

Inter-Office Memorandum

IN REPLY
REFER TO DRMO Lejeune (N. Hipp (AV)484-5652/11p)

5 June 1987

SUBJECT: Request for Fire Extinguisher

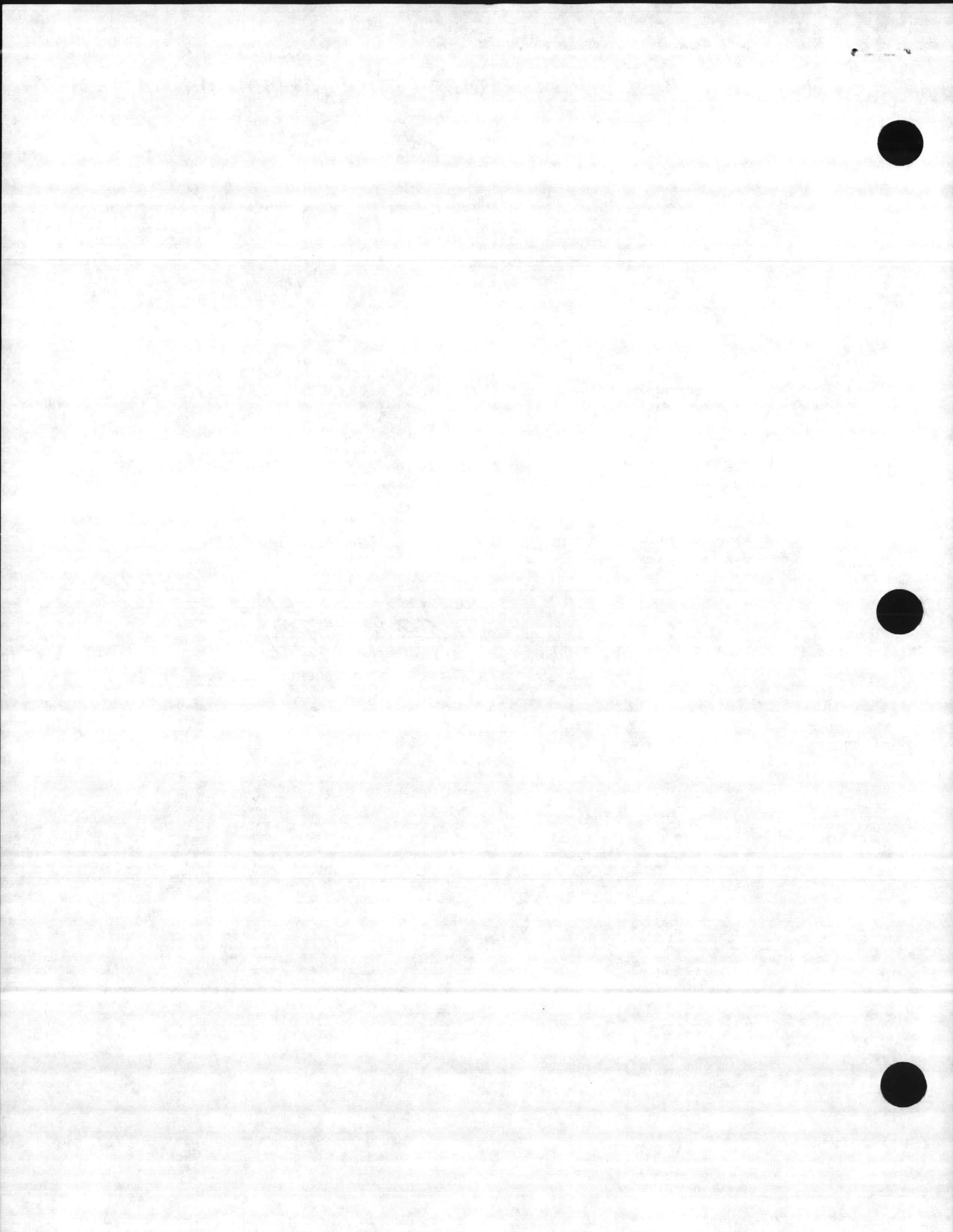
TO: Commanding General
Attn: Fire Chief

1. Reference: NREAD letter, dated 18 May 87, Subject: Inspection Report of Long Term Hazardous Waste Storage Facilities at Buildings TP-451 and TP-463 (Copy enclosed).
2. The referenced letter advised us that we should have Lith-X-type extinguishers placed in our Lithium battery storage area. Request you send an inspector to determine the size extinguisher we need for this area and provide same.
3. Thank you for your assistance in this matter. The point of contact is Mr. George Eggers, ext 5652.

1 Encl

Nadine Hipp
Nadine Hipp
Chief, Defense Reutilization
and Marketing Office

Copy to:
NREAD





DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D.C. 20380

MCO 11320.22
LFF-2-ncs
22 Feb 1984

MARINE CORPS ORDER 11320.22

From: Commandant of the Marine Corps
To: Distribution List

Subj: Fire Protection for Stored Quantities of Lithium
Batteries

Ref: (a) CMC Washington DC msg R281402Z Mar 1983 (NOTAL)
(b) National Fire Protection Association Standard
No. 10 (NOTAL)
(c) MCO P11000.8B (NOTAL)

1. Purpose. To provide detailed information on fire safety measures and firefighting procedures for lithium batteries.

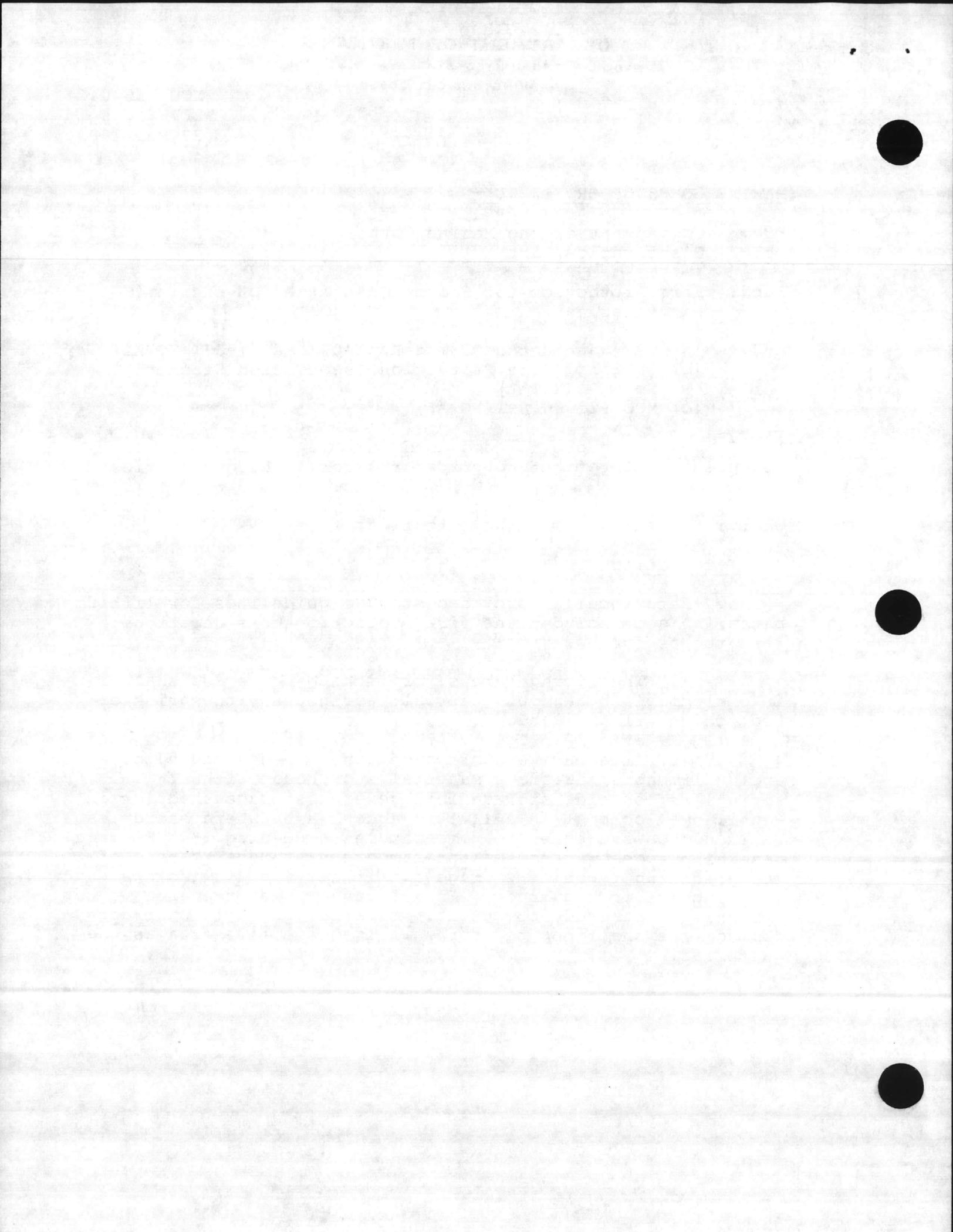
2. Applicability. This Order is for use by all Marine Corps activities storing lithium batteries.

3. Information

a. Reference (a) provided storage guidelines for lithium batteries and included the fire protection considerations restated as follows:

(1) The storage areas for lithium batteries shall be in a flammable/hazardous material storehouse with sprinkler protection, if available.

(2) Alternative storage options, in descending order are: flammable/hazardous material storehouse without sprinklers; outside storage in a general storage shed (or in ventilated lockers) in a limited access area where batteries would not be subjected to temperatures exceeding 130° F; or a general purpose warehouse (for temporary storage if none of the preceding types of storage facilities are available at the time storage is required). In all cases, when the area is not sprinkler protected, combustible material and more hazardous commodities shall not be stored in the same fire area as the batteries.



(3) Smoking shall be strictly prohibited and "NO SMOKING" signs posted conspicuously in battery storage areas.

(4) The use of open flame devices shall be restricted to operations under proper supervision and with adequate fire prevention safeguards.

b. Reference (a) required all lithium battery storage areas to be equipped with a class "D" extinguisher, preferably Lith-X-type. Reference (a) further advised that in the event a class "D" extinguisher was not available, a class "A" extinguisher could be used.

c. Subsequently, it has been determined that class "D" fire extinguishers may be less than fully effective for lithium battery fires. This is because the quantity of lithium is small compared to other ordinary combustible battery components and the physical placement of the lithium deep within the battery. Therefore, the requirement of reference (a) for a class "D" fire extinguisher is changed to require a water extinguisher (class "A") with class "D" extinguishers as optional.

4. Action. Activity commanders shall:

a. Ensure lithium battery storage areas comply with this Order and are equipped with water fire extinguishers complying with reference (b).

b. Ensure the following procedures are complied with in the event of a fire involving stored lithium batteries:

(1) Sound the alarm and evacuate personnel from the area.

(2) Immediately summon firefighting services.

(3) Commence firefighting, using a class "A" or class "D" fire extinguisher as a first aid measure and cease first aid firefighting if the extinguisher operator is exposed to dangerous levels of smoke or the fire does not quickly diminish by the application of the extinguishing agent.

(4) After the fire is extinguished, ventilate the area well, before permitting personnel to reenter for cleanup and/or resumption of activity.

(5) Dispose of fire debris as a hazardous waste in accordance with reference (c).

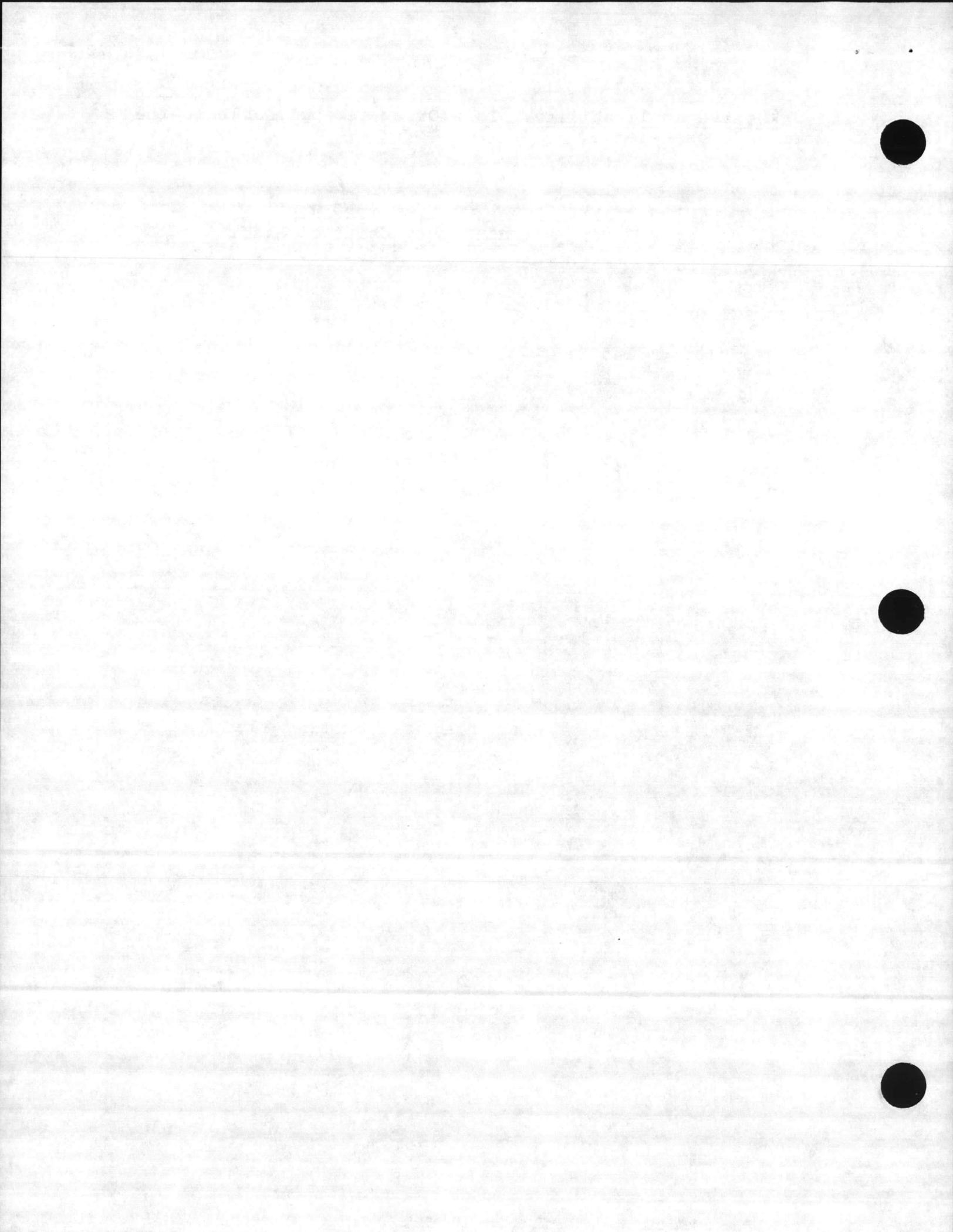


5. Reserve Applicability. This Order is applicable to the
Marine Corps Reserve.

H. A. Hatch
H. A. HATCH
Deputy Chief of Staff
for Installations and Logistics

DISTRIBUTION: A

Copy to: 8145001



* U N C L A S S I F I E D *

Fire Chief
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CMC WASHINGTON DC
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DHQA/CG FMFPAC
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JNKA/MCCFS TWENTYNINE PALMS CA
BAHA/MARRKS GUANTANAMO BAY CUHA
EIGHT
CG MCRD PARRIS ISLAND SC
MCRD SAN DIEGO CA
N, HMC ARLINGTON VA
BKS WASHINGTON DC
ST MARCONI ST GARDEN CITY LI NY
FINCEN KANSAS CITY MO

31 MAR 1983

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INFO INT

[Handwritten signature]

CLASSIFICATION SECTION 01 OF 02
LITHIUM BATTERY STORAGE GUIDELINES (CMC CODE LMA-3/LMH-2/LFF-2)
HQ DPDS BATTLE CREEK MI 101349Z FEB 83 (NOTAL)
GENERAL:

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LITHIUM BATTERIES, EITHER FRESH OR USED/DEPLETED, ARE NOT TO BE
PRESSED, CRUSHED, BURNED, INTENTIONALLY DROPPED, CANNIBALIZED, DIS-
MOUNTED, MODIFIED, OR OTHERWISE CARELESSLY HANDLED, NOR SHALL THEY
BE SHORT CIRCUITED, CHARGED OR USED IN ANY WAY OTHER THAN THEIR IN-
TENDED USE.

ALTHOUGH LITHIUM BATTERIES ARE CLASSIFIED AS FLAMMABLE SOLIDS
BY THE DEPT. OF TRANSPORTATION, THE POTENTIAL FOR A FIRE TO START IN
A PACKAGED ITEM IS CONSIDERED THE SAME AS FOR ORDINARY COMBUSTIBLE
MATERIALS. HOWEVER, IF INVOLVED IN A FIRE, THE CLASSIFICATION FOR
EXTINGUISHMENT PURPOSES WOULD BE "EXTRA HAZARD".

STORAGE AREA/FACILITY:
REFRIGERATED STORAGE IS NOT REQUIRED.
THE STORAGE AREA SHOULD HAVE ADEQUATE VENTILATION TO PREVENT
BUILD-UP OF FUMES FROM ANY VENTING/LEAKING BATTERIES AND ALLOW
A MAINTENANCE OF TEMPERATURES EXCEEDING 130 DEGREES FAHRENHEIT.
THE STORAGE AREA SHALL BE IN A FLAMMABLE/HAZARDOUS STOREHOUSE
WITH SPRINKLER PROTECTION, IF AVAILABLE. A FLAMMABLE/HAZARDOUS
STOREHOUSE WITHOUT SPRINKLERS WILL BE THE SECOND CHOICE. OUTSIDE
STORAGE IN A GENERAL STORAGE SHED OR IN VENTILATED LOCKERS IN A
RESTRICTED ACCESS AREA ARE ALSO OPTIONS IF STACKED/STORED BATTERIES

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NOT BE SUBJECTED TO TEMPERATURES EXCEEDING 130 DEGREES FAHREN-

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IN PROCESS, PACKAGING THE DEPLETED BATTERIES SECURELY WITHIN
STRONG CONTAINERS IS CONSIDERED TO BE A PRUDENT APPROACH.

CONTAINERS OF USED OR DEPLETED BATTERIES ARE TO BE APPROPRIATELY
) CONSPICUOUSLY MARKED/LABELLED AS PRESCRIBED IN SUPPART "D" AND "E"
49CFR. FOR EXAMPLE, DOT "FLAMMABLE SOLID" MARKING AND THE WORDS
CONTAINS LITHIUM METAL".

CONTAINERS OF USED OR DEPLETED LITHIUM BATTERIES ARE NOT TO BE
MIXED IN THE SAME STACKS AS NEW BATTERIES OR OTHER COMBUSTIBLE
MATERIAL.

DEPLETED LITHIUM BATTERIES ARE NOT TO BE ALLOWED TO ACCUMULATE
IN STORAGE UNITS; DISPOSAL SHOULD BE EFFECTED AS PROMPTLY AS POSSIBLE,
E. A TARGET LIMIT FOR TEMP STORAGE SHOULD BE A MAXIMUM OF 30 POUNDS
FOR 30 DAYS. A COLLECTION POINT/STORAGE AREA SEPARATE FROM NEW/USED
BATTERIES AND OTHER COMBUSTIBLE MATERIAL SHALL BE ESTABLISHED FOR
BATTERIES AWAITING DISPOSAL. LITHIUM BATTERIES ARE NOT TO BE DIS-
POSED OF NOR TRANSPORTED WITH NORMALLY GENERATED REFUSE.

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ADDITIONALLY, A GENERAL PURPOSE WAREHOUSE MAY BE USED TEMPORARILY IF NONE OF THE PRECEDING TYPES OF STORAGE FACILITIES ARE AVAILABLE WHEN THE TIME STORAGE IS REQUIRED. HOWEVER, OTHER COMBUSTIBLE MATERIALS AND OTHER MORE HAZARDOUS COMMODITIES SHALL NOT BE STORED IN THE SAME AREA AS THE BATTERIES WHEN THE AREA IS NOT SPRINKLER PROTECTED. SMOKING SHALL BE STRICTLY PROHIBITED AND "NO SMOKING" SIGNS POSTED CONSPICUOUSLY IN BATTERY STORAGE AREAS. THE USE OF OPEN FLAMES SHALL BE RESTRICTED TO OPERATIONS UNDER PROPER SUPERVISION WITH ADEQUATE FIRE PREVENTIVE SAFEGUARDS.

ALL LITHIUM BATTERY STORAGE AREAS SHALL BE EQUIPPED WITH A CLASS B EXTINGUISHER, PREFERABLY LITH-X-TYPE. IN THE EVENT THAT A CLASS B IS NOT AVAILABLE FOR ANY REASON, A WATER EXTINGUISHER MAY BE USED; IN SUCH CASES, EFFORT SHOULD BE AIMED AT PREVENTING THE SPREAD OF FIRE TO OTHER COMBUSTIBLES AND NOT DIRECTED ON THE BURNING LITHIUM BATTERIES.

AIR RESPIRATORS OR SELF-CONTAINED BREATHING APPARATUS APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH) SHALL BE WORN WHEN ENTERING STORAGE SPACES WHERE LITHIUM BATTERIES ARE VENTING OR HAVE VENTED.

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STORAGE/PACKAGING PROCEDURES.

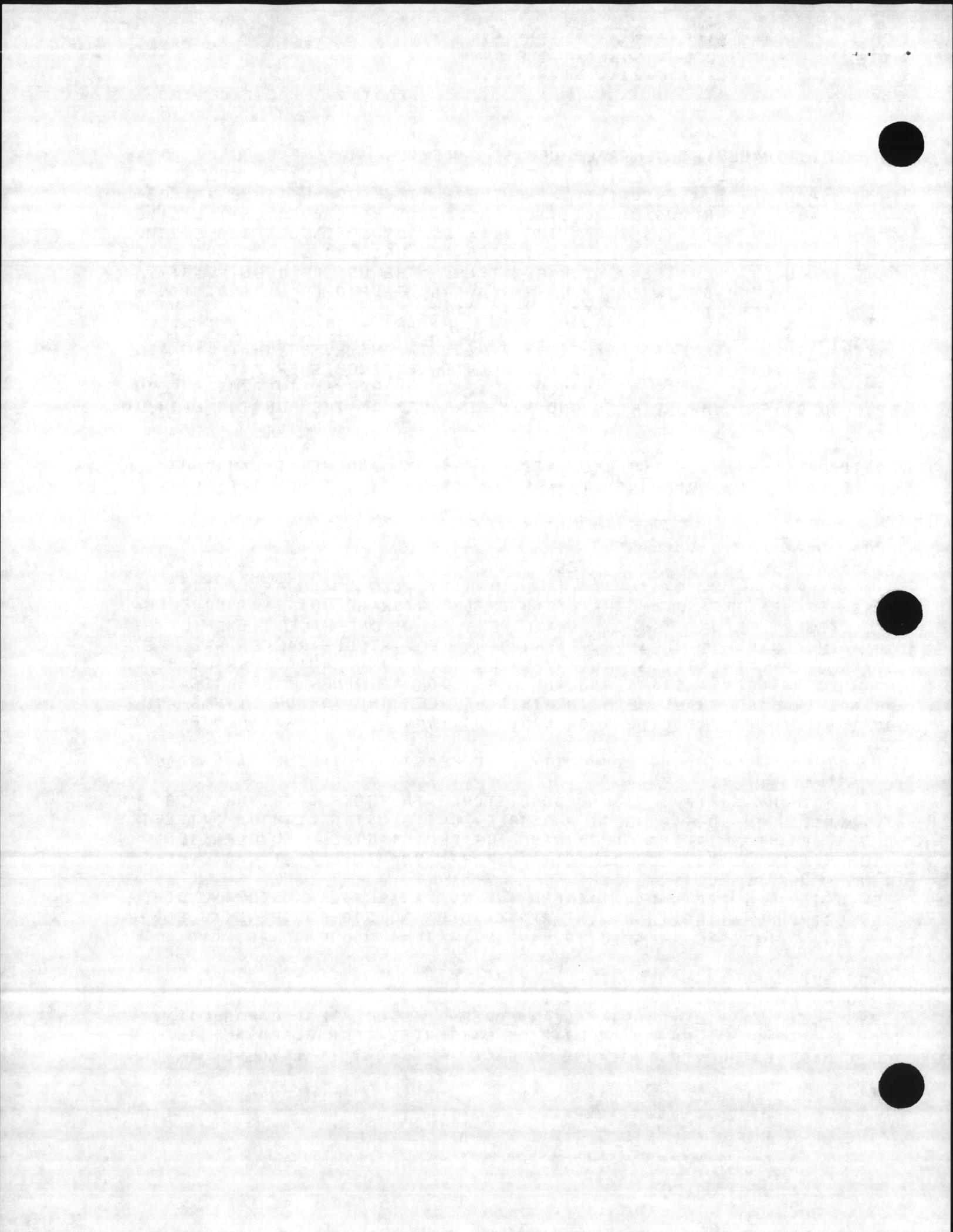
IN ANY FACILITY, STACKS OF LITHIUM BATTERIES SHALL BE LIMITED TO 10 SQ. FT. IN AREA WITH THE WIDTH OF THE STORAGE UNIT NOT MORE THAN 10 FT. AISLES BETWEEN STACKS SHALL BE 8 FT OR ONE-HALF THE STACK HEIGHT, WHICHEVER IS GREATER. A MINIMUM OF 2 FT CLEARANCE SHALL BE MAINTAINED BETWEEN STACKS AND ANY WALL. A 3 FT CLEARANCE SHALL BE MAINTAINED BETWEEN A STACK AND ANY FIRE DOOR OPENING. A VERTICAL CLEARANCE OF 3 FT SHALL BE MAINTAINED BETWEEN THE TOP OF STACKS AND SPRINKLER HEADS OR CEILING/ROOF CONSTRUCTION IN UNSPRINKLERED FACILITIES.

NO OTHER MATERIAL OR COMMODITY WILL BE STORED IN THE SAME STACK WITH THE BATTERIES.

NEW LITHIUM BATTERIES SHOULD BE STORED IN THEIR ORIGINAL SHIPPING CONTAINERS. IN-SO-FAR AS IS POSSIBLE, UNITS USING LITHIUM BATTERIES SHOULD SAVE THE SHIPPING CONTAINERS FOR REPACKAGING USED/DEPLETED LITHIUM BATTERIES TO FACILITATE TRANSPORT AND/OR TEMP STORAGE PRECEDING REUSE/DISPOSAL.

IF ORIGINAL SHIPPING CONTAINERS ARE NOT AVAILABLE, USED AND DEPLETED LITHIUM BATTERIES MAY BE REPACKAGED AND STORED (PENDING FURTHER USE OR DISPOSAL, RESPECTIVELY) IN SIMILAR WOODEN OR STRONG

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BERROARD BOXES WHICH MEET DOT 17B SPECIFICATIONS. IF METAL CONTAINERS ARE USED, THEY MUST HAVE AN OVER-PRESSURE/VENT CAPABILITY. NOTE: REF A AUTH TURN-IN OF LITHIUM BATTERIES (FOR DISPOSAL) IN PLASTIC BAGS. HOWEVER, BECAUSE SURFACE TRANSPORT IS INVOLVED IN THE



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CMC WASHINGTON DC

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HQHOA/CG FMFPAC

LYLKA/CG LETCLANT NORFOLK VA

CGSRA/CG FOURTH FSSG

WJNKA/MCCES TWENTYNINE PALMS CA

EBAHA/MARRKS GUANTANAMO BAY CUBA

G EIGHT

T CG MCRD PARRIS ISLAND SC

MCRD SAN DIEGO CA

BN HQMC ARLINGTON VA

RBKS WASHINGTON DC

RST MARCORDIST GARDEN CITY LI NY

RFINCE N KANSAS CITY MO

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HQMC POC IS LTCOL W. N. LOWE, LMA-3, (A) 224-2039.

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