that are very toxic. There are 122 such wastes on that list.

(b) Empty Containers.

1 A container is considered empty if all wastes have been removed, and no more than one inch of residue remains on the bottom of the container or inner liner.

2 A container is also considered empty if no more than three percent by weight of its total capacity remains in the container (for containers less than or equal to 110 gallons in size) or 0.3 percent for larger containers.

3 A container that previously held an acutely hazardous material is considered "empty" only if it has been triple rinsed with an appropriate solvent, cleaned by an equivalent removal method approved by the EPA, or has had the liner removed.

4 Empty compressed gas containers are ones which have been opened to atmospheric pressure.

(c) Storage. Containers must be stored according to the category of previous contents (nonhazardous, hazardous, or acutely hazardous). In all cases, storage compatibility must be observed.

(6) Indoor and Outdoor Storage.

(a) Ideally, hazardous wastes will be stored indoors to provide adequate protection to the container and to minimize the potential for environmental damage. However, under certain circumstances it may be necessary to store hazardous waste outside. If this happens at your facility, there are several things that should be done to minimize the likelihood of accidents, spills, and damage to the waste container.

(b) First, select an outdoor storage area with enough room available for the waste. Congestion at storage sites is a leading factor in the development and spread of fire. Make sure that the land is level and stable. Sloping land or swampy ground creates problems with stored waste stability and poses a serious hazard to firefighters. Make sure that grass, brush, and debris do not create a fire hazard. Make sure that an outdoor hazardous waste storage area is roped off and identified with appropriate warning signs. Make an earth berm around the storage site to contain any hazardous waste that might spill. Inspect the outdoor storage area frequently to detect any problems that might develop. Use tarps to protect stacks of hazardous waste from the elements. If at all possible, do not store fiberboard or other packages susceptible to water damage outside.

(c) All of these practices can help to reduce the chances that you'll have an accident or spill with hazardous waste stored outdoors. Remember though, that the best outdoor storage technique for hazardous waste is usually not to store it outside at all!

c. Storage Compatibility. Because many hazardous wastes will react with other wastes (fires, explosions, toxic fumes), it is necessary to develop and follow a plan to prevent these wastes from coming in contact with each other. Given the limited resources available at most activities, and the wide variety of wastes that are handled, the implementation of a compatible storage plan is not easy. Where you store various categories of hazardous waste at your activity depends upon your local operating procedures and on storage compatibility. During this section of instruction, we will talk about general storage compatibility rules and how to determine if certain wastes require special storage consideration.

(1) General Storage Compatibility Rules.

(a) Flammable and Combustible Liquids. In storing flammable and combustible liquids you must consider stacking heights and distances between stacks. Different classes of liquids (based on flashpoints) have different restrictions. Flammable liquids should be classified according to flashpoint. If not immediately available on the container, this information can be obtained from the various references at your activity. The classification of flammable and combustible liquids is described below.

| <u>Classification</u> | <u>Flash Point</u>                     | <u>Boiling Point</u> |
|-----------------------|--|----------------------|
| Flammable Liquid      | Less than 100° F                       |                      |
| Class 1A              | Less than 73° F                        | Less than 100° F     |
| Class 1B              | Less than 73° F                        | 100° or above        |
| Class 1C              | Less than 100° F; at<br>or above 73° F |                      |
| Combustible Liquid    | 100° F or above                        |                      |

| <u>Classification</u> | <u>Flashpoint</u>          | <u>Boiling Point</u> |
|-----------------------|----------------------------|----------------------|
| Class II              | 100° F to less than 140° F |                      |
| Class IIIA            | 140° F to less than 200° F |                      |
| Class IIIB            | 200° F or above            |                      |

1 By classifying a liquid according to flashpoint, it's possible for workers to reduce the chance of accidents and fires when dealing with flammable and combustible liquids.

2 There are several additional considerations when storing flammable liquids. Containers in piles should be separated by pallets or dunnage when necessary to provide stability and to prevent excessive stress on container walls. The outdoor storage area should be graded in a manner so that spills will be diverted from buildings or they should be surrounded by a curb at least 6 inches high.

(b) Compressed Gases. Such gases must be handled with extreme care--particularly flammable and explosive gases. Compressed gas cylinders must never come in contact with fire, sparks, or electrical circuits. Also, injury or death can be caused by breathing some of these gases.

1 General Precautions.

- For storage and handling purposes, all cylinders should be considered full and corresponding care exercised.
- Empty cylinders should not be stored with full cylinders.
- Cylinders should not be used for rollers, supports, or for any purpose other than containing compressed gas.
- Compressed gas shouldn't be used to dust off clothing.
- Suitable material handling equipment should be used for lifting and moving cylinders.
- "NO SMOKING" signs should be posted and enforced around compressed gas storage sheds.

2 Storage Criteria for Gas Cylinders.

- Roofed, open-sided shed storage on a concrete slab, above grade, is the preferred type of storage facility if climatic conditions permit.
- All storage facilities for compressed gases should be separated from other buildings by at least 50 feet.

- Sheds should be constructed of light, noncombustible materials.

- If one or more sides are installed, provisions must be made to ensure a complete change of air at least six times each hour.

- If an enclosed storage facility is used, separate storage rooms must be constructed for flammable gases.

3 Protective Equipment. Where irritant gases (such as ammonia and sulfur dioxide) are present in light concentrations, gastight goggles and respiratory protective devices, or full face mask respiratory protective devices should be worn. When entering areas known to be highly contaminated, workers should be properly equipped with self-contained breathing apparatus or other appropriate respiratory equipment. Mechanical filter respirators offer no protection against high gas concentrations and should not be used. Workers should be trained in the use and care of respiratory protective equipment and in inspection for operational capability.

4 Although compressed gas cylinders may be listed as "empty", they should be handled and stored as "full" cylinders. Valve protection caps, where cylinders are designed to accept caps, must always be in place unless the cylinders have been devalved or have holes drilled in them. Oxygen cylinders in storage must be separated from fuel gas cylinders by a minimum of 20 feet or by a noncombustible barrier at least 5 feet high having a fire resistance rating of at least one-half hour. Compressed gas cylinders, condemned or not, should not be devalved, torch cut, mutilated, or crushed. Residual amounts of gas always remain in these cylinders.

(c) Acids. Acids are dangerous to workers because of their corrosive qualities. Care must be taken to prevent any spill or container breakage which could permit contact to skin or eyes, or inhalation into lungs. Buildings used for bulk storage of acid should be one story in height, of fire-resistant construction, and equipped with automatic sprinkler protection. They should be heated to prevent freezing of certain acids. Protective clothing, eye wash, deluge-shower, and self-contained breathing apparatus should be readily available. Different acids should be stored separately in designated areas.

(2) EPA Hazardous Wastes Compatibility Chart (Appendix A). The purpose of this compatibility chart is to show chemical combinations that can be dangerously reactive. The EPA chart can be used to help develop a compatible storage plan. In order to use the chart:

(a) Find the Reactivity Group Number (RGN) of the first group on the first column of the chart.

(b) Find the RGN of the second group from the bottom squares of RGNs.

- (c) Find the intersecting reaction square for the two RGNs.
- (d) Note the Reaction Code(s) (RC) in the square.
- (e) Refer to the legend on the chart for the explanation of the RC.

6. HAZARDOUS WASTE HANDLING. If you're going to be handling hazardous wastes, it's important that you understand some of the problems that can occur if you fail to take certain precautions. Of course, you can have difficulty in handling any item, but the special characteristics of hazardous wastes can really give you trouble. Although many common problems are associated with having to move improperly packaged items, it's important to realize that packaging techniques alone won't necessarily prevent spills or accidents. During this unit of instruction we'll explain why proper handling procedures are necessary, describe some of the common hazardous waste handling problems you may face, and talk about the importance of following local safety procedures in handling hazardous waste at your worksite.

a. Waste Handling Principles. Whether or not an item is hazardous, certain general principles exist that should be recognized when an Air Force facility is establishing procedures to handle waste. By developing an understanding of these principles, a worker will be able to recognize if the procedures being used are the best ones possible under the circumstances. Generally:

(1) The least handling is the best handling. The greatest economy in moving materials is secured by not handling the material at all. This is usually impossible but an attempt must be made to keep handling to a minimum. Since there is always a danger of a spill when moving hazardous wastes, the less they are moved, the less chance of a major incident. If hazardous wastes are properly identified and classified, they can be properly placed initially, thus reducing the need for further movement. Also, to avoid unnecessary handling, a single individual should be designated as the point of contact for handling and storage questions pertaining to hazardous wastes. This individual would be familiar with hazardous waste safety, storage, and handling considerations and could insure items were properly placed initially and handling requirements minimized. Another way handling can be minimized is to modify traditional storage and handling procedures. The feasibility of modifying procedures would depend on local facilities and operational procedures.

(2) Standardization of methods and equipment benefits the waste handling activity. Costs of operation can be reduced because maintenance and repair, storage, and handling procedures can be simplified. As standardized procedures are repeated, individuals become familiar with the special handling required for different types of hazardous wastes and are, thus, more likely to use correct procedures.

(3) Materials handling equipment (MHE) should be selected for a multiple number of applications. Equipment should be purchased with the understanding that flexibility is a key note. Specialized equipment should be kept to a minimum. Normally, initial cost, cost of operation, and maintenance costs

are greater for special equipment than for standard equipment. If equipment is used properly, most hazardous wastes can be handled safely using standard equipment.

(4) The number of items to be moved determines the method of handling. Regardless of the size, shape, or hazardous characteristic, the first question to be answered before selecting the type of MHE to be used is "how many have to be moved?"

(5) Advanced planning on waste handling methods and equipment should be carried on at the same time as other planning activities. This is particularly true with hazardous wastes since it's much easier to prevent an incident than to respond to one.

(6) Equipment capacities should never be exceeded. Overloading causes excessive wear of equipment and creates additional accident potential.

(7) The physical state of materials is a factor in determining MHE requirements. The three physical states of material--solid, liquid, or gas--determine the method of packing. Gases are contained in cylinders; liquids such as acids are contained in carboys; and solids such as sheet and bar stock metals may require wood skids. This type of packing, in turn, influences selection of materials handling equipment.

(8) Short, irregular moves lend themselves to manual materials handling. Some materials handling operations do not occur with any degree of repetitiveness. The use of equipment may be much more costly than manpower. When moves are short, irregular and the load capacity of the men is not exceeded, it may be more economical to use manpower. Although this principle is generally applicable, when handling hazardous wastes, the facility must consider the cost of individual protective clothing and equipment as well as personal safety.

(9) Wherever practicable, materials should be moved in the horizontal plane or with the aid of gravity. When people have to reach either up or down during loading and unloading, excessive effort is used. Changes in the workplace layout could reduce this extra effort and the inherent safety problems associated with lifting things up and down. An example of such a problem is accidentally knocking a small bottle of hazardous waste off a shelf while trying to reach another item.

b. Waste Handling Safety Precautions. There are a number of safety precautions that should be followed when handling any material. Given the special characteristics of hazardous wastes, it makes good sense to be especially sure you take these precautions when working with these wastes. When considering the following safety rules, think of how they might prevent spills or personal injuries.

(1) Protective clothing and accessories including gloves, face shields, goggles, and safety shoes will be worn when required.

(2) Material will be examined for leaks, container damage, corrosion, weakened places, or other factors which may cause injury to workers. Defects should be corrected before proceeding.

(3) All stacked items will be arranged in an orderly manner for convenient and safe handling.

(4) Defective or broken strapping on packages will be removed, repaired, or replaced.

(5) Containers will not be thrown from elevated places to the floor or ground. Use suitable lowering equipment.

(6) Wheelbarrows, handtrucks, and other similar devices will not be overloaded. These devices will be pushed, not pulled, except when going up inclines.

(7) Ropes used for carrying or towing which have defects will be replaced.

(8) Appropriate tools will be used for each job. For example, nail pullers will be used for opening boxes, strap or wire cutters for cutting metal strapping or wire, and hammers for driving nails. Safety handtools are constructed of wood or other nonsparking or spark resistant materials (such as bronze, lead, and beryllium alloys) which, under normal conditions of use, will not produce sparks. Properly maintained, nonferrous handtools will be used for work in locations which contain hazardous concentrations of flammable dusts, gases, or vapors. Handtools used in the vicinity of hazardous wastes must be handled carefully and kept clean.

(9) Hand-operated trucks, dollies, and similar equipment will not be parked in traffic lanes or roadways.

(10) Cylindrical objects will be blocked to prevent rolling.

(11) When working at high elevations, a lifeline and safety belt will be worn if other safeguards are impractical.

(12) Carboy tilters will be used for safe removal of dangerous liquids, such as acids from carboys.

(13) Special bung fittings and automatic faucets will be used on drums for dispensing and storing of dangerous liquids.

(14) When transferring flammable liquids from one container to another make sure that the container is grounded and that a connector exists between the two containers.

c. Hazardous Waste Handling Considerations. So far, we've talked about the various types of MHE available to you, general principles for using MHE, and safety precautions to take when handling hazardous waste. It's useful to review some of the reasons why extra attention should be paid to handling

hazardous wastes. Essentially we're trying to prevent accidents, spills that damage the environment, and damage to the waste being moved (either directly or indirectly). It's important to remember that damaging the pallet or outer container will often result in spills or accidents at a later time. That's why it's necessary to avoid such things as damaging a pallet or container by hitting it with a forklift. When handling a hazardous waste, it's useful to recall why the waste is hazardous. It may be sensitive to an increase in temperature; it may be sensitive to vibration; it might react adversely to water; or it might be under pressure. If you fail to consider these factors when handling hazardous waste, you can expect trouble, either immediately or later on. There are a number of questions you can ask yourself that can help you handle such waste safely. These include:

- (1) Am I handling hazardous waste in accordance with local operating procedure?
- (2) Have I avoided handling incompatible wastes at the same time?
- (3) Am I using the right piece of MHE to move this item?
- (4) Am I operating MHE safely?
- (5) Am I using adequate personal protective equipment?
- (6) Am I avoiding damaging the outer container?
- (7) Am I using proper procedures to handle hazardous waste?
- (8) Do I report/clean up spills when they occur?
- (9) Do I know how to identify an item as hazardous prior to moving it?
- (10) Do I understand "what can go wrong" when handling hazardous waste?
- (11) Do I know how to find out if special handling is required for certain waste?

Being able to answer all of the questions above may not guarantee that accidents and spills will be a thing of the past, but the chances that you won't be responsible for such a problem are increased. Of course, in order to make sure you're not a victim of your friends' ignorance, it's necessary that everyone working at your facility be able to answer these questions and act accordingly.

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| <u>HAZARDOUS MATERIAL</u>            | <u>FEDERAL OR MILITARY SPECS</u>  | <u>DOT TITLE</u>   |
|--------------------------------------|---|--|
| Acetone                              | PPP-B-704, Class 8 & 12, PPP-P-700,<br>PPP-D-729-705, PPP-D-700                               | Steel drums or barrels   |
| Acetic Acid                          | Class 8 & 12, PPP-P-700, PPP-D-729, PPP-D-705,<br>PPP-D-700                                   | Steel barrels or drums,<br>Rubber drums  |
| Toluene, (MEK),<br>Chlordane, Xylene | Same as acetone and PPP-P-704, Class 3 & 9  | Steel drums or barrels.  |
| Corrosives                           | Same as Acetic Acid   | Same as Acetic Acid  |
| Trichloroethylene<br>Dichloromethane | Stored in metal drum, of not more than<br>10 gal capacity                                     |  |
| Dimethylformamide                    | (Refer to 49 CFR 172.102 For Specs)   |  |
| Hydrazine                            | PPP-B-704, Class 8 & 12, PPP-P-700, PPP-D-700,<br>PPP-D-729, PPP-D-705, PPP-P-704 Class 3 & 9 | Steel drums and barrels  |
| Mercury                              | (Refer to 49 CFR 172.860 for Specs)   |  |
| Naphtha                              |   | Aluminum drums or barrels  |
| Sulfuric Acid                        | PPP-B-585, PPP-B-621, PPP-B-621, PPP-B-601  | Boxed, Boxed glass carboys;<br>plywood or wooden boxes,<br>wire bound; glues plywood;<br>cleated |
| Trichloroethane                      | Must be stored in a secure container, free<br>from defects                                    |  |

## MEDICAL BRIEFING

### Handout VII

#### 1. MEDICAL BRIEFING

##### a. Base Hazardous Chemicals

(1) Section VI of the 27th Tactical Fighter Wing Hazardous Waste Management Plan identifies the various base units generating hazardous waste that accumulate and manage hazardous waste prior to transfer to the base storage facility.

##### b. Computability Data

##### c. Physical and Health Hazards of Chemicals

##### d. Waste Analysis

###### (1) Requirements

###### (a) Analyses Required

###### (b) Cost

###### (2) Frequency

###### (3) Responsibilities

###### (a) Segregation of Waste

###### (b) Proper Record of Waste

###### (c) Process Changes

###### (d) Chemical Additions, Deletions, or Substitutions

VI. IDENTIFICATION OF REGULATED MATERIALS/WASTES, GENERATORS,  
TSD FACILITIES AND ACTIVITY SCHEMATIC

A. USERS/GENERATORS OF HAZARDOUS MATERIALS/WASTES: The following information provides a list of the organizations, by building number, (Column 1), that utilize hazardous material, hazardous material identification (Column 2), amount of hazardous material used (Column 3), established hazardous waste generated (Column 4), from the material used, EPA's RCRA identification number (Column 5), estimated hazardous material (HM) generated from the amount used (Column 6) and an explanation of methods of dispersal, disposal and/or treatment (Column 7). In the event an organization generates characteristic or listed HW/HM, they must turn the material in to DPDO within 90 days and shall comply with all appropriate sections of this plan:

| USER<br>GENERATOR (BLDG NO)              | HAZARDOUS MATERIAL (HM)         | AMOUNT HM<br>USED/YR | ESTIMATED WST<br>GENERATED/YR | RCRA<br>NUMBER | ESTIMATED HAZARDOUS<br>MATERIAL (HM) GENERATED/YR | METHOD OF<br>DISPOSAL/TREAT                            |
|--|---------------------------------|----------------------|-------------------------------|----------------|---|--|
| 522TFS/523TFS/524TFTS<br>(123)(102)(155) | Adhesive (I)                    | 24 gals              | 0                             | U220           |   |  |
|  | Isopropyl Alcohol (I)           | 5 gals               | 0                             | D001           |   | Evaporates   |
| 27CSG/DEMGU (120)                        | Sulfuric Acid (C)               | 15 gals              | 0                             |                |   | Evaporates   |
|  | Ether-Starting Fluid<br>(I, T)  | 48 pts<br>Spray Cans | 0                             | D002           |   | Neutralized prior<br>to disposal in<br>STP. Evaporates |
|  |                                 |                      | 0                             | U117           |   |  |
| 522/523/524 AMUs<br>(121)(170)(194)      | Primer Sealant (I)              | 1 pt                 | 0                             | D001           |   | Evaporates   |
|  | Acetone (I)                     | 1½ gals              | 0                             | U002           |   | Evaporates   |
|  | 934 Structural Sealant (I)      | 30 kits              | 0                             | D001           |   | Evaporates   |
| 27CSG/DEF (130)                          | Bromochloromethane (C)          | 4400 lbs<br>on hand  | 0                             | D002           |   | Used up in Fire Trng                                   |
|  | Acquas Film Forming<br>Foam (C) | 2240 gals<br>on hand | 0                             | D002           |   | Used up in Fire Trng                                   |
| 27TFW/CRS (185)                          | 1-1-1 Trichloroethane (T)       | 35 gals              | 0                             | U226           |   | Evaporates   |
| 27TFW/EMS (186)                          | Sulfuric Acid (C)               | 365 gals             | 0                             | D002           |   | Neutralized & disposed<br>in STP                       |
| 27TFW/EMS (189)                          | Adhesive (I)                    | 48 tubes             | 0                             | U220           |   | Evaporates   |
| 27TFW/EMS (196)                          | Primer, zine chromate (E)       | 104 gals             | 15 gals                       | D007           |   | DPDO   |
|  | Primer, chromate (E)            | 100 pts              | 0                             | D007           |   | Used up in process                                     |
|  | Thinner, lacquer (I,T)          | 150 gals             | 30 gals                       | F005           |   | DPDO   |
|  | Thinner, (I,T)                  | 1300 gals            | 275 gals                      | F005           |   | DPDO   |
|  | Primer (E)                      | 10 gals              | 0                             | D007           |   | Used up in process                                     |

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| USER<br>GENERATOR (BLDG NO) | HAZARDOUS MATERIAL (HM)                                     | AMOUNT HM<br>USED/YR     | ESTIMATED WST<br>GENERATED/YR | RCRA<br>NUMBER | ESTIMATED QUANTITIES<br>MATERIAL GENERATED/YR | METHOD OF<br>DISPOSAL/TREAT.                                  |
|-----------------------------|---|--------------------------|-------------------------------|----------------|---|---|
| 27TFW/EMS (196)<br>(Cont)   | Primer, epoxy (E)   | 50 gals                  | 20 gals                       | D007           |   | DPDO  |
|                             | Polyurethane Coating<br>(I,T)                               | 5000 gals                | 1000 gals                     | U159           |   | DPDO  |
|                             | Paint Remover (C)   | 225 gals                 | 200 gals                      | U080           |   | DPDO  |
|                             | Dimethylformamide (R)                                       | 55 gals                  | 40 gals                       | D003           |   | DPDO  |
|                             | Xylene (T)  | 55 gals                  | 10 gals                       | U239           |   | DPDO  |
|                             | Toulene (I)   | 220 gals                 | 50 gals                       | U220           |   | DPDO  |
|                             | Methyl Ethyl Ketone<br>(I,T)                                | 1500 gals                | 500 gals                      | U159           |   | DPDO  |
|                             | Polyurethane, Gray (I)                                      | 25 gals                  | 5 gals                        | U159           |   | DPDO  |
|                             | Naphtha (I,T)   | 15 gals                  | 4 gals                        | U165           |   | DPDO  |
|                             | Laquer (I,T)  | 3000 gals                | 400 gals                      | U159           |   | DPDO  |
|                             | 27TFW/LGSF (216)  | Potassium Dichromate (E) | 750 ml                        | 0              | D007  |   |
| Sulfuric Acid (C)           |   | 20 gals                  | 0                             | D002           |   |   |
| Hydrochloric Acid (C)       |   | 3 gals                   | 0                             | D002           |   |   |
| 27TFW/LGS (219)             | Paint Thinner (I,T)   | 4 gals                   | 0                             | F005           |   | Evaporat  |
| 27CSG/DEMM (219)            | Mogas (Sludge from tank<br>cleaning) Tetraethyl<br>lead (T) | N/A                      | 3 lb/3 yrs                    | P110           |   | To be transported off<br>base to EPA approved<br>TSD facility |
| 27TFW/LGTM (375)<br>(379)   | Sulfuric Acid (C)   | 180 gals                 | 0                             | D002           |   | Neutralized and disposed<br>in STP                            |
|                             | Polyurethane Coating<br>(I,T)                               | 180 gals                 | 0                             | U159           |   |   |
| 27TFW/CRS (620)             | Potassium Hydroxide (C)                                     | 15 gals                  | 15 gals                       | D002           |   | Neutralized and disposed<br>in STP                            |
|                             | Toluene (I)   | 5 gals                   | 0                             | U220           |   |   |
|                             | Methyl Ketone (I,T)   | 10 gals                  | 0                             | U159           |   | Evaporates  |
|                             | Trichloromethane (I)  | 5 gals                   | 0                             | D001           |   | Evaporates  |
|                             | Xylene (T)  | 30 gals                  | 0                             | U239           |   | Evaporates  |
|                             | Trichlorotrifluoroethane<br>(T)                             | 600 lbs                  | 0                             | F002           |   | Evaporates  |
|                             | Mercury (T)   | 100 batteries            | 100 batteries                 | U151           |   |   |
|                             | Mercury (T)   | 1 pt                     | 15 lbs                        | U151           |   | DPDO  |
|                             | Ethyl Alcohol (I)   | 50 gals                  | 0                             | D001           |   | Evaporates  |
|                             | Methyl Ethyl Ketone (I,T)                                   | 100 gals                 | 0                             | U159           |   | Evaporates  |

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| USER<br>GENERATOR (BLDG NO)   | HAZARDOUS MATERIAL (HM)                   | AMOUNT HM<br>USED/YR | ESTIMATED WST<br>GENERATED/YR | RCRA<br>NUMBER | ESTIMATED HAZARDOUS<br>MATERIAL GENERATED/YR | METHOD OF<br>DISPOSAL/TREAT                   |                 |
|-------------------------------|---|----------------------|-------------------------------|----------------|--|---|-----------------|
| 27TFW/CRS (680)               | Acetone                                   | 15 gals              | 0                             |                |  |   |                 |
|                               | Methyl Ketone (I,T)                       | 60 gals              | 0                             | U002           |  | Evaporates                                    |                 |
|                               | Methyl Alcohol (I)                        | 10 gals              | 0                             | U220           |  | Evaporates                                    |                 |
|                               | Carbon Remover (C)                        | 5 gals               | 0                             | U154           |  | Evaporates                                    |                 |
|                               | Fingerprint, Neutralizer<br>(MIL-C-15074) | 5 gals               | 0                             | D002           |  | Evaporates                                    |                 |
| Hospital Lab (1400)           | Phosphoric Acid (C)                       | 1 pt                 | 0                             |                |  | Evaporates                                    |                 |
|                               | Hydrochloric Acid (C)                     | 4 pts                | 0                             | D002           |  |   |                 |
|                               | Trichloroacetic Acid (C)                  | 1 pt                 | 0                             | D002           |  | Consumed in use                               |                 |
|                               | Xylene (I)                                | 2 pts                | 0                             | D002           |  | Consumed in use                               |                 |
|                               | Phosphotungstic Acid (C)                  | 1 pt                 | 0                             | U239           |  | Consumed in use                               |                 |
|                               | Toluene (I)                               | 1 pt                 | 0                             | D002           |  | Consumed in use                               |                 |
|                               | Lactic Acid (C)                           | 1 pt                 | 0                             | U220           |  | Consumed in use                               |                 |
|                               | Phenol (I)                                | 2 pts                | 0                             | D002           |  | Consumed in use                               |                 |
|                               | Acetic Acid (C)                           | 2 pts                | 0                             | U188           |  | Consumed in use                               |                 |
|                               | Ammonium Hydroxide (C)                    | 1 pt                 | 0                             | D002           |  | Consumed in use                               |                 |
|                               | Iodine 100 gm (T,R)                       | 1 pt                 | 0                             | D002           |  | Consumed in use                               |                 |
|                               | Hospital Dental<br>Services (1400)        | Mercury (T)          | 4 lbs                         | 0 lbs          | U151   |   | Consumed in use |
|                               |   |                      |                               |                |  |   | DPDO            |
| 27CSG/DEMM (1898)             | Chlorine (C)                              | 450 lbs              | 0                             | D002           |  |   |                 |
|                               | Calcium Hypochlorite (C)                  | 1600 lbs             | 0                             | D002           |  | Used up in process                            |                 |
|                               | Cupric Sulfate (R)                        | 200 lbs              | 0                             | D003           |  | Used up in process                            |                 |
| 27CSG/DEMS (354)              | Paint Thinner (I,T)                       | 40 gals              | 0                             | F005           |  | Used up in process                            |                 |
| 27TFW/MAEC (2111)             | Enamel Thinner (I,T)                      | 25 gals              | 0                             | F005           |  | Evaporates                                    |                 |
|                               | Munitions                                 | N/A                  | 240 lbs                       | D003           |  | Evaporates                                    |                 |
| 27CSG/DEMENT*<br>*(2160/2163) | Carbaryl/Sevin 80% WP (T)                 | 100 lbs              | 0                             | U167           |  | Treatment (open burn<br>pit at Melrose Range) |                 |
|                               | Diazinon, E.C. (I,T)                      | 35 lbs               | 0                             | P039           |  |   |                 |
|                               | Dursban, E.C. (T)                         | 63 lbs               | 0                             | P039           |  | Used up in process                            |                 |
|                               | Baygon, Solution, 1% (T)                  | 37 lbs               | 0                             | P064           |  | Used up in process                            |                 |
|                               | Baygon, Granules (T)                      | 7 lbs                | 0                             | P064           |  | Used up in process                            |                 |
|                               | Diazinon, Granules (T)                    | 220 lbs              | 0                             | P039           |  | Used up in process                            |                 |
|                               | Malathion 57%, E.C. (I)                   | 50 gals              | 0                             | P039           |  | Used up in process                            |                 |
|                               |   |                      |                               |                |  | Used up in process                            |                 |

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| USER<br>GENERATOR (EPCO NO.)      | HAZARDOUS MATERIAL (HM)         | AMOUNT HM<br>USED/YR | ESTIMATED WST<br>GENERATED/YR | RCRA<br>NUMBER | ESTIMATED HAZARDOUS<br>MATERIAL GENERATED/YR | METHOD OF<br>DISPOSAL TREAT |
|-----------------------------------|---------------------------------|----------------------|-------------------------------|----------------|--|-----------------------------|
| 27CSG/DEMORA<br>(2160/2163) Con't | Malathion 91%, Technical<br>(I) | 15 gals              | 0                             | P039           |  | Used up in process          |
|                                   | Zinc Phosphide 2% (T,R)         | 10 lbs               | 0                             | P122           |  | Used up in process          |
|                                   | 2,4-D Herbicide (E)             | 24 gals              | 0                             | D016           |  | Used up in process          |

\*The Entomology Shop changes quantities and types of pesticides because of integrated pest management practices and risk of contamination of the environment. Therefore, this list should be updated annually. The above listing reflects one years (1981) usage.

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B. TREATMENT, STORAGE, DISPOSAL FACILITIES

1. There is one treatment facility located at Melrose Bombing Range. The following information provides the responsible organization, hazardous material treated, amount treated and a description of the process:

| TREATMENT FACILITY RESPONSIBLE ORGANIZATION | HAZARDOUS WASTE/MATERIAL | RCRA NUMBER | AMOUNT TREATED | TYPE TREATMENT  |
|---|--------------------------|-------------|----------------|---|
| 27CSG/OTR                                   | Munitions                | D003        | 240 lb/yr      | About 20 lbs per month of unexploded ordnance and unserviceable munitions is burned by igniting sufficient dunnage to assure complete consumption of the explosives. This is accomplished at the Melrose Range. Burn permit is renewed annually from the NMEID. |

- (a) We are going to send lead sludge off-base for disposal at an EPA approved disposal site. Analysis of soil samples collected from the sludge drying pit show no significant hazardous waste residue remaining.
- (b) Use of JP-4 for fire training is a reuse/recycle of a liquid characteristic waste. TSD permit is not required.
- (c) Lab analyses show negative results on EP toxicity limits on the sludge from sewage lagoons. TSD permit is not required.

2. There is one listed facility which stores hazardous waste/material more than 90 days. The facility is listed below with the types and amount of hazardous material/waste received during one year (see Section XVI, Attachment 6, for clarification on hazardous waste disposed of by DPDO):

| STORAGE FACILITY/RESPONSIBLE ORGANIZATION | HAZARDOUS WASTE/MATERIAL  | RCRA NUMBER                          | AMOUNT STORED  | METHOD OF DISPOSAL  |
|---|---|--------------------------------------|--|---|
| DPDO (Bldg 215)                           | Primer, Cromate<br>Thinner, Paint<br>Paint Remover<br>Dimethylformamide<br>Xylene | D007<br>F005<br>U080<br>D003<br>U239 | 35 gals/yr<br>305 gals/yr<br>200 gals/yr<br>40 gals/yr<br>10 gals/yr | The top eight hazardous waste listed are stored in the DPDO area. |

| STORAGE FACILITY/RESPONSIBLE ORGANIZATION | HAZARDOUS WASTE/MATERIAL | RCRA NUMBER | AMOUNT STORED | METHOD OF DISPOSAL                                       |
|---|--------------------------|-------------|---------------|--|
| DPDO (Bldg 215)<br>Con't                  | Toulene                  | U220        | 50 gals/yr    | This material is turned in DPDO and sold for reclaiming. |
|   | Methyl Ethyl Ketone*     | U159        | 1905 gals/yr  |  |
|   | Naptha                   | U165        | 4 gals/yr     |  |
|   | Mercury                  | U151        | 19 lbs        |  |

- (a) The 2500 gallon storage tank used to store contaminated JP-4 does not require a TSD permit. The fuel is depleted by training fire fighters in skills needed for rescue and fire eradication.
- (b) Unsegregated contaminated/used petroleum is stored in a 20,000 gallon underground tank and sold by service contract by DPDO for reuse or recycling. Material stored in this tank is not a listed waste, so a TSD permit is not required.

3. There are no hazardous material/waste disposal facilities on the installation. The tetraethyl lead material generated from cleaning mogas tanks will be shipped to an EPA approved TSD site for disposal. No hazardous material/waste will be disposed of in the sanitary landfill. So, a TSD permit is not required.

\*Methyl Ethyl Ketone (MEK) is one of the primary ingredients in Polyurethane coatings and laquer. So, waste generated from the use of these two items were listed as MEK waste.

VII-1F

ATTACHMENT 4  
COMPATIBILITY OF WASTES

1. COMPATIBILITY OF WASTES

a. Paragraph 2 below lists compatibility groups extracted from Federal regulations and Air Force Engineering and Services Center draft guidance. The authors of these groupings caution that the listings are not exhaustive. The groupings provide, however, a sound guide to precautions.

b. Most drummed wastes produced on base for disposal by service contract are in compatibility group 4A. Accordingly, any organization producing wastes in drums which fall into compatibility group 1-A, 1-B, 2-A, or 6-A will notify the Base Hazardous Waste Facility Manager when the drums are transported to the facility, so that they may be physically separated from the rest of the wastes.

c. No Group 3-B waste will be poured into the sanitary sewer.

2. COMPATIBILITY TABLES:

In the lists below, the mixing of a Group A material with a Group B material may have the potential consequences as noted.

GROUP 1-A

Acetylene sludge  
Alkaline caustic liquids  
Alkaline cleaner  
Alkaline corrosive liquids  
Caustic wastewater  
Lime sludge and other  
Corrosive alkalines  
Lime wastewater  
Lime and water  
Spent caustic

GROUP 1-B

Acid sludge  
Acid and water  
Battery acid  
Chemical cleaners  
Electrolyte, acid  
Etching acid liquid or solvent  
Pickling liquor and other corrosive acids  
Spent acid  
Spent mixed acid  
Spent sulfuric acid

Potential Consequences: Heat generation, violent reaction.

GROUP 2-A

Aluminum  
Beryllium  
Calcium  
Lithium  
Magnesium  
Potassium  
Sodium  
Zinc powder  
Other reactive metals and metal hydrides

GROUP 2-B

Any waste in Group 1-A or 1-B

Potential Consequences: Fire or explosion; generation of flammable hydrogen gas.

GROUP 3-A

Alcohols  
Water

GROUP 3-B

Any concentrated waste in  
Groups 1-A or 1-B  
Calcium  
Lithium  
Metal hydrides  
Potassium  
SO<sub>2</sub>Cl<sub>2</sub>, SOCl<sub>2</sub>, PCl<sub>3</sub>, CH<sub>3</sub>SiCl<sub>3</sub>  
Other water -reactive waste

Potential Consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

GROUP 4-A

Alcohols  
Aldehydes  
Halogenated hydrocarbons  
Nitrated hydrocarbons  
Unsaturated hydrocarbons  
Other reactive organic  
compounds and solvents

GROUP 4-B

Concentrated Group 1-A  
or Group 1-B wastes  
Group 2-A wastes

Potential Consequences: Fire, explosion, or violent reaction.

GROUP 5-A

Spent cyanide and sulfide  
solutions

GROUP 5-B

Group 1-B wastes

Potential Consequent: Generation of toxic hydrogen cyanide, cyanogen, chloride or hydrogen sulfide gas.

GROUP 6-A

Chlorates  
Chlorine  
Chlorites  
Chromic acid  
Hypochlorites  
Nitrates  
Nitric acid, fuming  
Perchlorates  
Permanganates  
Peroxides  
Other strong oxidizers

GROUP 6-B

Acetic acid and other  
organic acids  
Concentrated mineral  
acids  
Group 2-A wastes  
Group 4-A wastes  
Other flammable and  
combustible wastes

Potential Consequence: Fire, explosion or violent reaction.

## PHYSICAL AND HEALTH HAZARDS OF CHEMICALS

1. Acetone
  - a. Flashpoint - 4° F.
  - b. Class - Ketones
  - c. 1000 parts per million (PPM) Permissible exposure limit.
  - d. Irritating to eyes, nose and throat, difficulty breathing.
  - e. Flammable liquid.
  - f. Health Hazard - respiratory system and skin.
2. Acetic Acid
  - a. Flashpoint - 104° F
  - b. Class - Acid
  - c. PEL - 10 PPM
  - d. Irritating to nose and throat when inhaled
  - e. Flammable liquid
  - f. Health hazard - respiratory system, skin, eyes, teeth
3. Chlordane
  - a. Flashpoint - not combustible
  - b. PEL - .5mg/m<sup>3</sup>
  - c. Blurred vision, confusion, cough, abdominal pain, convulsions, etc.
  - d. Not a fire hazard.
  - e. Health Hazard - Dangerous to eyes, lungs, liver, kidneys and skin.
4. Dichloromethane
  - a. Flashpoint - not flammable
  - b. Halogenated Hydrocarbon
  - c. PEL - 500 PPM
  - d. Irritating to eyes, nose and throat, will cause nausea and dizziness.

- e. Poisonous gas produced when heated.
  - f. Health hazard - dangerous when inhaled or in contact with skin and eyes.
5. Dimethylformamide
- a. Flashpoint - 136° F
  - b. PEL - 10 PPM
  - c. Causes nausea, vomiting and colic.
  - d. Possible fire hazard.
  - e. Health hazard - liver, kidneys, cardiovascular system.
6. Hydrazine
- a. Flashpoint - 100° F
  - b. PEL - 80 PPM
  - c. Irritates eyes, ears and throat, temporary blindness, dizziness, nausea, skin and eye burns.
  - d. Highly flammable liquid
  - e. Health hazard - attacks central nervous system and eyes.
7. Methyl Ethyl Ketone
- a. Flashpoint - 22° F
  - b. Class - Ketones
  - c. PEL - 200 PPM
  - d. Slight irritant; slight ingestion; moderate inhalation
  - e. Dangerous fire hazard
  - f. Health hazard - local irritation, narcosis in high concentrations, vapor irritating to mucous membranes and conjunctiva.
8. Mercury
- a. Flashpoint - non combustible
  - b. PEL - 0.1 mg/m<sup>3</sup>

c. Inhalation will cause chest cough, bronchitis; absorption can cause pneumonia, insomnia, contact can cause weakness, fatigue, stomatitis; irritates eyes and skin.

d. No fire hazard

e. Health hazard - attacks skin, respiratory system, Central Nervous System, kidneys and eyes.

9. Naphtha

a. Flashpoint - 100° F

b. PEL - 100 PPM

c. Inhalation will cause lightheadedness, drowsiness; ingestion effects eyes, nose and skin.

d. Fire hazard

e. health hazard - Effects respiratory system, eyes and skin.

10. Sulfuric Acid

a. Flashpoint - not flammable

b. PEL - 1 mg/m<sup>3</sup>

c. Inhalation will cause coughing, difficulty breathing, or loss of consciousness.

d. Not a fire hazard

e. Health hazard - will burn skin and eyes, harmful if swallowed.

11. Toluene (Toluol; Methylebenzene)

a. Flashpoint - 40° F; Autoignition - 947° F

b. Class - Aromatic hydrocarbons

c. Coal tar derivative with benzene components

d. TLV - 100 ppm for 8 hrs/day for 5 days/wk for 30 years

e. Slight irritant; moderate ingestion, inhalation and skin absorption

f. Dangerous fire hazard. No spontaneous heating.

g. Health Hazard

(1) High concentrations cause coordination impairment

- (2) Intoxication to coma very rare
- (3) Headache, nausea, and loss of appetite possible
- (4) Anemia and enlarged liver chronic

12. Trichloroethylene (Ethylene trichloride)

- a. Flashpoint - 90° F; Autoignition - 770° F
- b. Class - Halogenated hydrocarbons
- c. TLV - 50 ppm for 8 hrs/day for 5 days/wk for 30 years
- d. High inhalation hazard rating; low ingestion, and skin hazard
- e. Slight fire hazard. Releases chlorides when heated.
- f. Health Hazard
  - (1) High concentrations cause narcosis and anesthesia.
  - (2) Form of addiction possible
  - (3) Ingestion can cause intoxication and nausea and result in a coma.
  - (4) Death due to pulmonary edema, hepatic and renal necrosis

13. Trichloroethane (Methyl chloroform)

- a. Flashpoint - None listed; Autoignition - None listed
- b. Class - Halogenated hydrocarbons
- c. TLV - 350 ppm for 8 hrs/day for 5 days/wk for 30 years
- d. Skin absorption slight; moderate inhalation and ingestion
- e. Dangerous when exposed to heat. Releases chlorides.
- f. Health Hazards
  - (1) Narcotic in high concentrations
  - (2) Ingestion toxicity low
  - (3) Repeated skin contact causes mild irritation

14. Xylene (Xylol)

- a. Flashpoint - 84° F; Autoignition - 982° F

- b. Class - Aromatic Hydrocarbons
- c. TLV - 100 ppm for 8 hrs/day for 5 days/wk for 30 years
- d. Slight irritant, inhalation and skin absorption hazard
- e. Dangerous when exposed to flame
- f. Health Hazard
  - (1) Slight toxicity hazard
  - (2) Dangerous when exposed to open flames
  - (3) Can react with oxidizing agents

## PERSONAL SAFETY

### Handout VIII

1. INTRODUCTION. Now that you have been introduced to some of the general health and environmental effects of the improper handling of hazardous wastes, let's consider the subject of personal safety. Most people do not really understand the harm that accidents involving hazardous wastes can do until it happens to them. During this unit of instruction, we will cover the most typical safety problems associated with handling and storing hazardous wastes at DOD facilities. More important, we will review the types of equipment that people need to have to handle hazardous wastes safely. In addition, the necessity for following specific safety procedures applicable at your activity will be stressed. We will also point out certain situations that require special attention in order to insure the personal safety. Remember, although safety equipment is an important tool in preventing accidents, you must develop a personal interest in working safely. Hazardous waste accidents can cause a loss of property and a loss of productivity (man-hours) to the Air Force. They can also cause loss of life or serious injury to you or your fellow workers. Therefore, every effort should be made to prevent these accidents.

#### 2. HAZARDOUS WASTE ACCIDENTS.

a. There are a number of possible accidents that can occur that can damage material, cause injuries to workers, and produce short-term/long-range environmental damage. While many of these potential accidents could be the result of improper handling of any substance, hazardous wastes require more care and attention than other items. People handling hazardous wastes must possess a knowledge of potential hazards concerning the wastes under their control. Only by understanding what happens when things go wrong can a worker avoid unsafe practices and procedures. There are a number of characteristics that cause certain items to be considered hazardous. These characteristics are flammability, corrosiveness, reactivity, toxicity, and explosiveness. Workers can be injured or killed as a result of any one of these characteristics getting out of control. Workers, for example, can be injured by being burned in a fire; getting chemicals spilled on their skin; breathing certain toxic vapors or by being in the vicinity of an explosion. Most accidents can be prevented if proper procedures and equipment are used while handling hazardous wastes.

(1) Hazardous situations. In order to develop a greater awareness of why some methods of dealing with hazardous wastes are better than others, it is useful to consider a number of possible situations. Reviewing this list should be helpful to assist you in identifying safety problems that could be encountered at your worksite:

(a) Working at the storage facility, you notice that somehow a leaking container has been delivered.

- (b) While walking through a storage facility you notice that a 5-gallon container is damaged to the point where it may become a leaker.
- (c) In the storage area two barrels of something have been turned over and strange looking vapors are coming out from where the chemicals are mixing.
- (d) While handling a piece of electrical equipment, you discover an oily liquid dripping out on the ground.
- (e) While moving empty drums to make more room in your storage area, one of them tips over. Something is dripping on the ground.
- (f) You are working in an area with NO SMOKING signs posted but they've never enforced them before.
- (g) You notice that all the wastes received at your facility are stored in the same area in no particular order.
- (h) You have just told a recent hire to go see if a drum is empty and you notice him trying to get the top bung open.
- (i) You were lucky to get to a fire extinguisher in time to put out a very small fire. Now your supervisor's told you to do something before refilling the fire extinguisher.
- (j) It's the coldest day of the year and they've finally sent someone to fix your deluge shower. He tells you that it should work now.
- (k) You're moving a pallet of old batteries over rough ground with a forklift and you are told, "We don't have time to rearrange or tie down that stuff".
- (l) You're going out to move some transformers and your boss yells out, "Be sure to wear gloves."
- (m) At the bottom of the pile you're cleaning up, you find an old bottle of ETHYL ETH and your coworker says, "Oh, just throw that out back with the battery acid."

(2) Discussion of situations. Now that we've listed a number of situations that could occur at an Air Force facility, let's take time to comment on them from a safety viewpoint. Note that each comment applies directly to the corresponding situation.

(a) Proper packaging is important because it prevents many problems from occurring. When a container is leaking hazardous waste, accidents (fires, chemical burns) are much more likely to occur.  
Corrective action:

(b) Discovering a problem early and doing something about it will prevent more serious problems in the future.  
Corrective action:

(c) Some chemicals when mixed together produce very deadly vapors. You should avoid breathing these vapors. Leave the site and get help.  
Corrective action:

(d) Many electrical items contain polychlorinated biphenyls (PCB). Be aware that the oil in many electrical items may contain PCBs.  
Corrective action:

(e) Empty drums aren't necessarily empty. Some chemicals that come in drums create very unpleasant consequences if spilled.  
Corrective action:

(f) "No smoking" signs may have been violated for years but what happens if vapors from a very flammable chemical catch fire and you're standing in the middle of them? You never can tell when someone might move a flammable item to a no smoking area.  
Corrective action:

(g) Some chemicals when mixed with others produce fires, toxic vapors, and explosions. If incompatible chemicals are stored close together, the risk of them mixing together and causing problems is very high. Your facility should have and follow a plan to avoid incompatible storage.  
Corrective action:

(h) Some empty drums still contain vapors under pressure. If someone is careless in opening drums (empty or full), he may find himself breathing toxic vapors or being hit by a bung.

Corrective action:

(i) It's good to know how to use fire extinguishers correctly, and someone must take steps to make sure they're refilled after use. Empty extinguishers don't help in putting out future fires. (The same thing applies to portable eye wash equipment.) Also note that certain types of fires require the use of different types of fire extinguishers. Don't wait until you have a fire before learning about the different types. Fires require thorough investigation to insure they are really out.

Corrective action:

(j) If you or your coworkers need to use a deluge shower (or eye wash facility), it must work right the first time. You should learn to use this equipment before an accident occurs.

Corrective action:

(k) Sometimes it's easy to forget what can happen if things go wrong when handling hazardous waste, especially when you are busy. It is essential that correct handling procedures are always followed when handling this waste.

Corrective action:

(l) An important technique to avoid chemical burns and long-term health effects is to wear protective clothing. The obvious precaution is to wear gloves. However, not all gloves provide protection against all substances. You need to be sure that the type of gloves (or other protective equipment) that you wear is appropriate to the situation. Remember, the best protective equipment in the world is useless if it's not used.

Corrective action:

(m) Some chemicals are extremely hazardous because they degrade over time into very dangerous explosives. In this particular case, it's probable that you've got a bottle of ETHYL ETHER which can degrade to an organic peroxide. If this is the case, and you shake the bottle, you've just set off an explosion equal to a stick of dynamite. The best rule is to treat old chemicals with respect; they don't just fade away.  
Corrective action:

b. The above list points out the wide variety of difficulties associated with handling hazardous waste safely. Workers need to know about: packaging, storage compatibility, item identification, vapors, fumes, fires, spills, explosions, and chemical burns. All of the situations discussed above are potential problems but by using proper safety procedures and equipment, you can get your job done in a safe, efficient way. Do you start to see the connections between following established procedures and avoiding accidents with hazardous waste? Think about conditions at your facility. Can you change the way you deal with hazardous waste to avoid the risk of accidents?

### 3. SAFETY EQUIPMENT

a. Safety Equipment. Ideally, each physical operation at an Air Force facility could be analyzed by supervisory or safety personnel to predetermine inherent and manmade hazards. Operating procedures could then be developed to remove or control the hazards identified. Methods of control include substitution of safer procedures, isolation of hazardous operations or the redesign of facilities. Realistically, of course, there are limitations as to how much the Air Force can change in its methods of operations. For example, new buildings require long leadtimes before being built and the current space for compatible storage may be limited. When a hazard still exists after all practical control methods have been taken (which will almost always be the case with hazardous wastes), workers must be given additional protective equipment or clothing. The type of equipment will depend upon the nature of the hazards involved. This equipment should not be used as a substitute for the control of unsafe conditions but rather as a supplemental safety measure. Personal protective equipment is classified in the following categories: head, eye/face, respiratory, body, hand/arm and foot.

(1) Head Protection. A protective hard hat will be worn for head protection against falling or flying objects in cramped places. A protective hat will always be worn when in areas where material is being lifted or hoisted or where gear could swing against the head.

(2) Eye and Face Protection. Eye protection should be worn wherever there is a potential risk of injury that can be prevented by this equipment.

(a) Rubber goggles. These goggles will be worn for protection of the eye against smoke, gas, fine dust, mist, sprays and splashes of liquid substances, including acids and alkali solutions.

(b) Safety glasses. Safety glasses with side shields will be worn for eye protection against flying particles of dust, chips and other material. The use of safety glasses is recommended in most operating areas.

(c) Contact lenses. Contact lenses should never be worn where there is exposure to dust, corrosive or toxic chemicals and vapors. There is an increased risk of eye injury when these lenses are worn.

(d) Face shields. Plastic face shields provide eye protection as well as full-face protection. Face shields are not equivalent to goggles for eye protection because when the head is turned away from a splash, the eyes become exposed.

(3) Respiratory Protection. Respiratory protection is an extremely important part of personal protection. The body can only live a few minutes without oxygen. Therefore, the respiratory system needs maximum protection. We are concerned about protection against a hazardous atmosphere which is defined as being deficient in oxygen or containing a toxic producing particulate, gas or vapor in concentrations which are dangerous to life or health. Respirators are therefore classified in two categories: atmosphere suppliers and air purifiers.

(a) Atmosphere suppliers are classified as Supplied Air Respirators and Self-Contained Breathing Apparatus (SCBA). Supplied Air Respirators provide air through a high pressure hose from tanks or cylinders at an outside source. Self contained breathing apparatus provides its own supply of air. Some limitations: Supplied air respirators must not be used in life-threatening areas because the air hose may be cut or damaged; mobility is restricted by length of air-supply hose; contaminated air can leak into the mask of types without continuous air flow. Self-contained breathing devices cannot be used for long periods because of limited air supply; these devices are heavy and bulky, and may tire the user; oxygen cylinder must be replaced often.

(b) Air purifiers are classified as particulate removers (dust, fumes and mists removers) and vapor and gas removers (gas masks and chemical cartridge respirators). Particulate removing respirators are designed with fibrous materials for filters (replaceable or single use). The filters remove the contaminant. Vapor and gas removing respirators remove the contaminant by the use of absorbent material. Both types of respirators have a limited life. It is extremely important to know what classes of contaminants a given respirator will protect against. These respirators are available with a wide selection of canisters. All respirators should always be used only in accordance with canister instruction and labels, and with an awareness of their limitations. Some limitations: None of the air-purifying respirators protect against oxygen deficiency; particulate filters can become clogged with particles; vapor and gas removers do not protect against dangerous dusts, mists or fumes; each type of cartridge protects only against specific kinds and concentrations of gases or vapors.

(c) When selecting a respirator, consider: kind of work you need to do; type and concentration of hazard; distance from work site to a safe area. Read instructions and labels on respirators, filters and canisters to see what hazards they protect against and what their limitations are.

(d) Training of personnel in the use of respirators is mandatory. This is usually done by Air Force Occupational Safety and Health Offices.

(4) Body Protection. Protective clothing required will depend upon the particular contaminant encountered. When hazardous wastes will damage the skin, protective suits must be used which will resist the particular waste.

(5) Hand/Arm Protection. Various types of gloves are needed for different contaminants. See reference Table 1.

(a) Synthetic rubber gloves. These gloves are worn for protection when handling ordinary commercial concentrations of harmful chemicals, petroleum products, or chlorinated solvents.

(b) Natural rubber gloves. These gloves are worn for protection when handling high concentrations of acids and alkalies; organic solvents, and other chemicals which are highly toxic or corrosive. Natural rubber gloves will not be used for protection against petroleum products and chlorinated solvents.

(c) General-purpose workmen's gloves. When performing general labor work, these gloves are used for protection of hands from cuts and abrasions.

(6) Feet Protection. Safety toe footwear is worn while working in areas designated as being hazardous to feet. Wear rubber boots when floor is often wet with water or chemicals.

b. Additional safety equipment includes the following:

(1) Combustible gas and oxygen indicator. The purpose of this instrument is to monitor areas for buildup of potentially hazardous combustible gases and/or oxygen deficiency. A typical area at an Air Force facility could be where combustible liquids are used or stored.

(2) Portable combustible gas indicating detectors. The following types of portable combustible gas indicating detectors are available.

(a) For detection of miscellaneous flammable gases (including hydrogen) and vapors.

(b) For indication of the concentration of hydrogen in mixtures with air or oxygen.

(c) For detecting combustible gases or vapors associated with fuel oils, gasoline, and paints.

(d) For detecting concentrations of one or more specific combustible gases in mixture with air or oxygen.

4. FIRST AID. Your activity should establish a workable first aid program prior to the occurrence of an emergency. The activity should have at least 1 person trained in emergency first aid for each 25 employees. The minimum training required is the Basic American National Red Cross First Aid Course. All employees should know who has had this training at their facility. In addition, personnel handling hazardous wastes should know some minimum first aid procedures such as immediate action for acid burns. Assistance in obtaining first aid training can be obtained through local military medical facilities. Individuals injured on the job should be sent to the nearest medical facility immediately. This is especially important in the case of hazardous waste injuries since professional medical care is essential to prevent long-term damage to health.

5. SAFETY ATTITUDES. Many times people tolerate unsafe conditions and practices because they believe that it's not important. Sometimes workers continue to do unsafe acts because "everyone does it that way" or "people will laugh at me if I take safety precautions." These attitudes are very strong obstacles to overcome in trying to insure worker safety. After all, enforcing "safety procedures" does upset some people. Ask yourself the following questions: Is personal safety really a matter of concern at my worksite? Does my supervisor use safety equipment and follow safety procedures? Are procedures to safely handle and store hazardous wastes at my facility enforced? Is it possible that attitudes towards safety (both mine, my fellow workers, and my supervisors) can influence whether or not my facility has a hazardous waste accident?

## Reference Table 1

### Appendix A

#### CHEMICAL GLOVE SELECTION CHART

Extract from CHRIS Response Methods Handbook

Safety gloves and clothing for protection against chemical hazards are available in numerous materials. Many of the manufacturers of such protective clothing have published charts showing the suitability of their clothing materials for various chemical hazards. The following table is compiled from several such charts as a general-purpose guide to the selection of suitable chemical safety clothing materials. While the manufacturers' charts were intended primarily for the selection of chemical gloves, the data applies equally to chemical garments such as aprons, coats, hoods, trousers, coveralls, and suits.

It should be remembered that the thickness and specific formulation of a material can cause some variation in its resistance to individual chemicals. This variation is reflected in the occasional differences of ratings shown in the manufacturer's charts and will also be evident in the table presented here. In other words, a material rated as "Fair" by one manufacturer might be rated as "Good" by another. The table here will therefore show both "Fair" and "Good" for the material. It will also be noted that there are no ratings for some of the chemicals under specific materials. This absence of a rating means that manufacturers have given no indication of the materials suitability, or lack of it, for the specific chemical. The absence of a rating should not be interpreted as either a recommendation for its use or as a sign of its unsuitability.

TABLE 7-2

CHEMICAL GLOVE SELECTION CHART\*  
(From Best's Environmental Control and Safety Directory)

| CHEMICAL HAZARD          | CLOTHING MATERIAL |          |        |       |                   | CHEMICAL HAZARD | CLOTHING MATERIAL        |                |          |        |       |                   |
|--------------------------|-------------------|----------|--------|-------|-------------------|-----------------|--------------------------|----------------|----------|--------|-------|-------------------|
|                          | Natural Rubber    | Neoprene | Buna-N | Vinyl | Polyvinyl Alcohol |                 | Polyethylene             | Natural Rubber | Neoprene | Buna-N | Vinyl | Polyvinyl Alcohol |
| Chloroacetone            | F,G,E             | E        | F      | P     | G                 | E               | Ferric Nitrate           | G              | G,E      | G      | E     | E                 |
| Chlorobenzene            | P                 | F,G,E    | G      | P,F   | E                 | E               | Ferric Sulfate           | G              | G,E      | E      | E     | E                 |
| Chloroform               | P,F               | F,G      | G      | P     | E                 | E               | Ferrous Ammonium Sulfate | F              | G,E      | E      | E     | E                 |
| O-Chlorophthalene        | P                 | F,G      | F      | P,F,G | E                 | G               | Fluoboric Acid           | G              | G,E      | E      | E     | E                 |
| 1-Chloro, 1-Nitro ethane | P                 | F        | F      | F     | E                 | E               | Fluosiolic Acid          | G              | G,E      | E      | E     | E                 |
| Chloropicrin             | P                 | P,F      | P      | P,F   | G                 | G               | Fluorine                 | P              | F        | F      | E     | E                 |
| Chlorosulfonic Acid      | P                 | P,F      | P      | G     | G                 | G               | Fluorine Gas             | G              | G,E      | G      | E     | E                 |
| Chlorotoluene            | P                 | P,F      | P      | P     | E                 | E               | Fluorobenzene            | P              | F        | F      | E     | E                 |
| Chromic Acid 50%         | P,F               | F,G,E    | F      | G,E   | P                 | G               | Formaldehyde 40%         | P              | G,E      | E      | E     | E                 |
| Chromic Acid Conc.       | P                 | P,F      | P      | E     | E                 | E               | Formaldehyde             | G,E            | G,E      | E      | E     | E                 |
| Citric Acid              | G,E               | E        | E      | E     | P                 | E               | Formic Acid 10%          | F,G,E          | G,E      | E      | E     | E                 |
| Clorox                   | F                 | G        | E      | E     | P                 | E               | Formic Acid Conc.        | F              | F        | F      | E     | E                 |
| Cocoonet Oil             | P                 | E        | G      | G     | E                 | E               | Freon 11                 | P              | F        | F      | E     | E                 |
| Cod Liver Oil            | P                 | E        | E      | E     | E                 | E               | Freon 12                 | P,F,G          | F,G,E    | F      | F,G   | F                 |
| Coke Oven Gas            | G                 | G,E      | E      | E     | E                 | E               | Freon 21                 | P              | F,G      | F      | F,G   | F                 |
| Copper Chloride          | P                 | G,E      | E      | E     | E                 | E               | Freon 22                 | P              | F,G      | F      | F,G   | F                 |
| Copper Sulfate           | G                 | G,E      | G      | G     | E                 | E               | Fruit Juice              | P              | P,F,G    | F      | E     | E                 |
| Corn Oil                 | P                 | G,E      | E      | E     | E                 | E               | Fuel Oil                 | P              | P,F,G    | E      | E     | E                 |
| Cottonseed Oil           | P                 | G,E      | E      | E     | E                 | E               | Furan                    | P              | P        | E      | E     | E                 |
| Creosote Oil             | P,F,G             | F,G,E    | G      | G     | E                 | E               | Furfural                 | F,G            | F,G      | G      | F,G   | F                 |
| Cresol                   | P,F,G             | F,G      | G      | P,F,G | E                 | E               | Gasoline—Leaded          | P              | G,E      | E      | F,G   | F                 |
| Cresylic Acid            | P                 | P,F,G    | E      | E     | E                 | E               | Gasoline—Unleaded*       | P              | G,E      | E      | F,G   | F                 |
| Cyanide Solution         | G                 | G,E      | E      | E     | P                 | E               | Glucose                  | P              | G,E      | E      | E     | E                 |
| Cyclohexane              | P,F,G             | G        | G      | P     | E                 | E               | Glycerine                | P              | G,E      | E      | E     | E                 |
| Cyclohexanol             | P,F               | G,E      | G      | P,F   | E                 | E               | Grease—All Kinds         | P              | G,E      | E      | E     | E                 |
| Cyclohexanone            | F,G,E             | P,F,G,E  | G      | P,F   | E                 | E               | Green Sulfate Liqueur    | P              | G        | E      | E     | E                 |
| Cumene                   | P                 | P        | F      | G     | E                 | E               | Halawax                  | P              | G,E      | E      | E     | E                 |
| p-Cumene                 | P                 | P        | F      | G     | E                 | E               | Halogens                 | P              | F        | F      | E     | E                 |
| Decaborane               | P                 | P        | F      | G     | E                 | E               | Heptane                  | P              | F,G,E    | F      | P,F   | E                 |
| Decalin                  | P                 | P        | F      | G     | E                 | E               | Hexane                   | P              | P,F,G,E  | E      | E     | E                 |
| Degreasing Fluids        | F                 | F        | G      | G     | E                 | E               | n-Hexane-1               | P              | P        | E      | E     | E                 |
| Diacetone Alcohol        | F,G,E             | E        | E      | E     | E                 | E               | Hexyl Acetate            | P              | F        | F      | E     | E                 |
| Diacetone                | F                 | G        | E      | E     | E                 | E               | Hexyl Alcohol            | F              | G        | G      | E     | E                 |
| Dibenzyl Ether           | F,G               | G        | G      | F     | F                 | G               | Hydraulic Fluid—         |                |          |        |       |                   |
| Dibutyl Amine            | E                 | P,F      | F      | F     | E                 | E               | Petrol Base              | P,F            | G        | E      | E     | E                 |
| Dibutyl Ether            | P                 | P,F      | F      | F     | E                 | E               | Hydraulic Fluid—         |                |          |        |       |                   |
| Dibutyl Phthalate        | P,F               | G,E      | F      | F     | E                 | E               | Ester Base               | P              | E        | G      | G     | G                 |
| Dichloroacetic Acid      | P                 | P,F      | F      | F     | E                 | E               | Hydrobromic Acid 40%     | G              | E        | E      | E     | E                 |
| Dichlorobenzene          | P                 | P,F      | F      | P,F,G | E                 | E               | Hydrochloric Acid 30%    | G              | E        | E      | E     | E                 |
| Dichloroethane           | P                 | P,F      | F      | P,F,G | E                 | E               | Hydrochloric Acid Conc.  | G              | E        | E      | E     | E                 |
| Dichloropropene          | P                 | P,F      | G      | P,F,G | E                 | E               | Hydrocyanic Acid         | G              | G,E      | E      | E     | E                 |
| Dicyclohexylamine        | F                 | G,E      | E      | E     | E                 | E               | Hydrofluoric Acid 30%    | G,E            | G,E      | E      | E     | E                 |
| Diesel Oil               | P,F,G             | G,E      | G      | E     | E                 | E               | Hydrogen Gas             | G,E            | G,E      | E      | E     | E                 |
| Diethanolamine           | F,G               | E        | E      | E     | E                 | E               | Hydrogen Peroxide        | G              | G,E      | G      | E     | E                 |
| Diethylamine             | P,F,G             | F,G,E    | E      | E     | F                 | G               | Hydrogen Sulfide         | G              | G        | G      | G     | G                 |
| Diethyl Glycol           | G                 | G,E      | E      | E     | P                 | P               | Hypochlorous Acid        | G              | G        | P      | E     | E                 |
| Diethyl Ether            | P                 | P,F      | F      | F     | E                 | E               | Iodine                   | G              | G        | P,F,G  | E     | E                 |
| Diethyl Sebacoate        | P                 | P,F      | F      | F     | E                 | E               | Inorganic Salts          | E              | E        | E      | E     | E                 |
| Diisobutyl Ketone        | P,F               | P,F      | P      | P,F,G | E                 | F               | Isododecane              | P              | P        | G      | G     | E                 |
| Diisopropyl Ketone       | F                 | P,F      | G      | G     | E                 | E               | Isocetane                | P              | P        | G      | E     | E                 |
| Dimethyl Aniline         | P                 | P,F      | G      | G     | E                 | E               | Isophorone               | F              | G        | E      | E     | E                 |
| Diethyl Phthalate        | P,F               | P,F,G    | P      | P,F,G | E                 | G               | Isopropyl Acetate        | F              | G        | E      | E     | E                 |
| Dioxane                  | P,F,G             | F,G,E    | G      | G     | P                 | G               | Isopropyl Alcohol        | G,E            | G,E      | E      | E     | E                 |
| Dioxolane                | F                 | F,G      | G      | G     | E                 | E               | Isopropyl Chloride       | P              | G        | E      | E     | E                 |
| Dipentane                | P                 | F,G      | G      | G     | E                 | E               | Isopropyl Ether          | P              | P        | E      | E     | E                 |
| Diphenylamine HCl        | P                 | P,F      | G      | F     | E                 | E               | Kerosene                 | P,F            | G,E      | E      | G,E   | E                 |
| Dow Therm (A&E)          | P                 | F,G      | G      | E     | E                 | E               | Ketones                  | F,G            | P,F,G    | G      | P     | G                 |
| Ethane                   | G                 | E        | E      | E     | E                 | E               | Kraft Liquor             | P              | P        | G      | G     | G                 |
| Ethanolamine             | F,G               | G,E      | E      | E     | E                 | E               | Lacquer                  | P              | P        | E      | E     | E                 |
| Ethers                   | G                 | E        | E      | E     | E                 | E               | Lacquer Thinners         | P,F            | F,G      | G      | P,F,G | F                 |
| Ethyl Acetate            | F                 | G        | G      | P,F   | E                 | E               | Lactic Acid              | F,G,E          | E        | E      | E     | E                 |
| Ethyl Acetoacetate       | G                 | G,E      | E      | E     | E                 | E               | Lard                     | P              | E        | E      | E     | E                 |
| Ethyl Alcohol            | G,E               | E        | G      | E     | F                 | G               | Lauric Acid              | F              | G,E      | E      | E     | E                 |
| Ethylamine               | F                 | F,G      | F      | G     | E                 | E               | Lead Chloride            | F              | F,G      | E      | E     | E                 |
| Ethyl Benzene            | P                 | P,F      | G      | E     | E                 | E               | Lead Nitrate             | F              | F,G      | E      | E     | E                 |
| Ethyl Benzoate           | P                 | P,F      | G      | E     | E                 | E               | Lead Sulfamate           | G              | F,G      | E      | E     | E                 |
| Ethyl Cellulose          | G                 | F,G      | E      | E     | E                 | E               | Linoleic Acid            | P              | G,E      | E      | E     | E                 |
| Ethyl Chloride           | P                 | F,G      | F      | F,G   | E                 | E               | Linseed Oil              | P              | E        | E      | E     | E                 |
| Ethylene Chlorohydrin    | F                 | P,F      | P      | P,F   | E                 | E               | Lithium Bromide          | F              | F,G      | E      | E     | E                 |
| Ethylene Diamine         | G                 | F,G,E    | E      | G     | F                 | G               | Lubricating Oils—All     | P              | E        | E      | E     | E                 |
| Ethylene Dibromide       | P                 | P,F,G    | P      | P     | F                 | E               | Magnesium Bromide        | G              | G        | E      | E     | E                 |
| Ethylene Dichloride      | P                 | F        | F,G    | P     | F                 | E               | Magnesium Chloride       | G              | G        | E      | E     | E                 |
| Ethylene Gas             | G                 | E        | E      | E     | E                 | E               | Magnesium Hydroxide      | G              | G        | E      | E     | E                 |
| Ethylene Glycol          | G,E               | E        | E      | E     | E                 | E               | Magnesium Nitrate        | G              | G        | E      | E     | E                 |
| Ethylene Trichloride     | P                 | P,F      | G      | P     | E                 | E               | Magnesium Oxide          | G              | G        | E      | E     | E                 |
| Ethyl Ether              | F,G               | E        | E      | E     | E                 | E               | Magnesium Sulfate        | G              | G        | E      | E     | E                 |
| Ethyl Formate            | F                 | G        | G      | F     | E                 | E               | Maleic Acid              | F,G,E          | G,E      | E      | E     | E                 |
| Ethyl Mercaptan          | P                 | G,E      | E      | E     | F                 | E               | Manganese Sulfate        | G              | G        | E      | E     | E                 |
| Ethyl Oxalate            | G                 | F,G      | G      | G     | E                 | E               | Mercuric Chloride        | G              | F,G      | E      | F     | E                 |
| Ethyl Pimachlorobenzene  | P                 | G,E      | E      | E     | G                 | E               | Mercury                  | G              | G        | E      | E     | E                 |
| Ethyl Silicate           | F                 | F,G      | E      | E     | E                 | E               | Mesityl Oxide            | P              | F,G      | E      | E     | E                 |
| Ethyl Sulfate            | P                 | P,F      | E      | E     | E                 | E               | Methane Gas              | E              | E        | E      | E     | E                 |
| Fatty Acids              | P                 | G,E      | E      | E     | E                 | E               | Methyl Acetate           | F              | G        | G      | P,F   | F                 |
| Ferric Chloride—         | G                 | G,E      | E      | E     | E                 | E               | Methyl Alcohol           | G,E            | E        | E      | G,E   | F                 |

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| CHEMICAL HAZARD                                | CLOTHING MATERIAL |          |        |       |                   | CHEMICAL HAZARD | CLOTHING MATERIAL         |                |          |        |       |                   |              |
|--|-------------------|----------|--------|-------|-------------------|-----------------|---------------------------|----------------|----------|--------|-------|-------------------|--------------|
|  | Natural Rubber    | Neoprene | Buna-N | Vinyl | Polyvinyl Alcohol |                 | Polyethylene              | Natural Rubber | Neoprene | Buna-N | Vinyl | Polyvinyl Alcohol | Polyethylene |
| Methylamine                                    | F                 | F,G      | G      | G     | F                 | G               | Potassium Sulfate         | G              | G,E      | G      | E     | E                 | E            |
| Methyl Bromide                                 | F                 | G        | G      | G     | F                 | G               | Printing Inks             | G,E            | F,G,E    | G      | E     | E                 | E            |
| Methyl Cellosolve                              | F,G               | G,E      | E      | E     | F                 | G               | Producer Gas              | F              | G,E      | E      | E     | E                 | E            |
| Methyl Chloride                                | P,F,G             | G,E      | G      | P     | G                 | G               | Propane                   | F,G,E          | G,E      | E      | P,F   | E                 | E            |
| Methyl Chloroform                              | P                 | P,F      | G      | F     | G                 | G               | Propionitrile             | F              | G,E      | E      | E     | E                 | E            |
| Methyl Cyclopentane                            | P                 | F,G      | G      | G     | F                 | G               | n-Propyl Acetate          | F              | G        | E      | F     | G                 | G            |
| Methyl Ethyl Ketone                            | F,G               | G        | F      | P     | F                 | G               | Propyl Alcohol            | G,E            | G,E      | E      | E     | F                 | G            |
| Methyl Isobutyl Ketone                         | F,G               | G        | F      | P     | F                 | G               | Propylene Dichloride      | P              | P,F      | E      | P     | G                 | E            |
| Methyl Formate                                 | F                 | G        | F      | P     | F                 | G               | Propylene Gas             | F              | F        | E      | P     | E                 | E            |
| Methyl Methacrylate                            | P                 | F,G      | G      | F     | E                 | G               | Pyridine                  | F              | F        | G      | E     | E                 | E            |
| Methyl Oleate                                  | P                 | P,F      | G      | F     | E                 | G               | Pyrrrole                  | F              | F        | E      | E     | E                 | E            |
| Methyl Salicylate                              | P                 | P,F      | G      | F     | E                 | G               | Refrigerants              | G              | G        | E      | P     | P                 | G            |
| Methylene Bromide                              | G                 | G        | G      | F     | F                 | G               | Remazol                   | P              | P        | E      | P,F   | E                 | E            |
| Methylene Chloride                             | P,F,G             | P,F,G    | G      | P,F   | G                 | G               | Rosin Oil                 | P              | P        | E      | E     | E                 | E            |
| Milk   | P                 | P        | E      | E     | E                 | E               | Salicicylaldehyde         | P              | P        | F      | F     | F                 | E            |
| Mineral Oil                                    | P,F,G             | G,E      | E      | F     | F                 | E               | Soft Spray                | G              | G        | E      | E     | E                 | E            |
| Molasses                                       | P                 | P,F      | E      | E     | E                 | E               | Salt Water                | G              | G        | E      | E     | E                 | E            |
| Molybdic Acids                                 | F                 | F,G      | E      | E     | E                 | E               | Sausage                   | G              | G        | E      | E     | E                 | E            |
| Monothalamine                                  | F,G               | E        | E      | E     | F                 | E               | Shartanin, Commercial     | P              | P        | E      | E     | E                 | E            |
| Mono Ethyl Ether                               | P                 | P,F      | E      | E     | E                 | E               | Silicon                   | G              | G        | E      | E     | E                 | E            |
| Monomethyl Aniline                             | P                 | P        | E      | E     | E                 | E               | Soap Solution             | G              | G        | E      | E     | E                 | E            |
| Morpholine                                     | F,G               | E        | E      | E     | E                 | E               | Sodium Bisulfate          | G              | G        | F,G    | E     | E                 | E            |
| Naphthalene                                    | P,F               | G,E      | G      | F,G   | E                 | E               | Sodium Hydroxide 50%      | G,E            | E        | E      | E     | P                 | E            |
| Natural Gas                                    | P,F               | P,F,G    | E      | E     | E                 | E               | Sodium Hypochlorite 20%   | G              | F        | G      | E     | E                 | E            |
| Nickel Acetate                                 | F                 | G,E      | E      | E     | E                 | E               | Sodium Paracide           | G              | G        | E      | E     | E                 | E            |
| Nickel Ammonium Sulfate                        | F                 | G,E      | E      | E     | E                 | E               | Sodium Salts              | P              | P        | E      | E     | E                 | E            |
| Nickel Chloride                                | G                 | G,E      | G      | E     | E                 | E               | Solvent                   | P              | P        | E      | E     | E                 | E            |
| Nickel Nitrate                                 | G                 | G,E      | E      | E     | E                 | E               | Solvensone                | P              | P        | E      | E     | E                 | E            |
| Nickel Sulfate                                 | G                 | G,E      | E      | E     | E                 | E               | Soy Bean Oil              | P,F            | E        | E      | E     | E                 | E            |
| Nitric Acid 10%                                | P,F               | G        | F      | G,E   | P                 | F               | Spindle Oil               | F              | G        | E      | E     | E                 | E            |
| Nitric Acid Conc.                              | P                 | P,F,G    | E      | F     | P                 | P               | Stannic Chloride          | F              | G        | E      | E     | E                 | E            |
| Nitric Acid, Fuming                            | P                 | P        | E      | E     | E                 | E               | Stannous Chloride         | F              | F        | E      | E     | E                 | E            |
| Nitrobenzene                                   | P                 | P        | F      | P     | P                 | P               | Stearic Acid              | G,E            | E        | E      | E     | E                 | E            |
| Nitrobenzene                                   | P,F,G             | F,G      | F,G    | P,F   | P                 | P               | Stoddard's Solvent        | P,F            | G        | E      | E     | E                 | E            |
| Nitrogen                                       | G,E               | G,E      | E      | E     | E                 | E               | Styrene                   | P,F            | P,F      | E      | E     | E                 | E            |
| Nitromethane                                   | P,F,G             | F,G      | E      | E     | E                 | E               | Sugar Solution            | G              | G        | E      | E     | E                 | E            |
| 1-nitro Propane                                | P,F               | F        | F      | P,F   | E                 | E               | Sulfur                    | P              | P        | E      | E     | E                 | E            |
| Nitro-toluene                                  | P                 | P        | E      | E     | E                 | E               | Sulfur Chloride           | F              | P,F      | E      | E     | E                 | E            |
| Nitrous Oxide                                  | G                 | G        | G      | E     | E                 | E               | Sulfur Dioxide (liq.)     | F              | G        | E      | E     | E                 | E            |
| Octadecyl Alcohol                              | P                 | P        | E      | E     | E                 | E               | Sulfuric Acid 6%          | P              | F,G      | E      | E     | E                 | E            |
| n-Octane-2                                     | P                 | P        | E      | E     | E                 | E               | Sulfur Trioxide           | P              | P        | E      | E     | E                 | E            |
| Octyl Alcohol                                  | F,G,E             | E        | E      | E     | E                 | E               | Sulfuric Acid (up to 50%) | G              | G        | E      | E     | E                 | E            |
| Oleic Acid                                     | F                 | G,E      | E      | E     | E                 | E               | Sulfuric Acid (up to 60%) | P              | P        | E      | E     | E                 | E            |
| Oleum Spirits                                  | P                 | P        | E      | E     | E                 | E               | Sulfuric Acid (up to 95%) | P              | P,F      | E      | F,G   | E                 | E            |
| Olive Oil                                      | P                 | E        | G      | F     | E                 | E               | Tannic Acid 10%           | G,E            | E        | E      | E     | E                 | E            |
| Organic Acids                                  | F                 | P        | E      | E     | E                 | E               | Tar                       | G              | G        | E      | E     | E                 | E            |
| Oxalic Acid                                    | G,E               | G,E      | E      | E     | E                 | E               | Tartaric Acid             | G              | G        | E      | E     | E                 | E            |
| Oxygen, Gas                                    | G                 | G        | E      | E     | E                 | E               | Tarponal                  | F              | F        | E      | E     | E                 | E            |
| Oxygen, Liquid                                 | F                 | F        | F      | F     | F                 | F               | Terl. Butyl Alcohol       | F              | G        | E      | E     | E                 | E            |
| Paint Thinners                                 | F,G               | P,F,G    | G      | F     | G                 | G               | Terl. Butyl Carbazol      | F              | F        | E      | E     | E                 | E            |
| Paint & Varnish Removers                       | P,F               | F,G      | G      | P,F   | E                 | E               | Tetrachloroethylene       | P              | P        | E      | E     | E                 | E            |
| Palmitic Acid                                  | F,G,E             | F,G,E    | E      | E     | E                 | E               | Tetraethyl Lead           | P              | G,E      | E      | E     | E                 | E            |
| Paradichlorobenzene                            | F,G               | F,G,E    | E      | E     | E                 | E               | Tetra Hydro Naphthalene   | P              | F        | E      | E     | E                 | E            |
| Parathion                                      | P                 | P        | E      | E     | E                 | E               | Tetrahydro                | P              | P        | E      | E     | E                 | E            |
| Parabenzene                                    | P,F               | F,G      | F      | E     | E                 | E               | Thiophene                 | P              | P        | E      | E     | E                 | E            |
| n-Pentane                                      | P,F,G             | E        | E      | E     | E                 | E               | Titanium Chloride         | P              | P        | E      | E     | E                 | E            |
| n-Pentane 2-Methyl                             | P                 | G        | E      | E     | E                 | E               | Titanium Sulfate          | P              | P        | E      | E     | E                 | E            |
| n-Pentane 3-Methyl                             | P                 | G        | E      | E     | E                 | E               | Toluene                   | P              | P        | E      | E     | E                 | E            |
| n-Pentane 2,4-Methyl                           | P                 | F,G      | F      | P,F,G | F                 | G               | Tri Butyl Ethyl Phosphate | F              | F        | E      | E     | E                 | E            |
| Perchloroethylene                              | P                 | F,G      | F      | P,F,G | E                 | G               | Triacetyl                 | G              | G        | E      | E     | E                 | E            |
| Perchloric Acid 10%                            | F,G               | G,E      | F      | E     | E                 | E               | Triethyl Phosphate        | F              | P        | E      | E     | E                 | E            |
| Petroleum Oils                                 | P                 | F,G,E    | E      | E     | E                 | E               | Trichloroacetic Acid      | F              | F,G      | E      | E     | E                 | E            |
| Petroleum Spirits                              | F                 | P,F,G    | E      | E     | E                 | E               | Trichloroethylene         | P              | F,G      | F      | E     | E                 | E            |
| Phenol   | F,G               | F,G,E    | E      | G,E   | E                 | E               | Tricresyl Phosphate       | F              | G        | F      | E     | E                 | E            |
| Phenyl Ethyl Ether                             | F                 | F,G      | E      | E     | E                 | E               | Triethanolamine           | F,G            | F,G      | E      | E     | E                 | E            |
| Phenyl Hydrazine                               | G                 | G,E      | E      | E     | E                 | E               | Triethylamine             | P              | P        | E      | E     | E                 | E            |
| Pherone  | P                 | P,F      | E      | E     | E                 | E               | Triethylamine             | P              | P        | E      | E     | E                 | E            |
| Phosphoric Acid 85%                            | G                 | E        | E      | E     | P                 | E               | Triphenyl                 | P              | P        | E      | E     | E                 | E            |
| Phosphoric Bromide                             | P                 | P,F      | E      | E     | E                 | E               | Trisodium Phosphate       | G              | G        | E      | E     | E                 | E            |
| Phosphoric Chloride                            | P                 | P,F      | E      | E     | E                 | E               | Tung Oil                  | P              | P        | E      | E     | E                 | E            |
| Photographic Solutions                         | E                 | E        | E      | E     | E                 | E               | Turbin Oil                | P              | P        | E      | E     | E                 | E            |
| Pickling Baths                                 | G                 | G        | G      | E     | P                 | E               | Turpentine                | P,F            | F,G      | E      | F,G,E | E                 | E            |
| Pickling Solution 20% Nitric<br>40% HF Rt 150F | F                 | F,G      | E      | P     | E                 | E               | Urea                      | G              | G        | E      | E     | E                 | E            |
| Picric Acid                                    | G                 | G,E      | E      | F,G,E | E                 | E               | Uric Acid                 | G              | G        | E      | E     | E                 | E            |
| Pitch  | P                 | E        | E      | E     | E                 | E               | Vegetable Oils            | G              | F,G,E    | E      | E     | E                 | E            |
| Pine Oil                                       | P,F               | F,G,E    | F      | E     | E                 | E               | Vinager                   | F              | F        | E      | E     | E                 | E            |
| Piperidine                                     | P                 | P,F      | E      | E     | E                 | E               | Water                     | G              | G        | E      | E     | E                 | E            |
| Plating Solution                               | G,E               | G,E      | E      | F,G,E | E                 | E               | Whiskey                   | G              | G        | E      | E     | E                 | E            |
| Potassium Chloride                             | G                 | G,E      | E      | E     | E                 | E               | Wood Preservatives        | F              | F        | E      | E     | E                 | E            |
| Potassium Cyanide                              | G                 | G,E      | E      | E     | E                 | E               | Xylene                    | P              | P,F      | E      | F,G   | E                 | E            |
| Potassium Dichromate                           | P                 | G,E      | E      | E     | E                 | E               | Xylolones                 | P,F            | F,G,E    | E      | E     | E                 | E            |
| Potassium Hydroxide (sat)                      | G,E               | E        | E      | E     | E                 | E               | Zelite                    | F              | F        | E      | E     | E                 | E            |
| Potassium Permanganate                         | G                 | P,F,G    | E      | E     | E                 | E               | Zinc Acetate              | G              | G        | E      | E     | E                 | E            |
|  |                   |          |        |       |                   |                 | Zinc Chloride             | G              | G        | E      | E     | E                 | E            |
|  |                   |          |        |       |                   |                 | Zinc Sulfate              | G              | G        | E      | E     | E                 | E            |

## FIRE SAFETY

### Handout IX

#### 1. Fire Safety

##### a. Accumulation Points Location

(1) Accumulation sites will be located so as not to interfere with the safe evacuation of personnel from adjacent structures in the event of fire.

(2) Accumulation sites must be marked, "No Smoking within Fifty Feet" and "No Unauthorized Personnel" in both English and Spanish. The Air Force Occupational Safety and Health (AFOSH) Standard 127-43, paragraph 4.f.(4) is the referenced material.

(3) Accumulation sites must be graded to direct spills away from drains/structures or surrounded by a six inch high curb with provisions for draining. AFOSH Standard 127-43, paragraph 4.e.(2) is the referenced material.

(4) Accumulation sites will be located at least fifty feet from buildings, facilities, dumpsters, etc., except when the structure is already designated for storage of flammable liquids or the Base Fire Chief approves the location.

(5) Accumulation sites will be located to afford access by fire equipment in the event of a fire, spill, or emergency.

(6) Accumulation sites will be used only for storage of recoverable and waste liquid petroleum products and hazardous waste.

##### b. Safety Precautions

(1) The accumulation point manager will insure incompatible wastes are not mixed and adequate separation is maintained. Section VI of the 27th Tactical Fighter Wing Hazardous Waste Management Plan is the referenced material.

(2) Sufficient grounding points will be available. Containers will be statically bonded and grounded during pressure transfer of flammable liquids. AFOSH Standard 127-43, paragraph 4.f.(6) is the referenced material.

(3) Personnel will ground themselves by grasping grounded metals before transferring flammable liquids.

(4) Positive measures will be taken to eliminate all sources of ignition. AFOSH Standard 127-43, paragraph 4.f.(8) is the referenced material.

(5) Vehicles will not be started or left running while transfer of flammable liquids is in progress.

(6) Adequate tools will be available to open/close containers without producing a spark. The use of hammers or similar methods to remove bungs is strictly prohibited.

(7) Containers will be kept closed except during actual transfer of liquids.

(8) Containers will be adequately secured to prevent movement during transportation.

(9) Containers will not be filled above ninety percent of their capacity in order to prevent spillage due to expansion.

(10) Leaking containers will be repaired or removed immediately.

c. First Aid Fire Fighting

(1) Fire reporting telephone number is 784-3117.

(2) Use any BC fire extinguisher.

## CONTINGENCY PLAN/EMERGENCY RESPONSE

### Handout X

1. Contingency Plan/Emergency Response
  - a. Spill Preparation
    - (1) Know response procedures.
    - (2) Have emergency material available.
  - b. Spill Response
    - (1) Spill Discovery
      - (a) Leaking of drums.
      - (b) Burning of drums.
      - (c) Destruction of drums.
    - (2) Fire Department Assistance
      - (a) Give name, telephone number, and location of spill.
      - (b) Describe hazardous material (color of drum, label, etc.).
      - (c) Describe quantity involved.
      - (d) Report presence of fire, if any.
    - (3) Hospital Assistance
  - c. Awaiting Assistance Procedure
    - (1) Remain on site.
    - (2) Keep area clear of personnel.
    - (3) Contain spill as well as possible until assistance arrives.

Date:  
Revision No.: 0  
Section: H  
Cannon

APPENDIX H-2

Special Task Certification and Recurring  
Training Forms

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING

| TASK OR RECURRING TRAINING AND STUDY REFERENCES<br>A | EVALUATION OR TRAINING |                     |                     |               | EVALUATOR OR INSTRUCTOR<br>F | TRAINEE INITIAL<br>G | SUPERVISOR OR CERTIFYING OFFICIAL<br>H |
|--|------------------------|---------------------|---------------------|---------------|------------------------------|----------------------|--|
|  | TYPE<br>B              | DATE COMPLETED<br>C | SCORE OR HOURS<br>D | DUE DATE<br>E |                              |                      |  |
| MK 2 Mod 1 Tool Kit (60A-2-1-3)                      | C/P                    | 28 JAN 84           | SAT                 | FEB 84        | OLLER                        | Joe                  | W. Vandeyford                          |
| Thermite Burn (60A-2-1-17/60B-2-2-3)                 | C/P                    | 29 FEB 84           | SAT                 | MAR 84        | Manson                       | Joe                  | W. Vandeyford                          |
| MK 31 Mod 0 J-ROD (60A-2-1-20)                       | P                      | 29 MAR 84           | SAT                 | APR 84        | OLLER                        | Joe                  | W. Vandeyford                          |
| Tape and Line (60A-2-1-1)                            | P                      | 27 APR 84           | SAT                 | MAY 84        | N...                         | Joe                  | W. Vandeyford                          |
| MK 1 Mod 2 (60A-2-1-2)                               | P                      | MAY 84              | SAT                 | JUN 84        | N...                         | Joe                  | W. Vandeyford                          |
| MK 1 Mod 3 (60A-2-1-46)                              | P                      | 28 JUN 84           | SAT                 | JUL 84        | OLLER                        | Joe                  | W. Vandeyford                          |
| MK 3 Mod 5 (60A-2-1-4)                               | P                      | 22 JUL 84           | SAT                 | AUG 84        | OLLER                        | Joe                  | W. Vandeyford                          |
| Shape Charge Attack (60A-2-1-51)                     |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                      |                        | SEP                 |                     | OCT           |                              |                      |  |
| Fuze Gaggling Procedure (Applicable 60 Series)       |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter                                   |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (BIP) (60A-1-1-31)                     |                        | DEC                 |                     | JAN           |                              |                      |  |
| MK 2 Mod 1 (60A-2-1-3)                               | P                      | 28 JAN 84           | SAT                 | FEB 84        | OLLER                        | Joe                  | J.R. Scholtz                           |
| Disposal Operation 60A-1-1-31                        | P                      | 29 FEB 84           | SAT                 | MAR 84        | OLLER                        | Joe                  | J.R. Scholtz                           |
| MK 31 Mod 0 (60A-2-1-20)                             | P                      | 29 MAR 84           | SAT                 | APR 84        | OLLER                        | Joe                  | J.R. Scholtz                           |
| Chemical Disposal (60A-1-1-11)                       | P                      | 27 APR 84           | SAT                 | MAY 84        | OLLER                        | Joe                  | Franklin                               |
| MK 1 Mod 2 (60A-2-1-2)                               | P                      | MAY 84              | SAT                 | JUN 84        | N...                         | Joe                  | Franklin                               |
| MK Mod 3 (60A-2-1-46)                                | P                      | 28 JUN 84           | SAT                 | JUL 84        | OLLER                        | Joe                  | Franklin                               |
| ADR Disposal (11A-1-42)                              | P                      | 28 JUL 84           | SAT                 | AUG 84        | OLLER                        | Joe                  |  |
| Shape Charge Attack (60A-2-1-51)                     |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                      |                        | SEP                 |                     | OCT           |                              |                      |  |
| Det Cord Opening (60L-1-1-1)                         |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter                                   |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (60A-1-1-31)                           |                        | DEC                 |                     | JAN           |                              |                      |  |

NAME OF TRAINEE (Last, First, Middle Initial) **OLLER Freddie B** SSAN **[REDACTED]** GRADE **[REDACTED]** AFSC **[REDACTED]**

| 1. TASKS, KNOWLEDGE AND STUDY REFERENCES                                    | PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION |                             |   |                |                             |   |                   |                             |   |
|---|--|-----------------------------|---|----------------|-----------------------------|---|-------------------|-----------------------------|---|
|   | 2. SKILL LEVEL                                       |                             |   | 3. SKILL LEVEL |                             |   | 7. SKILL LEVEL    |                             |   |
|   | A<br>AFSC<br>/Cra                                    | B<br>Date<br>OJT<br>Started | C<br>Date Compld<br>& Trainee's<br>Supervisor's<br>Initials | A<br>AFSC      | B<br>Date<br>OJT<br>Started | C<br>Date Compld<br>& Trainee's<br>Supervisor's<br>Initials | A<br>AFSC<br>/Cra | B<br>Date<br>OJT<br>Started | C<br>Date Compld<br>& Trainee's<br>Supervisor's<br>Initials |
| 10a Identification  | A  |                             |   | B              | 1 Feb 83                    | 1 Feb 83  | C                 |                             |   |
| b Characteristics   | A  |                             |   | B              | 1 Feb 83                    | 1 Feb 83  | C                 |                             |   |
| c Effects   | A  |                             |   | B              | 1 Feb 83                    | 1 Feb 83  | C                 |                             |   |
| 11. DESTRUCTION OF EXPLOSIVES MATERIAL                                      |  |                             |   |                |                             |   |                   |                             |   |
| TR: AFRs 19-1, 127-100; TOs 11A-1-42, 11A-1-60, 60A-1-1-22, 60A-2-1-27      |  | 60A-1-1-17,                 | 60A-1-1-18,   | 60A-1-1-21,    |                             |   |                   |                             |   |
| a Demolition equipment  | B  |                             |   | C              | 1 Feb 83                    | 1 Feb 83  | D                 |                             |   |
| b Firing systems  | B  |                             |   | C              | 1 Feb 83                    | 1 Feb 83  | D                 |                             |   |
| c Disposal procedures   |  |                             |   |                |                             |   |                   |                             |   |
| 1 Routine   | 2b   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 4c                |                             |   |
| 2 Emergency   | 2b/-   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 4c                |                             |   |
| d Munitions residue   |  |                             |   |                |                             |   |                   |                             |   |
| 1 Inspect   | 2b/-   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 3c                |                             |   |
| 2 Certify   | 2b/-   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 3c                |                             |   |
| 3 Turn-in   | 2b/-   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 3c                |                             |   |
| e Environmental considerations  | -  |                             |   | A              | 1 Feb 83                    | 1 Feb 83  | B                 |                             |   |
| f Transport munitions   | 2b   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 4c                |                             |   |
| 12. RENDER SAFE TECHNIQUES  |  |                             |   |                |                             |   |                   |                             |   |
| TR: TOs 60A-1-1-18, 60A-1-1-21 thru 60A-2-1-5, 60A-2-1-17, 60A-2-1-40       |  |                             |   |                |                             |   |                   |                             |   |
| a Immobilize fuzes  | 2b   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 4c                |                             |   |
| b Remove fuzes by remote means  | 2b   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 4c                |                             |   |
| c Disable electrical components   | 2b   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 4c                |                             |   |
| d Disrupt firing trains   | 2b   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 4c                |                             |   |
| e Use shaped charges and demolition techniques                              | 2b   |                             |   | 3c             | 1 Feb 83                    | 1 Feb 83  | 4c                |                             |   |
| 13. CHEMICAL WARFARE AGENTS   |  |                             |   |                |                             |   |                   |                             |   |
| a Classification  |  |                             |   |                |                             |   |                   |                             |   |
| TR: AFMs 160-12, 355-4, 355-9; AFRs 355-7 (Chap 2); TOs 11-1-35, 60a-1-1-11 |  |                             |   |                |                             |   |                   |                             |   |
| 1 Physical state  | A  |                             |   | B              | 1 Feb 83                    | 1 Feb 83  | C                 |                             |   |
| 2 Tactical use  | A  |                             |   | B              | 1 Feb 83                    | 1 Feb 83  | C                 |                             |   |
| 3 Physiological action  | A  |                             |   | B              | 1 Feb 83                    | 1 Feb 83  | C                 |                             |   |
| 4 Persistancy   | A  |                             |   | B              | 1 Feb 83                    | 1 Feb 83  | C                 |                             |   |

NO ADVANCED COURSE

GROUP 1 TRAINING/DEMO PAY QUALIFICATIONS

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING

GROUP 1 TRAINING  
DEMO PAY QUALIFICATIONS

| TASK OR RECURRING TRAINING AND STUDY REFERENCES<br>A            | EVALUATION OR TRAINING |                     |                     |               | EVALUATOR OR INSTRUCTOR<br>F | TRAINEE INITIAL<br>G | SUPERVISOR OR CERTIFYING OFFICIAL<br>H |
|---|------------------------|---------------------|---------------------|---------------|------------------------------|----------------------|--|
|   | TYPE<br>B              | DATE COMPLETED<br>C | SCORE OR HOURS<br>D | DUE DATE<br>E |                              |                      |  |
| MK 2 Mod 1 Tool Kit (60A-2-1-3)                                 | C/P                    | 28 JAN 84           | SAT                 | FEB 84        | MANSON                       | DM                   | W. B. ...                              |
| Thermite Burn (60A-2-1-17/60B-2-2-3)                            | C/P                    | 24 FEB 84           | SAT                 | MAR 84        | MANSON                       | DM                   | W. B. ...                              |
| MK 31 Mod 0 J-ROD (60A-2-1-20)                                  | P                      | 29 MAR 84           | SAT                 | APR 84        | MANSON                       | DM                   | W. B. ...                              |
| Tape and Line (60A-2-1-1)                                       | P                      | 12 APR 84           | SAT                 | MAY 84        | MANSON                       | DM                   | W. B. ...                              |
| MK 1 Mod 2 (60A-2-1-2)  | P                      | 25 MAY 84           | SAT                 | JUN 84        | MANSON                       | DM                   | W. B. ...                              |
| MK 1 Mod 3 (60A-2-1-46)   | P                      | 23 JUN 84           | SAT                 | JUL 84        | MANSON                       | DM                   | W. B. ...                              |
| MK 3 Mod 5 (60A-2-1-4)  | P                      | JUL 84              | SAT                 | AUG 84        | MANSON                       | DM                   | W. B. ...                              |
| Shape Charge Attack (60A-2-1-51)                                |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                                 |                        | SEP                 |                     | OCT           |                              |                      |  |
| Fuze Gaggling Procedure (Applicable 60 Series)                  |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter  |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (BIP) (60A-1-1-31)                                |                        | DEC                 |                     | JAN           |                              |                      |  |
| MK 2 Mod 1 (60A-2-1-3)  | P                      | 28 JAN 84           | SAT                 | FEB 84        | MANSON                       | DM                   | F. L. ...                              |
| Thermite Burn (60A-2-1-17/60B-2-2-3)                            | P                      | 29 FEB 84           | SAT                 | MAR 84        | MANSON                       | DM                   | F. L. ...                              |
| MK 31 Mod 0 (60A-2-1-20)  | P                      | 29 MAR 84           | SAT                 | APR 84        | MANSON                       | DM                   | F. L. ...                              |
| Chemical Disposal (60A-1-1-11)                                  | P                      | 6 APR 84            | SAT                 | MAY 84        | MANSON                       | DM                   | F. L. ...                              |
| MK 1 Mod 3 (60A-2-1-46) <sup>MUSPA</sup> <sub>US/GF (SMA)</sub> | P                      | 14 MAY 84           | SAT                 | JUN 84        | G. B. E.                     | DM                   | M. B. ...                              |
| MK Mod 3 (60A-2-1-46)   | P                      | 25 JUN 84           | SAT                 | JUL 84        | MANSON                       | DM                   | F. L. ...                              |
| ADR Disposal (11A-1-42)   | P                      | JUL 84              | SAT                 | AUG 84        | MANSON                       | DM                   | F. L. ...                              |
| Shape Charge Attack (60A-2-1-51)                                |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                                 |                        | SEP                 |                     | OCT           |                              |                      |  |
| Det Cord Opening (60I-1-1-1)                                    |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter  |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (60A-1-1-31)                                      |                        | DEC                 |                     | JAN           |                              |                      |  |

NAME OF TRAINEE (Last, First, Middle Initial): **MANSON DANIEL L.**

SSAN: **[REDACTED]**

GRADE: **159**

AFSC: **4570**

| 1. TASKS, KNOWLEDGE AND STUDY REFERENCES   | PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION |                             |   |                  |                             |   |                  |                             |   |
|--|--|-----------------------------|---|------------------|-----------------------------|---|------------------|-----------------------------|---|
|  | 2. 3 SKILL LEVEL                                     |                             |   | 3. 5 SKILL LEVEL |                             |   | 4. 7 SKILL LEVEL |                             |   |
|  | A<br>AFSC<br>/Cra                                    | B<br>Date<br>OJT<br>Started | C<br>Date Compld<br>& Trainee's<br>Supervisor's<br>Initials | A<br>AFSC        | B<br>Date<br>OJT<br>Started | C<br>Date Compld<br>& Trainee's<br>Supervisor's<br>Initials | A<br>AFSC<br>Cra | B<br>Date<br>OJT<br>Started | C<br>Date Compld<br>& Trainee's<br>Supervisor's<br>Initials |
| 10a. Identification  | A  |                             |   | B                |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| b. Characteristics   | A  |                             |   | B                |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| c. Effects   | A  |                             |   | B                |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| 11. DESTRUCTION OF EXPLOSIVES MATERIAL   |  |                             |   |                  |                             |   |                  |                             |   |
| TR: AFRs 19-1, 127-100; TOs 11A-1-42, 11A-1-60, 60A-1-1-17, 60A-1-1-18, 60A-1-1-21, 60A-1-1-22, 60A-2-1-27 |  |                             |   |                  |                             |   |                  |                             |   |
| a. Demolition equipment  | B  |                             |   | C                |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| b. Firing systems  | B  |                             |   | C                |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| c. Disposal procedures   |  |                             |   |                  |                             |   |                  |                             | NO ADVANCED COURSE  |
| ① Routine  | 2b   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| ② Emergency  | 2b/-   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| d. Munitions residue   |  |                             |   |                  |                             |   |                  |                             |   |
| ① Inspect  | 2b/-   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| ② Certify  | 2b/-   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| ③ Turn-in  | 2b/-   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| e. Environmental considerations  | -  |                             |   | A                |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| ① Transport munitions  | 2b   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             |   |
| 12. RENDER SAFE TECHNIQUES   |  |                             |   |                  |                             |   |                  |                             |   |
| TR: TOs 60A-1-1-18, 60A-1-1-21 thru 60A-2-1-5, 60A-2-1-17, 60A-2-1-40                                      |  |                             |   |                  |                             |   |                  |                             |   |
| a. Immobilize fuzes  | 2b   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             | 4c  |
| b. Remove fuzes by remote means  | 2b   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             | 4c  |
| c. Disable electrical components   | 2b   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             | 4c  |
| d. Disrupt firing trains   | 2b   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             | 4c  |
| e. Use shaped charges and demolition techniques  | 2b   |                             |   | 3c               |                             | 24Sep82<br>[Signature]                                      |                  |                             | 4c  |
| 13. CHEMICAL WARFARE AGENTS  |  |                             |   |                  |                             |   |                  |                             |   |
| a. Classification  |  |                             |   |                  |                             |   |                  |                             |   |
| TR: AFMs 160-12, 355-4, 355-9; AFRs 355-7 (Chap 2); TOs 11-1-35, 60a-1-1-11                                |  |                             |   |                  |                             |   |                  |                             |   |
| (1) Physical state   | A  |                             |   | B                |                             | 24Sep82<br>[Signature]                                      |                  |                             | C   |
| (2) Tactical use   | A  |                             |   | B                |                             | 24Sep82<br>[Signature]                                      |                  |                             | C   |
| (3) Physiological action   | A  |                             |   | B                |                             | 24Sep82<br>[Signature]                                      |                  |                             | C   |
| (4) Persistancy  | A  |                             |   | B                |                             | 24Sep82<br>[Signature]                                      |                  |                             | C   |

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING

GROUP 1 TRAINING

DEMO PAY QUALIFICATIONS

| TASK OR RECURRING TRAINING AND STUDY REFERENCES<br>A | EVALUATION OF TRAINING |                     |                     |               | EVALUATOR OR INSTRUCTOR<br>F | TRAINEE INITIAL<br>G | SUPERVISOR OR CERTIFYING OFFICIAL<br>H |
|--|------------------------|---------------------|---------------------|---------------|------------------------------|----------------------|--|
|  | TYPE<br>B              | DATE COMPLETED<br>C | SCORE OR HOURS<br>D | DUE DATE<br>E |                              |                      |  |
| MK 2 Mod 1 Tool Kit (60A-2-1-3)                      | C/P                    | 28 JAN 84           | SAT                 | FEB 84        | OLLER                        | DEP                  | [Signature]                            |
| Thermite Burn (60A-2-1-17/60B-2-2-3)                 | C/P                    | 29 FEB 84           | SAT                 | MAR 84        | MANSON                       | DEP                  | [Signature]                            |
| MK 31 Mod 0 J-ROD (60A-2-1-20)                       | C/P                    | 29 MAR 84           | SAT                 | APR 84        | PAINTER                      | DEP                  | [Signature]                            |
| Tape and Line (60A-2-1-1)                            | P                      | APR                 |                     | MAY           |                              | DEP                  | [Signature]                            |
| MK 1 Mod 2 (60A-2-1-2)                               | P                      | 29 MAY 84           |                     | JUN           | PAINTER                      | DEP                  | [Signature]                            |
| MK 1 Mod 3 (60A-2-1-46)                              | P                      | 29 JUN 84           | SAT                 | JUL 84        | OLLER                        | DEP                  | [Signature]                            |
| MK 3 Mod 5 (60A-2-1-4)                               | P                      | 26 JUL 84           | SAT                 | AUG 84        | PAINTER                      |                      | [Signature]                            |
| Shape Charge Attack (60A-2-1-51)                     |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                      |                        | SEP                 |                     | OCT           |                              |                      |  |
| Fuze Gagger Procedure (Applicable 60 Series)         |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter                                   |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (BIP) (60A-1-1-31)                     |                        | DEC                 |                     | JAN           |                              |                      |  |
| MK 2 Mod 1 (60A-2-1-3)                               | P                      | 28 JAN 84           | SAT                 | FEB 84        | OLLER                        | DEP                  | [Signature]                            |
| Thermite Burn (60A-2-1-17/60B-2-2-3)                 | P                      | 29 FEB 84           | SAT                 | MAR 84        | MANSON                       | DEP                  | [Signature]                            |
| MK 31 Mod 0 (60A-2-1-20)                             | P                      | 29 MAR 84           | SAT                 | APR 84        | PAINTER                      | DEP                  | [Signature]                            |
| Chemical Disposal (60A-1-1-11)                       | P                      | APR                 |                     | MAY           |                              | DEP                  | [Signature]                            |
| MK 1 Mod 2 (60A-2-1-2)                               | P                      | 29 MAY 84           |                     | JUN           | PAINTER                      | DEP                  | [Signature]                            |
| MK Mod 3 (60A-2-1-46)                                | P                      | 28 JUN 84           | SAT                 | JUL 84        | OLLER                        | DEP                  | [Signature]                            |
| ADR Disposal (11A-1-42)                              | P                      | 28 JUL 84           | SAT                 | AUG 84        | OLLER                        | DEP                  | [Signature]                            |
| Shape Charge Attack (60A-2-1-51)                     |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                      |                        | SEP                 |                     | OCT           |                              |                      |  |
| Det Cord Opening (60L-1-1-1)                         |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter                                   |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (60A-1-1-31)                           |                        | DEC                 |                     | JAN           |                              |                      |  |

NAME OF TRAINEE (Last, First, Middle Initial)

PAINTER, DAVID E

SSAN

[Redacted]

GRADE

AFSC

| 1. TASKS, KNOWLEDGE AND STUDY REFERENCES                                    | PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION |                             |   |                  |                             |   |                  |                             |   |
|---|--|-----------------------------|---|------------------|-----------------------------|---|------------------|-----------------------------|---|
|   | 2. 3 SKILL LEVEL                                     |                             |   | 3. 5 SKILL LEVEL |                             |   | 4. 7 SKILL LEVEL |                             |   |
|   | A<br>AFSC<br>Gra                                     | B<br>Date<br>OJT<br>Started | C<br>Date Compid<br>& Trainee's<br>Supervisor's<br>Initials | A<br>AFSC        | B<br>Date<br>OJT<br>Started | C<br>Date Compid<br>& Trainee's<br>Supervisor's<br>Initials | A<br>AFSC<br>Gra | B<br>Date<br>OJT<br>Started | C<br>Date Compid<br>& Trainee's<br>Supervisor's<br>Initials |
| 10a. Identification   | A  |                             |   | B                |                             |   |                  |                             |   |
| b. Characteristics  | A  |                             |   | B                |                             |   |                  |                             |   |
| c. Effects  | A  |                             |   | B                |                             |   |                  |                             |   |
| 11. DESTRUCTION OF EXPLOSIVES MATERIAL                                      |  |                             |   |                  |                             |   |                  |                             |   |
| TR: AFRs 19-1, 127-100; TOs 11A-1-42, 11A-1-60, 60A-1-1-22, 60A-2-1-27      |  |                             |   |                  |                             |   |                  |                             |   |
| a. Demolition equipment   | B  |                             |   | C                |                             |   |                  |                             |   |
| b. Firing systems   | B  |                             |   | C                |                             |   |                  |                             |   |
| c. Disposal procedures  |  |                             |   |                  |                             |   |                  |                             |   |
| (1) Routine   | 2b   |                             |   | 3c               |                             |   |                  |                             |   |
| (2) Emergency   | 2b/-   |                             |   | 3c               |                             |   |                  |                             |   |
| d. Munitions residue  |  |                             |   |                  |                             |   |                  |                             |   |
| (1) Inspect   | 2b/-   |                             |   | 3c               |                             |   |                  |                             |   |
| (2) Certify   | 2b/-   |                             |   | 3c               |                             |   |                  |                             |   |
| (3) Turn-in   | 2b/-   |                             |   | 3c               |                             |   |                  |                             |   |
| e. Environmental considerations   | -  |                             |   | A                |                             |   |                  |                             |   |
| f. Transport munitions  | 2B/A   |                             |   | 3c               |                             |   |                  |                             |   |
| 12. RENDER SAFE TECHNIQUES  |  |                             |   |                  |                             |   |                  |                             |   |
| TR: TOs 60A-1-1-18, 60A-1-1-21 thru 60A-2-1-5, 60A-2-1-17, 60A-2-1-40       |  |                             |   |                  |                             |   |                  |                             |   |
| a. Immobilize fuzes   | 2b   |                             |   | 3c               |                             |   |                  |                             |   |
| b. Remove fuzes by remote means   | 2b   |                             |   | 3c               |                             |   |                  |                             |   |
| c. Disable electrical components  | 2b   |                             |   | 3c               |                             |   |                  |                             |   |
| d. Disrupt firing trains  | 2b   |                             |   | 3c               |                             |   |                  |                             |   |
| e. Use shaped charges and demolition techniques                             | 2b   |                             |   | 3c               |                             |   |                  |                             |   |
| 13. CHEMICAL WARFARE AGENTS   |  |                             |   |                  |                             |   |                  |                             |   |
| a. Classification   |  |                             |   |                  |                             |   |                  |                             |   |
| TR: AFMs 160-12, 355-4, 355-9; AFRs 355-7 (Chap 2); TOs 11-1-35, 60a-1-1-11 |  |                             |   |                  |                             |   |                  |                             |   |
| (1) Physical state  | A  |                             |   | B                |                             |   |                  |                             |   |
| (2) Tactical use  | A  |                             |   | B                |                             |   |                  |                             |   |
| (3) Physiological action  | A  |                             |   | B                |                             |   |                  |                             |   |
| (4) Persistency   | A  |                             |   | B                |                             |   |                  |                             |   |

NO ADVANCED COURSE

GROUP I TRAINING/DEMO PAY QUALIFICATIONS

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING

| TASK OR RECURRING TRAINING AND STUDY REFERENCES<br>A | EVALUATION OR TRAINING |                     |                     |               | EVALUATOR OR INSTRUCTOR<br>F | TRAINEE INITIAL<br>G | SUPERVISOR OR CERTIFYING OFFICIAL<br>H |
|--|------------------------|---------------------|---------------------|---------------|------------------------------|----------------------|--|
|  | TYPE<br>B              | DATE COMPLETED<br>C | SCORE OR HOURS<br>D | DUE DATE<br>E |                              |                      |  |
|  |                        |                     |                     |               |                              |                      |  |
| MK 2 Mod 1 Tool Kit (60A-2-1-3)                      | P                      | 28 JAN 84           | SAT                 | FEB 84        | MANSON                       | MM                   | W. Handford                            |
| Thermite Burn (60A-2-1-17/60B-2-2-3)                 | P                      | 29 FEB 84           | SAT                 | MAR 84        | MANSON                       | MM                   | W. Handford                            |
| MK 3I Mod 0 J-ROD (60A-2-1-20)                       | P                      | 29 MAR 84           | SAT                 | APR 84        | OLLER                        | MM                   | W. Handford                            |
| Tape and Line (60A-2-1-1)                            | P                      | APR 84              | SAT                 | MAY 84        | MANSON                       | MM                   | W. Handford                            |
| MK 1 Mod 2 (60A-2-1-2)                               | P                      | MAY 84              | SAT                 | JUN 84        | MANSON                       | MM                   | W. Handford                            |
| MK 1 Mod 3 (60A-2-1-46)                              | P                      | 28 JUN 84           | SAT                 | JUL 84        | MANSON                       | MM                   | W. Handford                            |
| MK 3 Mod 5 (60A-2-1-4)                               | P                      | 23 JUL 84           | SAT                 | AUG 84        | OLLER                        | MM                   | W. Handford                            |
| Shape Charge Attack (60A-2-1-51)                     |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                      |                        | SEP                 |                     | OCT           |                              |                      |  |
| Fuze Gaggling Procedure (Applicable 60 Series)       |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter                                   |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (BIP) (60A-1-1-31)                     |                        | DEC                 |                     | JAN           |                              |                      |  |
| MK 2 Mod 1 (60A-2-1-3)                               | P                      | 28 JAN 84           | SAT                 | FEB 84        | MANSON                       | MM                   | L. d. lbr                              |
| Disposal (ADR) (60A-1-1-31)                          | P                      | 17 FEB 84           | SAT                 | MAR 84        | MANSON                       | MM                   | L. d. lbr                              |
| MK 3I Mod 0 (60A-2-1-20)                             | P                      | 29 MAR 84           | SAT                 | APR 84        | OLLER                        | MM                   | L. d. lbr                              |
| Chemical Disposal (60A-1-1-11)                       | P                      | APR 84              | SAT                 | MAY 84        | MANSON                       | MM                   | L. d. lbr                              |
| MK 1 Mod 2 (60A-2-1-2)                               | P                      | MAY 84              | SAT                 | JUN 84        | MANSON                       | MM                   | L. d. lbr                              |
| MK Mod 3 (60A-2-1-46)                                | P                      | 28 JUN 84           | SAT                 | JUL 84        | MANSON                       | MM                   | L. d. lbr                              |
| ADR Disposal (11A-1-42)                              | P                      | 28 JUL 84           | SAT                 | AUG 84        | OLLER                        | MM                   | L. d. lbr                              |
| Shape Charge Attack (60A-2-1-51)                     |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                      |                        | SEP                 |                     | OCT           |                              |                      |  |
| Det Cord Opening (60L-1-1-1)                         |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter                                   |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (60A-1-1-31)                           |                        | DEC                 |                     | JAN           |                              |                      |  |

GROUP I TRAINING

DEMO PAY QUALIFICATIONS

NAME OF TRAINEE (Last, First, Middle Initial): NEWTON MICHAEL D. SSAN: [REDACTED] GRADE: SAT AFSC: 46750

| 1. TASKS, KNOWLEDGE AND STUDY REFERENCES                                    | PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION |                       |  |                |                       |  |                |                       |  |
|---|--|-----------------------|--|----------------|-----------------------|--|----------------|-----------------------|--|
|   | 2. SKILL LEVEL                                       |                       |  | 3. SKILL LEVEL |                       |  | 4. SKILL LEVEL |                       |  |
|   | A<br>AFSC /Crs                                       | B<br>Date OJT Started | C<br>Date Compld & Trainee's Supervisor's Initials | A<br>AFSC      | B<br>Date OJT Started | C<br>Date Compld & Trainee's Supervisor's Initials | A<br>AFSC /Crs | B<br>Date OJT Started | C<br>Date Compld & Trainee's Supervisor's Initials |
| 10a. Identification   | A  |                       |  | B              |                       |  | C              |                       |  |
| b. Characteristics  | A  |                       |  | B              |                       |  | C              |                       |  |
| c. Effects  | A  |                       |  | B              |                       |  | C              |                       |  |
| 11. DESTRUCTION OF EXPLOSIVES MATERIAL                                      |  |                       |  |                |                       |  |                |                       |  |
| TR: AFRs 19-1, 127-100; T0s 11A-1-42, 11A-1-60, 60A-1-1-22, 60A-2-1-27      |  |                       |  |                |                       |  |                |                       |  |
| a. Demolition equipment   | B  |                       |  | C              |                       |  | D              |                       |  |
| b. Firing systems   | B  |                       |  | C              |                       |  | D              |                       |  |
| c. Disposal procedures  |  |                       |  |                |                       |  |                |                       |  |
| ① Routine   | 2b   |                       |  | 3c             | 2 Feb 83              | 2 Feb 83   | 4c             |                       |  |
| ② Emergency   | 2b/-   |                       |  | 3c             | 2 Feb 83              | 2 Feb 83   | 4c             |                       |  |
| d. Munitions residue  |  |                       |  |                |                       |  |                |                       |  |
| ① Inspect   | 2b/-   |                       |  | 3c             | 19 Feb 83             | 19 Feb 83  | 3c             |                       |  |
| ② Certify   | 2b/-   |                       |  | 3c             | 19 Feb 83             | 19 Feb 83  | 3c             |                       |  |
| ③ Turn-in   | 2b/-   |                       |  | 3c             | 19 Feb 83             | 19 Feb 83  | 3c             |                       |  |
| e. Environmental considerations   | -  |                       |  | A              |                       |  | B              |                       |  |
| f. Transport munitions  | 2b   |                       |  | 3c             | 2 Feb 83              | 2 Feb 83   | 4c             |                       |  |
| 12. RENDER SAFE TECHNIQUES  |  |                       |  |                |                       |  |                |                       |  |
| TR: T0s 60A-1-1-18, 60A-1-1-21 thru 60A-2-1-5, 60A-2-1-17, 60A-2-1-40       |  |                       |  |                |                       |  |                |                       |  |
| a. Immobilize fuzes   | 2b   |                       |  | 3c             | 2 Feb 83              | 2 Feb 83   | 4c             |                       |  |
| b. Remove fuzes by remote means   | 2b   |                       |  | 3c             | 2 Feb 83              | 2 Feb 83   | 4c             |                       |  |
| c. Disable electrical components  | 2b   |                       |  | 3c             | 2 Feb 83              | 2 Feb 83   | 4c             |                       |  |
| d. Disrupt firing trains  | 2b   |                       |  | 3c             | 2 Feb 83              | 2 Feb 83   | 4c             |                       |  |
| e. Use shaped charges and demolition techniques                             | 2b   |                       |  | 3c             | 2 Feb 83              | 2 Feb 83   | 4c             |                       |  |
| 13. CHEMICAL WARFARE AGENTS   |  |                       |  |                |                       |  |                |                       |  |
| a. Classification   |  |                       |  |                |                       |  |                |                       |  |
| TR: AFMs 160-12, 355-4, 355-9; AFRs 355-7 (Chap 2); T0s 11-1-35, 60a-1-1-11 |  |                       |  |                |                       |  |                |                       |  |
| (1) Physical state  | A  |                       |  | B              |                       |  | C              |                       |  |
| (2) Tactical use  | A  |                       |  | B              |                       |  | C              |                       |  |
| (3) Physiological action  | A  |                       |  | B              |                       |  | C              |                       |  |
| (4) Persistancy   | A  |                       |  | B              |                       |  | C              |                       |  |

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING

GROUP 1 TRAINING  
DEMO PAY QUALIFICATIONS

| TASK OR RECURRING TRAINING AND STUDY REFERENCES<br>A | EVALUATION OR TRAINING |                     |                     |               | EVALUATOR OR INSTRUCTOR<br>F | TRAINEE INITIAL<br>G | SUPERVISOR OR CERTIFYING OFFICIAL<br>H |
|--|------------------------|---------------------|---------------------|---------------|------------------------------|----------------------|--|
|  | TYPE<br>B              | DATE COMPLETED<br>C | SCORE OR HOURS<br>D | DUE DATE<br>E |                              |                      |  |
|  |                        |                     |                     |               |                              |                      |  |
| MK 2 Mod 1 Tool Kit (60A-2-1-3)                      | C/P                    | 28 JAN 84           | SAT                 | FEB 84        | MANSON                       | (CB)                 | W. Woodford                            |
| Thermite Burn (60A-2-1-17/60B-2-2-3)                 | C/P                    | 29 FEB 84           | SAT                 | MAR 84        | MANSON                       | (CB)                 | W. Woodford                            |
| MK 31 Mod 0 J-ROD (60A-2-1-20)                       | P                      | 29 MAR 84           | SAT                 | APR 84        | OLKER                        | (CB)                 | W. Woodford                            |
| Tape and Line (60A-2-1-1)                            |                        | APR                 |                     | MAY           |                              |                      |  |
| MK 1 Mod 2 (60A-2-1-2)                               |                        | MAY                 |                     | JUN           |                              |                      |  |
| MK 1 Mod 3 (60A-2-1-46)                              |                        | JUN                 |                     | JUL           |                              |                      |  |
| MK 3 Mod 5 (60A-2-1-4)                               |                        | JUL                 |                     | AUG           |                              |                      |  |
| Shape Charge Attack (60A-2-1-51)                     |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                      |                        | SEP                 |                     | OCT           |                              |                      |  |
| Fuze Gagging Procedure (Applicable 60 Series)        |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter                                   |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (BIP) (60A-1-1-31)                     |                        | DEC                 |                     | JAN           |                              |                      |  |
| MK 2 Mod 1 (60A-2-1-3)                               | P                      | 28 JAN 84           | SAT                 | FEB 84        | MANSON                       | (CB)                 | Zoller                                 |
| Thermite Burn (60A-2-1-17/60B-2-2-3)                 | P                      | 29 FEB 84           | SAT                 | MAR 84        | MANSON                       | (CB)                 | Zoller                                 |
| MK 31 Mod 0 (60A-2-1-20)                             | P                      | 29 MAR 84           | SAT                 | APR 84        | OLKER                        | (CB)                 | Zoller                                 |
| Chemical Disposal (60A-1-1-11)                       | P                      | 16 APR 84           | SAT                 | MAY 84        | MANSON                       | (CB)                 | Zoller                                 |
| MK 1 Mod 2 Range (60A-2-1-2) CIGARABU                | P                      | MAY                 | SAT                 | JUN 84        | Cmsgt Bossi                  | (CB)                 | Zoller                                 |
| MK Mod 3 (60A-2-1-46)                                | P                      | 20 JUN 84           | SAT                 | JUL 84        | OLKER                        | (CB)                 | Zoller                                 |
| ADR Disposal (11A-1-42)                              |                        | JUL                 |                     | AUG           |                              | (CB)                 | Zoller                                 |
| Shape Charge Attack (60A-2-1-51)                     |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                      |                        | SEP                 |                     | OCT           |                              |                      |  |
| Det Cord Opening (60L-1-1-1)                         |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter                                   |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (60A-1-1-31)                           |                        | DEC                 |                     | JAN           |                              |                      |  |
| NAME OF TRAINEE (Last, First, Middle Initial)        |                        |                     |                     |               | SSAN                         | GRADE                | AFSC                                   |
| BENNETT, CLIFFORD R.                                 |                        |                     |                     |               | [REDACTED]                   | [REDACTED]           | 46...                                  |

| 1. TASKS, KNOWLEDGE AND STUDY REFERENCES                                    | PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION |                             |   |                |                             |   |                   |                             |   |
|---|--|-----------------------------|---|----------------|-----------------------------|---|-------------------|-----------------------------|---|
|   | 2. SKILL LEVEL                                       |                             |   | 3. SKILL LEVEL |                             |   | 4. SKILL LEVEL    |                             |   |
|   | A<br>AFSC<br>/Cre                                    | B<br>Date<br>OJT<br>Started | C<br>Date Compld<br>& Trainee's<br>Supervisor's<br>Initials | A<br>AFSC      | B<br>Date<br>OJT<br>Started | C<br>Date Compld<br>& Trainee's<br>Supervisor's<br>Initials | A<br>AFSC<br>/Cre | B<br>Date<br>OJT<br>Started | C<br>Date Compld<br>& Trainee's<br>Supervisor's<br>Initials |
| 10a. Identification   | A  |                             |   | B              |                             |   | C                 |                             |   |
| b. Characteristics  | A  |                             |   | B              |                             |   | C                 |                             |   |
| c. Effects  | A  |                             |   | B              |                             |   | C                 |                             |   |
| 11. DESTRUCTION OF EXPLOSIVES MATERIAL                                      |  |                             |   |                |                             |   |                   |                             |   |
| TR: AFRs 19-1, 127-100; TOs 11A-1-42, 11A-1-60, 60A-1-1-22, 60A-2-1-27      |  | 60A-1-1-17,                 | 60A-1-1-18,   | 60A-1-1-21,    |                             |   |                   |                             |   |
| a. Demolition equipment   | B  |                             |   | C              |                             |   | D                 |                             |   |
| b. Firing systems   | B  |                             |   | C              |                             |   | D                 |                             |   |
| c. Disposal procedures  |  |                             |   |                |                             |   |                   |                             | NO ADVANCED COURSE  |
| (1) Routine   | 2b   |                             |   | 3c             | 10 Mar 53                   | 10 Mar 53   | 4c                |                             |   |
| (2) Emergency   | 2b/-   |                             |   | 3c             | 10 Mar 53                   | 10 Mar 53   | 4c                |                             |   |
| d. Munitions residue  |  |                             |   |                |                             |   |                   |                             |   |
| (1) Inspect   | 2b/-   |                             |   | 3c             | 10 Mar 53                   | 10 Mar 53   | 3c                |                             |   |
| (2) Certify   | 2b/-   |                             |   | 3c             | 10 Mar 53                   | 10 Mar 53   | 3c                |                             |   |
| (3) Turn-in   | 2b/-   |                             |   | 3c             | 10 Mar 53                   | 10 Mar 53   | 3c                |                             |   |
| e. Environmental considerations   | -  |                             |   | A              |                             | 21 Mar 53   | B                 |                             |   |
| f. Transport munitions  | 2b   |                             |   | 3c             |                             |   | 4c                |                             |   |
| 12. RENDER SAFE TECHNIQUES  |  |                             |   |                |                             |   |                   |                             |   |
| TR: TOs 60A-1-1-18, 60A-1-1-21 thru 60A-2-1-5, 60A-2-1-17, 60A-2-1-40       |  |                             |   |                |                             |   |                   |                             |   |
| a. Immobilize fuzes   | 2b   |                             |   | 3c             | 10 Mar 53                   | 10 Mar 53   | 4c                |                             |   |
| b. Remove fuzes by remote means   | 2b   |                             |   | 3c             | 10 Mar 53                   | 10 Mar 53   | 4c                |                             |   |
| c. Disable electrical components  | 2b   |                             |   | 3c             | 10 Mar 53                   | 10 Mar 53   | 4c                |                             |   |
| d. Disrupt firing trains  | 2b   |                             |   | 3c             | 10 Mar 53                   | 10 Mar 53   | 4c                |                             |   |
| e. Use shaped charges and demolition techniques                             | 2B/1A  |                             |   | 3c             | 10 Mar 53                   | 10 Mar 53   | 4c                |                             |   |
| 13. CHEMICAL WARFARE AGENTS   |  |                             |   |                |                             |   |                   |                             |   |
| a. Classification   |  |                             |   |                |                             |   |                   |                             |   |
| TR: AFMs 160-12, 355-4, 355-9; AFRs 355-7 (Chap 2); TOs 11-1-35, 60a-1-1-11 |  |                             |   |                |                             |   |                   |                             |   |
| (1) Physical state  | A  |                             |   | B              |                             |   | C                 |                             |   |
| (2) Tactical use  | A  |                             |   | B              |                             |   | C                 |                             |   |
| (3) Physiological action  | A  |                             |   | B              |                             |   | C                 |                             |   |
| (4) Persistancy   | A  |                             |   | B              |                             |   | C                 |                             |   |

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING

GROUP 1 TRAINING

DEMO PAY QUALIFICATIONS

| TASK OR RECURRING TRAINING AND STUDY REFERENCES<br>A | EVALUATION OR TRAINING |                     |                     |               | EVALUATOR OR INSTRUCTOR<br>F | TRAINEE INITIAL<br>G | SUPERVISOR OR CERTIFYING OFFICIAL<br>H |
|--|------------------------|---------------------|---------------------|---------------|------------------------------|----------------------|--|
|  | TYPE<br>B              | DATE COMPLETED<br>C | SCORE OR HOURS<br>D | DUE DATE<br>E |                              |                      |  |
| MK 2 Mod 1 Tool Kit (60A-2-1-3)                      | C/P                    | 4 JAN 84            | SAT                 | FEB 84        | LOPEZ                        | SMH                  | [Signature]                            |
| Thermite Burn (60A-2-1-17/60B-2-2-3)                 | C/P                    | 29 FEB 84           | SAT                 | MAR 84        | MANSON                       | SMH                  | N. Wardford                            |
| MK 31 Mod 0 J-ROD (60A-2-1-20)                       | P                      | 29 MAR 84           | SAT                 | APR 84        | OLIKS                        | SMH                  | N. Wardford                            |
| Tape and Line (60A-2-1-1)                            | P                      | 17 APR 84           | SAT                 | MAY 84        | MANSON                       | SMH                  | [Signature]                            |
| MK 1 Mod 2 (60A-2-1-2)                               | P                      | MAY 84              | SAT                 | JUN 84        | [Signature]                  | SMH                  | [Signature]                            |
| MK 1 Mod 3 (60A-2-1-46)                              | P                      | 28 JUN 84           | SAT                 | JUL 84        | MANSON                       | SMH                  | [Signature]                            |
| MK 3 Mod 5 (60A-2-1-4)                               |                        | JUL                 |                     | AUG           |                              |                      |  |
| Shape Charge Attack (60A-2-1-51)                     |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                      |                        | SEP                 |                     | OCT           |                              |                      |  |
| Fuze Gaging Procedure (Applicable 60 Series)         |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter                                   |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (BIP) (60A-1-1-31)                     |                        | DEC                 |                     | JAN           |                              |                      |  |
| MK 2 Mod 1 (60A-2-1-3)                               | P                      | 4 JAN 84            | SAT                 | FEB 84        | LOPEZ                        | SMH                  | L. Allen                               |
| Thermite Burn (60A-2-1-17/60B-2-2-3)                 | P                      | 29 FEB 84           | SAT                 | MAR 84        | MANSON                       | SMH                  | L. Allen                               |
| MK 31 Mod 0 (60A-2-1-20)                             | P                      | 29 MAR 84           | SAT                 | APR 84        | OLIKS                        | SMH                  | L. Allen                               |
| Chemical Disposal (60A-1-1-11)                       | P                      | 6 APR 84            | SAT                 | MAY 84        | MANSON                       | SMH                  | L. Allen                               |
| MK 1 Mod 2 (60A-2-1-2)                               | P                      | 24 MAY 84           | SAT                 | JUN 84        | MANSON                       | SMH                  | L. Allen                               |
| MK Mod 3 (60A-2-1-46)                                | P                      | 28 JUN 84           | SAT                 | JUL 84        | MANSON                       | SMH                  | L. Allen                               |
| ADR Disposal (11A-1-42)                              |                        | JUL                 |                     | AUG           |                              | SMH                  | L. Allen                               |
| Shape Charge Attack (60A-2-1-51)                     |                        | AUG                 |                     | SEP           |                              |                      |  |
| Base Plate Removal (60A-2-1-45)                      |                        | SEP                 |                     | OCT           |                              |                      |  |
| Det Cord Opening (60L-1-1-1)                         |                        | OCT                 |                     | NOV           |                              |                      |  |
| Remote Wire Cutter                                   |                        | NOV                 |                     | DEC           |                              |                      |  |
| Blow In Place (60A-1-1-31)                           |                        | DEC                 |                     | JAN           |                              |                      |  |
| NAME OF TRAINEE (Last, First, Middle Initial)        |                        |                     |                     | SSAN          | GRADE                        | AFSC                 |  |
| Hamilton, Steven N.                                  |                        |                     |                     | [Redacted]    |                              |                      |  |

| 1. TASKS, KNOWLEDGE AND STUDY REFERENCES   | PROFICIENCY LEVEL, PROGRESS RECORD AND CERTIFICATION |                             |   |                   |                             |   |                   |                             |   |
|--|--|-----------------------------|---|-------------------|-----------------------------|---|-------------------|-----------------------------|---|
|  | 2. SKILL LEVEL                                       |                             |   | 3. SKILL LEVEL    |                             |   | 4. SKILL LEVEL    |                             |   |
|  | A<br>AFSC<br>Code                                    | B<br>Date<br>OJT<br>Started | C<br>Date Compid<br>& Trainee's<br>Supervisor's<br>Initials | A<br>AFSC<br>Code | B<br>Date<br>OJT<br>Started | C<br>Date Compid<br>& Trainee's<br>Supervisor's<br>Initials | A<br>AFSC<br>Code | B<br>Date<br>OJT<br>Started | C<br>Date Compid<br>& Trainee's<br>Supervisor's<br>Initials |
| 10a. Identification  | A  |                             |   | B                 |                             |   | C                 |                             |   |
| b. Characteristics   | A  |                             |   | B                 |                             |   | C                 |                             |   |
| c. Effects   | A  |                             |   | B                 |                             |   | C                 |                             |   |
| 11. DESTRUCTION OF EXPLOSIVES MATERIAL   |  |                             |   |                   |                             |   |                   |                             |   |
| TR: AFRs 19-1, 127-100; TOs 11A-1-42, 11A-1-60, 60A-1-1-17, 60A-1-1-18, 60A-1-1-21, 60A-1-1-22, 60A-2-1-27 |  |                             |   |                   |                             |   |                   |                             |   |
| a. Demolition equipment  | B  |                             |   | C                 |                             |   | D                 |                             |   |
| b. Firing systems  | B/A  |                             |   | C                 |                             |   | D                 |                             |   |
| c. Disposal procedures   |  |                             |   |                   |                             |   |                   |                             |   |
| (1) Routine  | 2b   |                             |   | 3c                | 12/27/84                    | 12/27/84  | 4c                |                             |   |
| (2) Emergency  | 2b/-   |                             |   | 3c                | 12/27/84                    | 12/27/84  | 4c                |                             |   |
| d. Munitions residue   |  |                             |   |                   |                             |   |                   |                             |   |
| (1) Inspect  | 2b/-   |                             |   | 3c                |                             |   | 3c                |                             |   |
| (2) Certify  | 2b/-   |                             |   | 3c                |                             |   | 3c                |                             |   |
| (3) Turn-in  | 2b/-   |                             |   | 3c                |                             |   | 3c                |                             |   |
| e. Environmental considerations  | -  |                             |   | A                 |                             |   | B                 |                             |   |
| f. Transport munitions   | 2b/a   |                             |   | 3c                | 12/27/84                    | 12/27/84  | 4c                |                             |   |
| 12. RENDER SAFE TECHNIQUES   |  |                             |   |                   |                             |   |                   |                             |   |
| TR: TOs 60A-1-1-18, 60A-1-1-21 thru 60A-2-1-5, 60A-2-1-17, 60A-2-1-40                                      |  |                             |   |                   |                             |   |                   |                             |   |
| a. Immobilize fuzes  | 2b   |                             |   | 3c                | 12/27/84                    | 12/27/84  | 4c                |                             |   |
| b. Remove fuzes by remote means  | 2b   |                             |   | 3c                |                             |   | 4c                |                             |   |
| c. Disable electrical components   | 2b   |                             |   | 3c                | 12/27/84                    | 12/27/84  | 4c                |                             |   |
| d. Disrupt firing trains   | 2b   |                             |   | 3c                | 12/27/84                    | 12/27/84  | 4c                |                             |   |
| e. Use shaped charges and demolition techniques  | 2b   |                             |   | 3c                | 12/27/84                    | 12/27/84  | 4c                |                             |   |
| 13. CHEMICAL WARFARE AGENTS  |  |                             |   |                   |                             |   |                   |                             |   |
| a. Classification  |  |                             |   |                   |                             |   |                   |                             |   |
| TR: AFMs 160-12, 355-4, 355-9; AFRs 355-7 (Chap 2); TOs 11-1-35, 60a-1-1-11                                |  |                             |   |                   |                             |   |                   |                             |   |
| (1) Physical state   | A  |                             |   | B                 |                             |   | C                 |                             |   |
| (2) Tactical use   | A  |                             |   | B                 |                             |   | C                 |                             |   |
| (3) Physiological action   | A  |                             |   | B                 |                             |   | C                 |                             |   |
| (4) Persistancy  | A  |                             |   | B                 |                             |   | C                 |                             |   |

Date:  
Revision No.: 0  
Section: H  
Cannon

APPENDIX H-3

Training Schedule for Personnel Involved  
in the Disposal of Ordnance

EXPLOSIVE ORDNANCE DISPOSAL

OPEN BURNING/DISPOSAL AREA

TRAINING OUTLINE

A. KNOWLEDGE

1. AFOSH 127 series

a. Ground Safety Standards which pertain to the EOD Branch. Areas to be covered pertain to use of common hand tools and associated hazards of electrical power tools.

b. Safety Standards of hazardous items used on normal day to day use which each may come in contact with

2. Explosive Safety  
AFR 127-100

Individual trained in proper Explosive Safety to include, but not limited to transportation, storage, and handling. All safety standards associated to the Open Burning/Disposal Area.

3. T.O. 11A-1-42

a. Requirements for preparation of area and operational procedures as defined in CAFBR 136-13.

b. Research and verification of disposal procedures for each item which has been designated on Air-munitions Disposal Report (ADR).

4. T.O. 11A-1-60

Familiarization of requirements of processing, inspection, and turn in of munitions residue to Property Disposal Office.

5. NMEID

Familiarization of respective areas which pertain to the Open Burn/Disposal Area as they relate to our environmental protection.

B. TASK/PRACTICAL

1. Processing of  
Airmunitions Disposal  
Reports (ADR)

Individual shall work with Supply and Equipment personnel in the break out, packaging, of ADR's. This shall include verification of ADR # to item, and assuring that nomenclature, quantity, and proper documentation is maintained.

2. Notification for  
Operation

Make and obtain initials of all agencies requiring notification of operation IAW CAFBR 136-18. As a minimum the following agencies shall be notified; Security Police, Hospital Emergency Room Base Operations, Command Post, Explosive Safety, and Base Fire Department.

3. Transportation

Preperation for transport of explosive box to include loading of vehicle, securing explosives to bed of vehicle, placarding of vehicle when required, notification for transport, and transporting via authorized explosive routes.

4. Preperation of  
Open Burning/Disposal

Area.

- a. Cleaning of Area
- b. Inspection of Area
- c. Positioning of dunnage
- d. Placement of Airmunitions
- e. Porcessing and spraying of diesel fuel
- f. Preperation of dual initiation charges
- g. Proper positioning of charges
- h. Obtaining permission to initiate burn operation.
- i. Security of Area
- j. Withdraw to safe distance in appropriate direction

5. Post Actions

- a. Overview of operation after a minimum of 12 hours with a minimum of two EOD and one firefighting personnel
- b. If Area is clear. Spray water on effected area to assist in cool down. And depart area after securing

o. Post Actions  
on Following Monday

- a. Inspect Area for kick outs
- b. Recover or perform procedures for item in place.
- c. Inspect pit area for through

effect of burning

d. Clean pit and place material in  
location used for processing IAW  
T.O. 11A-1-00, for turn-in to

EXPLOSIVE ORDNANCE DISPOSAL

OPEN BURNING/DISPOSAL AREA

TRAINING SCHEDULE

MONTH ONE

A. KNOWLEDGE

1. AFOSH 127 series

a. Ground Safety Standards which pertain to the EOD Branch. Areas to be covered pertain to use of common hand tools and associated hazards of electrical power tools.

b. Safety Standards of hazardous items used on normal day to day use which each may come in contact with

2. Explosive Safety  
AFR 127-100

Individual trained in proper Explosive Safety to include, but not limited to transportation, storage, and handling. All safety standards associated to the Open Burning/Disposal Area.

3. T.O. 11A-1-42

a. Requirements for preparation of area and operational procedures as defined in CAFBR 136-13.

5. NMEID

Familiarization of respective areas which pertain to the Open Burn/Disposal Area as they relate to our environmental protection.

B. TASK/PRACTICAL

2. Notification for  
Operation

Make and obtain initials of all agencies requiring notification of operation IAW CAFBR 136-18. As a minimum the following agencies shall be notified; Security Police, Hospital Emergency Room, Base Operations, Command Post, Explosive Safety, and Base Fire Department.

4. Preparation of  
Open Burning/Disposal  
Area.

- c. Positioning of dunnage
- f. Preparation of dual initiation charges
- g. Proper positioning of charges
- j. Withdraw to safe distance in appropriate direction

EXPLOSIVE ORDNANCE DISPOSAL

OPEN BURNING/DISPOSAL AREA

TRAINING SCHEDULE

MONTH TWO

B. TASK/PRACTICAL

3. Transportation

Preparation for transport of explosive box to include loading of vehicle, securing explosives to bed of vehicle, placarding of vehicle when required, notification for transport, and transporting via authorized explosive routes.

4 Preparation of  
Open Burning/Disposal  
Area.

d. Placement of Airmunitions

EXPLOSIVE ORDNANCE DISPOSAL

OPEN BURNING/DISPOSAL AREA

TRAINING SCHEDULE

MONTH FIVE

B. TASK/PRACTICAL

5. Post Actions  
on Following Monday

- a. Inspect Area for kick outs
- b. Recover or perform procedures  
for item in place.
- c. Inspect pit area for through  
effect of burning
- d. Clean pit and place material in  
location used for processing, IAW  
T.O. 11A-1-60 for turn-in to

EXPLOSIVE ORDNANCE DISPOSAL

OPEN BURNING/DISPOSAL AREA

TRAINING SCHEDULE

MONTH SIX

B. TASK/PRACTICAL

4 Preperation of  
Open Burning/Disposal  
Area.

i. Security of Area

5. Post Actions

b. If Area is clear. Spray water  
on effected area to assist in cool  
down. And depart area after  
securing