

National Guard Pamphlet 750-59

Maintenance of Supplies and Equipment

Army National Guard Corrosion Prevention and Control Program

Army National Guard
Arlington, VA 22204
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UNCLASSIFIED

SUMMARY of CHANGE

NG PAM 750-59

Army National Guard Corrosion Prevention and Control Program

This replaces 19 MAY 2016 version in its entirety.

Headquarters
Army National Guard
Arlington, VA 22204-1373
1 December 2018

National Guard Regulation 750-59

Maintenance of Supplies and Equipment CORROSION PREVENTION AND CONTROL PROGRAM

By Order of the Secretary of Army:

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Lieutenant General, USA
Director, Army National Guard

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History. This is a revision to the original publication dated 19 May 2016.

Summary. This pamphlet establishes Corrosion Prevention and Control (CPC) guidance on Army National Guard (ARNG) Materiel. This pamphlet expands on training, reporting, and procedural techniques.

Applicability. This pamphlet applies to all ARNG command-level CPC programs and Standing Operating Procedures (SOP). This pamphlet does not apply to aircraft; aircraft maintainers shall comply with AR 750-59 and applicable Army Aviation guidance.

Proponent and Exception Authority. The proponent of this pamphlet is the ARNG G4. The proponent has the authority to approve exceptions or waivers to this pamphlet consistent with controlling law and regulation. The ARNG G4 may delegate this approval authority in writing to a Division Chief within the proponent agency in the grade of Colonel or civilian equivalent.

Supplementation. Supplementation to this pamphlet is prohibited without prior approval from Army National Guard G4, ATTN: ARNG-LGZ, 111 S. George Mason Drive, Arlington VA 22204-1373.

Suggested Improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to ARNG-LGZ, 111 S. George Mason Drive, Arlington VA 22204-1373.

Distribution: This pamphlet is available in electronic media only and intended for A, B, and C command levels for the ARNG.

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Chapter 1

Introduction

1-1. Purpose

The purpose of this pamphlet is to provide commanders, staff, leaders, and Soldiers additional guidance and specific procedures for establishing a program designed to detect, mitigate, prevent, and control the effects of corrosion on ARNG equipment. Successful implementation of this pamphlet, associated Army Regulations (AR), Technical Manuals (TM), and Technical Bulletins (TB) will reduce the impacts of corrosion and improve equipment readiness. This pamphlet is to be used as a daily guidebook to the references, authorities, and principles of successful Army National Guard (ARNG) maintenance operations.

1-2. References

Required and related publications and prescribed and referenced forms are listed in Appendix A.

1-3. Explanation of Abbreviations and Terms

Abbreviations and special terms used in this publication are explained in the Glossary.

1-4. Corrosion Prevention Program Overview

The CPC program, as a sustainment level maintenance technology, can potentially reduce moisture-related damage to weapon systems, as well as improve readiness and sustainability. Headquarters, Department of the Army (HQDA) designated the ARNG as the Army Lead Organization (ALO) for the Corrosion Prevention Control (CPC) program. The ARNG has over 20 years of CPC/Controlled Humidity Preservation (CHP) use of both field and sustainment level maintenance efforts.

a. The ARNG G4 Maintenance Policies & Programs Branch (G-44(M)) currently manages CHP (in 38 States and three Territories), and contracts CHP shelter logistics support as part of the CPC Program, which reduces maintenance costs (cost reduction, cost avoidance, and reduction of replacement parts) by millions of dollars annually. The CHP shelters reduce moisture-induced corrosion by maintaining the relative humidity of an environment at 50% or less.

b. The field level maintenance effort is focused on near-term readiness that protects equipment stored outside using equipment protective covers and performing corrective actions that returns equipment back to a Category 1 corrosion status in accordance with (IAW) TM standards and corrosion assessments.

c. The sustainment level maintenance effort, from the Army National Guard's (ARNG) role, focuses on a long-term strategy designed to provide up-front corrosion mitigation options (e.g., controlled humidity shelters and operational preservation line systems) that assist in the reduction of cost and programming of future Depot maintenance repairs on ARNG equipment.

d. Funding includes all funding for the program through the Program Objective Memorandum (POM) process, routine monthly Preventive Maintenance Checks and Services (PMCS), all corrective maintenance repairs required, and any possible new construction of shelters and Operational Preservation (OP) Application Lines. Funds for these services are sent directly through the appropriate State/Territory CFMO/Resource Management (RM) channels. Any additional requirements identified beyond the annual budgeted program, will be validated and prioritized by G-44(M) as Un-funded Requirements (UFR) for possible funding.

e. The CFMO is responsible for master planning, programming, design, construction, and maintenance, of CHP shelters. The G-44(M) validates CHP shelter requirements and, fully funds the design and construction effort.

f. The State Surface Maintenance Manager (SMM) identifies a requirement for CHP and coordinates with the CFMO Master Planner to identify a site. SMM will submit a requirement to ARNG G-44(M) (will coordinate a project number with ARNG I&E) and work with their state CFMO to develop an NGB Form 420 project to be funded by Operation & Maintenance, Army National Guard (OMNG).

g. The G-44(M) will validate the requirement for a specific size of shelter, establish the project priority and provide program funds in the appropriate fiscal year. They will then notify the state SMM and CFMO with information copy to ARNG-IES. Funding is sent to the State United States Property and Fiscal Officer (USPFO) earmarked for design and construction of a CHP.

h. The CFMO upon receipt of funding will be responsible for the design and construction of the CHP just as any other OMNG funded new construction. This new procedure will ensure that the CFMO is well informed and responsible for all new construction in the State/Territory regardless of funding source.

1-5. Environment

ARNG ground combat equipment continues to operate in a number of environments that accelerate corrosion. Marine environments produce the most lethal accelerator that induces corrosion. Salts in seawater make it more electrically conductive; seawater is more corrosive to metals than fresh water. Understand-

ing the factors that contribute to a corrosive environment will contribute to a successful CPC program. Contributing factors are described below:

a. Moisture. Salt is the most lethal accelerator; however, moisture is the greatest contributor to deterioration of metals and electrical components. Water vapor is present in air and often contains contaminants that are corrosive. These contaminants can turn rain into acid rain which is more corrosive. Figure 1-2 provides a visual of the impacts of corrosion.

b. Temperature. Corrosion rates increase as the temperatures rises. High temperatures often make corrosion of steel exhaust components very severe.

c. Sunlight. Sunlight causes corrosion by breaking down coatings that leave metallic surfaces unprotected. Sunlight also heats the areas that it shines on and accelerates corrosion, due to the higher the temperature.

d. Sand, Coral, and Mud. Sand, coral, and mud can cause abrasion and wear on moving parts and coatings. Additionally, these contaminants can trap moisture and enhance corrosion.

e. Salt. Salt used to de-ice roads in colder areas are a major cause of corrosion on military equipment.

f. Road Debris and Stones. Debris, stones, and pebbles on roads are kicked up as a vehicle is driven causing "peck" holes in coatings on vehicle underbodies.

g. Coating Protection. Corrosion will occur in a short time if a protective coating such as paint or a preservative does not cover the metal surface. Once applied, the protective coating must be maintained. If protection of metal surfaces is not done as part of preventive or corrective maintenance, loss of equipment from service and high replacement rates will continue to impact equipment readiness.

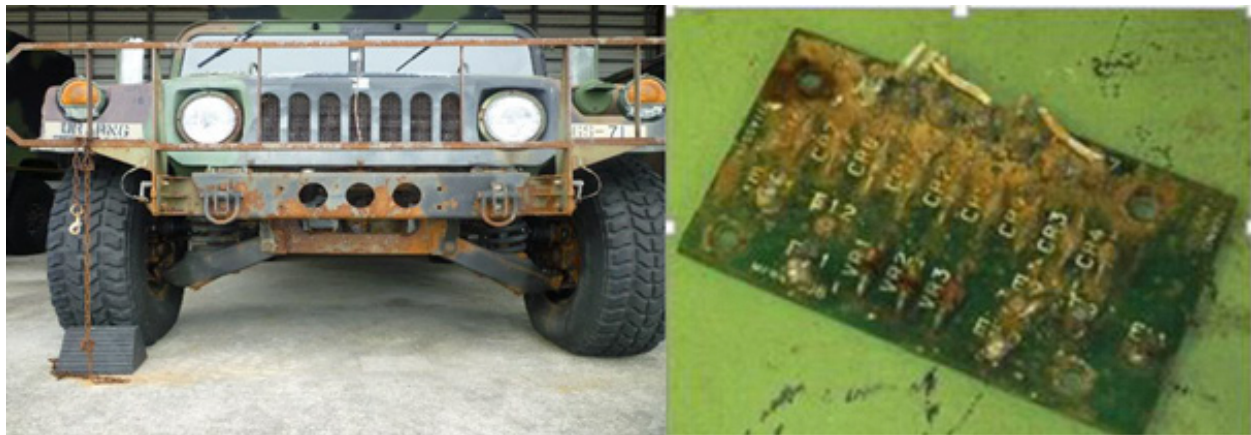


FIGURE 1-1. CORROSION IMPACTS

1-6. Program Benefits

The CPC program provides overarching guidance to both field and sustainment level maintenance requirements that mitigate the damaging effects of corrosion.

a. Field level maintenance is the first line of defense, with the biggest challenge keeping Commanders and Soldiers invested. Once fully vested, the benefits of the program produce the following:

- (1) Maintains and improves equipment readiness on reportable systems and equipment.
- (2) Bridges the gap between field level and sustainment level maintenance.
- (3) Authorizes scheduled preventive maintenance services to be suspended and/or deferred while materiel is in administrative storage.

(4) Reduces maintenance backlogs and counts equipment as mission capable.

(5) Provides the means to identify potential maintenance cost avoidance (not savings.)

(a) Savings is a cost reduction that enables a manager to reallocate funds within the budget or program period, while cost avoidance covers all other cost reductions.

(b) Potential maintenance cost avoidance for example: The ARNG CHP Utilization Report reported over 4,200 pieces of equipment in Long-Term Preservation (LTP) storage with the top 50 Line Item Numbers (LIN) reflecting over 2,900 items. These 2,900 items would represent a potential labor avoidance of over 680,000 man-hours.

(6) Provides a means to mitigate full-time maintenance workforce shortfalls.

(a) An effective CPC program can provide that assistance; for example, if a percentage of a unit's equipment were identified and inducted into CHP/LTP storage program using administrative storage, maintenance backlog could effectively be reduced by that determined percentage.

(b) The remaining backlog percentage is absorbed through the following:

- (1) Low-usage equipment identified.
- (2) Unit level maintenance performed during Inactive Duty Training (IDT) and Annual Training (AT).
- (3) Remaining full-time maintenance workforce's ability to exceed their capabilities required for field maintenance hours from Army MARC (Manpower Requirement Criteria) Maintenance Database (AM-MDB).

b. The sustainment component of ARNG's corrosion strategy is linked to centrally managing the CHP Program to ensure compliance with AR 750-59, Corrosion Prevention and Control for Army Materiel.

1-7. Corrosion Prevention and Control Tools

a. CHP.

(1) CHP is a field-tested, time-proven maintenance technology designed to eliminate moisture-induced damage and the resulting sustainment costs.

(2) Dehumidification protection is the preferred method of storage for ARNG equipment. Appendix A provides the website to Weather Data (see ARNG Logistics Library) that identifies ARNG sites that have reported corrosive areas.

(3) Modern technology has made this concept applicable to equipment throughout its spectrum of operation and lifecycle. CHP storage plays a key role where the outdoor relative humidity is above 50% for more than 50% percent of the total time.

(4) A CHP system is an environment stabilization system that can be adjusted to meet operational requirements in the most cost effective manner. CHP is designed as a means for long-term and modified long-term storage of ARNG equipment



FIGURE 1-2. CHP TOOL, SHELTER

b. Alternative Structures. States, Territories, and the District of Columbia who have selected alternative structure requirements (e.g., large area maintenance shelters, overhead pole-barn type structures, shelters without air dehydration, etc.) shall coordinate requirements review through the proper ARNG Facilities Construction channels.

(1) All alternative structures requirements need to be coordinated through State/Territory Construction and Facilities Management Office (CFMO) as outlined in National Guard Regulation (NGR) 415-10, ARNG Facilities Construction.

(2) If alternative structures are determined and require air dehydration once constructed, identify CHP program requirements and elevate to ARNG G-44(M).

c. Equipment Protective Covers.

(1) ARNG mission critical equipment not enrolled into air dehydration long-term and/or modified-long term CHP storage shelters will be considered for equipment protective covers to reduce the impacts of corrosion on equipment left exposed to environmental elements (e.g., extreme temperatures, dust, rain, wind, snow, ice, etc.)

(2) Modern equipment protective cover technology has made this concept applicable to equipment throughout its spectrum of operation and lifecycle.

(3) Equipment protective covers will be considered and can be utilized in conjunction with overhead structures.



FIGURE 1-3. CHP TOOL, EQUIPMENT PROTECTIVE COVER

d. Corrosion Retardant Spray and Protective Coatings. Field-level operators/crews shall clean, paint, and apply corrosion inhibitors while performing preventative maintenance before, during, and after equipment use.

1-8. Field Level Corrosion Assessment

a. Corrosion assessment checklists are outlined in associated equipment's technical bulletins that provide step-by-step guidance identifying corrosion-prone areas. The frequency of field level corrosion assessments will be identified in the unit's SOP based on Operational Tempo (OPTEMPO), severity of environmental conditions, and priority of the equipment.

b. Corrosion assessments are completed, at a minimum, annually to determine the level of corrective actions necessary to return the equipment back to like new or functional condition. The following corrosion category codes (Reference Table 1-1) are used in identifying corrosion prevention and control program requirements:

**TABLE 1-1.
CORROSION SIGNS, CATEGORY, AND STAGES**

SIGNS	CATEGORY		STAGE	
Shows no signs of visible corrosion	1	Corrosion efforts at Operator and/or Crew Level Maintenance; (Unit) Field Level Maintenance		No visible corrosion evident
Simple discoloration and staining	2	Corrosion efforts at System Specialists and Field Mechanic; (Unit) Field Level Maintenance	1	Surface discoloration; Coating damage that requires corrosion repair and preservatives applied. Spot painting applied where necessary.
Loose rust or pitting of the surface along with minor etching	3	Corrosion efforts at supporting SEMF; Field Level Maintenance above Operator and/or Crew Level Maintenance	2	Visible surface corrosion; remain sound. Metal requires surface repair and preservatives applied due to corrosion deterioration, minor physical damage, and coating damage.
Rust, minor etching, pitting, and more extensive surface damage	4	Corrosion efforts at supporting SEMF and/or Depot Sustainment (Repair & Return) Level Maintenance	3	Surface and subsurface corrosion; remain structurally sound. Metal requires repair prior to surface preparation and preservative applied due to corrosion deterioration and minor physical damage.
Rust, etching, and pitting has progressed to the point where the life of the item has been affected	5	Corrosion efforts at Depot Sustainment Level Maintenance or slated for Defense Logistics Agency (DLA) Disposition Services due to unserviceability (Condition Code H)	4	Structurally deficient; structurally unsound. Metal requires replacement due to major physical damage that presents a safety hazard.

Chapter 2

Corrosion Training

2-1. Corrosion Training

a. All Soldiers performing corrosion focused maintenance can achieve basic corrosion control skills IAW AR 750-59 Corrosion Prevention and Control for Army Materiel through numerous available options and opportunities.

b. Appointed corrosion monitor and unit level personnel engaged in duties that use CPC procedures should receive initial and annual corrosion focused training within the following applicable areas:

- (1) Corrosion Theory (reference AR 750-59 paragraph 3-5c(1)).
- (2) CPC Publications.
- (3) Cleaning.
- (4) Inspection.
- (5) Preservation.
- (6) Storage.
- (7) Mitigation.
- (8) Reporting.

c. The Department of Defense (DOD) Corrosion Oversight Office continues to work contracted training opportunities that provide tuition-free courses in corrosion prevention and mitigation to DOD personnel.

d. Corrosion focused training is also available to Soldiers through the following, but not limited to:

- (1) DOD Corrosion Policy and Oversight approved contracted Courses through:
 - (a) Society for Protective Coatings (SSPC).
 - (b) National Association of Corrosion Engineers (NACE).
- (2) Corrosion Connect (CorrConnect) 202 Series Training Courses.
 - (a) Corrosion Management.
 - (b) Corrosion Monitoring.
 - (c) Corrosion Prevention Techniques.
 - (d) Final Analysis courses.
 - (e) Corrosion Comprehension: Corrosion Basic course.
 - (f) Corrosion Overview Course.
- (3) Defense Acquisition University (DAU); Continuous Learning Module (CLM): CLM038 Corrosion Prevention and Control Overview.
- (4) Corrosion Defense Training Courses.
- (5) Internal State/Territory coordinated corrosion prevention focused training is the best form of corrosion awareness and prevention training. Based on geographical locations, it is highly encouraged to utilize senior maintenance Warrant Officers and Noncommissioned Officers to conduct internal corrosion awareness training to appointed corrosion monitors, Commanders, and Soldiers. Document all training conducted using a Memorandum for Record and maintain on file to satisfy the AR 750-59 training requirements.

e. Records of all corrosion related training, either certificate producing or memorandum for record documented, will be maintained on file within the organization and/or IAW State/Territory command level CPC Program guidance.

Chapter 3

Controlled Humidity Preservation Procedures

3-1. General

This chapter provides comprehensive and standardized CHP procedures throughout the 54 States, Territories, and the District of Columbia. The CHP program reduces the effects of corrosion by utilizing environmental stabilization systems to maintain the relative humidity of an environment at 50% or less. Systems are normally either shelter-based or outdoor in parking areas utilizing ducting to deliver dehumidified air into vehicle/equipment compartments.

3-2. Equipment Eligibility

All ARNG Modified Table of Organization and Equipment (MTOE) equipment is eligible for corrosion protection based on the environment and CPC Program established within each State, Territory, and the District of Columbia.

The primary focus of selected preservation equipment is placed on reportable Class VII major end items. In an effort to reduce maintenance backlog and improve equipment readiness, it is recommended for all command-level units to induct 20% to 25% of equipment into controlled humidity preservation programs. Different CPC tools may be recommended based on geographical location and environmental factors (see para 1-7 for CPC tool options.)

a. Eligibility for CHP.

(1) Equipment criteria.

(a) Equipment Readiness Code (ERC) Pacing Items (ERC-P), are the primary eligible items (e.g., M1A1 Abrams Tank, HIMARS, Radar, Avengers, M109, etc.).

(b) Low density ERC-A reportable items and high valued electronics equipment systems.

(c) Equipment for CHP preservation must be approved by the ARNG G-44(M) CPC Program Manager.

(2) Corrosion criteria.

(a) The Weather Data produced by ARNG Installation & Environment Directorate (ARNG-IER) will be the primary source of corrosion criteria data used in the ARNG-IER staffing process IAW the following focused areas:

1. Acid Rain.

2. Chloride Ion.

3. Relative Humidity (RH). The annual means of relative humidity will be measured based on the following categories:

(a) Category 1 reflects humidity of 70% and higher

(b) Category 2 reflects humidity 69% and below

4. Coastal Proximity. Measures the area within 10 miles of the ocean coast.

5. Sulfur Dioxide.

(b) Temperatures and annual snowfall as other considerations in staffing CHP Program support requests.

b. Not all equipment requires CHP, as equipment can be equally protected with increased field level maintenance consisting of washing, painting, corrosion inhibitor sprays, etc., and housed in non-CHP warehouse type facilities.

3-3. CHP Benefits

CHP is a field-tested, time-proven maintenance technology that is designed to eliminate moisture-induced damage and the resulting sustainment costs. CHP benefits include:

a. Readiness reportable systems that are reported Fully Mission Capable (FMC).

b. Prevents additional corrosion and dry rot.

c. Prevents deterioration of fuel or fluids.

d. Eliminates Technical Inspection (TI) upon removal from CHP.

e. Preserves Left Behind Equipment (LBE) during deployments.

f. Defers Army Oil Analysis Program (AOAP) sample requirements.

g. Scheduled service inspections may be suspended while in administrative storage IAW AR 750-1, Army Materiel Maintenance Policy.

h. Reduces Class IX repair parts costs requirements.

i. Reduces maintenance man-hour requirements.

3-4. CHP Applications Types

The ARNG employs shelter based and operational preservation line systems for controlled environment applications. CHP shelters are intended to protect Class VII major end items from corrosion and shall not

be used for: work spaces, training facilities, additional maintenance bay space, or routine storage of Table of Distribution and Allowances (TDA) equipment,

3-5. Shelter Based Application

a. Long-Term Preservation is a shelter designed to maintain equipment stored for a period of one to three years at a specific relative humidity. While in LTP, the equipment will be placed in administrative storage status. All regularly scheduled preventive maintenance services are suspended while materiel is in administrative storage. Figure 3-1 provides an example of a CHP Shelter Base Application.

b. Modified Long-Term Preservation (MLTP) provides the same benefits of LTP, but is intended for storage of equipment for 90 days to one year.

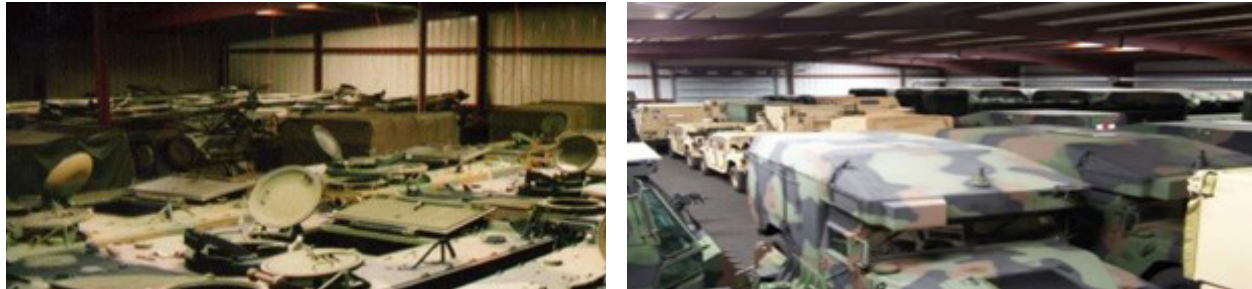


FIGURE 3-1: CHP SHELTER BASED APPLICATION

3.6. Operational Preservation (OP) Application

a. Operational preservation lines help reduce moisture-induced corrosion and unscheduled maintenance on labor intensive and/or high cost communications, optics, fire control, and electronic components in selected weapons systems, and Communications Electronics (CE) equipment. This includes combat vehicles and high valued electronic equipment like M1, M2/3, M109, M992 Family of Vehicles (FOV), M113 FOV, Stryker FOV, and CE Systems.

b. OP systems do not require a shelter as part of the CHP application, as dehumidified air is ducted directly into the crew compartment/equipment enclosure.

c. OP systems are traditionally installed and operated within motor pool parking areas. Figure 3-2 provides an example of how OP systems are configured for equipment pre-staged in motor pools or designated assembly areas.

d. This form of dehumidification reduces unscheduled maintenance but does not authorize or defer scheduled maintenance, i.e. preventive maintenance checks and services (PMCS) and scheduled services.



FIGURE 3-2: CHP OPERATIONAL PRESERVATION APPLICATION

3-7. CHP Oversight

a. The ARNG G-44(M) CPC Program Management Team executes the following responsibilities:

- (1) Manages the ARNG Corrosion Prevention & Control Program.
- (2) Analyzes State/Territory CHP requests.
- (3) Plans, prepares, and budget for CHP applications.
- (4) Processes, prioritizes, and maintains project database.

- (5) Provides feedback during site assessments, as required.
- (6) Analyzes the quantifiable benefits reported
- b. State/Territory DCSLOG. Executes the following responsibilities:
 - (1) Manages the appointment of CPC monitor to oversee CHP applications.
 - (2) Provides guidance in identifying, justifying, and submitting CHP requirements.
 - (3) Provides CHP SOP guidance.
 - (a) Includes MTOE equipment induction and removal procedures.
 - (b) Includes LTP procedures (if utilized) addressing maintenance deferral procedures IAW regulatory requirements highlighted in AR 750-1.
 - (4) Considers utilities associated with CHP operations and monitoring.
 - (a) States/Territories are responsible for providing all utilities to install and operate CHP applications (e.g., propane/natural gas, electricity, and telephone lines as applicable.)
 - (b) Utility costs incurred by CHP systems are the responsibility of the State/Territory to plan, program, budget, and execute.
- c. State/Territory CPC Program Monitor executes the following:
 - (1) Identify CHP site point of contact (POC).
 - (2) Develop State/Territory SOP.
 - (3) Inquiries on the status of the State/Territory CPC applications.
 - (4) Maintain or have access to a copy of this pamphlet.
 - (5) Ensure all CHP equipment is accounted for and listed on applicable organizational property books for 100% accountability.
 - (6) Ensure equipment prior to induction or removal is in compliance with TM 10/20 standards, Safety of Use Messages (SOUM), and Modification Work Orders (MWO).
 - (7) Maintain an inventory of the equipment placed into the CHP program and a record of all actions affecting the application.
 - (8) Provides semi-annual inventories feedback.
 - (9) Provides CHP utilization of space and process guidance.
 - (a) MTOE equipment. Ensure that CHP shelters and line systems are only used to support MTOE equipment with priority being Class VII major end items.
 - (b) TDA equipment. Authorization for routine storage of TDA equipment is dependent upon available space, and the State/Territory CPC POC obtaining a signed Memorandum from the ARNG G-44(M) CPC Program Management Team authorizing TDA equipment storage. Retention of the MFR will be required to justify TDA equipment being stored within CHP shelters during internal/external site visits and/or CPC program evaluations.
 - (c) CHP shelters are not warehouses. Installation property is prohibited from storage inside CHP shelters.
 - (d) Provide guidance to ensure CHP space and application accessories are fully utilized to maximize the benefits of the program.
 - (e) Provide guidance in developing a plan to maximize utilization of existing CHP applications.
 - (f) CHP systems no longer needed, or that cannot be reutilized, will be immediately reported to the State/Territory CPC/CHP program POCs. Once validated by the State/Territory DCSLOG, Force Integration Readiness Officer (FIRO), and SMM, the POC will notify the ARNG G-44(M) CPC Management Team to discontinue contracted logistics support and, assistance applying for removal, disposition, or conversion of CHP assets.
- d. CHP Site POC. Executes the following responsibilities:
 - (1) Understands proper operation of the CHP application.
 - (2) Understands basic end-user maintenance of the CHP application.
 - (3) Provides guidance to ensure physical security measures are IAW AR 190-51, Security of Unclassified Army Property (Sensitive and Non-sensitive.)
 - (4) Provides guidance to ensure CHP shelters / OP lines are maintained in good condition.
 - (5) Provides guidance to ensure CHP shelters are clean, organized, and properly being utilized.

(6) Provides guidance to ensure shelter doors are kept open to the absolute minimum amount of time. CHP shelter doors should only be open when equipment enters or exits the shelter. Leaving shelter overhead doors open only increases State/Territory utility costs and goes against the purpose of establishing a controlled dehumidified environment that reduces the effects of corrosion.

(7) Adhere to procedures outlined in the State's CHP SOP for equipment placed in administrative storage and all major sub-systems as directed by applicable TMs.

(8) Maintain direct contact with the contracted CLS Field Service Technicians (FST) for scheduled and unscheduled maintenance service visits of CHP applications.

(9) Ensure a back-brief is received on each visit by the CLS FST on routine system maintenance, non-mission capable status, and repairs. System issues will be coordinated through State/Territory CPC Program POC to ARNG- G-44(M) CPC Program Management Team.

3-8. Request for CHP Support

a. States/Territories will identify, justify, and submit CHP equipment requirements to the ARNG G-44(M) CPC Program Management Team (see Figure 3-3).

b. The initial request must be vetted through SMM and signed by the State/Territory Deputy Chief of Staff for Logistics (DCSLOG).

(1) Support request contains the parent unit ("AA") Unit Identification Code (UIC).

(2) Density and type equipment formatted by LIN, nomenclature, and quantity.

c. CFMO Coordination. Coordination with CFMO is critical to ensure shelters are properly located and sited, listed on the Facilities Inventory Support Plan (FISP) for resource planning, and all environmental requirements identified and met.

(1) The CFMO will provide proposed site(s) for CHP applications.

(2) The CFMO proposed site will be accompanied by a Statement as to the site's suitability and ownership (e.g., State, Federal, etc.).

d. If a CHP application is recommended, the State/Territory CPC Program POC and/or SMM will coordinate the formal request through the respective J4/G4 and CFMO offices and forward to the G-44(M) CPC Program Management Team.

e. If CHP support must be terminated or temporarily discontinued (see Figure 3-4) a discontinuation memo shall be sent to the supported unit.

Office Symbol	(State Letterhead)	DATE
MEMORANDUM FOR Army National Guard Logistics Directorate (ARNG-LGM) Branch Chief, 111 South George Mason Drive, Arlington, VA 22204		
SUBJECT: Corrosion Prevention and Control (CPC) Support Request		
1. The XX ARNG requests CPC program support to provide corrosion protection measures on ARNG Modified Table of Organization and Equipment (MTOE) equipment located at (identify specific site and geographical location)		
2. The following conditions were identified in justifying this support request (specify in detail the conditions that determined the need for this request).		
3. Unit(s) identified is: "AA" UIC.		
4. Equipment Density: See attached equipment density listing. Attach equipment list by Line Item (LIN), nomenclature, and quantity.		
5. The XX ARNG acknowledges that all CPC/CHP related equipment approved and authorized to support the CPC Program will be placed onto organizational property books to maintain 100% accountability.		
6. The XX ARNG acknowledges that all utility costs associated with CHP shelters and/or OP lines systems will be at the cost of the State/Territory.		
7. Point of contact is XXARNG, (rank) (first last), DSN phone number, or email address.		
Encl XX ARNG Equipment Density List	FIRST MI. LAST RANK, BRANCH, XXARNG Duty Position	

FIGURE 3-3. CHP SUPPORT REQUEST MEMORANDUM

(State Letterhead)	
Office Symbol	DATE
<p>MEMORANDUM FOR Army National Guard Logistics Directorate (ARNG-LGM) Branch Chief, 111 South George Mason Drive, Arlington, VA 22204</p> <p>SUBJECT: Notification to Terminate Corrosion Prevention and Control (CPC), Controlled Humidity Preservation (CHP) Support</p>	
<ol style="list-style-type: none"> 1. The XX ARNG no longer requires (list CPC tool or tools) due to (list reason for termination in detail; such as, force structure or transfer of equipment), at (specific location). 2. The XX ARNG has verified and obtained internal Joint Force Headquarters (JFHQ) (list key/primary coordinated personnel; such as, The Adjutant General (TAG), Deputy Chief of Staff for Logistics (DCSLOG), Force Integration Readiness Officer (FIRO), J3/S3, etc.) consensus that the XX ARNG no longer requires these corrosion prevention measures to support the CPC Program. 3. Request Contractor Logistics Support (CLS) be terminated effective (dd mmm yy). (NOTE: Could also be used to temporarily suspend from dd mmm yy). 4. If applicable, attach a detailed list of equipment requesting disposition (Attach a list by serial number and/or photos of equipment being requested for disposition.) 5. Please advise as to disposition instructions related to CPC/CHP equipment. 6. Point of contact is XXARNG, (rank) (first last), DSN phone number, or email address. 	
<p>Encl</p> <p>Re-Use Plan (If Applicable)</p>	<p>FIRST MI. LAST</p> <p>RANK, BRANCH, XXARNG</p> <p>Duty Position</p>

FIGURE 3-4. CHP TERMINATION OR TEMPORARILY SUSPEND SERVICES MEMORANDUM

3-9. Installation of CHP Application

All new CHP construction, or modification of existing buildings, will be conducted on leased or owned State and/or Federal property. The United States Property & Fiscal Office (USPFO) may perform Federal contracting on State property only if it meets the requirements set out in DoD Instruction (DoDI) 1225.08, Reserve Component Facilities, construction, and Real Property Programs.

a. Project POC. The State/Territory will provide a designated POC for each CHP project. The State POC will act as Contracting Officer Representative (COR) on-site representative to ensure contractor accountability. The State POC will provide ARNG G-44(M) CPC COR with timely updates of installation progress for verification of contractor invoices.

b. Site Assessment. Once the project is approved and properly resourced, the ARNG G-44(M) CPC Program Management Team will schedule and conduct a site assessment. The implementing contractor and ARNG CHP Program/Project Manager will then conduct site visit to determine its suitability for the project, verify the equipment requirement, and develop a site plan.

c. CHP Shelter Allowances. All CHP facilities will comply with the following (see Logistical Facilities guidance provided in NG PAM 415-12, Army National Guard Facilities Allowances Para 3.6);

(1) CHP shelter space shall be unheated and shall be calculated based on the operations shipping configuration of each approved piece of equipment plus one foot in all directions for circulation space.

(2) When enclosed CHP space is provided, the amount of paved area (authorized for parking of military vehicles at the site) shall be reduced by the area of the preservation space.

(3) CHP shelters shall be pre-engineered, un-insulated, unheated, and unlighted metal shelters of a design to accommodate a RH of less than 50% RH at all times, and less than 40% RH 90% of the time; subject to conditions caused by an act of nature.

(4) CHP shelters shall not be provided with fresh water or sewer facilities and shall not be used for any purpose other than controlled humidity preservation unless specifically approved by the ARNG G4 Logistics Directorate.

(5) CHP shelters shall be provided with a moisture vapor barrier and concrete floors designed for the heaviest vehicle to be preserved (eight inches for track vehicles; six inches for wheel vehicles.)

(6) Manually operated overhead or roll-up doors at each end of the shelter are authorized as follows:

- (a) Two doors for each 5,000 Square Foot (SF) or 10,000 SF shelter.
- (b) Four doors for each 15,000 SF; 20,000 SF; 25,000 SF; or 30,000 SF shelters.
- (7) A concrete apron 20 feet in depth, is authorized in front of each vehicle entrance.
- d. Site/Project Approval. The Architecture and Engineering (A&E) design and site plan for CHP applications, acquired by ARNG, is subject to approval by the CFMO to ensure that all local and State building, safety, and fire codes have been incorporated.
- e. Design/Construction. Once the CFMO approves the site plan at the State/Territory level, the CFMO will coordinate with the CPC Program Manager for final approval before the implementing contractor schedules construction.
- f. Project Hand-Off. Upon completion, the project application is handed off to the State CFMO office using DD Form 250, Material Inspection and Receiving Report, along with a completed DD Form 1354, Transfer and Acceptance of DOD Real Property, for the building to be accepted and signed by the Installation Real Property Accountable Officer (RPAO).

Chapter 4

Equipment Protective Cover Procedures

4-1. General

This chapter provides comprehensive and standardized guidance for equipment covers throughout the 54 States, Territories, and the District of Columbia. Equipment protective covers reduce the potential risk of corrosion and assist Commanders in maintaining the readiness of ARNG Class VII major end items and critical MTOE equipment. Equipment protective covers are available in various sizes and costs depending on the type of equipment and level of protection desired. Some cover variants have built-in corrosion combating elements to enhance the ability in preventing corrosion.

4-2. Eligibility

All ARNG mission critical MTOE equipment not enrolled into controlled humidity long-term and/or modified-long term CHP storage shelters will be considered for equipment protective covers to reduce the impacts of corrosion on equipment left exposed to environmental elements (e.g., extreme temperatures, dust, rain, wind, snow, ice, etc.).

4-3. Field Level Monitor Oversight

a. State/Territory CPC Program Monitor.

(1) Identify, justify, and elevate program requirements to the ARNG G-44(M) CPC Program Management Team.

(2) Ensure unit level corrosion monitors receive equipment cover product training, equipment cover removal/installation procedures, and serviceability inspections. Maintain accountability of equipment protective covers on applicable organizational property books.

(3) Inquiries and Request from Vendors, Consultants and Prospective Contractors. To prevent violation of federal procurement statutes and regulations, direct all inquiries and requests from corrosion vendors to the USPFO or the SCS within the Office of the USPFO.

b. Unit monitors and/or identified Site POC.

(1) Coordinate product training to ensure proper procedures are followed during installation and removal of protective covers.

(2) Ensure protective covers are installed when equipment is not in use.

(3) Inspect covers for serviceability.

(4) Maintain 100% accountability of the protective covers.

(5) Inquiries and Request from Vendors, Consultants and Prospective Contractors. To prevent violation of Federal procurement statutes and regulations, direct all inquiries and requests from corrosion vendors to the USPFO or the SCS within the Office of the USPFO.

4-4. Equipment Protective Cover Characteristics

When purchasing covers to protect equipment, the minimum characteristics referenced in table 4-1 must be considered.

TABLE 4-1.
EQUIPMENT PROTECTIVE COVER CHARACTERISTICS (AR750-59)

Characteristic	Requirement
Waterproof; resistance to leakage	No leakage; 100% waterproof; no penetration by moisture, rain, snow, sleet, etc. Must be effective in all climates.
Fit to equipment dimensions	Must be fitted to the equipment desired to be protected, without the use of heat shrinking or rap technology.
Reusable	Must be able to be installed and removed on a weekly basis for the duration of the service life span (<i>Reference Durable</i>).
Durable	Service life of 3 years minimum.
Mildew resistance	The cover must resist the accumulation of mold or mildew. Mold or mildew shall cover no more than 5% of the cover during normal use.
Tearing Strength after Degradation	Covers shall have a minimum tear resistance of 50 lbs. throughout accelerated weathering/degradation.
Inclusion of Express Warranty: (IAW FAR 12.404(b))	Standard commercial manufacturer's warranty that includes a minimum of a 1 year warranty on materials and workmanship.

4.5. General Services Administration (GSA) Cover Products

Equipment protective covers can be purchased from the GSA catalog, based on CPC program requirements. GSA Advantage highlights manufacture/brands available and current pricing by searching for "protective covers."

Chapter 5

Corrosion Retardant Sprays & Protective Coating Procedures

5-1. General

This chapter provides corrosion retardant spray and protective coating instructions for the 54 States, Territories, and the District of Columbia CPC Programs. The primary purpose for cleaning, inspecting, annotating, painting, and applying inhibitors is to protect ARNG assets from the impacts of corrosion. The impacts of corrosion continue to be seen in rusted chassis frames, trailer floors incapable of supporting load requirements, corroded battery boxes, and rusted wheel lug nuts, to only list a few.

5-2. Field Level Monitor Oversight

All ARNG MTOE equipment not enrolled into air dehydration long-term and/or modified long-term CHP storage shelters require continuous operator/crew, special systems, and unit field level maintenance attention to detail before, during, and after PMCS.

a. State/Territory CPC Program Monitor.

(1) Ensure CPC corrosion retardant sprays and protective coatings procedures are integrated into the State/Territory command level program.

(2) Ensure that State/Territory command level program includes a thorough corrosion inspection that incorporates the corrosion assessment down to the operator/crew level of maintenance and used to capture measurable objectives.

b. Unit Commanders.

(1) Develop and enforce corrosion retardant sprays and protective coating procedures within CPC program SOP.

(2) Enact a robust and achievable corrosion retardant and protective coating plan that incorporates all levels of field level maintenance that provides repetitious maintenance oversight on equipment.

(3) Ensure CPC inspections are conducted on equipment/components at a minimum of a 180 day interval if no TM depicts corrosion specific inspections.

(4) Ensure safety remains the number one focus for Soldiers engaged with the application of corrosion retardant sprays and protective coatings. Training is the key to success in ensuring equipment readiness is properly being maintained and Soldiers are performing the task safely.

c. Unit CPC Corrosion Monitors.

(1) Act as the Commander's direct representative to oversee, coordinate, and implement corrosion retardant sprays and protective coating procedures.

(2) Continuously work with operators/crews, maintenance supervisors, and mechanics to determine the effectiveness of the Commander's CPC policy/SOP.

5-3. Field Level Operations

a. Cleaning.

(1) Cleaning is the first step in preventing corrosion and wear.

(2) All geographical areas have their own unique environmental elements that impact equipment and induce the impacts of corrosion. Most equipment cleaning is training or calendar based while corrosion is both time and environment based. The operational environment shall dictate the frequency of corrosion cleaning procedures depicted in organizational CPC SOP.

b. Inspections.

(1) Corrosion detection is everyone's responsibility, with regular systematic inspections

(2) Visual inspections are essential to the overall corrosion prevention and control program. Through early detection, identification, and treatment, the costs resulting from corrosion are minimized.

(3) All inspections should be performed IAW applicable TMs and Corrosion Assessment Checklist.

c. Annotating. Once corrosion has been identified, annotate and retain corrosion corrective actions and associated cost that can be used for historical facts and statistical reporting to the DCSLOG and ARNG CPC Program Management Team.

d. Painting.

(1) Applying surface paint onto a clean metal surface is the first line of corrosion defense in providing the necessary protection to mission critical equipment.

(2) Scratches, chips, or marring of the paint surface observed during PMCS will be repaired at the field-level to prevent corrosion damage.

(3) Proper paint touch-up involves a series of preparatory steps that include contaminant removal, cleaning, pretreatment, and priming.

e. Corrosion inhibiting preventative maintenance application. CPC inhibitors can be applied by field-level personnel and are encouraged as a minimum measure to prevent the effects of corrosion.

f. Training. Training will be conducted by the means of available courses through ATRRS, PEC, DAU, or State/Territory coordinated corrosion focused training.

5-4. Corrosion Products

Military Standard Requisitioning & Issue Procedures (MILSTRIP) will always be the first option used to purchase corrosion products based on products highlighted in the equipment's technical manual and associated technical bulletin. Corrosion National Stock Number (NSN) products outlined in TB 43-0213, Corrosion Prevention and Control (CPAC) for Army Wheeled Vehicles, are as follows:

a. Corrosion Preventive Compounds:

(1) Rust Inhibiting Compound (RIC), NSN 8030-01-414-8947.

(2) Rust Inhibiting Compound, T-32CP90S6, NSN 8030-01-414-8947.

(3) MIL-PRF-16173 Class II, Grade 4 (81349), NSN 8030-00-903-0931.

(4) Solvent Cutback, Cold-Application, NSN 8030-00-062-5866.

(5) Water Displacing, Type I, Class 2 (81349), NSN 8030-00-213-3279.

(6) Water Displacing, Type II, Class 2 (81349), NSN 8030-00-938-1947.

(7) Water Displacing, Type III, Class 2 (81349), NSN 8030-00-546-8637.

b. Corrosion Preventive Lubricant and Penetrant, NSN 8030-01-387-1131.

c. Corrosion Inhibiting Lubricant, NSN 9150-01-360-1906.

d. Vapor Corrosion Inhibitors Foam Tape, NSN 6850-01-338-1392.

e. Corrosion prevention products GSA catalog. GSA Advantage highlights manufacture/brands and products available by searching for "corrosion lubricants" and "corrosion inhibitors."

Chapter 6 Reports

6-1. Purpose

This chapter provides standardized reporting procedures associated with data collection and analysis viable in justifying CPC Programs throughout the 54 States, Territories, and the District of Columbia.

6-2. CPC Monitor Reporting

- Appointed State/Territory CPC Program Monitor will be the primary point of contact.
- Provide CPC program monitor name, rank, office symbol, telephone number, and email address to the ARNG- G-44(M) CPC Program Management Team.
- Update accordingly upon changes of assignment or reassignment.

6-3. CHP Idle Shelter and Line System Reporting

- The CPC Program POC will report temporarily idled CHP shelters or line systems to the ARNG G-44(M) CPC Program Management Team. This coordination will properly adjust the contracted CHP CLS support plus save State/Territory utility costs. The notification will include a re-use plan with projected timeframe.
- If a State/Territory no longer requires CHP systems due to force structure modifications, unit re-stationing, etc., then the CPC program POC will notify the ARNG G-44(M) CPC Program Management Team.

6-4. CHP Utilization Reporting

- ARNG semi-annual inventories will be conducted March and September.
- The State/Territory CPC Program POC will provide the ARNG G-44(M) CPC Program Management Team with the results of the semi-annual CHP application utilization inventory no later than 30 March and September.
- Specific instructions for completing the inventory will be provided by the ARNG G-44(M) CPC Program Management Team along with individual State/Territory spreadsheet no later than 30 days prior to 01 March and 01 September. Figures 6-1 and 6-2 provide a snapshot of the semi-annual inventory format.

	# Apps	% util
Shelters	4	81.3%
OP Lines	0	NA
Total	4	

Utilization - Color Code	
85% or higher	
50% - 84.9%	
Below 50%	

Shelters					
Location	Size	NSS Avail	NSS SF Used	RAW SF	% Utilized
Juneau	10,000	7,500	7330	4312	98%
Anchorage - Sh1	20,000	15,000	15000	11409	100%
Anchorage - Sh2	20,000	15,000	9437	5551	63%
Anchorage - Sh3	20,000	15,000	10936	6433	73%
Total	70,000	52,500	42703	27705	81.3%

OP Lines			
Location	Size	Used	% Utilized
			NA
			NA
			NA
Total	0	0	NA

FIGURE 6-1. STATE/TERRITORY UTILIZATION ROLL-UP TAB

Location	Juneau							
Sq FT	10,000							
NSS Util	7330.4							
RAW SF	4312.0							

ITEM #	TYPE	UIC	NSN	LIN	MODEL DES	LIN DES	RAW SF	SF w/Buffer
1	LTP	WPMNAA	2320015402038	T34704	M1151A1	TRK UTILITY	123	209.1
2	LTP	WPMNAA	2320015402038	T34704	M1151A1	TRK UTILITY	123	209.1
3	LTP	WPMNAA	2320015402038	T34704	M1151A1	TRK UTILITY	123	209.1

FIGURE 6-2. STATE/TERRITORY UTILIZATION EQUIPMENT TAB

- (1) Gross Square Footage (GSF) is the total physical space of the shelter (e.g., 5K, 10K, etc.)
- (2) Unavailable Storage Space (USS) is the remaining calculated square foot floor space once the NSS is subtracted from the GSF (GSF-NSS = USS). USS varies based on shelter configuration and traditionally averages 25% of the GSF.
- (3) Net Storage Space (NSS) is the GSF of a shelter minus the USS. NSS averages out to be about 75% of the GSF. The goal is maintaining an 85% or better utilization of NSS.

(a) States/Territories may report more NSS utilized than NSS available, as that is determined by shelter configuration and type of equipment stored.

(b) Example 1. If a State has four 10K & one 15K shelter or 55,000 SF of GSF available. Subtract the USS (25%) or 13,750 SF. NSS is 41,250 SF (55,000 SF - 13,750 SF = 41,250 SF). The State reports utilizing 36,000 SF. The CHP Shelter rating would be Green (36,000 utilized / 41,250 NSS = 87.3%).

(c) Example 2. If a State has 5 Operational Preservation (OP) lines with 20 positions each and reports 64 positions. (5 x 20 positions = 100 total positions. 64 utilized / 100 positions = 64% (Amber)).

(4) Buffer Space is included around the equipment to provide maneuvering space. This buffer space varies but averages approximately 70% the size of the equipment. For example, a 10' by 10' piece of equipment would be 100 SF + (100 SF x 70%) or 170 SF allowed.

(5) Utilization Ratings is based on the total NSS utilized divided by total NSS available. OP system rating is the total number of OP positions utilized divided by the total number of OP positions.

(a) Green: 85% or higher.

(b) Amber: 50% to 84.9%.

(c) Red: Below 50%.

6-5. Quantifiable Benefits Reporting

a. States/Territories with CHP applications will report quantifiable benefits resulting from the use of CHP applications. This will be reported to the ARNG G-44(M) CPC Program Management Team no later than 31 Dec. annually. (See Figures 6-3 and 6-4 - reference Annual Cost of Corrosion for Army Ground Vehicles [2008-2009 Update] if required).

(1) Cost reduction. List reductions in the number of dollars needed to meet an established requirement by improving a process or function (e.g., compare assigned vehicles/equipment utilizing in CHP to vehicles/equipment not utilizing CHP.)

(2) Cost avoidance. List any cost reduction that is not a saving (e.g., Direct Production (DP) Field Maintenance Hours saved from storing equipment in administrative storage.)

(3) Productivity improvements. List any productivity improvements experienced (e.g., DP Field Maintenance

Hours avoided by suspending regularly scheduled preventive maintenance services while in LTP administrative storage.)

(4) There are three non-financial, quantifiable benefits and methods of measurement. Mission Capability lists increases in mission capable rates, Maintenance Backlog lists comparative decreases in backlog, and System Reliability lists increases in terms of probable failure ratio maintainability/supportability measures, or fewer replacement parts compared to assets not utilizing CHP.

b. Maintenance Manpower Cost Avoidance/Deferral reporting format, at a minimum, will have the following columns of information:

(1) Column 1: State, Territory or District of Columbia.

(2) Column 2: National Stock Number (NSN).

(3) Column 3: Line Item Number (LIN).

(4) Column 4: Model Description (Model_DES).

(5) Column 5: Line Item Number Description (LIN_DES).

(6) Column 6: State Quantity.

(7) Column 7: Annual Direct Production (DP) Field Maintenance Hours Required Per Unit.

(8) Column 8: Total Annual DP Field Maintenance Hours Required. Obtain "Annual DP Field Maintenance Hours" required by LIN from the Force Management System Web Site (FMSWEB), Force Management Bulletin Board, and Army MARC (Manpower Requirement Criteria) Maintenance Database (AM-MDB).

(9) Quantity of Equipment in LTP using administrative storage.

(10) Productivity Improvements Hours Avoided.

State	NSN	LIN	Model	LIN_DES	State Quantity	Annual DP Field Maintenance Hours Required Per Unit	Total Annual DP Field Maintenance hours required	CHP Quantity	Productivity Improvements Hours Avoided
MN	2350010871095	T13168	M1A1 120MM	TANK COMBAT FTRAC	72	1841.40	132,580.80	72	0.00
MN	2350015653460	P19727	M2A2	OP DESERT STORMSIT A	107	1240.45	132,728.15	62	0.00
MN	2350015117783	A05001	ABV	ASSLT BREACHER VEH	6	1071.50	6,429.00	6	0.00
MN	4940014637940	F64544	M7 FRS	FORWARD REPAIR SYSTEM	35	374.00	13,090.00	1	0.00
MN	1025994637551	H57916	M777A1-2	HOWITZER MED TOWED	18	853.20	15,357.60	3	0.00
MN	2350012816451	C11280	M973A1	CARRIER CARGO TRACKED	15	1011.20	15,168.00	1	0.00
MN	2320015341117	T58318	M978A4	TRK TANK	93	421.80	39,227.40	2	0.00
MN	2320015342245	T63161	M984A4	HEMITT WRECKER	21	400.10	8,402.10	2	0.00
MN	2320015231429	T67578	M1078A1P1	TRK CGO W/ARMOR	211	324.10	68,385.10	2	0.00
MN	2320013601891	T40329	M1079 WVN	TRUCK VAN LMTV W/E	30	327.60	9,828.00	4	0.00
MN	2320013601895	T41135	M1083 WVN	TRK CARGO MTV W/EQP	7	324.10	2,268.70	1	0.00
MN	2320015303843	T41271	M1087A1 W/E	TRUCK VAN EXPANSIBLE	19	324.30	6,161.70	1	0.00
MN	2320013469317	T07679	M1097	TRK UTIL HVY HMMWV	378	283.00	106,974.00	1	0.00
MN	2320015402007	T37588	M1152A1	TRK UT EXP CAP	167	253.66	42,361.22	1	0.00
MN	2320014928221	T96496	M1120	TRUCK CARGO TAC W/LHS	81	190.63	15,441.03	1	0.00
MN	4940009357821	Y48323		WELDING SHOP TLR MTD	3	77.96	233.88	1	0.00
MN	4910014906453	S25885		STD AUTO TOOL SET	17	418.20	7,109.40	1	0.00
MN	7360014733408	C27633		CONTAINERIZED KITCHEN	12	541.60	6,499.20	1	0.00
					1,292		628,245.28	163	0.00

FIGURE 6-3 QUANTIFIABLE BENEFITS REPORT SPREADSHEET



DEPARTMENTS OF THE ARMY AND THE AIR FORCE
JOINT FORCE HEADQUARTERS MINNESOTA
OFFICE OF THE ADJUTANT GENERAL
20 12TH STREET WEST
SAINT PAUL, MN 55155-2004

NGMN-LOD

28 December 2017

MEMORANDUM FOR Maintenance Policies and Programs Branch G-44(M), ATTN: MAJ Kurt Hurst,
111 South George Mason Drive, Arlington, VA 22204-1373

SUBJECT: Annual Quantifiable Benefits Report for Minnesota Army National Guard 2017

1. The Minnesota Army National Guard (MNARNG) has 163 pieces of equipment stored in seven Controlled Humidity Preservation (CHP) buildings. The Department of Defense has identified specific equipment, many tracked and large wheeled vehicles that significantly impact annual corrosion costs. The MNARNG currently has 144/163 (88%) of these vehicles stored in CHP buildings. The quantifiable benefits resulting from CHP usage include:

a. Cost Reduction. Based the cost factors described in the Annual Cost of Corrosion for Army Vehicles Report, dated MAY 2009, **MNARNG prevents \$3.4 million in corrosion annually on these 144 vehicles through the use of CHP.**

b. Cost Avoidance. 0/163 (0%) are enrolled in Long Term Preservation (LTP) or in a Low Usage Program. The deferred annual service on these vehicles saves zero manhours annually. At a labor rate of \$78/hour, this equates to a labor savings of \$0 annually.

c. Productivity Improvements. None.

d. Three non-financial, quantifiable benefits and methods of measurement.

(1) Maintenance backlog. No savings.

(2) System reliability. Minnesota has 144/163 (88%) combat pacing items stored and protected in CHP buildings, which allows for higher readiness rates and a decreased probability of failure, due to electronics corrosion, upon removal from CHP.

(3) Replacement part reduction. The MNARNG saves \$0 annually in Class IX parts due to the deferred maintenance of equipment in LTP.

2. Maintenance Manpower Cost Avoidance/Deferral Report is included as Enclosure 1.

3. Point of contact is the undersigned at joseph.m.seaquist.mil@mail.mil or 320-616-2661.

Encl:
as

SEAQUIST.JOSEPH. Digitally signed by
MARK.1136649007
JOSEPH M. SEAQUIST
COL, LG, MNARNG
Surface Maintenance Manager

FIGURE 6-4 QUANTIFIABLE BENEFITS REPORT MEMO

Appendix A

References

Section I - Required Publications

AR 190-51

Security of Unclassified Army Property (Sensitive and Non-sensitive), 30 September 1993 (Cited in paras 3-7d(3))

AR 750-1

Army Materiel Maintenance Policy, 03 August 2017 (Cited in paras 3-3g)

AR 750-59

Corrosion Prevention and Control for Army Materiel, 19 March 2014 (Cited in Para's 1-6b, 2-1, 4-4)

NGR 415-10

Army National Guard Facilities Construction, 25 July 2003 (Cited in para 1-7b(1))

NG PAM 415-12

Army National Guard Facilities Allowance, 25 January 2015 (Cited in para 3-9c)

TB 43-0213

Corrosion Prevention and Control (CPAC) For Army Wheeled Vehicles, 28 September 2007 (Cited in para 5-4)

DoDI 1225.08

Department of Defense Instructions (DoDI) 1225.08, 19 December 2017 (Cited in para 3-9)

Section II

Related Publications

AR 190-13

The Army Physical Security Program, 25 February 2011

AR 190-16

Physical Security, 31 May 1991

AR 740-1

Storage and Supply Activity Operations, 26 August 2008

AR 740-3

Stock Readiness, 09 November 2012

Annual Cost of Corrosion for Army Ground Vehicles, 2008-2009 Update

DA PAM 70-3

Army Acquisition Procedures, 17 September 2018

DA PAM 750-1

Commanders' Maintenance Handbook, 04 December 2013

Manpower Requirements Criteria

Policy and Procedures, 20 January 2009

NGR 750-5

Army National Guard Maneuver Area Training Equipment Site and Unit Training Equipment Site Operations, 19 April 2016

TM 38-470

Storage and Maintenance of Army Prepositioned Stock Materiel, 30 June 2017

10 United States Code (USC) § 2228

Office of Corrosion Policy and Oversight, 27 January 2015

10 United States Code (USC) § 18233a

Notice and wait requirements for certain projects

Section III - Prescribed Forms

This section contains no entries.

Section IV - Referenced Forms**DA Form 11-2**

Internal Control Evaluation Certification

DA Form 2028

Recommended Changes to Publication and Blank Forms

DD Form 250

Material Inspection and Receiving Report

DD Form 1354

Transfer and Acceptance of DOD Real Property

GLOSSARY**Section I - Abbreviations****AA**

Parent Unit Identifier

A&E

Architecture and Engineering

ACB

Army Corrosion Board

ALO

Army Lead Organization

AMMDB

Army MARC (Manpower Requirement Criteria) Maintenance Database

AOAP

Army Oil Analysis Program

AR

Army Regulation

ARNG

Army National Guard

ARNG-IER

ARNG Installations & Environment Directorate

ARNG G-44(M)

ARNG G4, Logistics Directorate - Maintenance Policies and Programs Branch

AT

Annual Training

ATRRS

Army Training Requirements and Resources System

CAT

Category

CE

Communications-Equipment

CFMO

Construction and Facilities Management Office

CHP

Controlled Humidity Preservation

CLM

Continuous Learning Module

CLS

Contractor Logistics Support

COR

Contracting Officer Representative

CPAC

Corrosion Prevention and Control

CPC

Corrosion Protection and Control

CSMS

Combined Support Maintenance Shop

DAU

Defense Acquisition University

DARNG

Director, Army National Guard

DCS

Deputy Chief of Staff

DCSLOG

Deputy Chief of Staff for Logistics

DLA

Defense Logistics Agency

DoD

Department of Defense

DODI

Department of Defense Instruction

DP

Direct Production

ERC

Equipment Readiness Code

FAR

Federal Acquisition Regulation

FIRO

Force Integration Readiness Officer

FISP

Facilities Inventory Support Plan

FMC

Fully Mission Capable

FMSWEB

Force Management System Web Site

FOV

Family of Vehicles

FST

Field Support Technician

FTE

Full-Time Equivalent

GSF

Gross Square Footage

GSA

General Services Administration

HQDA

Headquarters, Department of the Army

IAW

In accordance with

IDT

Inactive Duty Training

JFHQs-State

Joint Forces Headquarters

KO

Contracting Officer

LBE

Left Behind Equipment

LIN

Line Item Numbers

LTP

Long-Term Preservation

MARC

Manpower Requirement Criteria

MFR

Memorandum For Record

MILSTRIP

Military Standard Requisitioning & Issue Procedures

MLTP

Modified Long-Term Preservation

MTOE

Modified Table of Organization and Equipment

MWO

Modification Work Order

NACE

National Association of Corrosion Engineers

NGB-AQ

National Guard Bureau, Operational Contracting Division

NGB-OPARC

National Guard Bureau, Office of Principal Assistant Responsible for Contracting

NGB-SBP

National Guard Bureau, Office of Small Business Programs

NG PAM

National Guard Pamphlet

NGR

National Guard Regulation

NSS

Net Storage Space

NSN

National Stock Number

OCONUS

Outside the Continental United States

OP

Operational Preservation

OPTEMPO

Operational Tempo

PEC

Professional Education Center

PMCS

Preventive Maintenance Checks and Services

POC

Point of Contact

RH
Relative Humidity

RIC
Rust Inhibiting Compound

RPAO
Real Property Accountable Officer

SCS
Senior Contracting Specialist

SEMF
Surface Equipment Maintenance Facility

SF
Square Feet

SMM
Surface Maintenance Manager

SOP
Standing Operating Procedures

SOUM
Safety of Use Message

SSPC
Society for Protective Coatings

TAG
The Adjutant General

TB
Technical Bulletin

TDA
Tables of Distribution and Allowance

TI
Technical Inspection

TM
Technical Manual

UIC
Unit Identification Code

USC
United States Code

USPFO
United States Property & Fiscal Office

USS
Unavailable Storage Space

VIA

Vehicle Interface Adapter

Section II - Terms**Administrative Storage**

The placement of materiel in a limited care and preservation status.

Buffer Space

The maneuvering space identified around equipment.

Gross Square Footage

The total physical space of the shelter.

Combined Support Maintenance Shop

An ARNG TDA activity that provides field and sustainment level of maintenance on Federal surface equipment issued to the ARNG.

Corrosion

The deterioration of a material, or its properties, due to a reaction of that material with its chemical environment.

Corrosion Prevention

The effort to reduce or prevent damage of material from corrosion by proper and timely identification, isolation, documentation, and implementation of appropriate corrective actions.

Corrosion Prevention and Control Program

A planned and organized effort to limit the damage to any systems or equipment due to exposure to corrosive conditions.

Cost Avoidance

Covers all other cost reductions that is not a savings (Reference Savings).

Deferred Maintenance

Authorized delay of maintenance and/or repair uncorrected faults.

Depot Maintenance

Materiel maintenance requiring major overhaul or a complete rebuilding of parts, assemblies, subassemblies, and end items, including the manufacture or parts, modifications, testing, and reclamation as required.

Field Maintenance

Field maintenance is the first line of maintenance effort from the organizational level that performs maintenance tasks "on system" in a tactical environment using trained personnel and tools.

Fully Mission Capable

Systems and equipment that are safe and have all mission-essential subsystems installed and operating as designated by applicable Army Regulation.

Gross Square Footage

The total floor square foot space of the shelter (e.g., 5K, 10K, etc.). Gross square footage is calculated by multiplying the building length by the building width ($L \times W = GSF$).

Left Behind Equipment

MTOE equipment that a deploying unit leaves behind at its home station.

Maintenance Technician

Full-time technician normally having dual status as a member of an ARNG unit.

Net Storage Space

Square foot floor space of equipment stored within the CHP Shelter. Net storage space is calculated by subtracting the gross square footage from the unavailable storage space ($GSF - USS = NSS$).

Operating Tempo

A metric used to forecast and allocate funds for fuel and repair parts for training events and programs.

Pacing Items

Major weapon system, aircraft, and other items of equipment central to an organization's ability to perform its designated mission.

Preventive Maintenance

All actions performed in an attempt to retain an item in a specified condition by providing systematic inspections, detection, and prevention of incipient failures.

Readiness

The ability of U.S. military forces to fight and meet the demands of the National Military Strategy. Unit readiness is the ability to provide capabilities required by the combatant commanders to execute their assigned mission.

Savings

The cost reduction that enables a manager to reallocate funds within the budget or program period.

Surface Equipment Maintenance Facilities

Maintenance facilities for surface equipment fall into five categories: Field Maintenance Shop (FMS); Unit Training Equipment Site (UTES); collocated Maneuver Area Training Equipment Site (MATES); non-collocated MATES; and Combined Support Maintenance Shop (CSMS).

Sustainment Maintenance

Sustainment maintenance is the second maintenance effort designed to repair and return equipment and systems to like new conditions that fall outside of Field Maintenance's capability. Preventative measures also play a key role in sustainment maintenance by centrally managing and overseeing life cycle maintenance efforts to reduce the impacts of corrosion.

Unavailable Storage Space

Calculated square foot floor space once the net storage space is subtracted from the gross square footage ($GSF - NSS = USS$). Unavailable storage space varies based on shelter configuration and traditionally averages 25% of the gross square footage.