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UNIFIED FACILITIES CRITERIA (UFC)

OPERATION AND MAINTENANCE: INSPECTION OF NAVAL RESERVE CENTERS

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OPERATION AND MAINTENANCE: INSPECTION OF NAVAL RESERVE CENTERS

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEERING SUPPORT AGENCY

Record of Changes (changes indicated by **1**\ ... /**1**/)

Change No.	Date	Location

FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with USD(AT&L) Memorandum dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate.

UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Support Agency (AFCESA) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: Criteria Change Request (CCR). The form is also accessible from the Internet sites listed below.

UFC are effective upon issuance and are distributed only in electronic media from the following sources:

- Unified Facilities Criteria (UFC) Index http://65.204.17.188//report/doc_ufc.html.
- USACE TECHINFO Internet site http://www.hnd.usace.army.mil/techinfo/index.htm.
- NAVFAC Engineering Innovation and Criteria Office Internet site http://criteria.navfac.navy.mil.
- Construction Criteria Base (CCB) system maintained by the National Institute of Building Sciences at Internet site http://www.nibs.org/ccb.

Hard copies of UFC printed from electronic media should be checked against the current electronic version prior to use to ensure that they are current.

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CHAPTER 1

INTRODUCTION

1-1 **PURPOSE AND SCOPE**. This UFC is comprised of two sections. Chapter 1 introduces this UFC and provides a listing of references to other Tri-Service documents closely related to the subject. Appendix A contains the full text copy of the previously released Military Handbook (MIL-HDBK) on this subject. This UFC serves as criteria until such time as the full text UFC is developed from the MIL-HDBK and other sources.

This UFC provides general criteria for operation and maintenance consisting of inspection of naval reserve centers.

Note that this document does not constitute a detailed technical design, and is issued as a general guide associated with operation and maintenance consisting of inspection of naval reserve centers.

1-2 **APPLICABILITY**. This UFC applies to all Navy service elements and Navy contractors; Army service elements should use the references cited in paragraph 1-3 below; all other DoD agencies may use either document unless explicitly directed otherwise.

1-2.1 **GENERAL BUILDING REQUIREMENTS**. All DoD facilities must comply with UFC 1-200-01, *Design: General Building Requirements*. If any conflict occurs between this UFC and UFC 1-200-01, the requirements of UFC 1-200-01 take precedence.

1-2.2 **SAFETY**. All DoD facilities must comply with DODINST 6055.1 and applicable Occupational Safety and Health Administration (OSHA) safety and health standards.

NOTE: All **NAVY** projects, must comply with OPNAVINST 5100.23 (series), *Navy Occupational Safety and Health Program Manual*. The most recent publication in this series can be accessed at the NAVFAC Safety web site: www.navfac.navy.mil/safety/pub.htm. If any conflict occurs between this UFC and OPNAVINST 5100.23, the requirements of OPNAVINST 5100.23 take precedence.

1-2.3 **FIRE PROTECTION**. All DoD facilities must comply with UFC 3-600-01, *Design: Fire Protection Engineering for Facilities*. If any conflict occurs between this UFC and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence.

1-2.4 **ANTITERRORISM/FORCE PROTECTION**. All DoD facilities must comply with UFC 4-010-01, *Design: DoD Minimum Antiterrorism Standards for Buildings*. If any conflict occurs between this UFC and UFC 4-010-01, the requirements of UFC 4-010-01 take precedence.

1-3 **REFERENCES**. The following Tri-Service publications have valuable information on the subject of this UFC. When the full text UFC is developed for this

subject, applicable portions of these documents will be incorporated into the text. The designer is encouraged to access and review these documents as well as the references cited in Appendix A.

1. US Army Corps of Engineers
Commander
USACE Publication Depot
ATTN: CEIM-IM-PD
2803 52nd Avenue
Hyattsville, MD 20781-1102
(301) 394-0081 fax: 0084
karl.abt@hq02.usace.army.mil
http://www.usace.army.mil/inet/usace-docs/

USACE DG 1110-3-107, Design Guides for U.S. Army Reserve Facilities, 01 September 1984

USACE TM 5-617, Facilities Engineering: Maintenance and Repair of Roofs, 30 January 1974

USACE TM 5-610, Preventative Maintenance for Facilities Engineering, Buildings and Structures, 01 November 1979

USACE TM 5-620, Facilities Engineering: Maintenance and Repair of Architectural and Structural Elements of Buildings and Structures, 19 May 1990

USACE TM 5-622, Maintenance of Waterfront Facilities, 01 June 1978

APPENDIX A

MIL-HDBK 1151
OPERATION AND MAINTENANCE: INSPECTION OF NAVAL RESERVE CENTERS

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NOT MEASUREMENT
* SENSITIVE *
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MIL-HDBK-1151
1 JULY 1993
SUPERSEDING
NAVFAC MO-323
APRIL 1986

MILITARY HANDBOOK

HANDBOOK FOR INSPECTION, MAINTENANCE AND OPERATION OF NAVAL RESERVE CENTERS

AMSC N/A AREA FACR

DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.

ABSTRACT

This publication presents guidelines for maintenance management to optimize use of maintenance resources at Naval Reserve Centers (NRC's). The practices, procedures, and forms recommended in this handbook will promote efficient and effective facilities inspection, maintenance, and operations. The handbook includes methods and procedures for evaluating facilities maintenance, identifying and accomplishing work, recordkeeping, and submission of required reports. The handbook also addresses general facilities management considerations. The appendices include samples of properly completed requests and reports, preventive maintenance checklists, and control inspection checklists.

FOREWORD

This handbook identifies criteria and procedures for maintaining facilities at NRC's. The handbook was not designed to be policy, but is a simple guide to maintenance management that can be tailored at each NRC to meet its special needs and requirements.

Advice concerning any procedure may be obtained from the Commander Naval Reserve Force or the regional Readiness Command's Director of Facilities.

Recommendations for improvement are encouraged from Government agencies and the private sector and should be furnished on the DD Form 1426 provided inside the back cover to Commander, Northern Division, Naval Facilities Engineering Command, Code 164, Building 77L, U.S. Naval Base, Philadelphia, PA 19112; Phone Commercial (215) 897-6O21/DSN 443-6021.

THIS HANDBOOK SHALL NOT BE USED AS A REFERENCE DOCUMENT FOR PROCUREMENT OF FACILITIES CONSTRUCTION. IT IS TO BE USED AS A MAINTENANCE MANAGEMENT TOOL BY NRC's. DO NOT REFERENCE IT IN MILITARY OR FEDERAL SPECIFICATIONS OR OTHER PROCUREMENT DOCUMENTS.

HANDBOOK FOR INSPECTION, MAINTENANCE AND OPERATION OF NAVAL RESERVE CENTERS

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Section 1: FACILITIES MAINTENANCE RESPONSIBILITIES AT NAVAL RESERVE CENTERS

1.1 Introduction. This handbook is a special effort on the part of the Naval Facilities Engineering Command (NAVFACENGCOM) and the Commander Naval Reserve Force (COMNAVRESFOR) to develop a workable maintenance management tool that will be useful to the Naval Reserve Center Commanding Officer (NRC CO).

1.2 Cancellation. This handbook, MIL-HDBK-1151, dated 1 July 1993, cancels and supersedes NAVFACENGCOM MO-323, Inspection, Maintenance, and Operations Manual for Naval Reserve Centers, dated April 1986.

1.3 What This Handbook Provides. The NRC CO has three major time consuming areas of responsibility at the NRC:

a) Training reserve units.
b) Administrative work associated with training.
c) Maintenance of NRC facilities and equipment.

This handbook addresses the maintenance of facilities and equipment, and its use will facilitate proper maintenance in an orderly and timely manner by providing:

a) Procedures for making inspections and identifying deficiencies including Control Inspections (CI) and Preventive Maintenance Inspections (PMI).

b) Methods for getting the work done by in-house personnel or Construction Battalion Units (Seabees).

c) Guidance for developing Facilities Support Contracts as a method of getting the work done.

d) Requirements for mandatory certifications.

e) Guidance on recordkeeping and reporting requirements.

f) Guidance on maintenance planning and programming.

g) Steps for developing CI and PMI programs with checklists for performing inspections.

h) Methods and procedures for obtaining assistance from the Readiness Command (REDCOM), NAVFACENGCOM Engineering Field Division (EFD), Facilities Support Officer (FSO), and others.

The handbook is a guide to be tailored to the special needs of the NRC. The logs and forms are suggestions only and may be modified to suit NRC needs or copied and used as presented.

1.4 The Magnitude of the Problem. COMNAVRESFOR and the REDCOM are aware that the maintenance management task at the NRC is difficult and have provided sources of assistance for this effort. Work volume and maintenance responsibilities are comparable to any small activity.

1.5 How to Gain Control. Use this handbook as a starting point and establish coordination contacts at COMNAVRESFOR, REDCOM, and the EFD. Utilize the services of the FSO and use the sources of information referenced in the handbook.

1.6 Responsibilities.

1.6.1 NRC CO Responsibilities. The NRC CO is responsible for maintaining the physical condition of all facilities in coordination with the Director of Facilities (DIRFAC) at the REDCOM. To effectively discharge this responsibility, the NRC CO must become involved with and provide oversight for all aspects of the maintenance management program including:

a) Personal inspections of all facilities at regular intervals.

b) Determining what funds are available and how to obtain funds for necessary projects.

c) Prioritizing projects to obtain the maximum benefit from available funds.

d) Utilizing NRC personnel and Seabee units to accomplish work.

e) Initiating maintenance and repair projects in coordination with the DIRFAC, EFD, COMNAVRESFOR.

f) Training and directing NRC personnel in utilizing proper maintenance management procedures.

g) Obtaining assistance of the FSO and the EFD in preparing Facilities Support Contracts (FSC) including Small Purchase Contracts.

h) Insuring that proper records are kept.

i) Completing and forwarding all reports on schedule, such as the Annual Inspection Summary (AIS).

1.6.2 Readiness Command Director of Facilities (DIRFAC) Responsibilities (COMNAVRESFOR INST 11000.2 Series). The REDCOM for each Naval Reserve Region has administrative authority for the centers under its Command. A DIRFAC is

assigned responsibility for managing Maintenance of Real Property (MRP) funds for two to four REDCOM's as shown below:

REDCOM REGIONAL COVERAGE BY DIRFAC's

DIRFAC FOUR, Code 08	REDCOM REGIONS ONE, TWO, FOUR, FIVE
DIRFAC SEVEN, Code 08	REDCOM REGIONS SIX, SEVEN, EIGHT, NINE
DIRFAC TEN, Code 08	REDCOM REGIONS TEN, ELEVEN
DIRFAC THIRTEEN, Code 08	REDCOM REGIONS THIRTEEN, SIXTEEN, EIGHTEEN
DIRFAC TWENTY, Code 08	REDCOM REGIONS NINETEEN, TWENTY, TWENTY-TWO

DIRFAC's responsibilities include:

a) Providing MRP operating target (OPTAR) funds to NRC's and reviewing and approving requests for OPTAR augments.

b) Reviewing and approving projects requiring funds that exceed the NRC's available OPTAR funds.

c) Recommending a priority order for accomplishment of projects within each REDCOM for approval by the Readiness Commander.

d) Administering the approved plan for accomplishment of projects within each REDCOM.

e) Submitting a Special Projects Summary List for each REDCOM to COMNAVRESFOR and recommending priority of accomplishment for the subsequent fiscal years.

f) Maintaining records including approval status for all projects for each REDCOM.

g) Coordinating the development and review of plans and specifications, and bid advertising with the EFD's. Authorizing award of maintenance and repair contracts up to $25,000 per project and construction or alteration contracts up to $15,000 per project.

h) Coordinating the development and review of plans and specifications by the EFD and COMNAVRESFOR for contracts exceeding the REDCOM authority.

i) Submitting requests for site approval.

1.6.3 COMNAVRESFOR Responsibilities. The Commander Naval Reserve Force is responsible for:

a) Allocating an appropriate amount of operation and maintenance (O&MN) funds to each Readiness Commander.

b) Approving special projects for maintenance and repair work over $25,000 per project and minor construction or alteration work over $15,000 per project.

c) Providing guidance and assistance to the REDCOM's, DIRFAC'S, and NRC's on all matters involving facilities maintenance and repair.

d) Providing central management of the Whole Center Repair Program (WCRP) including review of project scope, contract documents, and approval of funds.

e) Administering the military construction program for Naval Reserve Force including Military Construction Naval Reserve (MCNR) projects for construction costing $300,000 to $400,000 and Military Construction projects (MCON) for construction costing over $400,000.

1.6.4 NAVFACENGCOM EFD Responsibilities. The EFD's responsibilities include:

a) Developing plans and specifications for maintenance, repair, alteration and construction projects.

b) Providing technical review and validation of special projects.

c) Performing a review of all Small Purchase Contracts to be let or managed by the NRC CO.

d) Providing guidance, assistance, review, and validation in:

- Facilities planning.

- Design and construction.

- Operation and maintenance.

e) Providing Engineer-in-Charge (EIC) and contract administration for maintenance and repair, construction, and alteration contracts.

f) Developing Facilities Support Contracts.

g) Providing technical assistance in response to Engineering Service Requests (ESR's) for such tasks as inspection and preparation of the AIS where NRC expertise is not available.

1.6.5 Facilities Support Officer (FSO) Responsibilities (COMNAVRESFORINST 11102.2 Series). A Facilities Support Officer (FSO) is a Reserve Civil Engineer Corps Officer assigned to the NRC.

The FSO is a valuable resource to a center in identifying and resolving maintenance and repair problems. The FSO should provide the following services for the center:

a) Provide facilities management and engineering advice and assistance.

b) Prepare ESR's on NAVFAC Form 11000/7 to submit to the DIRFAC at the REDCOM.

c) Perform annual control inspections.

d) Prepare and submit Resources Requests (NAVRES Form 4790/20) for projects within the REDCOM's limit of funding authority.

e) Prepare, submit, and keep current the AIS.

f) Provide liaison services with the host activity (where applicable) for identification and coordination of NRC facilities maintenance and repair.

g) Prepare and submit special project requests for repair deficiencies and required improvements.

h) Prepare contract documents (including sketches and drawings) required for award and administration of Small Purchase Contracts by others.

i) Evaluate maintenance problems and recommend solutions.

j) Identify safety and environmental problems and recommend solutions.

k) Inspect contract work.

Section 2: GETTING ACQUAINTED WITH YOUR NAVAL RESERVE CENTER

2.1 How to Begin. You as Commanding Officer should get acquainted with your NRC as quickly as possible. Operation and maintenance of the center is a Command responsibility. Seize control before major maintenance and repairs are required. Each center has unique problems; tailor your maintenance management system to suit the needs of the center and your personnel.

2.1.1 General Inspection Tour. Make a general inspection tour of all NRC facilities within days of your arrival. You do not have to be a skilled inspector to detect a lot of deficiencies that must be corrected. Enlist the help of your most knowledgeable NRC personnel and the FSO to compile a General Inspection Deficiency List.

2.1.1.1 Items to Inspect. Start at a central point, such as the main entrance. Walk in and around every room in every building. Walk around the grounds. Look for obvious glaring deficiencies, such as items that are broken, inoperative, eroding, corroding, rusting, cracking, deteriorating, dirty or otherwise deficient. You may use inspection checklists located in the appendices of this handbook.

Look at the entire complex including:

a) Walls (Inside and out).

b) Windows.

c) Floors.

d) Ceilings.

e) Light fixtures and switches.

f) Electrical receptacles.

g) Exposed wires (Are they bare or hot?).

h) Each piece of equipment (Is it working?).

i) Doors.

j) Paint.

k) Water closets (Do they flush? Do they leak?).

l) Faucets (Do they work-hot and cold? Do they leak?).

m) Drains (Are they open, blocked, slow?).

n) Heaters.

o) Window air conditioners.

p) Exhaust fans.

q) Boilers (Have they been certified in the last year? Were any deficiencies noted?).

r) Heating, ventilating, and air conditioning (HVAC) systems.

s) Environmental hazards.

t) Safety hazards.

u) Drainage systems.

v) Gutters and downspouts (Are they blocked, rusted, loose?).

w) Foundations (Are they settling?).

x) Roofs (Are there holes, leaks, tears, bubbles?).

y) Sidewalks (Are they crumbling, cracked?).

z) Pavements (Cracks, alligatoring, potholes, base failure?).

aa) Grounds (Are they neat and clean? Do they have sink holes, ditches, bare spots? Does the grass need cutting?).

bb) Trees and shrubbery (Need trimming, fertilizing, watering?).

cc) Attics.

dd) Basements.

ee) Anything else that catches your eye.

These inspections should be repeated at six month intervals during your tour as Commanding Officer. When you see something is defective or improperly maintained, stop and write down:

a) What it is.

b) What seems to be wrong with it.

c) What could be done to correct it.

d) Where it is located in or on the complex.

2.2 Facilities Notebook. A Facilities Notebook should have been developed by one of the previous NRC CO's and kept updated. Review the notebook as a quick method of getting acquainted with the NRC. A Facilities Notebook is:

a) A single source of summarized historical NRC maintenance information.

b) A basis of continuity during turnovers of NRC CO's.

c) A tool for maintenance management of NRC facilities.

2.2.1 What the Facilities Notebook Contains. The Facilities Notebook contains information concerning:

a) Assets existing at the NRC.

b) Requirements that need to be met at the NRC, such as the current AIS, most recent CI reports, Resources Request Log, and the previous NRC CO's General Inspection Deficiency List.

c) Resources available, such as the current NRC budget.

d) Plans and actions, such as the Facilities Support Contracts Log and the Maintenance Record Log.

e) Other miscellaneous information.

If there is no Facilities Notebook at the center, make one yourself. Follow the guidance provided in Section Six of this handbook.

2.3 Analysis of Deficiencies Revealed by the General Inspection Tour.

2.3.1 Compare Records. Compare items on the NRC CO's General Inspection Deficiency List with information in the Facilities Notebook and in the central files including:

a) Resources Request Log.

b) Recurring Facilities Support Contracts Log.

c) Maintenance Records.

2.3.1.1 Resources Request Log. Items on the deficiency list that appear on the Resources Request Log may be considered "in process" at this point in time.

2.3.1.2 Facilities Support Contracts Log. Items on the deficiency list that may be covered under a FSC require some additional research:

a) First: Read the applicable contract technical specifications.

b) Second: Determine if the deficiency should be taken care of as part of the contract.

- Only when the work falls specifically within the scope of the contract's technical specifications should the work be performed by the contractor. If the work is required by the specifications, refer to Section Five for guidance on contract administration and quality assurance.

- If the item is not required by the specifications, refer to Section Four to determine the appropriate method of work accomplishment.

2.3.1.3 Maintenance Records. Items on the deficiency list that appear in the Maintenance Records may fall into one of the following categories:

- Category One - In process work: Presently being corrected either by a contractor or by in-house forces (Check with appropriate center personnel).

- Category Two - Scheduled work: Accomplishment has been scheduled, but no work has been done to date.

- Category Three - Completed work: Work has been done to correct the problem, but inspection indicates that the problem has recurred or was not properly corrected (Check with appropriate center personnel or ROICC office, if by contract, to see if warranty action is applicable).

The items on the deficiency list that are not in process, scheduled, or cannot be corrected satisfactorily under warranty require immediate attention and management decisions by the NRC CO. Sections Four and Five of this handbook provide guidance in making these decisions.

2.4 Become a Maintenance Manager. Get acquainted with the center and its facilities' history as soon as possible. Maintenance and operation of the center will be much easier.

Maintaining the Facilities Notebook will provide a means of staying on top of the maintenance work at the NRC. The notebook becomes a handy reference book of maintenance information which the NRC CO needs to have readily available.

Section 3: OVERVIEW OF FACILITIES MAINTENANCE MANAGEMENT PROCEDURES

3.1 Introduction. Section Two of this handbook provided methods for getting acquainted with the overall condition of the NRC. Section Three is designed to provide familiarization with the facilities maintenance management procedures that are covered in more detail in the remaining sections of this handbook. The areas of maintenance management covered by remaining sections are as follows:

a) Section 4: Methods of Work Identification and Work Accomplishment.

b) Section 5: Contracting Work.

c) Section 6: Recordkeeping.

d) Section 7: Reporting Requirements.

e) Section 8: General Facilities Management Considerations.

3.2 Actions Required by the NRC. In the role of maintenance manager, the NRC CO and his staff including the FSO are required to:

a) Identify work by performing inspections.

b) Initiate action for work accomplishment by submitting Resources Requests, projects, and ESR's.

c) Manage all work that the DIRFAC has approved for in-house accomplishment.

d) Administer contract work under NRC CO jurisdiction.

e) Keep accurate records to document actions, especially for contracts.

f) Meet all reporting requirements, such as the submission of the AIS.

g) Ensure that general maintenance considerations, such as energy conservation, hazardous material control, and safety are addressed.

3.3 Work Identification. Deficiencies should be identified as early as possible before they become critical. Early work identification buys time for job planning, material procurement, and efficient work scheduling. Methods of work identification include the following:

a) Inspections.

b) Deficiencies reported by NRC staff and drilling reservists.

c) Recurring work, such as janitorial.

d) Work generated by engineering studies, reports.

e) Work generated by directives, such as instructions on hazardous material control.

3.3.1 Inspections. Types of inspections include:

a) Commanding Officer inspections.

b) Control Inspection (CI) Program.

c) Preventive Maintenance Inspection (PMI) Program.

d) Specialized inspections and certifications.

3.3.1.1 Commanding Officer Inspections. As discussed in Section Two, the Commanding Officer should conduct a general inspection of the activity upon arrival and repeat the inspection at least every six months. The objective of this inspection is to identify deficiencies on a routine basis. Corrective action can then be taken before deficiencies become critical or cause further damage. Accept these inspections as a challenge; find out what is wrong with your Reserve Center.

3.3.1.2 Control Inspections. These inspections, also called facilities condition inspections, are annual assessments of facilities conditions by technically qualified personnel (usually the FSO or EFD). These inspections can also be made by qualified NRC personnel. Control Inspectors look for structural, electrical, mechanical, and all other types of deficiencies.

Appendix D provides guidance on developing a CI program. CI's are required to identify deficiencies for the AIS.

3.3.1.3 Preventive Maintenance Inspections. These inspections are for periodic inspection and service of dynamic equipment. Appendix E provides guidance on developing a PMI program. The goal of the PMI program is to reduce the probability of equipment breakdown and the resulting high cost of repair and downtime.

3.3.1.4 Specialized Inspections and Certifications. These inspections are required for certain facilities and equipment, especially those involving safety. Specialized expertise is required, so inspections are usually accomplished by the EFD or by contract.

Items subject to these inspections include:

a) Boilers.

b) Unfired pressure vessels.

c) Elevators.

d) Weight handling equipment.

e) Rails and trackage.

f) Bridges.

Check with knowledgeable NRC personnel, the DIRFAC, and the EFD to determine which items are subject to these inspections. Make a list of these facilities and note the dates when inspections are due. Coordinate with the DIRFAC to have these inspections and certifications completed before the current expiration dates.

3.3.1.5 New Systems and Equipment. New systems or equipment are sometimes added by contract or by repair (replacement) which are not covered by the CI's or PMI's of Appendices D and E. In these cases, the manufacturer's procedures should be followed. Copies of manufacturer's data should be forwarded to the EFD and DIRFAC for preparation of new CI or PMI checklists. The DIRFAC will coordinate the preparation and review of the new checklists in accordance with instructions for "Recommendations and Improvements" found in the Foreword.

3.3.2 Status of Inspection Programs. What is the status of the inspection programs at the NRC? Ask the following questions:

a) Are NRC CO inspections being performed on a regular basis, and have deficiencies been documented by a General Inspection Deficiency List?

b) Does the activity have a CI schedule?

c) Does the activity have a PMI schedule?

d) Do the schedules indicate the current status of the inspection programs?

e) Are CI inspections accomplished by skilled inspectors?

f) Are inspections accomplished when scheduled?

g) Are labor and material estimates provided on each CI inspection report?

h) Are inspection reports neatly filed in a central file, indexed properly, and up-to-date?

i) Are copies of the AIS filed with CI inspection reports?

j) Are all the AIS entries backed up by recent CI inspection reports?

k) Are Resources Requests on NAVRES Form 4790/20 being submitted for new deficiencies noted during inspections?

l) Is the PMI program being evaluated periodically, and are adjustments being made to the equipment inventory, checkpoints, and frequencies?

m) Have items requiring specialized inspections and certifications been identified?

n) Are all specialized inspections and certifications being made on schedule?

If the answer to any question is no, the NRC CO must take action to improve the inspection programs. Use Section Four and Appendices D and E for guidance.

3.3.3 Other Work Identification Sources. In addition to inspection programs at the NRC, other sources of work identification must also be considered.

3.3.3.1 Reports from In-House Staff and Drilling Reservists. The NRC CO should periodically brief in-house staff and drilling reservists of their responsibility to report all observed facilities deficiencies at their NRC.

Establish a single point of contact for these individuals to report their observations, and encourage prompt reporting of deficiencies and suggestions for improving the center.

3.3.3.2 Recurring Work. Recurring work is the work that is repeated on a regular basis. Examples of recurring work include:

a) Grounds maintenance.
b) Janitorial services.
c) HVAC maintenance.
d) Some PMI.

Maintain a Recurring Work List to assure that arrangements for this work are completed and scheduled in advance of the requirement.

3.3.3.3 Work Generated by Engineering Studies, Reports. This work is usually the result of an ESR from the REDCOM to the EFD. The study may be made by the EFD or by an engineering firm hired by the EFD. The work generated by these studies may cover a wide range of costs and difficulty and is usually best accomplished by contract.

3.3.3.4 Work Generated by Directives. Some work may be generated by higher command authority, such as COMNAVRESFOR. An example of this type work might be a directive or instruction requiring handicap ramps for access of handicapped persons to the NRC. Keep accurate files of all directives and instructions. Make a log of actions required and show dates when actions are due.

3.4 Work Accomplishment. A review of methods of work accomplishment should be made to determine if proper documentation is being made and correct procedures are being followed. A more detailed treatment of this subject is covered in Section Four.

3.4.1 Evaluate Accomplishment of Work by Self-Help. The NRC CO has three methods of accomplishing self-help work as follows:

a) In-house staff including drilling reservists.

b) Seabee Units.

c) Other Reserve Units.

Review the current methods of accomplishment to determine if proper procedures are being followed as follows:

a) Is there a plan for accomplishing emergency work?

b) Is a Resources Request being properly completed and submitted for all work?

c) Is there a system for tracking status of Resources Requests?

d) Is self-help work properly documented with detailed work plans?

e) Is there a work plan and schedule for work accomplishment in-house?

f) Is a file kept on each project or job?

g) Is self-help work being supervised and is work progress being documented?

h) Is DIRFAC being notified as work is completed?

If the answer to any question is no, take action to improve management of self-help work.

3.4.2 Evaluate Accomplishment of Work by Contract. Management procedures for this method of work accomplishment should be carefully reviewed. A well developed contracting capability provides:

a) The NRC CO and DIRFAC with a pressure relief valve for reducing backlog of work.

b) Access to special capabilities and skills that are not available at the NRC.

c) Regular accomplishment of routine services, allowing the NRC CO to concentrate on urgent or critical maintenance and repair work.

Contracting is a valuable tool. Determine if the NRC is getting the most from this method of work accomplishment by asking the following questions:

a) Has a Quality Assurance Evaluator (QAE) been officially appointed for contracts?

b) Does the QAE have a copy of contract specifications?

c) Is there an inspection schedule?

d) Is contract work being inspected?

e) Is documentation on contractor performance being maintained?

f) Is completed contract work being reported to the DIRFAC?

If the answer to any question is no, the NRC CO must take action to improve contract management. Section Five provides detailed guidance on contracting.

3.5 Recordkeeping. The importance of recordkeeping was discussed in Section Two where the Facilities Notebook was shown to be a quick means of getting acquainted with the NRC. The NRC CO should carefully review and evaluate the NRC's facilities recordkeeping. Accurate records are essential to effective maintenance management. Section Six provides detailed guidance on recordkeeping.

3.5.1 Evaluate Facilities Notebook. If there is no Facilities Notebook, make one right away. It will prove to be a helpful reference guide whenever questions arise.

If there is a Facilities Notebook, evaluate it by answering the following questions:

a) Does the notebook provide a clear understanding of the mission and what facilities are required to accomplish it?

b) Have facilities and pieces of equipment which may cause the most maintenance problems been identified?

c) Does the notebook provide enough information to answer questions about each item on the current AIS?

d) Are lists of existing assets, requirements, resources, plans and actions, policies, and similar information being kept and maintained in the notebook?

e) Are facilities notes from previous NRC CO's included that identify maintenance problem areas?

f) Are shut-offs for utilities identified and located, and is there someone who knows how to shut them off?

g) Have emergency procedures been developed for fire, hurricane, flood, freeze, tornado, and other disaster situations? Have NRC personnel been trained in these procedures?

If the answer to any question is no, take action to improve the notebook. Section Six provides guidance for developing a Facilities Notebook.

3.5.2 Evaluate Facilities Maintenance Files. The main facilities files should all be kept in secure file cabinets in one place. These files are the complete source of facilities information, whereas the Facilities Notebook is an excerpt of these files. To evaluate the facilities maintenance files, answer the following questions:

a) Are the files orderly and up to date?

b) Are the files indexed so that information is easy to find?

c) Does each contract have a separate file folder, and is pertinent information in the file, such as award amount, award date, and completion date?

d) Are policy statements, directives, instructions filed and kept up to date?

e) Are Resources Requests filed?

f) Do the files contain Basic Facilities Planning Information (BFPI) and other planning documents?

g) Are CI reports and the AIS's on file?

h) Are real estate documents properly filed, such as Leases, Licenses, Host-tenant Agreements, Interservice Support Agreements?

i) Are as-built drawings, shop drawings, and maintenance and operation manuals properly filed?

If the answer to any question is no, take action to improve the facilities maintenance files in accordance with guidance in Section Six.

3.6 Reporting Requirements. Reports submitted by the NRC reflect the quality of the facilities management program. The seven major reports are:

a) AIS.

b) Defense Energy Information System (DEIS) Report.

c) Utility Procurement Report.

d) Budget input.

e) Pest Management Report.

f) BFPI Update.

g) Real Property Utilization Report.

h) Property record card update.

i) Basic Facilities Requirements List (BFRL)

Ask these questions concerning reports:

a) Has someone been assigned responsibility for each report and are they knowledgeable about the report?

b) Is each report or group of reports neatly filed in file folders and properly identified?

c) Are reports being submitted by required due dates?

d) Do reports present an accurate picture of facilities management at the NRC?

e) Is the AIS based on data taken from CI reports?

f) Are other reports also based on factual data?

If the answer to any question is no, take action to improve the reporting system. Section Seven provides detailed guidance for reporting.

3.7 General Facilities Management Considerations. Additional areas of responsibility should be evaluated including:

a) Fire safety.

b) Handicapped access.

c) Energy conservation.

d) Personnel safety.

e) Hazardous Material Control and Management.

f) Special projects including WCRP.

g) MCNR projects and regular MCON projects.

Ask the following questions:

a) Is there a fire prevention program in accordance with OPNAVINST 11320.23 (Series), and does it meet the activity's current needs?

b) Are facilities designed, constructed, and altered in accordance with the Navy's handicapped persons objectives?

c) Is there an energy management and awareness program? Has someone been assigned responsibility to monitor the program (e.g. Make sure lights are turned off when not in use?) Are energy goals being met?

d) Is there an activity safety plan? Is the safety plan up-to-date?

e) Are Hazardous Material Control and Management (HMC&M) regulations known and followed? Does the NRC have a listing of DOD and Navy regulations and state laws concerning HMC&M?

f) Are Step One and Step Two projects being submitted for the needs of the NRC? Are projects on file? Has the NRC established a priority list of recommended projects? Have approved projects been executed in a timely manner?

g) Does the NRC possibly qualify for a complete rehabilitation under the WCRP? Has this method of correcting all deficiencies under one project and one contract been considered?

If the answer to any of these questions is no, take action to improve the deficient area. Section Eight provides guidance on all of these matters.

Section 4: METHODS OF WORK IDENTIFICATION AND WORK ACCOMPLISHMENT

4.1 Introduction. The responsibility for identifying deficiencies, requesting and coordinating corrective action at the NRC lies with the Commanding Officer. This section provides a step by step method to assist the NRC CO in accomplishing these tasks. Coordination with the DIRFAC at the REDCOM is essential since the DIRFAC controls the funding, approval, and scheduling for facilities maintenance, repair, and improvement work.

4.2 Steps for Work Identification and Work Accomplishment.

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              +)))))))))))))),
              *   STEP 1      *
              * Identify Work *
              .)))))))0)))))))-
                      *
        +)))))))))))))2)))))))))))))),
        *          STEP 2             *
        *   Submit Resources Requests *
        *     to REDCOM DIRFAC        *
        .))))))))))))0)))))))))))))))-
                      *
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          +)))))))))))2)))))))))))),
          *        STEP 3         *
          * Determine the Method  *
          * of Work Accomplishment*
          .))))))))))))0)))))))))))-
                      *
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              +)))))))3))))))))))))))))))))))))))))))))))))))),
              *       *                                      *
    +))))))))2)))))))2), +))))))))))))))))))))))),   +))))))))2)))))))))),
    *      STEP 4A      * *        STEP 4B         *   *      STEP 4C      *
    *       Work        * *                        *   *                   *
    *  Accomplishment   * *   Work Accomplishment  *   *Work Accomplishment*
    *   by Self-Help    * *   under Interservice   *   *    by Contract    *
    .))))))))))))))))))- *   Support Agreement    *   .))))))))))))))))))-
                         .))))))))))))))))))))))))-
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4.2.1 <u>Step One: Identify Work</u>. Work identification sources at the NRC include:

a) NRC CO inspections and general observations.

b) Control Inspections.

c) Reports from in-house staff and drilling reservists.

d) PMI Inspections.

e) Recurring work list.

f) Specialized inspections and certifications.

g) Engineering studies, reports.

h) Work generated by directives, instructions.

4.2.1.1 NRC CO Inspections. These inspections were covered in Section Two where periodic general inspections were recommended. Additionally, the NRC CO should be constantly alert for facilities or equipment deficiencies and should make a record of these items when observed.

4.2.1.2 Control Inspections. These inspections are required annually for all Class I and Class II property at the NRC.

The CI Reports provide supporting documentation for AIS and project preparation. The AIS should include all maintenance and repair deficiencies. Improvements (minor construction) should not be shown on the AIS but can be noted on the CI Reports so that Resources Requests and projects may be submitted for this work. (See OPNAVINST 11010.34 (Series), Preparation and Submission of the Annual Inspection Summary (AIS) for instructions on AIS preparation and submission).

4.2.1.3 Reports of Deficiencies from In-House Staff and Drilling Reservists. Reporting should be encouraged by the NRC CO at periodic meetings. Establish a Defects Log to be maintained by one of the NRC's administrative staff for listing maintenance and repair items identified by this source.

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+)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
*                                DEFECTS LOG                            *
/)))))))))))))))0)))))))))))))))0)))))))))))))0)))))))))0)))))))))))))))1
* PROBLEM        * LOCATION       * REPORTED BY  * DATE    * EMERGENCY OR *
* DESCRIPTION    * BLDG/RM/AREA   * NAME/UNIT    *         * ROUTINE      *
/)))))))))))))))3)))))))))))))))3)))))))))))))3)))))))))3)))))))))))))))1
* BLOCKED DRAIN  * BLDG 101 RM 4  * J. DOE/SIMA  * 10/1/89 * ROUTINE      *
/)))))))))))))))3)))))))))))))))3)))))))))))))3)))))))))3)))))))))))))))1
* CRACKED WINDOW * STORAGE ROOM 2 * D. SMITH/HT  * 12/1/89 * ROUTINE      *
.)))))))))))))))2)))))))))))))))2)))))))))))))2)))))))))2)))))))))))))))-
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The NRC CO should review the Defects Log every week for new entries and should personally inspect the reported defect. (A blank form is included in Appendix F).

4.2.1.4 PM Inspections. PM inspections are performed primarily for service and minor maintenance of dynamic (moving parts) equipment, such as air handling units. As a by-product of the PMI, inspectors should identify all defects observed during inspections. These defects should be reported to the

staff person in charge of the Defects Log. Appendix E provides guidance on establishing a PMI program.

4.2.1.5 Recurring Work. Recurring work is repetitive maintenance type work, such as janitorial service. The NRC CO should make a Recurring Work List of all the recurring maintenance work required at the NRC. The list may be in any format desired. An example of a Recurring Work List is shown below (A blank form is included in Appendix F).

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+)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
*                          Recurring Work List                                *
/)))))))))))))))))))))0)))))))))))0)))))))))0)))))))))))))))0)))))))))))))))))))1
* DESCRIPTION OF WORK * COST OF    *  LABOR * CURRENTLY     * FREQUENCY OF      *
*                     * MATERIALS *  HOURS * PERFORMED BY * PERFORMANCE       *
/)))))))))))))))))))))3)))))))))))3)))))))))3)))))))))))))))3)))))))))))))))))))1
* GRASS CUTTING       * $1.00     *  3.0    * IN-HOUSE     * WEEKLY APR TO OCT*
/)))))))))))))))))))))3)))))))))))3)))))))))3)))))))))))))))3)))))))))))))))))))1
* JANITORIAL SERVICE  *           *         * CONTRACT     * 2 TIMES/WEEK      *
.)))))))))))))))))))))2)))))))))))2)))))))))2)))))))))))))))2)))))))))))))))))))-
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To find the work to include on the list, research the following:

a) Facilities Support Contracts Log.

b) Maintenance Record Log.

c) Resources Request Log.

d) Personal observation.

The Recurring Work List may not change very much from year to year.

4.2.1.6 Specialized Inspections and Certifications. These inspections may generate work by identifying deficiencies related to equipment being inspected, such as elevators and boilers. Items should be listed on the Defects Log and attributed to the specialized inspection as the source.

4.2.1.7 Engineering Studies and Reports. Work generated from this source is usually the result of ESR's to the EFD. Work should be listed on the Defects Log as for specialized inspections.

4.2.1.8 Directives and Instructions. This source may generate work by requiring the NRC to perform some action, such as provision of handicap ramps for access to the buildings. Work of this nature should be placed on a list for required improvements. Repair items, such as replacement of PCB transformers, should be placed on the Defects Log and attributed to the applicable directive, instruction.

4.2.2 Step Two: Submit Resources Requests to REDCOM DIRFAC. Resources Requests are the primary method of presenting deficiencies and proposed alterations and improvements to REDCOM for funding consideration and approval.

Submit Resources Requests without delay in accordance with REDCOM requirements and as follows:

a) On completion of the AIS.

b) On a routine basis as new deficiencies are identified.

c) When work is identified by sources outside the center.

d) When emergencies occur.

4.2.2.1 AIS Deficiencies. The NRC CO must insure that a Resources Request is submitted for all new deficiencies listed on the AIS as follows:

a) Group like work of a minor nature on a single request form.

b) Do not group critical work with deferrable work.

4.2.2.2 Work Identified on a Routine Basis and by Sources Outside the Center. Submit Resources Requests throughout the year as new requirements are identified.

Typical work that comes from these sources includes:

a) Repair and improvements recommended by the EFD in response to an ESR.

b) Recommendations in studies, such as an energy conservation survey.

c) Proposed alterations to improve the NRC.

d) Work noted on the NRC Defects Log.

e) Repairs to major NRC systems, such as HVAC, that become apparent during the year.

4.2.2.3 Emergency Work. Emergency work should be coordinated with the DIRFAC by phone and followed up by a Resources Request as instructed by the DIRFAC.

Indicate at the top of emergency Resources Requests that the documentation is confirmation of a phone call request.

4.2.2.4 Work of Project Scope. Work for maintenance, repair, and minor construction that exceeds the NRC CO's approval authority requires a higher approval level and detailed documentation in addition to the Resources Request. Work is classified into one of two categories, depending on cost and approval authority as follows:

a) Activity Project - REDCOM Approval
Maintenance to $25,000
Repair to $25,000
Minor Construction to $15,000

b) Special Project - COMNAVRESFOR Approval
Maintenance over $25,000
Repair over $25,000
Minor Construction $15,000 to $300,000
Equipment Installation over $15,000

Activity projects require only the Resources Request be submitted to the REDCOM. Activity projects are prioritized by the REDCOM based on recommendations of the DIRFAC and NRC CO. The execution plan containing the work to be accomplished during the year is developed based on the REDCOM Commander's priority plan and the funds available.

For work of special project scope, the NRC CO should submit a Resources Request to the REDCOM, but a special project must also be prepared. Special projects are normally prepared by the DIRFAC or EFD but can be prepared by the NRC CO or the FSO. Special projects are prioritized on the Special Projects Summary List by the REDCOM and submitted for approval to COMNAVRESFOR by the DIRFAC (See Section Eight for guidance on special project preparation). Work of special project scope is normally accomplished by contract. Project priorities are established by the REDCOM based on the following criteria which may vary for different areas of the country:

REPAIR PROJECTS	
PRIORITY	DESCRIPTION
1	ROOFS AND FIRE PROTECTION
2	HEATING AND ELECTRICAL SYSTEMS
3	STRUCTURAL SYSTEMS
4	EXTERIOR WALLS AND WINDOWS
5	PLUMBING SYSTEMS
6	SITE WORK AND UTILITIES
7	INTERIOR FINISHES

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+)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
*                MINOR CONSTRUCTION PROJECTS              *
/))))))))))))0))))))))))))))))))))))))))))))))))))))))))))))))1
*  PRIORITY  *             DESCRIPTION                    *
*))))))))))))3))))))))))))))))))))))))))))))))))))))))))))))))1
*      1     * FIRE PROTECTION SYSTEMS                    *
*      2     * MISSION ESSENTIAL REQUIREMENTS             *
*      3     * NAVOSH AND POLLUTION ABATEMENT ITEMS       *
*      4     * ENERGY CONSERVATION                        *
*      5     * SITE WORK AND UTILITIES                    *
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4.2.2.5 Completing the Resources Request (NAVRES Form 4790/20).

The Resources Request is the NRC CO's means of identifying and defining the deficiencies at the center to the DIRFAC. The request must show that the deficiency warrants funding (See sample Resources Request in Appendix B). The Resources Request must be precise, descriptive, convincing.

The "Requirement," "Justification," and "Estimated Cost" sections of the Resources Request are vital to the approval process. The NRC CO should pay special attention to these sections as follows:

a) The "Requirement" section should be specific and include details, such as:

- Size(s).

- Materials List with quantities and description of items.

- Sketch(s), preferably to scale, (essential for making accurate estimates and showing locations and details of the work).

- Color, rating, wattage, weatherproof, and similar descriptive terms.

- Description of exactly what needs to be done using action verbs, such as disassemble, assemble, replace, repair, paint, construct, alter, patch, clean.

b) In the "Justification" Section, explain why the project is important and should be completed. State facts, not assumptions; be positive and convincing; use sound reasoning to justify the project; do not over elaborate; be specific.

Examples of valid justification are:

- Cost Avoidance - If not corrected, roof leaks will continue damaging ceilings and may damage Shipboard Systems (SBS) equipment with replacement value of $50,000.

- Loss of Mission - Deficiency has already caused loss of 300 training hours this year, and situation is getting worse.

- Safety - Rotted wood columns are a safety hazard that has great potential for causing bodily injury.

- Environmental Hazard - Presence of asbestos on steam pipes is a life threatening environmental hazard.

- Building Codes - The NRC electrical system is presently in violation of the National Electrical Code (NEC).

- Other Valid Justification - Such justification might be quality of life or aesthetic appearance of the center to potential recruits.

Do not use vague terms like "deteriorated and beyond economical repair" unless you document deterioration and show how repairs are uneconomical. If work is not urgent, state on the Resources Request that work may be deferred to a later date and give a reasonable date when work should be accomplished.

c) The "Estimated Cost" of the proposed work should be reasonably accurate and based on factual information rather than guesswork. Use the Navy's standard NAVFAC 11013/7, Cost Estimating Form. Different type work will require different approaches, but a suggested procedure for most jobs is as follows:

- From sketches of the proposed work, make a take-off of materials required; do not worry about bolts and nuts at this stage.

- Get rough estimates for materials from suppliers or from an estimating guide.

- Make a rough estimate of labor required using an estimating guide or previous experience of NRC personnel on similar work.

- Make allowances for profit, overhead, and contingencies if scope of work dictates contract accomplishment.

- Get help from the FSO, DIRFAC, and EFD if necessary.

- Do not call a local contractor for a quotation.

4.2.3 Step Three: Determine the Method of Work Accomplishment. The NRC CO and DIRFAC have three methods of work accomplishment from which to choose:

a) Self-help by in-house staff, Seabee Units, or other Reserve Units.

b) Contractor services for maintenance, repair, and improvements.

c) Interservice Support Agreement (where applicable).

4.2.3.1 Work Suitable for Self-Help. Work that lends itself to self-help includes:

a) Minor emergency repairs and services.

b) Minor routine maintenance.

c) Minor repairs during PMI's that do not require special skills or expertise.

d) Nonlabor intensive maintenance.

e) Minor maintenance and repairs within the skills of a Reserve Unit.

f) Maintenance and repair that Reserve Units can perform during a reserve weekend.

4.2.3.2 Work Most Suited to Contracting. This work includes:

a) All the work that cannot be performed locally and is required to keep the NRC properly maintained and operating (See Section Five).

b) Cyclic, repetitive, or labor intensive work.

c) Work that requires special skills.

d) Large projects.

e) Minor construction or alteration work.

4.2.3.3 Work Under Interservice Support Agreement. When the NRC is a tenant, certain work may be accomplished under an Interservice Support Agreement such as:

a) Routine maintenance or repair work that can be accomplished by the host.

b) Minor construction or alteration work that may be accomplished by the NRC either as self-help or by contract after approval by the host.

4.2.3.4 Who Decides Method of Work Accomplishment. The method of accomplishment is determined through coordination between the NRC CO and the DIRFAC.

4.2.3.5 How to Decide. When making the decision, consider the following:

a) Do in-house staff or Reserve Units have the necessary skills to accomplish the work?

b) If local skills are available, is enough time available for work accomplishment?

Self-help sources of labor will probably be less expensive, but control of quality and time for completion may be more difficult. When the method of accomplishment has been selected, take prompt action to get the work done.

4.2.4 Step 4A: Work Accomplishment by Self-Help.

4.2.4.1 Funding of Self-Help Work. Maintenance of Real Property (MRP) OPTAR funds are usually provided on a quarterly basis for NRC local expenditures. These funds are:

a) Authorized by the REDCOM to the NRC CO for the procurement of supplies, not services.

b) Usually an amount less than $500 per quarter.

c) The only funds immediately available for emergencies.

4.2.4.2 Use of OPTAR Funds. OPTAR funds are provided primarily for purchase of emergency supplies, and adequate funds should always be reserved for this purpose. Funds not required for emergencies may be used for purchase of materials through prescribed supply channels for accomplishment of nonemergency self-help work. For certain badly needed self-help projects, funding may be provided by an OPTAR augment.

4.2.4.3 Emergency Work Planning. Planning and scheduling emergency work must be done immediately. First, try to correct the problem with in-house resources. If in-house resources are inadequate, call the DIRFAC or EFD for guidance. Don't sit on an emergency; get help without delay.

4.2.4.4 Work That Is Not An Emergency. This work should be planned and placed on a schedule for accomplishment in a systematic manner as follows:

a) Develop a work plan defining exactly what must be done. Using the Resources Request as a basis, develop a work plan with sketches, estimates, material lists, special tools and equipment required, and similar information describing how to do the job.

b) For recordkeeping purposes, start a project file folder with a copy of the work plan and copies of all related Resources Requests.

c) Develop a work schedule to implement the work plan. The volume of work accomplished locally is small enough to allow the schedule to be informal. The following example of a Work Schedule and Tracking Log may be used, or the format may be tailored to suit the needs of the NRC (A blank form is included in Appendix F.):

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+)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
*                      WORK SCHEDULE AND TRACKING LOG                      *
/)))))))))0)))))))0)))))))))0)))))0))))))))))))))))))))))))))))))))))))))))1
*  WORK    * AREA  * REPORT  * PRI *                   DATES                *
*  ITEM    *       * DATE    * ORI /))))))0))))))0)))))))))0)))))))0)))))))))1
*          *       *         * TY  *MAT   * MAT  * PLANNED *ACTUAL * FINISHED*
*          *       *         *     *ORDER * RECD * START   *START  *         *
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* BLOCKED * BLDG  *  10/1/  *  1  *-      * -    * 10/2/89 * 10/2/ * 10/2/89 *
* DRAIN   * 101   *  89     *     *       *      *         * 89    *         *
*         * RM 4  *         *     *       *      *         *       *         *
/)))))))))3)))))))3)))))))))3)))))3))))))3))))))3)))))))))3)))))))3)))))))))*
* REPLACE * MEN'S *  12/1/  *  1  *12/1/ * 12/3 * 12/2/89 * 12/4/ * 12/4/89 *
* FLUSH   * REST  *  89     *     *89    * /89  *         * 89    *         *
* VALVES  * ROOM  *         *     *      *      *         *       *         *
* ON      * BLDG  *         *     *      *      *         *       *         *
* TOILETS * 102   *         *     *      *      *         *       *         *
.)))))))))2)))))))2)))))))))2)))))2))))))2))))))2)))))))))2)))))))2)))))))))-
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Make sure work plans are developed for each job on the schedule. Keep the schedule up to date.

d) Do not schedule PMI's on the work schedule. Schedule PMI's on the PMI schedule as shown in Appendix E.

4.2.4.5 Self-Help Work Coordination. Discuss the work and work plan with the NRC individuals to be involved in accomplishment:

a) NRC staff.

b) Reserve Unit Commanding Officer.

4.2.4.6 Materials Coordination. Coordinate the materials delivery date with the date when labor will be available. Be sure personnel understand exactly what needs to be done.

4.2.4.7 Supervision of NRC Staff. The NRC CO should coordinate and supervise work performed by NRC staff such as:

a) Routine maintenance.

b) Emergency service work.

c) PMI.

4.2.4.8 Supervision of Reserve Units. Work done through Reserve Unit self-help projects should be coordinated by the NRC CO and supervised by the Reserve Unit Commanding Officer.

4.2.4.9 Quality Control on Self-Help Projects. For quality control, the NRC CO or FSO should inspect self-help projects in progress and after completion to insure that all work is accomplished satisfactorily. The NRC CO should report to the DIRFAC that work has been completed and inspected.

4.2.5 Step 4B: Work Accomplishment Under Interservice Support Agreement. An Interservice Support Agreement is a written agreement between the NRC and the host activity at which the NRC is located. (A small percentage of NRC's fall in this category). The NRC CO should become familiar with all the terms and conditions of the agreement, especially provisions concerning maintenance and repair.

A procedure should be established with the host for reporting and correcting deficiencies covered by the agreement. For work not covered by the agreement, the NRC CO should discuss requirements and procedures with the DIRFAC. The FSO is a valuable resource that can be used to identify, define, and coordinate work under these agreements.

4.2.6 Step 4C: Work Accomplishment by Contract. Most of the facilities work at the NRC is accomplished by contract. Section Five covers contracting in detail.

Section 5: CONTRACTING WORK

5.1 Introduction. A lot of work will be identified at your Reserve Center by inspections and other sources of work identification. In-house or self-help manpower may not be available to accomplish all these tasks. Contract this work out. This section covers the Facilities Support Contract (FSC) process including Small Purchase Contracts. The official Government regulations must be followed when work is done by this method. The EFD Contracts Division is available to provide assistance on all types of contracts.

5.2 Contract Authority. Facilities contract authority up to certain limits may be delegated to the NRC CO. If contract authority is not granted, or is inadequate for the scope of work involved, the contract documents may be completed in accordance with regulations as discussed in this section and forwarded to an Officer in Charge of Construction (OICC) for award. Coordination with the OICC during contract preparation is essential.

5.2.1 Naval Supply Contract Authority. The NRC CO may be delegated Naval Supply purchase authority up to $2,500. The NRC CO should contact the cognizant Naval Supply Center to find out how much authority has been delegated. Supply purchase authority is limited generally to purchase of "things," not services, up to $2,500 and is governed by directives available through the Naval Supply Center.

NRC CO's with NAVSUP contracting authority may also be authorized to contract for "construction" repairs on NRC facilities up to $2,000. This authorization is limited to "construction" repairs and does not include services such as janitorial and refuse collection. Typical examples of "construction" repairs are repairs to:

a) HVAC system.

b) Plumbing.

c) Doors and windows.

d) Minor structural items.

e) Storm damage.

f) Alarm systems.

The FSO is not granted contract authority, but he should be familiar with the rules and regulations so he can prepare contract documents for the NRC.

5.2.2 Amount of Authority Delegated. The amount of authority delegated to the NRC CO may vary with each EFD and each individual.

5.3 Work That Should Be Contracted. Work that cannot be accomplished by in-house forces or through self-help in an efficient and cost effective manner should be contracted. Examples are as follows:

a) Cyclic, repetitive and labor intensive work, such as custodial services, grounds keeping, and refuse collection.

b) Work that requires special skills not available in-house, such as highly technical maintenance and repair work, some PMI work, and boiler maintenance and certification.

c) Large jobs that will require more than one weekend under the self-help program and are beyond available manpower of in-house forces.

d) Minor construction or alterations work that requires special skills or exceeds in-house or self-help capability.

5.4 Facilities Support Contracts. FSC contracts including Small Purchase Contracts are the vehicles that may be used to accomplish needed work. Most tasks will fall under the Small Purchase Contract authority up to $25,000. All NAVFAC contracts for facilities support work are prepared in accordance with NAVFAC P-68, Contracting Manual. Procurement of services, such as grounds maintenance, pest control, snow removal, trash/garbage collection, are the responsibility of the EFD.

5.4.1 P-68 Provisions. The P-68 contains pertinent sections of the Federal Acquisition Regulations (FAR), Department of Defense Federal Acquisition Regulations Supplement (DFARS), Navy Acquisition Procedures Supplement (NAPS), and other pertinent Department of Defense and Navy directives related to procurement activities. NAVFAC P-68, Section 13, covers Small Purchase Contracts.

5.4.2 Small Purchase Contract Work Classification. The scope of work covered by a Small Purchase Contract is governed by the type of work the contract is procuring as follows:

a) Maintenance construction work.

b) Maintenance service work.

5.4.2.1 Maintenance Construction Work.

a) Construction work is defined by the Davis-Bacon Act as construction, alteration, and repair including painting and decorating of public buildings.

b) What constitutes construction work is determined solely by the Department of Labor.

5.4.2.2 Maintenance Service Work.

a) Service work is all work (not involving construction) that provides a service that does not result in a final product.

b) What constitutes service work is determined solely by the Department of Labor.

5.4.2.3 Examples of Maintenance Construction and Maintenance Service Work.

a) Maintenance construction - Prepare surface and repaint an entire building or wall surface.

b) Maintenance service - Wash the surface, touch up all nicks and scratches, and spot paint small areas.

5.4.2.4 Different Type Work Requires Separate Contracts. Navy policy requires that maintenance construction work and maintenance service work be separated into two contracts to allow different wage rate determinations for contracts over $2,000 for maintenance construction and over $2,500 for maintenance service.

5.5 Funding Considerations. Contracts have various requirements that come into effect as the estimated dollar amount of the contract increases. The NRC CO, FSO, and other personnel who prepare contracts should be knowledgeable concerning these limits. A matrix showing various requirements for estimated dollar amounts is shown in Table 1.

TABLE 1
Small Purchase Contract Matrix

	CONSTR $0> <2,000	SERVICE $0> <2,500	CONSTR $2,000> <$2,500	CONSTR (1) $2,500> <25,000	SERVICE (1) $2,500> <25,000
NEGOTIATED SMALL PURCHASE	X	X	X	X	X
SMALL BUSINESS SET ASIDE	X	X	X	X	X
DD FORM 1155	X	X	X	X	X
DD FORM 1155r				X	X
ADDITIONAL CONTR CLAUSES				X	X
SERVICE CONTRACT WAGE RATE					X
DAVIS-BACON WAGE RATE			X	X	
BRIEF TECH SPEC	X	X	X	X	X
1 OFFER REQD VENDOR TO BE ROTATED	X	X	X		
3 OFFERS REQD/ SOUGHT				X	X
FAIR & REASONABLE PRICE JUSTIFICATION	X	X	X	X	X

(1) Contracts of $25,000 or more must be advertised in the Commerce Business Daily (See NAVFAC P-68).

5.6 Table 1 Requirements. The matrix was designed to provide a quick reference to show requirements concerning Small Purchase Contracts. A discussion of these requirements follows:

5.6.1 Negotiation Authority. Every purchase less than $25,000 is considered a small purchase. Such purchases are exempted from the DOD sealed bidding process by law and are considered negotiated procurements.

5.6.2 Small Business Set Aside. All small purchases are required by law to be set aside for small business contractors unless the Small Business Administration agrees that competition is not available among small business firms.

Every Small Purchase Contract must state that "the procurement is limited to small business firms only" and must define the criteria for a small business firm to qualify.

5.6.3 Contract Forms. Contracts of different types and dollar values require different forms and different sets of contract clauses. The matrix, Table 1, indicates what to include for each category.

5.6.4 Additional Contract Clauses. Additional standard clauses must be attached to the contract package for certain type contracts as indicated. These clauses cover (by reference) a wide variety of requirements, such as security requirements, equal opportunity, payments, and many others.

5.6.5 Department of Labor (DOL) Wage Rates. DOL wage rates must be included for construction and service contracts above a specified dollar value as indicated in the matrix.

5.6.5.1 Maintenance Service Contract Wage Rates. These type contracts with estimated cost in excess of $2,500 must have a service contract wage rate included as follows:

a) Obtain a DOL service contract wage rate decision on GSA Standard Form SF 98, Notice of Intention to Make a Service Contract and Response to Notice.

- Include a list of clearly identified classifications of service employees to be used in performance of the contract. Indicate the number of employees in each classification and provide the total number of employees.

- Include a list of the government employee classifications and pay rates that would perform the work if the work were done in-house.

- Include a copy of contractor collective bargaining agreements, where available.

b) Approximately 60 to 90 days are required to obtain a DOL service contract wage rate decision.

c) If the service contract wage rate decision is not available when the agreement package is ready for solicitation, the package may be released to quoters as long as the following paragraph is stated in the package: "The minimum wages required to be paid for work under this specification have been requested from the DOL and will be issued by amendment upon receipt."

d) When the wage rate determination is received from the DOL, an amendment must be written and sent to all quoters who received the contract package. At least ten days must be allowed before bid opening so quoters may adjust their offers. Do not accept the quoters' offers until the DOL wage rate decision is made a part of the contract.

e) The DOL decision provides written documentation to the Contracting Officer as follows:

- The decision may include the specific wage rates for the classifications stated in the attachment to SF 98 or it may state "No Decision."

- "No Decision" automatically invokes the fair labor standards minimum wage law for employees working on the contract.

5.6.5.2 Construction Contract Wage Rates. Construction contracts estimated to cost $2,000 or more must have Davis-Bacon wage rates included as follows:

a) DOL publishes the established wage rates for each geographic area of the country in the Federal Register and will periodically make notification of changes to various classifications through the Federal Register.

b) Contact the Contracts Division of the EFD to obtain the correct wage rates for the classifications to be included in a construction contract.

5.6.6 Technical Specifications. The technical specifications for a Small Purchase Contract should be brief but should adequately describe the requirements of the work including:

a) A clear concise statement of the total scope of work to be done.

b) Adequate specifications on materials and equipment to insure quality of product provided.

c) Small scale drawings showing locations and quantities of items to be provided.

d) One-line diagrams of systems (where applicable).

e) Requirement for contractor to provide proper documentation of equipment or system installed, such as shop drawings, maintenance and operation manuals.

f) General provisions covering disposition of removed materials, schedule and sequence of work, interruption of utilities, site visitation, testing and inspection, and similar provisions.

g) Sufficient technical requirements to provide a basis for determining contract compliance.

h) List of prospective bidders (separate from specifications) for the type work involved and in the locality of the work.

A sample specification for identical or similar work should be obtained from the EFD for guidance.

5.6.7 Soliciting and Accepting Offers. As shown on the matrix, the dollar value of the contract determines the number of offers required.

5.6.7.1 Purchases Less than $2,500. One offer only is required to be solicited for purchases less than $2,500. However, the Contracting Officer must rotate similar purchases among quoters in the area.

5.6.7.2 Purchases from $2,500 to $25,000. Three offers are required for purchases from $2,500 to $25,000, and the lowest conforming price offer must be accepted.

5.6.8 Fair and Reasonable Price Justification. Regulations governing small purchase procurements require the Contracting Officer (or his designated agent) to maintain accurate information on file to justify the fairness and reasonableness of the accepted price including:

a) A list of the quoters to whom the contract packages were sent.

b) Amount of the offer (if one was received) from each quoter.

c) Copies of all written offers received.

d) A brief statement justifying the reasonableness and fairness of the accepted offer and a determination that the contractor is responsible (based on a check of references on recent contracts and a financial check).

5.7 Procedure for Small Purchase Contract Preparation and Solicitation. The NRC CO or his designated agent (such as the FSO) must obtain required approvals and funding documents before solicitation.

5.7.1 Resources Request Approval. Funds for contracts are guaranteed to an NRC CO based upon a specific Resources Request that was submitted to and approved by the REDCOM.

5.7.2 Preparation of Contract Documents. When the Resources Request is approved by the REDCOM, the NRC CO is notified that work may be contracted.

5.7.2.1 Preparation and Solicitation In-House. If the NRC CO has the required contract authority, he may choose to prepare the contract in-house,

using available expertise such as the FSO, and solicit offers and award the contract.

5.7.2.2 Preparation and Solicitation by Others. If the NRC CO does not have the required contract authority, he may choose to prepare the contract documents and forward the draft to the EFD for completion, solicitation, and award, or he may request the EFD to perform the entire task.

5.7.2.3 Pest Control Contracts. Pest control contracts require special knowledge of pest control regulations and instructions. When a need for pest control at the NRC becomes apparent, the EFD should be contacted for information and sample contracts. The EFD may prepare the contract for the NRC because of the special expertise required. All pest control contracts must be reviewed and approved by the EFD Applied Biology Branch.

5.7.3 Government Estimate. The NRC CO should prepare a Government estimate and request the funding document, NAVCOMPT Form 2276, Request for Contractural Procurement, from the REDCOM in the amount of the Government estimate. Always obtain a signed NAVCOMPT Form 2276 prior to solicitation.

5.7.4 Obligation of Funds. The signed NAVCOMPT Form 2276 along with a confirmed copy of the contract should be sent to the REDCOM for obligation of funds.

5.8 Making Changes to the Solicitation or to the Signed Contract. The solicitation package and the signed contract are both changed using GSA Standard Form SF 30, Amendment of Solicitation/Modification of Contract.

5.8.1 Solicitation Amendment. Using SF 30, the NRC CO must make sure that:

a) The amendment is clear and accurate in stating the new or revised requirement.

b) Revisions are made to written specifications and drawings.

c) All revision statements are free of ambiguities or conflicts and consistent with all portions of the solicitation package.

5.8.2 Contract Modification. Contract modifications after award must be related to the original description of work to be within scope. Modifications may be required because of design errors, latent or changed conditions, need for minor additions or alterations, or similar circumstances.

5.8.2.1 Example of In-Scope Modification. If the original contract was to repair ten broken window frames, an in-scope modification could be to repair five additional window frames.

5.8.2.2 Example of Out-of-Scope Modification. In the above contract, adding repair of five air conditioning units would be out-of-scope. The first example adds work of the same description; the second example adds work of a different description. Adding work in another building would also be out-of-scope. NAVFAC approval is required for out-of-scope modifications. Consult the EFD if questions arise concerning scope.

5.8.2.3 Modification Limitations. A contract may be modified an unlimited number of times as long as:

a) The sum of the original contract plus the modifications does not exceed the Contracting Officer's delegated contract authority.

b) The sum of the contract modifications does not exceed the original price of the contract.

5.8.2.4 Modification Limits Without DOL Wage Rates. Maintenance service contracts under $2,500 and maintenance construction contracts under $2,000 may not be modified above these limits unless a DOL wage rate decision is included along with the addition of the applicable contract provisions. The wage rates must be included for the particular change that causes the total contract price to exceed the limit.

5.8.2.5 Funding of Modifications. A NAVCOMPT Form 2276 is required each time a modification affects the dollar value of the contract.

5.9 Contract Administration. Contract administration responsibilities depend on the type and scope of the work as follows:

5.9.1 Maintenance Service Contracts. The NRC CO, or his designated agent, usually administers recurring service contracts, such as janitorial or groundskeeping. Administrative duties include the following:

a) Monitors contractor performance.

b) Recommends contract payments and deductions (if applicable).

c) Performs QA evaluation procedures.

5.9.2 Maintenance Construction Contracts. Small contracts that do not involve specialized or highly technical work may be administered by the NRC CO or his designated agent. Larger more complicated contracts, such as replacement of a fire alarm system, are usually administered by a ROICC at a nearby naval installation or by an EFD. Administrative duties include the following:

a) Conduct on-site pre-award and post-award conferences.

b) Inspect work in progress.

c) Resolve problems that arise during the contract.

d) Perform final inspections and sign off on the contract when the work is completed.

5.10 Quality Assurance. NAVFAC MO-327, Facilities Support Contracts Quality Management Manual, covers QA monitoring and related subjects in great detail. A copy of this manual should be obtained by the NRC. QA monitoring uses surveillance methods in service contracting to confirm that quality and quantity of services conform to the contract specifications. An active QA program provides the NRC CO with:

a) Consistent and accurate reports and records of contractor performance.

b) Proper documentation to support instances of unsatisfactory performance or nonperformance of work.

Accurate documentation of contractor performance is an essential element in service contract administration and management.

5.10.1 Benefits of Documentation. Accurate documentation will enable the NRC CO to:

a) Determine the amount of funds that should be deducted from a contractor's payment because of defects in work performance.

b) Support formal warnings to the contractor that unsatisfactory performance must be corrected.

c) Support contract termination actions by NAVFAC if unsatisfactory performance continues after formal warnings have been made to the contractor by the NRC CO.

d) Support actions taken by the Government in a court of law.

e) Support the rejection of a low bid from a current poor performing contractor in future contract solicitations for similar work.

5.10.2 Responsibilities for QA Monitoring. The NRC CO is responsible for the inspection of a service contractor's performance. The NRC CO may delegate this responsibility to an individual on the NRC staff, naming the individual as the contract's Quality Assurance Evaluator (QAE).

Don't get stuck with an unsatisfactory contractor. Implement a QA plan the day the contractor begins work at the NRC.

5.10.3 QA Plan Development. QA plans should be developed by the person(s) who prepares the contract documents (See MO-327 for guidance). A sample QA

Plan is included as Appendix C. If a QA plan is to be effective, the QAE must become familiar with the contract's technical specifications. The QA plan should include:

a) Contract requirements:

- Performance indicators.

- Standards of performance.

b) Primary method of surveillance.

c) Maximum allowable defect rate (MADR).

d) Quantity of work.

e) Level of surveillance.

f) Sample size.

g) Sampling procedure.

h) Evaluation procedure.

i) Analysis of results.

5.10.4 Definition of Defects. A defect in a maintenance service contract is incomplete or lack of performance on some aspect of the work. Examples of defects are:

a) Failure to respond to a fire alarm by a contractor operated fire department (critical defect).

b) Failure to empty a wastebasket in a janitorial service contract (minor item of work).

The above examples would not carry equal weight in evaluating a contractor's performance.

The QA plan should accurately define what constitutes a defect in the contractor's performance.

5.10.5 Determining the Maximum Allowable Defect Rate (MADR). The concept of an MADR is based on the fact that even though the contract requires the contractor to perform all the work specified on schedule, omissions and deficiencies called defects are certain to occur. Accordingly, some acceptable level of defects should be predetermined to gauge acceptable performance.

5.10.5.1 MADR Threshold Values. The MADR is a threshold number or percentage determined by the NRC CO or other contract preparer to distinguish between acceptable and unacceptable performance. The MADR takes into account the services provided, effect of nonperformance on mission, and criticality of services being provided.

The MADR is an in-house tool for judging the effectiveness of the contractor's quality control program. A contractor must be held responsible for all detected defects.

The following informal table indicates typical MADR's for guidance only. Values chosen for various contracts may vary.

TYPICAL MAXIMUM ALLOWABLE DEFECT RATES (MADR'S)		
REQUIREMENT	DESCRIPTION	PERCENTAGE
CRITICAL	HEALTH, SAFETY, OR MISSION ORIENTED	0 TO 1
VERY IMPORTANT	LONG RANGE EFFECT OR COMMAND INTEREST	2 TO 5
IMPORTANT	ESSENTIAL WORK	5 TO 10
AVERAGE	ROUTINE WORK	10

5.10.6 Inventory of Services Worksheet. The QAE should make a worksheet of the locations where the work is to be performed and number each work location sequentially. The worksheet should be based on technical requirements in the specifications. Locations of all tasks should be listed. A sample worksheet is shown in Figure 1, and a blank form is included in Appendix F. Different forms may be generated and used by the QAE as required by circumstances.

NUMBER	LOCATION/IDENTIFICATION	FREQUENCY	COMMENTS
01	LIBRARY 2/W		
02	COMMANDER'S OFFICE 2/W		
03	TRAINING ROOM A2/W		

FIGURE 1
Inventory of Services Worksheet for Janitorial Services.

Each month the QAE should randomly select the locations to be inspected and list them on the inspection report sheet discussed hereinafter. If random inspection is not feasible due to the nature of the work requirement, the frequency of the work, or the amount of the work, the QAE can choose the inspection sites from the worksheet based on a planned inspection schedule. Selection of locations should be rotated on a planned basis to

cover all locations over a period of time. Additional unscheduled locations may be selected as desired.

5.10.7 Degree of Inspection Required. The amount of inspection needed is based on the total amount of the work, the frequency of performance, the QA plan, and other factors. Obviously, inspection of all work is not feasible or desirable. A percentage of the work may be inspected to accurately reflect overall contractor performance. The NRC CO and the QAE(s) should determine a reasonable percentage of tasks to be inspected, but this percentage should be sufficient to accurately determine an overall rating of contractor performance.

An example of how the percentage selected would be used is as follows:

a) If 30 rooms are to receive janitorial service twice a week, then 60 areas per week are to receive service.

b) If the NRC CO and QAE determine that 25 percent inspection will be adequate, then 15 rooms should be selected and inspected each week (using either random or planned selection procedures).

5.10.8 Inspection Report Sheet. The QAE should make an inspection report sheet to use when making the inspections. An example of a typical report sheet is shown in Figure 2, and a blank form is included in Appendix F. As with the inventory worksheet, the form may be tailored to suit the particular needs of the NRC. The inspection report sheet is the formal documentation for all evaluations performed by the QAE.

5.10.8.1 Contractor Notification. All defects noted on the inspection report must be brought to the attention of the contractor by:

a) Providing the contractor's representative with a copy of the report.

b) Obtaining the representative's signature on the original report, acknowledging receipt of copy and notification. If the representative prefers not to sign the report, the QAE should contact the EFD for guidance. The representative should be advised that signing the report does not constitute his agreement with the report's contents (just receipt of copy).

5.10.8.2 Notification Documentation. If the contractor is directed to rework or otherwise correct the defects on the inspection report, pertinent data should be recorded on the original inspection report sheet including the following:

a) Date contractor was informed.

b) Date when action was taken by contractor.

c) Date of acceptance of rework.

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+)))))))))0)))))))))0)))))))))0)))))))))0)))))))))0)))))))))0)))))))))0)))))))),
* AREA/RM * 102     * 105     *  106     *  R/R     * 112     *  114     *       *
* NUMBER  *         *         *          *  110     *         *          *       *
*)))))))))3)))))))))3)))))))))3)))))))))3)))))))))3)))))))))3)))))))))3)))))))))1
* AREA IN * 60      * 76      *  340     *  130     * 340     *  260     *       *
* SF      *         *         *          *          *         *          *       *
/)))))))))3)))))))))2)))))))))2)))))))))2)))))))))2)))))))))2)))))))))2)))))))))1
* CONTR   *                                RATING                                *
*         /)))0))))0)))0))))0))))0))))0))))0))))0)))0))))0))))0)))))0)))0)))))))1
* REQMT   * S * U  * S * U  *  S * U  *  S *  U * S * U  *  S  * U * TOTAL *
*         * / * SF * / * SF *  / * SF *  / *  S * / * SF *  /  * SF* UNSAT *
*         * U *    * U *    *  U *    *  U *  F * U *    *  U  *   * SF    *
/)))))))))3)))3))))3)))3))))3))))3))))3))))3))))3))))3)))3))))3)))))3)))3)))))))1
* SWEEP   * S *    * S *    *  S *    *  X *    * X *    *  S  *   *       *
* DUST    *   *    *   *    *    *    *    *    *   *    *     *   *       *
* MOP     *   *    *   *    *    *    *    *    *   *    *     *   *       *
/)))))))))3)))3))))3)))3))))3))))3))))3))))3))))3))))3)))3))))3)))))3)))3)))))))1
* DAMP    * S *    * S *    *  U * 90 *  X *    * X *    *  S  *   *  90   *
* MOP     *   *    *   *    *    *    *    *    *   *    *     *   *       *
/)))))))))3)))3))))3)))3))))3))))3))))3))))3))))3))))3)))3))))3)))))3)))3)))))))1
* BUFF    * U * 50 * S *    *  U * 75 *    *    *   *    *  S  *   *  125  *
/)))))))))3)))3))))3)))3))))3))))3))))3))))3))))3))))3)))3))))3)))))3)))3)))))))1
* VACUUM  * X *    * X *    *  X *    *  X *    * S *    *  X  *   *       *
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* CLEAN   * S *    * S *    *  U * 50 *  S *    * S *    *  S  *   *  50   *
* ROOM    *   *    *   *    *    *    *    *    *   *    *     *   *       *
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* CLEAN   * X *    * X *    *  X *    *  X *    * X *    *  X  *   *       *
* WINDOWS *   *    *   *    *    *    *    *    *   *    *     *   *       *
/)))))))))3)))2))))3)))2))))3))))2))))3))))2))))3)))2))))3)))))2)))3)))))))1
* OVERALL *   S    *    S   *     U   *    S    *   S    *     S   *       *
* PERFORM *         *         *          *         *         *          *       *
* ANCE    *         *         *          *         *         *          *       *
/)))))))))2)))))))))2)))))))))2)))))))))2)))))))))2)))))))))2)))))))))2)))))))))1
* REMARKS:    CONTRACTOR ADVISED TO MONITOR WORK MORE CLOSELY                     *
/)))))))))))))))))0)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))1
* QAE              * CONTRACTOR                    * DATE: 23 NOV 91            *
* SIGNATURE:_____  * SIGNATURE: _______________    *                            *
*                  *                               *                            *
.)))))))))))))))))2)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))-
```

FIGURE 2
Inspection Report Sheet

5.10.9 Inspection Scheduling. Inspections should be made as soon as possible after the work is completed in the area selected for inspection. The NRC CO and the QAE must be aware that they cannot supervise or direct contractor's employees. If a problem is observed, the contractor must be notified through the designated contractor representative.

5.10.10 Analysis of Inspection Results. At the end of the designated inspection period (usually monthly), the QAE should summarize the results of inspection reports. He should calculate an Observed Defect Rate (ODR) for the period and compare the ODR to the MADR previously established as follows:

a) Count all the unsatisfactory (U) and satisfactory (S) ratings for the period.

b) $$\text{ODR}(\%) = \frac{\text{Total number of U's} \times 100}{\text{Total number of areas inspected (U plus S ratings)}}$$

c) If the ODR (%) is greater than the MADR (%), the overall contractor performance is unsatisfactory.

d) If the MADR is a specific number of defects instead of percent, simply compare the number of the "U" ratings to the MADR; if U's are greater, overall performance is unsatisfactory.

An example of a calculation of contractor performance on a janitorial contract with an established MADR of 10 percent is as follows:

a) Contractor must perform 240 services per month.

b) QAE inspected 60 performances.

c) Contractor received 8 "U" ratings and 52 "S" ratings

$$\text{ODR} = \frac{8}{60} \times 100 = 13.3\%$$

d) Since ODR of 13.3% is greater than MADR of 10%, contractor's performance is unsatisfactory.

When the ODR exceeds the MADR for the surveillance period, the NRC CO should issue the contractor a Contract Discrepancy Report (CDR).

5.10.11 Contract Discrepancy Report (CDR). The CDR is an administrative report issued to the contractor to formally document cases of unsatisfactory performance (A sample CDR format is shown in Figure 3). The CDR format may be modified to suit the needs of the NRC, but should contain basic information as indicated. The contractor is required to submit a response in writing when he receives a CDR. The NRC CO determines if the contractor's response is satisfactory. If a second CDR is required during the next performance period, the EFD Contracts Division should be contacted to determine if stronger action is warranted.

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+)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
*FROM:  SK1 John Doe, Quality Assurance Evaluator          CONTRACT            *
*       Naval Reserve Center, Charleston, SC               NUMBER N62467-      *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*To:    (CONTRACTOR & MANAGER'S NAME)                      CONTRACT SECTION    *
*       Mr. John Smith, ABC Janitorial Service             REFERENCE Clause 3  *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*DISCREPANCY & LOCATION:  (DESCRIBE IN DETAIL, ATTACH CONTINUATION SHEET IF   *
*                          NECESSARY)                                          *
*                                                                              *
*Rooms 102 & 106 - On 10 Jan 89, buffing was not performed.  Trash cans were *
*not emptied.                                                                  *
*                                                                              *
*Rooms 103 & 107 - On 3, 18, and 25 Jan 89, rooms were not vacuumed            *
*thoroughly.  Soil and debris were visible in several areas.                   *
*                                                                              *
*Mr. Jones was notified each day and given the opportunity to reperform the   *
*work, but did not do the work.                                                *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*ORAL NOTIFICATION (NAME, TITLE OF CONTRACTOR REPRESENTATIVE )WITH DATE:      *
*Mr. Jones, Contractor Representative was notified on 3. 10, 18, & 25 Jan 89 *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*SIGNATURE OF QAE                                          DATE                *
*SK1 John, Doe, QAE                                        30 Jan 89           *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*                             CONTRACTOR RESPONSE                              *
*                                                                              *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
 FROM:  (CONTRACTOR)           TO:  Commanding Officer                         *
*Mr. John Smith                          SK1 John Doe                         *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*CONTRACTOR RESPONSE:  The employees responsible could not be contacted to    *
*redo the work after they left the job.  Both employees have been replaced    *
*by more reliable workers.  These workers have been counseled on the           *
*importance of performing work in accordance with the specifications.         *
*These discrepancies should not happen again.                                  *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*SIGNATURE OF CONTRACTOR REPRESENTATIVE                                       *
*Mr. John Smith                          3 Feb 89                             *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*                              GOVERNMENT ACTION                               *
*                                                                              *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*EVALUATION (ACCEPTANCE, PARTIAL ACCEPTANCE, REJECTION) Contractor's action   *
*is acceptable at this time; however, if poor performance continues, the      *
*matter will be referred to OIC, SOUTHNAVFACENGCOM for further action.        *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*ACTIONS (CURE NOTICE, SHOW CAUSE, OTHER)                                      *
*Deductions will be made for all work not performed satisfactorily             *
*))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))*
*                                  CLOSE OUT                                   *
*))))))))))))))))))))))))))0))))))))))))))))))0))))))))))))))))))))0))))))))))))*
*                          *  NAME, TITLE     *  SIGNATURE      *  DATE       *
*))))))))))))))))))))))))))3))))))))))))))))))3))))))))))))))))))))3))))))))))))*
* CONTRACTOR NOTIFIED      *                  *                  *             *
*))))))))))))))))))))))))))3))))))))))))))))))3))))))))))))))))))))3))))))))))))*
* QAE                      *                  *                  *             *
*))))))))))))))))))))))))))3))))))))))))))))))3))))))))))))))))))))3))))))))))))*
* COMMANDING OFFICER       *                  *                  *
.))))))))))))))))))))))))))2))))))))))))))))))2))))))))))))))))))))2))))))))))))-
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FIGURE 3
Contract Discrepancy Report

5.10.12 Deductions. Deductions to a contractor's payment are administered in accordance with the terms of the contract. Authority to make deductions is found in the following contract clauses:

a) Consequences of Contractor's Failure to Perform Required Services.

b) Inspection of Services.

c) Schedule of Deductions.

5.10.12.1 Determining Amount to Deduct. At the end of the invoice period, the QAE must calculate the appropriate deductions based on the contractor's Schedule of Deductions and must provide the NRC CO with a report itemizing the amount that the contractor's invoice should be reduced.

Deductions may be made only for unsatisfactory work items that are not corrected by rework during the allotted time frame.

An example of a deduction determination is as follows:

a) If the contractor for a janitorial services contract neglected to buff the floor in a room but performed all the other contract requirements for that room, the QAE can only deduct the amount associated with floor buffing in the Schedule of Deductions. The contractor must be paid for other contract items performed, such as sweeping, damp mopping, and room cleaning.

5.10.13 Liquidated Damages. Liquidated damages also may be charged to the contractor for damages the NRC suffers as a result of the contractor's failure to perform. Authority for charging liquidated damages is provided in the "Consequences of Contractor's Failure to Perform Required Services" clause. The damages are to compensate the Government for administrative costs and other related expenses resulting from the nonperformance or unsatisfactory performance. The conditions and percentages to be charged are as follows:

a) Deduct an additional 10 percent of the amount in the Schedule of Deductions over and above the amount deducted for nonperformance or for defects not corrected satisfactorily.

b) Deduct 10 percent of the amount in the Schedule of Deductions (for administrative costs) in cases where the contractor satisfactorily performs rework and no other deduction is made.

c) Deduct 20 percent of the amount in the Schedule of Deductions (over and above the amount deducted for nonperformance) if the work was performed by the NRC staff (after contractor nonperformance) or was accomplished by other means.

5.10.14 Making Deductions Stick. The contractor has a right under the "Disputes" clause of the contract to take exceptions to deductions and may lodge a claim for payment of the deducted amount under the "Claims" clause.

You must have a valid basis for making deductions and you must have proper documentation.

5.10.14.1 Basis for Deductions. Rationale for making a valid deduction should include the following:

a) The task for which the deduction is made is clearly required by the contract.

b) The defect was personally observed by the QAE or NRC CO.

c) The QAE inspection report contains specific documentation of the deficiency (not just a vague reference).

d) The NRC CO makes periodic spot inspections to check the QAE's work for reasonableness, completeness, and accuracy.

e) The contractor is given the opportunity to correct the defect (if circumstances permit).

f) The amount deducted is based on the Schedule of Deductions and is related to the specific defect (The deduction must not include items that were subsequently accomplished).

A thorough understanding of the contract terms, good documentation, and a well developed QA plan are the key elements of successful monitoring of a contract.

5.11 Utility Service Contracts. Contracts for utilities (except telephones) are negotiated by the cognizant EFD with utility service providers in the NRC local area. Copies of the contracts are maintained at the NRC.

5.11.1 NRC CO Responsibilities for Utility Service Contracts. The NRC CO is responsible for the following:

a) Receiving the invoice from the service provider. If invoices are not received in a timely manner, the NRC CO should call the utility company to determine the cause of the delay.

b) Certifying the invoice for payment by first verifying the receipt of services and indicating that a technical review was made and that the invoice is correct and in compliance with the contract.

c) Processing the invoice for payment within three working days and forwarding to the authorized accounting authority for payment.

d) Maintaining the utility lines from the point of service connection into and throughout the NRC unless otherwise specified in the contract.

If problems occur with the service provider, contact the EFD Utility Services Contracts Branch (usually Code 022 at most EFD's).

5.11.2 Telephone Utility Service Contracts. Telephone service contracts are now under the cognizance of the Commander, Naval Computer and Telecommunications Command (COMNAVCOMTELCOM), and this Command should be contacted when any changes in phone service are required. The NRC CO is responsible for:

a) Receiving and processing the invoice as described in subparagraph 5.11.1 above for other utility service contracts.

b) Determining if a problem with phones is in the line and contacting the company providing the line.

c) Determining if a problem is in a phone instrument or in an on-site system and contacting the company providing the instruments or the system.

5.11.3 Emergency Shut-Offs. The NRC CO should locate and become familiar with the operation of utility system shut-offs, such as main valves and breakers. Key personnel at the NRC should be instructed in use of these shut-offs in case of an emergency.

5.12 Section Recap.

5.12.1 Contract Your Backlog. Is your backlog of work too heavy? Do this work by contract.

5.12.2 Contract Authority. The NRC CO may be delegated contract authority up to certain limits. If the NRC CO does not have adequate contract authority, the FSO or NRC CO can prepare and forward contract documents to an OICC or EFD for review, approval, solicitation, and award.

5.12.3 Contract Requirements. NAVFAC contracts must be written in accordance with the NAVFAC P-68, Contracting Manual. Compliance with these regulations is mandatory. Contract provisions can be somewhat complicated, but the EFD is always available to provide technical assistance in developing plans, specifications and other contract documents, and in soliciting and awarding contracts.

5.12.4 Contract Quality Assurance. The NRC CO and his designated QAE are responsible for a service contractor's performance. QA plans should be provided by the contract preparer. Deductions may be made from a contractor's

payment for unsatisfactory performance, but good documentation of defects is essential. The EFD can provide guidance on QA and deductions.

Section 6: RECORDKEEPING

6.1 Introduction. This section addresses two methods of recordkeeping that complement each other as follows:

a) Developing and keeping a Facilities Notebook.

b) Establishing and keeping central facilities maintenance files.

Both methods of recordkeeping should be instituted, and files should be regularly updated to provide ready access of information.

6.2 Developing and Keeping a Facilities Notebook. Section Two introduced the concept of a Facilities Notebook as a quick way to become familiar with the NRC and its condition. The notebook provides vital information at the NRC CO's fingertips for ready reference.

A Facilities Notebook is a summary of the information maintained in the facilities files and cannot be substituted for complete facilities files.

The contents of a Facilities Notebook may be varied to suit the particular needs and circumstances of an NRC. Information vital to one center may not be applicable to another. Too many details will result in a massive accumulation of extraneous data. Certain basic information is considered essential as follows:

6.2.1 Assets Existing and Planned.

a) Activity Information Log.

b) Basic Facilities Planning Information (BFPI).

c) Basic Facilities Requirements (BFR) and Space Analysis.

d) Facilities Planning Documents (FPD).

e) PMI inventory and checklists.

f) CI inventory and checklists.

g) NAVFAC P-164, Detailed Inventory of Naval Shore Facilities.

6.2.2 Requirements For Work to Be Done.

a) Current and previous AIS.

b) Most recent CI reports.

c) Resources Request Log.

d) Previous Commanding Officer's General Inspection Deficiency List.

e) Current Commanding Officer's General Inspection Deficiency List.

6.2.3 Resources Available.

a) Current NRC budget.

6.2.4 Plans and Actions.

a) Recurring Facilities Support Contracts Log.

b) Maintenance Record Log.

c) PMI schedule.

d) CI schedule.

6.2.5 Other Information and Policies.

a) Directives and Policies Summary Log.

b) List of Critical Items of Maintenance and Repair.

c) Facilities notes by current and previous NRC CO's.

d) Significant correspondence.

e) Emergency procedures.

6.2.6 Assets (Specific Requirements). Knowing what assets are existing and planned at the NRC is a critical part of becoming an effective maintenance manager. The following documents in the Facilities Notebook can summarize this information and provide numerous facts about the assets that can be useful in maintaining the NRC and planning for its future maintenance requirements:

6.2.6.1 Activity Information Log (A Blank Form Is Included In Appendix F). This log summarizes pertinent information concerning maintenance and operations, such as:

a) Names and phone numbers of key personnel knowledgeable on facilities technical maintenance, funding support, utility problems, and contract support.

b) Statement of the NRC mission.

c) Drill unit information:

- Unit names.

- Unit codes.

- Regular drill weekend.

- Unit CO's names.

d) NRC staff information.

- Names.

- Assigned responsibilities.

To find the information to complete the log:

a) Search the NRC administrative files.

b) Look in the files left behind by the previous NRC CO.

c) Consult with the leading chief and other NRC staff personnel to get their assistance to find information.

d) Find the names of contacts for technical maintenance and funding support on various pieces of correspondence in the files.

e) Obtain a copy of the official mission statement from the administrative support staff at the REDCOM and put a simplified version of it in the log.

f) Look at duty orders.

g) Ask the NRC staff for their assigned responsibilities. If they have none, assign responsibilities.

h) Keep the information current by periodic updates every six months and when personnel or drill units are reassigned.

6.2.6.2 Basic Facilities Planning Information (BFPI). This information provides a basis for determining requirements and evaluating assets to meet those requirements including:

a) Basic Facilities Information required by COMNAVRESFOR.

b) Information for developing BFR and space analysis.

c) Information required for MCNR projects and supporting data.

d) Information concerning age and condition of facilities in support of special projects.

e) The approved BFR.

f) Existing Assets (facilities).

g) Current Deficiencies and Excesses.

h) Space utilization requirements.

To obtain the BFPI if it is not available:

a) Prepare it based on the format in COMNAVRESFORINST 11010.3 (Series), Requirements for Surface Naval Reserve Basic Facilities Planning.

b) Request copies from the DIRFAC.

To maintain the BFPI:

a) Modify the information within 90 days of all major changes.

b) Contact the DIRFAC periodically to see if you have all changes.

6.2.6.3 Preventive Maintenance Inspection Inventory. The PMI inventory provides detailed information on equipment, such as:

a) Items of dynamic equipment at the NRC that should be inspected and maintained periodically.

b) Description of each item.

c) Date equipment entered inventory.

d) Location.

e) Date of installation.

f) Manufacturer's name.

g) Size and capacity.

h) Identification number.

i) Frequency of use.

j) Other systems affected if equipment fails.

k) Effect on NRC mission if equipment fails.

l) Required PMI frequency.

m) Number of persons required to perform PMI.

n) Checklist of PMI tasks required (identified by skill level):

- General (requiring limited trade skills to perform).

- Trade (requiring specific trade skills to perform).

Information on PMI inventory should be entered on applicable PMI checklists for the various equipment items (See Appendix E). To find which checklists to include:

a) Request the FSO or knowledgeable NRC staff person to select the appropriate PMI checklists from Appendix E. Include only "vital" items of dynamic equipment at the NRC where failure would:

- Interfere with an essential mission related operation.

- Endanger life or property.

- Require long lead time for replacement.

b) The FSO or NRC staff person should fill in the blanks on each sheet.

To maintain the PMI inventory:

a) Add new PMI inventory checklists when new pieces of equipment are installed.

b) Delete PMI inventory checklists for equipment that is no longer "vital" or has been removed.

c) See Appendix E of this handbook for guidance on developing a PMI program.

d) Discuss the inventory and PMI program with the DIRFAC for guidance on funding and determining best method of work accomplishment.

6.2.6.4 Control Inspection Inventory. This CI inventory and related checklists provide:

a) An inventory of the CI items at the NRC, such as buildings, fences, and other Class 2 property facilities.

b) A list of checks that should be made on each item.

c) Description of each item.

d) Required CI frequency.

e) Location of each item.

f) Major trade skill required to inspect the item:

- Structural.

- Mechanical

- Electrical.

- Roof.

Information on the CI inventory should be entered on applicable CI checklists. To complete the lists:

a) The FSO or knowledgeable NRC staff person should be requested to select the CI checklists that are applicable to the NRC from Appendix D.

b) The FSO should fill in the blanks on each sheet for every item at the NRC that requires a control inspection .

To maintain the CI inventory:

a) Add new CI inventory checklists as new buildings or changes to existing buildings are completed.

b) Delete the CI inventory checklists that no longer apply as buildings are changed or demolished.

c) See Appendix D of this handbook for guidance on developing a CI program.

6.2.6.5 NAVFAC P-164, Detailed Inventory of Naval Shore Facilities. This publication provides:

a) A computerized list of all facilities owned by the NRC as shown on the Class I and Class II property records cards.

b) A detailed description of each facility including utility systems in terms of:

- Value (original and current).

- Dimensions, size, capacity.

- Construction.

- Usage.

- Acquisition dates and similar data.

To obtain the P-164 inventory:

a) Check the files at the NRC.

b) Ask the Supply Petty Officer.

c) Request a current P-164 from the DIRFAC.

Maintain a copy of the most current P-164 in the notebook. Inventories are printed annually, so make sure your copy is for last FY (thru 9/30).

6.2.7 Requirements (Specific). Requirements are those items relating to maintenance and repair that must be done at the NRC to keep it fully operational. The following documents in the Facilities Notebook provide a complete list of the requirements:

6.2.7.1 (Annual Inspection Summary AIS) and CI Reports. These documents provide:

a) Detailed lists of facilities and equipment deficiencies found during the inspections of the NRC.

To find copies of the AIS and CI Reports:

a) Check the NRC files.

b) Contact the FSO.

c) Call the DIRFAC and request copies.

To maintain AIS and CI Reports:

a) Coordinate with the FSO or DIRFAC to have an AIS completed.

b) Keep the most current CI reports and copies of the current and previous AIS in the Facilities Notebook.

6.2.7.2 Resources Request Log (A Blank Form Is Included in Appendix F). This log provides:

a) Historical listing of all NRC Resources Requests (NAVRES Form 4790/20) submitted to the DIRFAC.

b) Project identification number.

c) Project title.

d) Location of the work at the NRC.

e) Proposed method of accomplishment.

f) Estimated cost of work.

g) Date requested by the NRC.

h) Date approved by the REDCOM.

i) Date of work completion.

To find the information to complete the log:

a) Locate the Resources Request file.

b) Take the information from each Resources Request.

c) Contact the DIRFAC and request copies of requests on file for the NRC.

To maintain the Resources Request Log:

a) New Resources Requests should be added as they are submitted to the DIRFAC.

b) When a Resources Request is approved by the REDCOM, a copy will be sent to the NRC CO who can then update the log and file the request in the appropriate file.

c) The contract or project completion date should be posted when it occurs (DIRFAC should be advised).

6.2.7.3 Previous Commanding Officer's General Inspection Deficiency List. This deficiency list provides:

a) Insight into the condition of the facilities when the previous NRC CO took over.

b) Basis for comparison of existing condition of facilities versus conditions under previous NRC CO.

To establish or maintain the NRC CO general inspection file:

a) Put the deficiency list you developed in the book for the NRC CO who will follow.

b) Contact the previous NRC CO for pertinent information on correction of deficiencies if that information is not available at the NRC.

6.2.8 Resources (Specific). Resources are the tools the facilities manager has to work with in order to get work accomplished.

6.2.8.1 Current Budget. This document provides the amount of funds budgeted to the NRC by line item. To find a copy of the current budget:

a) Check the previous NRC CO's files.

b) Ask the Supply Petty Officer.

c) Contact the DIRFAC for the latest copy.

To maintain the budget file:

a) Keep a current copy in the Facilities Notebook.

b) Request increases as the facilities and equipment are increased or the mission is expanded.

c) Update the budget as changes are received.

6.2.9 Detailed Plans and Actions. Plans and actions should define and summarize work that has been done and is planned to be done at the NRC. The following documents summarize this information and provide a reference source concerning the progress of work and trends that are developing regarding recurring problems:

6.2.9.1 Recurring Facilities Support Contracts (FSC) Log (A Blank Form Is Included in Appendix F). This log provides:

a) Historical listing of recurring FSC's.

b) Contract file number.

c) Title of contract.

d) Contractor name and phone number.

e) Contract award amount.

f) Date of award and expiration date.

g) Personal evaluation by NRC CO during the period of the contract.

To find the information to complete the log:

a) Look in the FSC file and review the contract documents.

b) Contact the DIRFAC and EFD, Code 02, for information and copies of contracts.

To maintain the FSC log:

a) Update information on the current contracts as changes occur.

b) Add new contracts to the list as they are awarded.

c) Coordinate with the EFD, Code 02, and the DIRFAC on contract matters.

6.2.9.2 Maintenance Record Log (A Blank Form Is Included in Appendix F). This log provides:

a) Pertinent historical information on maintenance and repair work that has been done on each item in the CI and PMI inventory by contract, self-help, or in-house personnel.

b) Project number (if applicable).

c) Project title and location.

d) Dollar value of the maintenance or repair.

e) Scheduled start and completion dates.

f) Method of work accomplishment.

To find the information to complete the log:

a) Look in the Resources Request file and pull the Resources Requests that apply to each item.

b) Ask in-house staff and drill units for information on what has been done.

c) Look in the contracts file.

If the maintenance records are not available:

a) Establish and start maintaining a log.

b) Each time a Resources Request is submitted, add the information to the log.

c) As in-house staff performs work, add what is done to the list.

d) As projects are placed in design and contracts are awarded, update the log.

6.2.9.3 Preventive Maintenance Inspection (PMI) Schedule (A Blank Form Is Included in Appendix F). This schedule provides:

a) A list of each item of dynamic equipment in the PMI inventory and the building number in which it is located.

b) The total annual estimated hours to perform the inspection.

c) The required inspection frequency.

d) The hours required for each inspection scheduled in the appropriate month the inspection is to be done.

e) Total cumulative PMI hours, total PMI hours per month, and total PMI hours per year.

To find the information to complete the schedule:

a) Make a detailed inventory of all dynamic equipment.

b) Contact the FSO for assistance in making the inventory and in determining time required to perform PMI. Use Engineered Performance Standards (EPS) when possible to estimate time required.

c) Follow procedures in Appendix E to establish and manage your PMI program.

To maintain the PMI schedule:

a) Schedule the required PMI's for each item in the appropriate month.

b) Add new items of equipment to the respective PMI task schedule when equipment is installed.

c) Delete items of equipment that have been removed.

d) Delete items of equipment where PMI is found to be unnecessary or not cost effective.

6.2.9.4 Control Inspection Schedule (A Blank Form Is Included in Appendix F). This schedule provides:

a) A list of the annual control inspection items.

b) The dates the items are scheduled for inspection.

c) Estimated hours to perform individual inspections (structural, mechanical, electrical, roof) and actual hours expended.

d) Priority of inspections.

e) Unit of measure (SF, SY, acres, etc.)

To find the information to complete the schedule:

a) Obtain information from P-164.

b) Add facilities not listed in P-164 based on your own inventory.

c) Consult with key center personnel and the FSO to determine priorities and estimated times to perform inspections.

d) Schedule the CI's to facilitate accomplishment by the FSO or some knowledgeable NRC staff person.

e) Follow procedures in Appendix D to establish and manage your CI program.

To maintain the CI schedule:

a) Add or delete items as facilities are added or deleted from the NRC inventory.

b) Update estimated hours and similar data based on experience.

6.2.10 Other Information and Policies (Specific). A facilities manager needs other bits and pieces of information available to help meet responsibilities. The following type information should be included in the Facilities Notebook.

6.2.10.1 Directives and Policies Summary Log. This log should be created to provide a concise description of requirements generated by instructions, notices, and similar directives including:

a) A summary of each directive that affects policy and the maintenance and management of the NRC.

b) Number of the directive.

c) Title or subject of the directive.

d) Reference to the file where the directive is kept.

To find the information to complete the log:

a) Research the directives in the files.

b) Check with the DIRFAC to see that the files contain all the required updated directives.

c) Research NAVFAC P-349, Naval Facilities Engineering Command Documentation Index to find directives applicable to NRC management and operations. Obtain copies in accordance with instructions in the publication and summarize pertinent information in the log.

To maintain the log:

a) Add new important directives to the log as they are received. Write a brief summary of the actions required.

b) Delete directives that are canceled.

c) Post changes to directives as they come in.

6.2.10.2 List of Critical Items of Maintenance and Repair. This list should be compiled for the Facilities Notebook to provide:

a) A list of items that may require emergency action and their location, such as:

- Valves on boilers.
- Water main shut off valves.
- Gas main shut off valves.
- Main and auxiliary electrical breakers.
- Underground valves and meters.
- Fire sprinkler drain and cut-off valves.
- Sewer clean-outs and manholes.

b) Names and phone numbers of persons to be called to assist in controlling emergencies for each item.

If the information is not available:

a) Make a list of the essential utilities that might require emergency maintenance.

b) Check the files for facilities drawings that show the location of critical items.

c) Question the in-house staff and drill personnel.

d) Check with contractors currently on board or who have done work at the NRC.

e) Ask the FSO.

f) Locate the critical control elements in the field (Dig and uncover if necessary).

g) Mark locations of control elements on small scale drawings or maps. Show dimensions from visible landmarks for covered or buried items so they can be found quickly during emergencies.

To maintain the list of critical items:

a) Keep the list in the Facilities Notebook and keep back-up information, such as contract drawings, in the central files.

b) Make changes and additions as new work adds critical items, such as a fire alarm system, (Make sure you know how to respond, silence, and reset the system).

6.2.10.3 Facilities Notes. Important notes concerning facilities maintenance should be included in the notebook such as:

a) Previous NRC CO's notes on facilities conditions, maintenance, repair, and special problems, including:

- Date facilities were last painted and when they are due to be painted again.

- Recurring maintenance problems.

- Replacement dates on expendable parts or equipment.

- Projected replacement dates of deteriorating items or facilities.

If the facilities notes in the existing notebook are inadequate:

a) Discuss important items with DIRFAC staff, reservists, and active duty staff, and develop an historical record.

b) Use NRC CO general inspection tour as a starting point.

To maintain facilities notes:

a) Add notes concerning important issues, events, deadlines, and similar items that may be important to you or the next NRC CO.

b) Summarize the previous notes to reduce the volume and delete the notes that are no longer relevant.

6.2.10.4 Significant Correspondence. Significant correspondence, such as letters of appointment or letters of authorization should be included in the Facilities Notebook.

6.2.10.5 Emergency Procedures. The Facilities Notebook should contain written procedures to follow during disaster situations, such as fire, hurricane, tornado, freeze, flood and similar situations. Procedures for each NRC will vary, but items to be addressed should include:

a) Action plan for fire situations, designating specific personnel for special tasks, such as manning of fire extinguishers and hose reels. Evacuation plans should be developed, and evacuation routes should be clearly delineated. Periodic drills should be scheduled. Responsibilities for posting and updating evacuation plans and fire bills should be assigned.

b) Procedure to follow when hurricane or tornado warnings are issued including designation of key personnel to perform such tasks as securing loose items and materials, boarding up windows, securing classified documents, securing utilities, etc.

c) Procedure to follow when sub-freezing weather is predicted, including such items as draining or otherwise protecting vulnerable water lines, tanks, sprinkler risers, etc. Consider the situation when electric or gas utilities are shut-off and facilities have no heat.

d) Procedure for flooding and severe roof leaks including designation of key personnel for damage control, such as evacuation, relocation, or protection of critical computer equipment and similar items, sandbagging of vulnerable areas, etc. Procedure should include plans for orderly evacuation for most critical emergency situations.

6.2.11 Value of a Facilities Notebook. The Facilities Notebook is an extremely valuable management tool. Improve it, keep it up to date, and pass it on in good order to the next NRC CO.

6.3 Developing and Keeping Central Facilities Maintenance Files. A central filing system is the formal means of maintaining facilities records at an NRC. A Facilities Notebook is merely a summary of the information maintained in the facilities files. The need for complete records is most important to proper maintenance of the NRC.

The high turnover rate of key personnel makes good recordkeeping even more critical. NRC's are staffed primarily with military personnel; some personnel are rotated every year. The constant changes in personnel make continuity difficult, and events that occurred in years past are soon forgotten unless records are made and kept.

Central files contain the official and legal documentation for a NRC. Do not neglect this important aspect of Command responsibility.

6.3.1 Contents of Facilities Maintenance Files. The files should include but not be limited to:

a) Each contract (See Section Five for details).

b) Resources Requests.

c) CI Reports.

d) AIS.

e) Directives, instructions, notices, policy statements.

f) Facilities planning documents.

g) BFPI.

h) Real estate documents (Leases, Licenses, Host-tenant Agreements, Interservice Support Agreements).

i) As-built drawings: On contract completion, original drawings are sent to the NRC. Prints should be made for everyday use and originals should always be retained in central files (Never issue or lend originals).

j) Publications, handbooks, maintenance and operation manuals.

k) Shop drawings of facilities and equipment.

l) ESR's and reports.

m) Other pertinent facilities maintenance and management data.

6.3.2 Guidance on Filing. SECNAVINST 5210.11 (Series), Standard Subject Identification Codes, provides guidance on Navy filing procedures.

6.3.3 Electronic Media. Files of importance that are created on computers should be transferred as soon as possible to magnetic media diskettes. Diskettes should be kept in a safe environment.

Section 7: REPORTING REQUIREMENTS

7.1 Introduction. Reporting to higher command is an essential part of facilities management. The NRC CO must submit five major reports related to facilities as follows:

a) AIS - Required once a year.

b) DEIS II Reports - Required monthly.

c) Utility Procurement Report.

- Required annually for utilities costing less than $25,000 per year.

- Required monthly for utilities costing more than $25,000 per year.

d) Budget input - Required once a year.

e) Pest Management Report - Required monthly.

Other reporting requirements include:

a) BFPI updates - Within 90 days after completing major changes to facilities.

b) Property Record Card (PRC) changes - When capital improvements are completed.

c) Real Property Utilization Report.

- Required by OPNAVINST 11011.10 (Series).

- Must be submitted to reach Chief of Naval Operations (CNO) by 1 October each year via chain of command with copy to the cognizant EFD.

d) Basic Facility Requirements List (BFRL) - Submit revisions when mission changes occur or when circumstances dictate.

7.2 Annual Inspection Summary Report - OPNAVINST 11010.34 (Series). The AIS is a summary of deficiencies taken from CI reports. The AIS is due at COMNAVRESFOR by 15 October each year.

Deficiencies are items found during inspections of property which require maintenance, repair, or repair by replacement.

Only maintenance and repair work can be shown on the AIS. Minor construction and improvements are not to be included.

7.2.1 Purpose of the AIS. The AIS acts as a maintenance management tool for:

a) Justifying funds for unfunded facilities deficiencies.

b) Developing long term facilities maintenance plans and objectives.

c) Developing resource allocation plans.

d) Documenting the maintenance backlog for the activity.

e) Identifying reserve centers eligible for WCRP.

The AIS is not a funding request. Resources Requests must be submitted for approval and funding.

7.2.2 Submission of Resources Requests. Resources Requests should be submitted for deficiencies as they are identified during the year. Do not wait for the AIS. Resources Requests should be completed as described in Section Four and should include estimates and sketches. Submit requests to DIRFAC for approval, scheduling, and funding. When the AIS is completed and submitted, submit Resources Requests for all new "finds" along with the AIS.

7.2.3 Deficiency Classification on the AIS. Deficiencies are classified as "critical" or "deferrable" on the AIS as follows:

a) A critical deficiency is a deficiency which should be corrected in the upcoming fiscal year because it meets one or more of the following criteria:

- Catastrophic environmental.

- Loss of mission.

- Life or death safety.

- Quality of life.

b) A deferrable deficiency is a deficiency for maintenance, repair or replacement that can be postponed at least one fiscal year because it does not meet any of the criteria listed above.

7.2.4 Deficiency Codes on the AIS. Deficiencies are coded DC-1 or DC-2 on the AIS.

a) DC-1 is a deficiency within the approval authority of the REDCOM.

b) DC-2 is a deficiency exceeding funding authority of the REDCOM but is within the funding authority of COMNAVRESFOR.

7.2.5 Deficiencies Authorized for Correction. Only deficiencies not authorized for correction by 30 September of submittal year should be shown on AIS. "Authorized" in this sense means an official signed contract or signed job order for self-help accomplishment.

7.2.6 Inspection Performance. Inspections should be made by knowledgeable personnel capable of making sound engineering judgements and accurate estimates. The NRC CO or a qualified member of his staff may make the inspections and prepare the AIS if expertise is available. Assistance may be needed from:

a) FSO.

b) Inspectors from NAVFAC EFD.

c) COMNAVRESFOR Facilities Manager.

d) Architect-Engineering firms.

e) REDCOM DIRFAC.

Inspections and the AIS should be discussed and coordinated with the DIRFAC. Get help early in the fiscal year. Do not wait until it's too late.

A sample AIS report and step by step instructions for preparing an AIS are shown in OPNAVINST 11010.34 (Series). Get the latest copy of this instruction before preparing the AIS.

7.3 Defense Energy Information System (DEIS) Report. DEIS reports are mandatory monthly reports measuring energy consumption at naval installations. The DEIS II Report is used to report consumption of commercially purchased electricity, natural gas, fuel oil, propane/liquid petroleum gas (LPG), coal, and commercially purchased steam, and hot water. The DEIS II also reports inventories of LPG and coal. DEIS I Reports are no longer used.

7.3.1 Completing the DEIS Report. Instructions for completing the DEIS II Report are found in NAVFACINST 11300.37 (Series), Defense Energy Information System.

a) All units and stations (shore activities) which maintain, consume or issue any quantity of fuels and energy utilities must submit DEIS Reports or feeder information for DEIS Reports.

b) The formal report is normally made by DIRFAC to the EFD or by computer directly to the Facilities Systems Office (FACS0) located at the Naval Energy and Environmental Support Activity (NEESA), Port Hueneme, CA.

c) Reserve centers are required to submit feeder information to REDCOM DIRFAC in accordance with instructions promulgated by REDCOM.

7.3.2 DEIS Reports from Tenant Activities. Tenant activities may be exempted from reporting if the fuel and utilities transactions are being reported by the host activity. The DIRFAC should be contacted to determine if specific tenant activities are exempt.

7.3.3 Data Sources. Data sources for feeder information to DIRFAC are utility invoices and utility meters.

Contact the DIRFAC for technical assistance in compiling the required feeder information for the DEIS II Report.

7.4 Utility Procurement Report. The Utility Procurement Report fulfills a requirement for processing utility service invoices as required by NAVFAC P-68. Any account with invoices totaling more than $25,000 per year must have reports submitted to the EFD monthly. For any single utility account less than $25,000 per year, reports are required annually. Most EFD's distribute an instruction with procedures for preparing and submitting these reports. Contact the EFD for specific reporting procedures.

7.5 Budget Input. A budget must be submitted each year by the REDCOM to the COMNAVRESFOR requesting funds for the next fiscal year. That budget is based upon information received from the NRC's.

Each NRC CO must provide input into the budget based on the present year's experience and the future year's needs as follows:

a) Evaluate the past years expenditures.

b) Look at where budget shortages occurred and develop documentation to show why shortages occurred.

c) Estimate expenditures required for the upcoming year based on workload and past experience.

d) Apply applicable DOD inflation rate.

e) Develop rationale supporting the need to increase, decrease, or reallocate funds.

f) Consider previously unfunded items.

Since the budget for facilities is submitted by the REDCOM, the NRC CO should discuss NRC needs and desires with the DIRFAC staff at the REDCOM. Submit the input to the REDCOM when requested to be assured of consideration for the 1 October budget.

7.6 Pest Management Report. The Pest Management Report provides:

a) Records and reports of pest control operations on military real property.

b) Means for monitoring safety and effectiveness of pest management operations to ensure protection of the environment and personnel.

c) Data for management review of current activity pest control programs and an overall record of past programs.

7.6.1 Requirements for Pest Management Report. A Pest Management Report is required if any pesticides, insecticides, herbicides, rodenticides, or fungicides are being used at the activity, inside or outside the buildings. The report is submitted to the EFD on the 15th day after the end of each month.

7.6.2 Pest Management Report Forms. Use NAVFAC Pest Management Data System Forms 6250/2 (indoor) or 6250/3 (outdoor). Instructions for completing the forms are found in OPNAVINST 6250.4 (Series), Pest Management Programs. Assistance in completing forms and information on pest management matters may be obtained from the EFD.

7.6.3 How Pest Management Report is Used. Uses of the report by the EFD include:

a) A means of reviewing activity pest control operations for safety, providing guidance as necessary, and ensuring report accuracy.

b) A means of detecting situations hazardous to the applicator, to other personnel, or to the environment so the activity can be notified and counseled.

c) A means of obtaining data to be used by NAVFAC headquarters.

7.7 Other Reporting Requirements. Other types of data related to facilities that must be maintained and reported are as follows:

7.7.1 Basic Facility Planning Information (BFPI). BFPI provides basic facilities data and related information to COMNAVRESFOR to support planning for NRC activities. The data enhances the reliability of information used in studies, reviews and other surveys that are the basis for decisions affecting the activity.

BFPI is developed in accordance with the requirements of COMNAVRESFORINST 11010.3 (Series). The NRC CO is responsible for:

a) Developing and maintaining up-to-date facilities planning data.

b) Submitting data within 90 days after major changes to facilities occur.

c) Updating portions of reports to COMNAVRESFOR via the REDCOM.

7.7.2 Property Record Card (PRC) Revisions. PRC's are maintained and updated on all facilities at the NRC in accordance with NAVFAC P-78, Navy Facility Assets Data Base Procedures Manual. Revise PRC's as follows:

a) Update the applicable PRC when capital improvements are completed.

b) Obtain necessary information from the contract drawings, Contracting Officer, or ROICC.

c) Call the DIRFAC to resolve any problems you encounter in revising PRC's.

7.7.3 Real Property Utilization Report. Detailed instructions for preparing this report are contained in OPNAVINST 11011.10 (Series), Utilization of Navy Real Property. Guidance is also provided in COMNAVRESFORINST 11010.7 (Series), Annual Shore Facilities Basic Facilities Requirements (BFR) Update and Real Property Utilization Analysis. NRC CO's must submit this report annually to reach CNO by 1 October each year via the chain of command with a copy to the cognizant EFD. The report is due to COMNAVRESFOR by 15 August. The purpose of this report is to determine if the property is being put to its highest and best use considering such aspects as:

a) Surrounding neighborhood, zoning, and other environmental factors.

b) Whether all use is compatible with state, regional, or local development plans and programs.

c) Whether Navy use of the property would be justified if an equivalent commercial rental charge for its use was added to the program costs for the function it is serving.

Other factors must also be considered, such as operating and maintenance costs, changes to mission, necessity and size of any buffer zones, future plans, economy of relocating center to new locations, access to the property, necessity and economy of any government-owned housing, desirability and access to unused land, utilization of space in buildings.

The report also requires preparation of utilization maps delineating property use. Coordinate the report with the DIRFAC at the REDCOM.

7.7.4 Basic Facilities Requirements (BFR) List and Facilities Planning Document (FPD). Instructions for preparing and submitting these documents are

provided in COMNAVRESFORINST 11010.7 (Series) and other instructions referenced therein. This instruction requires an annual review of BFR and FPD documents and update (if necessary). A corrected copy of the FPD, reflecting all changed conditions, will be submitted to the EFD via the REDCOM with an advance copy to COMNAVRESFOR (Code 02) by 15 July annually. Report symbol COMNAVRESFOR 11000-1 has been assigned for these reports.

Activities without a BFR shall develop and submit a BFR in accordance with NAVFACINST 11010.44 (Series), Shore Facilities Planning. The NRC CO with assistance of the DIRFAC and FSO must prepare and submit a Project Data Sheet (PDS) utilizing NAVFACINST 11010.44 (series) for all deficiencies estimated to cost over $400,000. These deficiencies are revealed by comparing existing assets at the NRC with the BFR. This submittal is due within 30 days of BFR and FPD update. Unless a requirement is reported on the FPD, and a PDS is submitted, a deficiency cannot be included in the MCNR or MCON programs or be otherwise corrected.

If existing assets at the NRC exceed BFR and FPD, the REDCOM and NRC must initiate and manage actions to convert, reassign, transfer, demolish, mothball, or otherwise dispose of land and facilities identified as excess. In summary, the NRC CO in coordination with the REDCOM/DIRFAC must carefully analyze mission requirements, update FPD, submit PDS's for facility deficiencies, and dispose of excess land and facilities.

Section 8: GENERAL FACILITIES MANAGEMENT CONSIDERATIONS

8.1 Introduction. In addition to Facilities Maintenance Management principles discussed in preceding sections, a number of general considerations need to be addressed as follows:

a) Fire safety.

b) Provisions for handicapped.

c) Energy management.

d) Personnel safety.

e) Environmental Protection and Natural Resources.

f) Special projects including WCRP's.

g) Military Construction Naval Reserve (MCNR) projects.

h) Regular Military Construction (MCON) projects.

8.2. Fire Safety. The NRC CO is responsible for developing and maintaining a continuous fire prevention program in accordance with OPNAVINST 11320.23 (Series), Shore Activities Fire Protection Program and COMNAVRESFORINST 11320.1 (series), Fire Protection and Evaluation for Naval Shore Activities.

The program should be based on sound fire protection practices and tailored to suit the particular needs of the NRC. The program must include:

a) A Firebill outlining specific actions to be taken by all personnel in the event of a fire or emergency.

b) An Evacuation Plan indicating escape routes for all personnel.

c) Written instructions concerning precautions to take for operational and shop fire hazards.

8.3 Provisions For Handicapped. The NRC CO and the DIRFAC have the responsibility of ensuring that design, construction, and alteration of the NRC are in accordance with the Navy's objectives concerning handicapped persons.

The NRC CO must be knowledgeable about:

a) DOD requirements concerning buildings designed and constructed with federal funds.

b) Current directives and regulations concerning handicapped provisions in existing buildings affected by minor construction or alteration plans.

8.3.1 Applicable Regulations. The following documents in their most current revision may be used for determining general handicapped requirements:

PUBLICATION	TITLE
Federal Register, 7 Aug 84, Part II, 49 FR 31528	Uniform Federal Accessibility Standards
DOD Pub. 4270.1 (Series)	Construction Criteria
Handbook for GSA, DOD, HUD, and Postal Service (Taken from 49 FR 31528)	Uniform Federal Accessibility Standards

8.4 Energy Management Considerations. Energy management at the NRC has become more critical as energy costs have soared and funds for utilities have become scarce. The NRC CO should institute an energy conservation program and should train his staff to recognize opportunities to save energy. The NRC CO may designate and train a staff member to be an Energy Conservation Manager. The NRC CO and manager should:

a) Be familiar with and understand conservation measures applicable to every type of energy using equipment, building, and vehicle assigned to the NRC.

b) Evaluate energy conservation requirements.

c) Summarize all energy related statistical data for progress reporting and planning purposes.

d) Initiate energy awareness programs.

e) Educate all personnel on the energy situation.

f) Initiate actions to conserve energy in every possible way including daily walk-through inspections to see if energy conservation practices are being applied.

In addition, the NRC CO or Energy Manager must be familiar with the procurement, storage, and distribution of all fuels and other energy forms at the activity and maintain complete files of:

a) Applicable energy policies.

b) Regulations.

c) Directives that might further the effective use of all forms of energy.

d) Technical data on energy saving equipment and devices.

e) Energy Procurement Reports (See Section Seven)

f) Utility bills for energy sources.

Navy Energy conservation goals are contained in OPNAVINST 4100.5 (Series), Naval Energy Conservation Goals.

8.4.1 Energy Guidelines and Goals. Executive Order 12003, Reduce Dependency on Energy Resources, provides the following guidance:

a) Establishes specific energy goals for the Department of Defense.

b) Requires the development of energy management plans for all Government activities.

c) Directs DOD to reduce dependency on nonrenewable energy sources without impairing the training, readiness, and combat capability of strategic and tactical forces.

The goals are measured from a 1985 baseline and include the following:

a) For existing buildings - Reduce rate of energy consumption by 12 percent by FY 1995 and 15 percent by FY 2000.

b) For new buildings - Achieve a 10 percent reduction in energy consumption by FY 1995 per gross square foot compared to buildings of like use of 1985 design.

The result of setting these goals was the development of the monthly Defense Energy Information System (DEIS) report. Section Seven provides information on this report.

8.5 Personnel Safety. The activity is required to have a safety plan that is in accordance with the requirements and procedures in the following instructions and regulations:

a) National Fire Protection Association, Life Safety Code No. I01.

b) OPNAVINST 5100.23 (Series), Naval Occupational Safety and Health Manual.

c) OSHA 29 CFR 1910, U. S. Department of Labor Occupational Safety and Health Regulations for General Industry.

d) OSHA 29 CFR 1926, U. S. Department of Labor Occupational Safety and Health Regulations for General Construction.

8.5.1 Safety Training. Regular safety training sessions should be held with all hands. The NRC CO should stress the proper use of safety gear and the strict observance of safety rules and regulations. The environment of each NRC will vary, so the safety plan should be tailored to fit local conditions. Official records should be maintained to document training of all personnel on safety hazards and proper use of safety devices and protective equipment.

8.5.2 Job Safety. On local jobs to be performed by the NRC staff or Reserve Units, the NRC CO should make sure that safety procedures are followed (such as installation of handrails on scaffolds). For construction type projects, use the Army Corps of Engineers publication EM 385-1-1, Safety and Health Requirements Manual.

8.6 Environmental Protection and Natural Resources. Commanding Officers of federal activities may be held personally liable in cases of deliberate or wanton pollution of the environment. Accordingly, developing an adequate understanding of Navy environmental policy as soon as possible after arrival at the NRC is essential. Get advice and help immediately when possible sources of pollution, inadequate storage of hazardous materials, or improper disposal of hazardous wastes are discovered.

Assistance on environmental concerns can be obtained from the EFD Environmental Division, Code 18.

8.6.1 General Environmental Concerns. General environmental concerns include policy requirements of OPNAVINST 5090.1 (Series), Environmental and Natural Resources Program Manual, and other considerations as follows:

a) Hazardous Material Control and Management. All activities are required to have a written Hazard Communication (HAZCOM) Program plan and to implement the applicable elements of the Hazardous Material Control and Management Program as required by OPNAVINST 4110.2.

b) Safe drinking water act requirements.

c) Boiler water treatment.

d) Cooling water treatment.

e) Swimming pool sanitation.

f) Environmental Impact Statements (EIS), Environmental Assessments (EA), Preliminary Environmental Assessments (PEA).

g) Construction in wetlands.

h) Dredging.

i) Permits.

j) Waste water discharges.

8.6.2 Specific Environmental Concerns. Specific environmental concerns require:

a) Installing spill protection for all above ground oil tanks over 660 gallons if the aggregate above ground storage capacity is 1,320 gallons or more.

b) Installing spill protection for all underground oil tanks if storage capacity is 42,000 gallons or more.

c) Providing a written plan signed by a professional engineer and the NRC CO which describes the use of these facilities.

d) Developing a spill contingency plan for oil and hazardous substances.

e) Reporting all oil spills that reach the environment or any reportable release of a hazardous substance.

f) Developing and implementing a hazardous waste management plan for every activity.

g) Identifying and marking all equipment containing poly chlorinated biphenyls (PCB's) at the activity and inspecting this equipment on a scheduled basis. Disposing of PCB equipment by turning it into the Defense Property Disposal Office. Following special storage requirements for out-of-use equipment awaiting disposal and complying with special regulations on leaking equipment and clean up.

h) Obtaining a National Pollutant Discharge Elimination System Permit for all point source discharges to navigable waters.

i) Conducting an activity environmental compliance evaluation and initiating action to correct all identified deficiencies.

j) Providing leak detection in all regulated underground storage tanks (UST) by December 1993.

k) Closing all UST systems that have been temporarily closed or out of service for more than 12 months.

l) Retrofitting all regulated UST's with cathodic protection and overfill protection by December 1998.

m) Pre-treating industrial wastewater before discharge to a wastewater treatment plant or municipal sewer.

n) Obtaining a permit from the Army Corps of Engineers prior to construction of a dam, pier, platform, etc. or discharge of dredge material or construction in wetlands, lowlands, or swamps.

o) Monitoring and reporting on the water quality of any activity that produces or treats potable water.

p) Performing a PEA, EA, or EIS, as applicable, for any action that may have a significant effect on the human environment.

q) Insuring that any chemical treatment of potable water, such as cooling tower and boiler water treatment, has backflow preventers and other safeguards to prevent pollution of potable water supply.

r) Performing an asbestos survey on all facilities and removing or protectively encapsulating all asbestos. Any work with or around asbestos may require permits from EPA and state agencies.

s) Obtaining permits for discharges from washracks, oil, and water separators, cooling towers, and other similar structures.

t) Obtaining permits for air pollution sources, such as boilers, incinerators, and woodworking shops.

State regulations on environmental matters often vary; consult the EFD and the state environmental agency to obtain specific requirements, especially requirements for permits.

8.7 Special Projects. When the cost of a project or undertaking exceeds the cost of the REDCOM approval authority, a special project, MCNR, or MCON project must be developed and submitted to COMNAVRESFOR via the chain of command. These type projects require engineering expertise that is usually provided by the EFD or a private engineering firm, but projects may be developed by the NRC CO or the FSO.

Special projects must be prepared and submitted in accordance with OPNAVINST 11010.20 (Series), Facilities Projects Manual.

Special projects may be for repair, maintenance, minor construction or alteration, equipment installation, or a combination of these types of work.

8.7.1 Funding Levels Requiring Special Projects. Funding levels for which special projects are required are as follows:

a) Repair - over $25,000.

b) Maintenance - over $25,000.

c) Minor construction or alteration - $15,000 to $300,000.

d) Equipment installation - over $15,000.

e) Combinations of the above work when the cost level of one or more of the types of work falls within the above levels.

8.7.2 When Special Projects Are Not Applicable. Special projects are not applicable when:

a) Projects are within REDCOM approval authority.

b) Construction projects have a funded cost greater than $300,000. ($300,000 to $400,000 must be MCNR; over $400,000 must be regular MCON).

c) Projects involve family quarters (public and rental).

d) Construction projects are properly financed solely from appropriations for procurement and production.

e) Projects for certain specified facilities are to be funded from Research, Development, Test, and Evaluation (RDT&E) appropriations.

8.7.3 Special Projects Steps. In general, projects are submitted in two steps:

a) Step One - Identifies the requirement, scope, and provides an approximate estimate of cost.

b) Step Two - Provides the engineering and detailed cost data necessary to completely define and justify work to be done.

8.7.3.1 Step One Submission.

a) NRC CO or FSO prepares NAVFAC 11014/64, Special Projects Request Form based on AIS or other identified deficiency.

b) NRC submits Special Project Request to the DIRFAC at the REDCOM.

c) DIRFAC enters project on Projects Summary List submitted to COMNAVRESFOR with information copy to appropriate regional REDCOM (if different).

8.7.3.2 Step Two Submission.

a) When advised by COMNAVRESFOR that funding of the project is programmed, the DIRFAC, with assistance of the EFD or FSO (if needed) prepares the NAVFAC 11014/64, Special Project Request Form. The submission must contain a detailed cost estimate on NAVFAC Form 11013/7 (1-78). Pictures, sketches, and other supporting documentation must also be included. The cost estimate for the Step Two submission must clearly show the respective cost of each type of work (maintenance, repair, minor construction, and equipment installation) because of the approval limitations for various funding levels.

b) The project will be forwarded to COMNAVRESFOR via the geographic EFD for technical review and validation.

c) Each project must be thoroughly evaluated on the basis of its contribution in support of the activity's military mission, conformance with the authorized BFR, and its economic feasibility.

d) The validity of the need for the proposed construction, repair, equipment installation, or maintenance project must be fully substantiated by the provision of proper justification data including the detailed cost estimate.

e) An "Impact If Not Provided" statement should be included in the justification.

f) Photographs and sketches which dramatize the severity of a particular problem or describe the proposed solution will go a long way in convincing the COMNAVRESFOR staff of the necessity of funding. The Step Two submittal should be complete in all respects in accordance with the projects manual.

g) A request for site approval (where applicable) should be submitted along with the project in accordance with NAVFACINST 11010.44 (Series), Shore Facilities Planning.

8.7.4 NRC CO Responsibilities for Special Projects. The NRC CO should:

a) Review NRC requirements for maintenance, repair, and minor construction, and initiate projects (where applicable).

b) Fund and execute projects within the activity's authority.

c) Submit projects for review and approval when required by higher authority.

d) Coordinate the AIS, special projects program, and shore facilities planning system to reflect consistent requirements for maintenance, repair, and construction.

e) Develop projects for equipment installation, when requested by System Commands.

f) Communicate with superiors in the chain of command to advise of significant problems with projects.

g) Submit the activity's recommended priority list for projects.

h) Ensure that project submissions specify sound solutions to the problems addressed, and that the project complies with policies and procedures that govern facilities projects.

i) Ensure prompt and timely execution of projects that have been funded including projects that are being managed by the EFD or other organizations.

j) Ensure site approval is obtained where applicable.

8.7.5 Types of Special Projects.

8.7.5.1 Minor Construction Projects.

a) Projects having a funded cost between $15,000 and $300,000 of minor construction work are special project scope and are funded by claimants from budgeted O&MN and RDT&E, Navy appropriations, as appropriate. Projects having a funding minor construction cost less than $15,000 are not special project scope and must be funded from funds available to the activity in their Expense Operating Budget (EOB) or from REDCOM funds.

b) Construction projects between $300,000 and $400,000 must be funded from MCNR appropriations. Projects over $400,000 must be funded from regular MCON appropriations.

c) Incrementation is illegal. No project may be subdivided to reduce the cost in order to circumvent approval requirements. For example, a building cannot be constructed under one project and have necessary supporting features such as lighting and mechanical equipment provided under another. Each project must provide a complete and usable facility.

d) Appropriated and private or non-appropriated funds cannot be combined unless approval is obtained from Assistant Secretary of Defense (S&L).

e) Minor construction projects in the same real property facility require clear justification if two or more projects are to be undertaken

within a 12 month period. Each project must be for a completely different function and specific purpose unrelated to other projects. Each must provide a complete and useable facility within the main facility for each specific purpose.

f) Category codes shall not be the determinant on justifying unrelated purposes. An example of unrelated purposes could be the provision of a sprinkler fire protection system under one project and provision of a central air conditioning system under another project.

8.7.5.2 Maintenance Projects. Submission of maintenance work as a special project is appropriate when major specific maintenance work is beyond activity and REDCOM resources, such as painting an entire facility.

8.7.5.3 Repair Projects. Repair projects generally involve replacement of constituent parts equal in size or quality to the item removed. However, repairs can be effected by replacement of original materials with substitute materials under the following conditions:

a) Direct replacement is no longer available.

b) Economic or environmental justification dictates replacement with improved materials.

c) Interior or exterior utilities (wiring, piping, heating) may be increased in size to meet current demands or current accepted engineering practice and applicable codes.

Other requirements concerning repair special projects are as follows:

a) Complete replacement of a facility is classified as construction, not repair.

b) If the cost of a repair special project exceeds $200,000 and 50 percent of the replacement cost, the project must be submitted to NAVFAC via EFD and major claimant for approval by CNO (OP-44) for funding by the major claimant. These projects require validation by the EFD and inclusion of an economic analysis to justify the repair.

c) Do not submit a repair project for a grouping of similar real property facilities. Submit one project for each facility and include all repair work. Funding may be phased by years.

d) Repair projects in excess of $3,000,000 funded from appropriated funds require CNO (OP-44) approval prior to contract award, and the EFD, Code 1623, must review the project prior to being forwarded to NAVFAC.

e) Major claimant must request CNO approvals (not the activity).

f) Approved dollar amount of projects cannot be exceeded during construction without CNO (OP-44) written permission.

8.7.5.4 Whole Center Repair Program (WCRP) Projects. WCRP projects are special repair projects generated under a centrally managed program by COMNAVRESFOR to eliminate the backlog of maintenance and repair at an NRC through a more cost effective method of accomplishing all maintenance and repair, and some improvements, under one comprehensive project and follow on contract (See COMNAVRESFORINST 11100.3 (Series), Whole Center Repair Program.

a) Purpose of WCRP is to eliminate identified facilities deficiencies, provide energy saving features, optimize space utilization, and incorporate state-of-the-art low maintenance construction materials and equipment at selected NRC's.

b) Goal is to extend the useful life of facilities selected by 15 to 20 years and reduce Class 2 real property assets to current BFR.

c) WCRP candidates are identified based on AIS submission, critical backlog, and total maintenance and repair backlog. The objective is to select

NRC's which can be economically repaired and restored. NRC's that are severely deteriorated may not qualify since demolition and new construction or purchase of a new center may be the most economical alternative. Likewise, NRC's with a small backlog may not be selected since deficiencies may best be corrected by conventional means.

d) WCRP may also include work other than repair, such as alterations to satisfy current mission requirements, energy conservation items, pollution abatement items, NAVOSH items, handicapped provisions, and fire protection items.

e) WCRP design contracts are to be structured in two phases:

- Phase I - Detailed inspection, feasibility report, and preparation of special projects.

- Phase II - Design and preparation of plans and specifications.

f) The contract work may require unrestricted access to NRC facilities and may require relocating the NRC to a temporary site while construction is in progress.

8.7.5.5 Equipment Installation Projects. Equipment installation projects are required when modifications must be made to a real property facility to install personal property. Personal property is generally equipment that is movable in nature and includes all types of production, processing, technical, training, servicing, and RDT&E equipment, such as heat treating ovens, machine tools, training devices, communications equipment, automatic data processing equipment, shore electronic equipment, and necessary ancillary equipment

supporting these types of equipment. Costs to install equipment in an existing real property facility (such as an existing NRC) will be funded from the same appropriation that purchased the equipment. An example of such a project would be the installation of Naval Security Group (NAVSECGRU) equipment in a NRC space. When the cost of such installation work exceeds $15,000, a project should be prepared to document the installation, and the project must be funded from the equipment procurement appropriations. Funding of installation costs from O&MN funds is not permissible unless the personal property is procured with O&MN funds (at a procurement cost less than $15,000 per unit value).

The term "unit value" applies to equipment as follows:

a) If items are being acquired as a new system, the "unit value" applies to the aggregate cost of all such items.

b) If items are being acquired as additions to an existing system "unit value" applies to individual equipment items.

c) If an item is being acquired on a stand alone basis, "unit value" applies to the individual item.

8.7.5.6 Combination Projects. A combination project should be submitted when one or more of the various categories of work meet the criteria listed for each. An example would be a combination repair and construction project (RC) when the cost of either or both of these categories exceeds the limits requiring a special project. Separate cost estimates should be provided for each category.

8.7.6 Military Construction Naval Reserve (MCNR) Projects and Regular Military Construction (MCON) Projects.

8.7.6.1 MCNR Projects. These projects are major construction projects estimated to cost between $300,000 and $400,000 identified by the REDCOM based on facilities conditions at the NRC.

Guidance on MCNR project preparation and submission can be found in NAVFACINST 11010.44 (Series). MCNR projects are usually prepared by the DIRFAC or EFD based on an engineering study and evaluation of an NRC. The REDCOM prepares a list of MCNR projects in priority order and submits the list with justifications to COMNAVRESFOR who then determines which projects to include in the five year plan. The NRC CO and FSO contribute information as required during project preparation. When the project is programmed and proceeds through the design phase, the NRC CO is provided copies of plans and specifications for review and comment (usually at concept stage, 35 percent and 100 percent design stages).

a) NRC CO comments are sent to DIRFAC and forwarded to COMNAVRESFOR.

b) COMNAVRESFOR submits a consolidated list of comments and recommendations to the EFD or other design agency.

8.7.6.2 MCON Projects. These projects are for major construction estimated to cost over $400,000 and are usually related to construction of a new NRC or a major addition to an NRC. These projects must be approved by Congress and are generally initiated at COMNAVRESFOR level. DIRFAC, EFD, and NRC CO may be requested to provide input and assistance.

APPENDIX A

ABBREVIATED SAMPLE FACILITIES NOTEBOOK

ACTIVITY INFORMATION LOG

NAME OF ACTIVITY NAVAL AND MARINE CORPS RESERVE CENTER, NORFOLK, VA

REDCOM REGION NO. 6
POINT OF CONTACT-NAME JOHN SMITH PHONE 857-4307
LEAD REDCOM REGION NO. 7
POINT OF CONTACT-NAME PHIL DIXON PHONE 743-2605

SUPPLY ACTIVITY NA
POINT OF CONTACT-NAME PHONE
ASSIGNED CEC OFFICER: BILL GASSER PHONE

STATEMENT OF MISSION; PROVIDE FOR RECRUITING, TRAINING, AND ADMINISTRATION OF ASSIGNED NAVAL AND MARINE RESERVE UNITS INCLUDING PROVIDING FACILITIES, ADVICE, ASSISTANCE, AND NECESSARY SUPPORT.

DRILL UNITS:

UNIT TITLE	RESERVE UNIT ID CODE	REGULAR DRILL WEEKEND	COMMANDING OFFICER
VOLTRA UNIT 0607	0607G	2	CAPT E. M. McEACHERN
VTU DENTAL 0106	2016R	4	CDR R. K. BOLEN
AS-36 SPEAR DET 106	85129	2	CDR L. R. ANDERSON
MIUW 806	85456	2	CDR D. L. DIXON

KEY PERSONNEL ASSIGNED TO NRC:

NAME/RATE	HOME PHONE	ASSIGNED RESPONSIBILITY
CDR OLLIGES	421-4107	COMMANDING OFFICER
HR2 PRATT	726-0427	COMMAND CAREER COUNSELOR & RET. COORD.
ENS SPRANGLER	644-2100	EXECUTIVE OFFICER & TRAINING OFFICER
HTC WHITE	827-3422	CHIEF OF COMMAND & FACILITIES MAINT. DEPARTMENT HEAD
YNC VALENTINE	597-9301	ADMIN DEPARTMENT HEAD
YN1 HAPPLE	467-5582	ADMIN SUPERVISOR
YN2 BRODZELLER	460-6017	RES FIRST COORDINATOR
MRS. REEVES	481-7276	RES FIRST/DIARY COORDINATOR

APPENDIX A (Continued)

RESOURCES REQUEST LOG

PROJECT NO	PROJECT TITLE/LOCATION	PROPOSED METHOD	ESTIMATED COST	DATE REQ'D	DATE APPR	DATE COMP
89-1	Repair roof leak NW corner building	Contract	50,000	2/89	5/89	12/89
89-2	Replace 2 urinals & 1 lavatory 1st floor head Bldg. 1	In-house	6,000	4/89	8/89	10/89
89-3	Repair overhead crane Bldg. 2, Bay 3	Contract	12,000	12/89	4/89	10/90
90-1	Repair roof leak NW corner Bldg. 1	Contract	60,000	2/90	4/90	11/90
90-2	Replace ceiling tiles & paint walls Rm 203 (water damage) Bldg. 1	In-house	5,000	8/90	11/90	2/91
90-3	Major overhaul of HVAC Bldg. 1	Contract	25,000	8/90	1/90	cancel see 91-2
90-4	Replace concrete vehicle ramps - all bays Vehicle Garage Bldg. 2	Contract	67,000	8/90	1/90	5/90
91-1	Locate source of roof leak NW corner Bldg. 1	NAVFAC, LANTDIV	4,000	8/91	4/91	7/91
91-2	Replace HVAC Bldg. 1	Contract	100,000	6/91	8/91	

APPENDIX A (Continued)

RECURRING FACILITIES SUPPORT CONTRACTS LOG

FILE NO	TITLE/CONTRACTOR/PHONE	$VALUE	DATE AWARDED	DATE EXPIRES	SATISFACTORY UNSATISFACTORY
88-10	Janitorial-Bldg./ Jane Doe 583-4763	100,000	10/88	9/89	S
89-11	Boiler-Start Up/ Shutdown/Maintenance/ Certification Babcox-Wilcox 1-703-465-1111	75,000	10/88	9/89	S - but slow response in emergency
89-05	Janitorial-Bldg.1 Jane Doe 583-4763	120,000	10/89	9/90	S
89-08	Boiler-Start Up/ Shutdown/Maintenance/ Certification Lennox 583-8311	67,000	10/89	9/90	S
90-01	Grounds-grass cutting and trimming E. L. Smith 490-9087	15,000	3/90	2/91	U - always late; too many weeds
90-02	Janitorial - Bldg. 1 Sanitize 588-2611	96,000	10/90	9/91	U - did not clean on schedule
90-03	Boiler-Start Up/ Shutdown/Maintenance/ Certification Lennox 583-8311	73,000	10/90	9/91	S
90-04	HVAC - Start Up/PM/ Maintenance Lennox 583-8311	50,000	10/90	9/91	S
91-01	Grounds-grass cutting and trimming M. & J. Mowing 490-4365	16,500	3/91	2/92	S

APPENDIX A (Continued)

MAINTENANCE RECORD

BOILER - NW CORNER BUILDING #2

PROJECT NO	PROJECT TITLE/LOCATION	$VALUE	SCHEDULED START DATE	DATE COMP	ACCOMPLISHED BY
NA	Recurring boiler start up/shutdown/maintenance/ certification-contract file 89-11	75,000	10/88	9/89	Contract
NA	Recurring boiler start up/shutdown/maintenance/ certification-contract file 89-08	67,000	10/89	9/90	Contract
NA	Recurring boiler/ start up/shutdown maintenance/certification-contract file 90-03	73,000	10/90	9/91	Contract

APPENDIX A (Continued)

MAINTENANCE RECORD

BUILT-UP ROOF BUILDING #1

PROJECT NO	PROJECT TITLE/LOCATION	$VALUE	SCHEDULED START DATE	DATE COMP	ACCOMPLISHED BY
89-1	Repair roof leak NW corner Bldg. 1	50,000	9/89	12/89	Contract
90-1	Repair roof leak NW	60,000	8/90	11/90	Contract
91-1	Locate roof leak NW corner Bldg. 1	4,000	6/91	7/91	NAVFAC/ LANTDIV
91-12	Replace roof	190,000			Contract

APPENDIX A (Continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST:

ITEM: Boiler DATE: 11/16/90

LOCATION: NW corner Building #2

DATE INSTALLED: 7/75 SIZE/CAPACITY: 200 GAL/100 PSI

MANUFACTURER: Babcox-Wilcox ID NO.: 777460147

FREQUENCY OF USE: October-March

SYSTEM(S) AFFECTED BY FAILURE: Heating and hot water in Bldgs. 1 & 2

EFFECT ON MISSION OF ACTIVITY: Could cause shutdown of NRC; could allow freezing of equipment, plumbing, and sprinkler systems.

FREQUENCY OF PM: Monthly

CREW SIZE: 1

PM TASKS REQUIRING GENERAL SKILLS:

PM TASKS REQUIRING TRADE SKILLS:

Check all gauges, temperature limit controls, and pressure controls for proper operation within desired operating ranges.

Check a water sample; add proper chemicals as required.

Check feed water regulator, pressure relief and low water cut-off valves for proper operation.

Blow down boiler if required.

Check gauge glass for rust. If rust appears, analyze a water sample; add proper water treatment compound.

DEPARTMENT OF THE NAVY

NAVAL FACILITIES ENGINEERING COMMAND
200 STOVALL STREET
ALEXANDRIA, VA 22332

2012E/HJB
24 Jul 1989

From: Commander, Naval Facilities Engineering Command
To: Commander, Atlantic Division, Naval Facilities Engineering Command

Subj: BASIC FACILITY REQUIREMENT (BFR) FOR NAVY MARINE CORPS RESERVE CENTER NORFOLK

Ref: (a) LANTNAVFACENGCOM ltr 2022C:PWP 11010 NAVRESREDCOM of 30 Nov 88

1. We approve the BFR (Category code 171-15, 65,583 SF) forwarded by reference (a).

D. W. WALKER
By direction

APPENDIX A (Continued)

FACSO RPT SYM/NO. 11016/R2001R01

F A C I L I T Y R E Q U I R E M E N T S P L A N S U M M A R Y

ACTIVITY UIC: N63438 ACTIVITY NAME: NAVMARCORESCEN NORFOLK, VA 08 AUG 88

CCN	CATEGORY CODE DESCRIPTION	UM	BASIC FACILITY REQUIREMENT	ASSETS ADEQUATE SUBSTNDRD INADEQUATE OTHER	ASIC	EXISTING QUANTITY SURPLUS+ DEFICIENT-	PROPOSED QUANTITY SURPLUS+ DEFICIENT-
171-15	RES TRA BLDG.	SF	65583	41268	A	24315-	

FACSO RPT SYM/NO. 11016/R2001R01 08 AUG 88

A C T I V I T Y G E N E R A L I N F O R M A T I O N

ACTIVITY UIC	N63438	NAVMARCORESCEN NORFOLK VA
H/T CODE	0	HOST W/FPD
HOST UIC	N63438	NAVMARCORESCEN NORFOLK VA
PARENT UIC		
MAJOR CLAIMANT	B	NVRESFOR
SUB-MAJOR CLAIMANT	BE	RESRED06
EFD UIC	N62470	LANTDIV
AREA-COORDINATOR	05	NBNORFLK
AREA COMPLEX		

ALTERNATELY HOSTED TENANTS/SUPPORTED UNITS

UIC	NAME	H/T CD	SUB-CLAIMANT
NMCRES	MCRU VAR LOCS	3	EF NBNORVA

*IDENTIFIES DISESTABLISHED ACTIVITIES

UIC. . . . N63438 GENERAL INFORMATION PAGE 1

FACILITY PLANNING DOCUMENT

ACTIVITY UIC. . . .N63438 NAME. . . .NAVMARCORESCEN NORFOLK VA 8 AUG 88

CATEGORY CODE. . . 171-15 DESCRIPTION . . . RESERVE TRAINING BUILDING
RQMTS DATE . . 01 DEC 87 LATEST CHANGE DATE . . 8 AUG 88 EFD CERT DATE. . .

BASIC FAC RQMT	UM	FACILITY ADEQUATE	ASSETS SUBSTNRD	DATA INADEQTE	OTHER	QUANTITY DEFICIENT	QUANTITY SURPLUS
65583	(SF)	41268				24315	
	PN						

FACILITY DETAIL

FAC NO	U	EE	C	ADEQUATE	SUBSTNRD	INADEQTE	DEF CODES	SATISFACTION ACTION ID	OF D	DEF/SURP SCOPE NT
1	N	83	P	37008				USE	+	37008
2	N	83	P	4160				USE	+	4160
3	N	83	P	100				USE	+	100
ACQ								CONSTR P-308	+	24315

								TOTAL PROPOSED ADEQUATE ASSETS =		65583

NOTES FOR CATEGORY CODE . . . 171-15
GEN NOTES:

FPD ACTION NOTES:

END DATA FOR CATEGORY CODE . . . 171-15

UIC. . . N63438 FPD CCN. . . 171-15 PAGE. . .1

NMCRC LITTLE CREEK (NORFOLK) VA
NAVY UNIT STRENGTH 1500 MAN CENTER
MARINE SMALL RESERVE CENTER

SPACE FUNCTION	NAVY	MARINES	TOTAL REQUIREMENTS	FUNDING RESPONSIBILITY NAVY	MARINES
Joint Use Space___					
Assembly Hall	3500	2800	3500	3500	0
Classrooms	6500	1600	6500	6500	0
Medical Exam	650	650	975	650	325
Mech. Equip.	650	400	850	650	200
Conference Room	600	400	600	600	0
Janitorial Space	725	100	775	725	50
Toilets/Shwrs (M)	820	400	1020	820	200
Toilets/Shwrs (F)	400	200	500	400	100
Crew's Lounge	500	300	500	500	0
Rifle Range	0	1800	1800	0	1800
TOTAL JOINT USE	14345	8650	17020	14345	2675
Exclusive Use Space___					
Active Duty Admin.	4490	920	5410	4490	920
Unit Admin.	8600	1000	9600	8600	1000
Recruiting	480	250	730	480	250
Training Aids	1880	400	2280	1880	400
Multi-Media Cen.	900	0	900	900	0
Team Training	0	0	0	0	0
Shops	800	0	800	800	0
Lockers	1788	1200	2988	1788	1200
Storage	4030	2000	6030	4030	2000
Garage & Flam. Str	612	0	612	612	0
Sec. Vault/Armory	18	400	418	18	400
SECGRU Comm. Room	700	0	700	700	0
TOTAL EXCLUSIVE USE	24298	6170	30468	24298	6170
SUBTOTAL			47488	38643	8845
Walls & Partitions @ 5%			2374	1932	442
SUBTOTAL			49862	40575	9287
Circulation @ 22%			10970	8927	2043
TOTAL CCN 171-15 REQUIREMENT			60832	49502	11330
Vehicle Mntce Fac					
Combat-CCN 214-10	0	1280	1280	0	1280
Autom.-CCN 214-20	2530	1124	3654	2530	1124
TOTAL BASIC FACILITIES REQUIREMENTS			65766	52032	13734

VEHICLE MAINTENANCE FACILITIES: Mobile IUW Unit Veh. Maintenance Fac. - 2530 SF; USMC Type C Veh. Maintenance Fac. - 2404 SF

APPENDIX B

SAMPLE RESOURCES REQUEST

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RESOURCES REQUEST
CNAVRES 4790/20 (REV. 6-78) S/N 0117-LF-047-9100
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APPENDIX B (continued)

Sample - Cost Estimate

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* NAVFAC 11013/7(1-78) *    COST ESTIMATE    * PREPARED     * SHEET 1 OF 3   *
*                      *                     * (DATE)       *                *
/)))))))))))))))))))))))2)))))))))))0)))))))))2)))))))))))))))3)))))))))))))))))1
* ACTIVITY/LOCATION                  * CONTRACT NO.          * IDENTIFICATION *
* NAVMARCORESCEN, ANYWHERE, USA      *                       * NO.            *
*                                    *                       *                *
*                                    *                       *                *
*                                    /)))))))))))))))))))))))3)))))))))))))))))1
*                                    * ESTIMATED BY          * CAT CODE NO.   *
*                                    * CPO SHARKY            * 171-15         *
/)))))))))))))))))))))))))))))))))))))))3)))))))))))))))))))))))3)))))))))))))))))1
* PROJECT TITLE                      * STATUS OF DESIGN -    * JOB ORDER NO.  *
* REPAIRS TO RESERVE CENTER, BLDG. 1* PED     30%    100%   *                *
*                                    * FINAL   OTHER PRELIM  *                *
/)))))))))))))))))))))0)))))))))))))))3)))))))))))0)))))))))))))3)))))))))))))))))1
*                    *   QUANTITY    * MATERIAL * LABOR COST *   ENGINEERING  *
*                    *               *   COST   *            *    ESTIMATE    *
* ITEM DESCRIPTION  /)))))))))0)))))))3))))))0)))))))3))))))0)))))))3)))))))))0)))))))1
*                    * NUMBER * UNIT *UNIT*TOTAL* UNIT*TOTAL *  UNIT  * TOTAL *
*                    *        *      *    *     *     *      *  COST  *       *
/)))))))))))))))))))3)))))))))3)))))))3))))))3))))))3))))))3)))))))))3)))))))1
* PREPARE SURFACE    *        *      *    *     *     *      *        *       *
*  FOR PAINT         * 10,000 *  SF  * .05* 500 * .12 * 1200 *  .17   * 1700  *
/)))))))))))))))))))3)))))))))3)))))))3))))))3))))))3))))))3)))))))))3)))))))1
* PRIME & PAINT EXT  *        *      *    *     *     *      *        *       *
*  WALL SURFACE      *  8000  *  SF  * .15*1200 * .60 * 4800 *  .75   * 6000  *
/)))))))))))))))))))3)))))))))3)))))))3))))))3))))))3))))))3)))))))))3)))))))1
* PRIME & PAINT EXT  *        *      *    *     *     *      *        *       *
*  DOORS &           *        *      *    *     *     *      *        *       *
*  WINDOWS           *  2000  *  SF  * .15* 300 * .60 * 1200 *  .75   * 1500  *
/)))))))))))))))))))3)))))))))3)))))))3))))))3))))))3))))))3)))))))))3)))))))1
* REPLACE ROTTEN     *        *      *    *     *     *      *        *       *
*  WINDOW UNITS      *   3    *  EA  * 50 * 150 * 100 *  300 *  150   *  450  *
/)))))))))))))))))))3)))))))))3)))))))3))))))3))))))3))))))3)))))))))3)))))))1
* REPLACE ROTTEN     *        *      *    *     *     *      *        *       *
*  DOOR UNITS        *   2    *  EA  * 75 * 150 * 125 *  250 *  200   *  400  *
/)))))))))))))))))))3)))))))))3)))))))3))))))3))))))3))))))3)))))))))3)))))))1
* CAULKING &         *        *      *    *     *     *      *        *       *
*  GLAZING           *  1000  *  LF  *.03 *  30 * .15 *  150 *  .18   *  180  *
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Sample - Cost Estimate

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+)))))))))))))))))))))))0)))))))))))))))))))))0)))))))))))))))0)))))))))))))))))),
* NAVFAC 11013/7(1-78) *    COST ESTIMATE    * PREPARED     * SHEET 2 OF 3   *
*                      *                     * (DATE)       *                *
/)))))))))))))))))))))))2)))))))))))0)))))))))2)))))))))))))))3)))))))))))))))))1
* ACTIVITY/LOCATION                  * CONTRACT NO.          * IDENTIFICATION *
* NAVMARCORESCEN, ANYWHERE, USA      *                       * NO.            *
*                                    *                       *                *
*                                    *                       *                *
*                                    /)))))))))))))))))))))))3)))))))))))))))))1
*                                    * ESTIMATED BY          * CAT CODE NO.   *
*                                    * CPO SHARKY            * 171-15         *
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* PROJECT TITLE                      * STATUS OF DESIGN -    * JOB ORDER NO.  *
* REPAIRS TO RESERVE CENTER, BLDG. 1* PED     30%    100%   *                *
*                                    * FINAL   OTHER PRELIM  *                *
/)))))))))))))))))))))0)))))))))))))))3)))))))))))0)))))))))))))3)))))))))))))))))1
*                    *   QUANTITY    * MATERIAL * LABOR COST *   ENGINEERING  *
*                    *               *   COST   *            *    ESTIMATE    *
* ITEM DESCRIPTION  /)))))))))0)))))))3))))0)))))3)))))0)))))))3)))))))))0)))))))1
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/)))))))))))))))))))3)))))))))3)))))))3))))3)))))3)))))3)))))))3)))))))))3)))))))1
* REPLACE FLASHING  *        *      *    *     *     *      *        *       *
*  & CANT. STRIPS   *    80  *  LF  *1.10*  88 *  3  *  240 * 4.10   *  328  *
/)))))))))))))))))))3)))))))))3)))))))3))))3)))))3)))))3)))))))3)))))))))3)))))))1
* REPAIR WATER      *        *      *    *     *     *      *        *       *
*  DAMAGED CEILING  *  1200  *  SF  *1.25*1500 *  4  * 4800 *  5.25  * 6300  *
/)))))))))))))))))))3)))))))))3)))))))3))))3)))))3)))))3)))))))3)))))))))3)))))))1
* PAINT INTERIOR    *        *      *    *     *     *      *        *       *
*  WALLS & CEILING  *  5000  *  SF  * .15* 750 * .60 *3,000 *   .75  * 3750  *
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Sample - Cost Estimate

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* NAVFAC 11013/7(1-78) *    COST ESTIMATE    * PREPARED     * SHEET 3 OF 3   *
*                       *                     * (DATE)       *                *
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* ACTIVITY/LOCATION                  * CONTRACT NO.          * IDENTIFICATION *
* NAVMARCORESCEN, ANYWHERE, USA      *                       * NO.            *
*                                    *                       *                *
*                                    *                       *                *
*                                    /)))))))))))))))))))))))3)))))))))))))))))1
*                                    * ESTIMATED BY          * CAT CODE NO.   *
*                                    * CPO SHARKY            * 171-15         *
/)))))))))))))))))))))))))))))))))))))3)))))))))))))))))))))))3)))))))))))))))))1
* PROJECT TITLE                      * STATUS OF DESIGN -    * JOB ORDER NO.  *
* REPAIRS TO RESERVE CENTER, BLDG. 1* PED     30%    100%   *                *
*                                    * FINAL   OTHER PRELIM  *                *
/)))))))))))))))))))))0)))))))))))))))3)))))))))))0)))))))))))))3)))))))))))))))))1
*                     *   QUANTITY    * MATERIAL * LABOR COST *   ENGINEERING  *
*                     *               *   COST   *            *    ESTIMATE    *
* ITEM DESCRIPTION   /)))))))))0)))))))3))))0)))))3)))))0)))))))3)))))))))0)))))))1
*                     * NUMBER * UNIT *UNIT*TOTAL* UNIT*TOTAL *  UNIT  * TOTAL *
*                     *        *      *    *     *     *      *  COST  *       *
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* A/E (DESIGN) 6%     *        *      *    *     *     *      *        *  1360 *
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* PRINTING COSTS      *        *      *    *     *     *      *        *       *
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APPENDIX C

SAMPLE QA PLAN

1. General Information. When the Government purchases services by contract, quality and quantity of services rendered are inspected and evaluated by QA procedures established prior to contract award. Accurate and consistent records of contractor performance must be maintained. Instances of unsatisfactory or nonperformance of work must be well documented. This documentation is used to support formal warnings to the contractor, to determine when deductions should be made, and for termination of the contract for continued unsatisfactory performance. Records of unsatisfactory performance and warnings to a contractor may also be used to support rejection of a bid by the contractor on future contracts. The contractor has appeal rights and may resort to a court of law for redress for adverse actions by the Government. Accordingly, QA procedures and records are extremely important and must be executed in a timely manner. Don't get stuck with an unsatisfactory contractor because of inadequate inspection and documentation.

2. QA Plan.

2.1 Contract Requirement. This sample plan provides for surveillance of a custodial contract at a Naval Reserve Center. The Quality Assurance Evaluator (QAE) must be thoroughly familiar with the contract specifications. The technical section of the specifications details when and where the services will be provided, such as sweeping, dust mopping, damp mopping, buffing, etc., and will also provide performance indicators and standards of performance.

2.2 Primary Method of Surveillance. Planned sampling will be utilized supported by unscheduled inspections.

2.3 Maximum Allowable Defect Rate (MADR). The MADR to be used will be 10 percent. Accordingly, if more than 10 percent of the observed work is defective, the service is unsatisfactory. A defect is incomplete or lack of performance on some aspect of the work.

2.4 Sampling Procedure. At the beginning of the week, the QAE will develop a schedule of service locations that will be inspected that week from the total list of work to be performed during the month, utilizing the Inspection Report Sheet. A sample Inspection Report Sheet is shown in Section Five, Figure 2 and a blank form is in Appendix F. Various sample sizes may be selected by the QAE in coordination with the NRC CO. If a 25 percent sample size is selected, pick every fourth location from the total list of areas to receive service. Additional unscheduled locations or problem areas may also be inspected as desired. In the following weeks, a new starting point on the total list should be selected. If the contract requires 40 rooms to receive service twice a week, a total of 80 areas will receive service during a week, and a sample size of 25 percent will require 20 areas to be inspected during each week.

2.5 Inspection and Evaluation. The QAE shall coordinate the inspection times with the day or days of the week that the contractor will be performing the work. Areas should be inspected immediately after work is completed. Rework if required should be done before the contractor leaves the building. (The Government is not required to allow rework if not of benefit or convenience to the Government).

Using the Inspection Report Sheet, the QAE shall perform the inspections and evaluate performance of each work area listed, grading all checkpoints as satisfactory (S) or unsatisfactory (U). An overall evaluation shall also be assigned for each area (such as classroom, office, corridor, etc.). In general, if the contractor performs at least 90 percent of the work satisfactorily, without willful omissions of essential work, an overall rating of satisfactory should be assigned, but deductions should be made for items not accomplished.

If unsatisfactory tasks are noted, a brief explanation should be recorded under the "Remarks" section on the Inspection Report Sheet. If rework is ordered, all pertinent data must be recorded on the original Inspection Report, such as the date the contractor was informed of the problem, the action taken, and date of acceptance of the rework. All defects noted on the Inspection Report must be brought to the attention of the contractor. Provide the contractor's representative a copy of the report and obtain the representatives's signature on the original report, acknowledging receipt of copy and notification. (The representative's signature does not constitute agreement with the contents of the report). If the contractor objects to signing the report, the EFD should be notified.

2.6 Analysis of Results. At the end of the month, the QAE shall review and summarize the results of the Inspection Reports. He shall count the overall "S" and "U" ratings and calculate an Observed Defect Rate (ODR) for the period and compare the ODR with the MADR of 10 percent as follows:

a) $$\text{ODR}(\%) = \frac{\text{TOTAL NO. OF U's X 100}}{\text{TOTAL NO. OF AREAS INSPECTED (U+S RATINGS)}}$$

b) If the ODR(%) is greater than the MADR(%), the overall contractor performance is unsatisfactory.

2.7 Actions to be Taken. When the contractor's performance is unsatisfactory, the NRC CO should issue the contractor a Contract Discrepancy Report (CDR). A copy of the CDR should be forwarded to the EFD and made a part of the official contract file. A sample CDR is shown in Section Five, Figure 3 and a blank form is in Appendix F.

If the unsatisfactory service continues the next month, another CDR should be issued, and the EFD should be contacted for assistance to determine if stronger action is warranted, such as warnings (Cure Notice or Show Cause

Notice) or termination of the contract. Provide copies of all supporting documentation to the EFD at this time.

2.8 Deductions. Regardless of the overall evaluation and ratings, the QAE must calculate appropriate deductions for all unsatisfactory work or work not completed or corrected by rework. At the end of the invoice period, the deductions are calculated based on the contractor's approved Schedule of Deductions, and a report is prepared for the NRC CO itemizing the amount the contractor's invoice should be reduced.

Deductions may be made only for work not performed or for unsatisfactory work items not corrected by rework. For example, if the contractor neglected to clean the windows in a room but performed all other work for the room (such as sweeping, damp mopping, etc.), only the cost of window cleaning can be deducted, and the amount is based on the Schedule of Deductions.

2.9 Liquidated Damages (LD's). The contractor should also be charged LD's for damages the NRC suffers as a result of the contractor's failure to perform. Authority for charging LD's is provided in the "Consequences of Contractor's Failure to Perform Required Services" clause of the contract. The damages are to compensate the Government for administrative costs and other related expenses incurred by the contractor's unsatisfactory performance. The amounts to be deducted are as follows:

a) Deduct an additional 10 percent of the amount in the Schedule of Deductions over and above the amount deducted for the nonperformance or unsatisfactory performance.

b) Deduct 10 percent of the amount in the Schedule of Deductions (for administrative costs) in cases where the contractor satisfactorily performs rework and no other deduction is made.

c) Deduct 20 percent of the amount in the Schedule of Deductions (over and above the amount deducted for nonperformance) if the work was performed by the NRC staff (after contractor failed to perform) or was accomplished by other means.

The EFD Contracts Division, Code 161 may be contacted for assistance in calculating deductions.

2.10 Calculating Deductions and Liquidated Damages. A Sample Schedule of Deductions is shown in Figure D-1. Examples showing calculations of deductions for work not completed as required by the schedule are as follows:

a. Example No. 1 - Contractor did not show up for work on two days during the month. Work was accomplished by Navy personnel. Sweeping, damp

mopping, and vacuuming were scheduled for the days the contractor was absent. Calculations for deductions and LD's are as follows:

	Item	Price Per Occurrence		Number of Occurrences		Total
1.	Sweep	$50.00	x	2	=	$100.00
2.	Damp Mop	45.00	x	2	=	90.00
3.	Vacuum	15.00	x	2	=	30.00
					Subtotal	$220.00

Add 20 percent for LD's since work was performed by Navy personnel.

$220.00 x .20 = $ 44.00
Total amount deducted = $264.00

b. Example No. 2 - On three occasions, the contractor swept and damp mopped corridors (3500 SF) but did not sweep and damp mop remaining 12584 SF of spaces. Calculations for deductions are as follows:

Item	Number of SF Not Performed	Unit Price Per SF (1)	Number of Occurrences	Total
1. Sweep	12584	$.00311	3	$117.41
2. Damp Mop	12584	.00280	3	105.71
			Subtotal	$223.12

Add only 10 percent LD's since work was not performed by Navy Personnel:

$223.12 x .10 = $ 22.31
Total amount deducted = $245.43

(1) NOTE: Unit Price Per SF is calculated by dividing the Price Per Occurrence from the Schedule of Deductions by the total SF of space to be done (e.g. Sweeping: $50))))))))))) = $.00311/SF)
16084 SF

APPENDIX C (continued)

SCHEDULE OF DEDUCTIONS

This schedule is to be used for making deductions for nonperformance or unsatisfactory performance. SUBMIT SCHEDULE OF DEDUCTIONS WITH QUOTATION

Items of Work	Number of Units	Number of Occurrences	Price Per Occurrence	Item Price Per Year
1. Sweep Floors	16084 SF	52 (1 EA WK)	$50.00	$2600.00
2. Damp Mop Floors	16084 SF	52 (1 EA WK)	45.00	2340.00
3. Wax/Buff Floors	10598 SF	52 (1 EA WK)	50.00	2600.00
	5486 SF	4 (4 EA YR)	30.00	120.00
4. Vacuum Carpets	1491 SF	52 (1 EA WK)	15.00	780.00
5. Clean & Service Restrooms	850 SF	156 (3 EA WK)	20.00	3120.00
6. Strip, Rewax, & Buff Tile Floors	16084 SF	4 (4 EA YR)	650.00	2600.00
7. Shampoo, Clean Carpets	1491 SF	2 (2 EA YR)	200.00	400.00
8. Glass Cleaning	1356 SF	2 (2 EA YR)	110.00	220.00
			TOTAL BID ITEM 1	14780.00

The successful contractor is required to provide an acceptable Schedule of Deductions with quotation. No invoices will be processed until the Schedule of Deductions is received and approved. Failure to submit an acceptable Schedule may be grounds for Termination for Default. The Government also reserves the right to unilaterally establish a Schedule of Deductions in the event the successful contractor presents a Schedule which is unbalanced or materially deficient.

Figure C-1

Sample Schedule of Deductions.

2.11 Making Deductions Stick. The contractor has a right under the "Disputes" clause of the contract to take exceptions to deductions and may lodge a claim for payment of the deducted amount under the "Claims" clause.

You must have a valid basis for making deductions and you must have proper documentation.

2.12 Basis for Deductions. Rationale for making a valid deduction should include the following:

a) The task for which the deduction is made is clearly required by the contract.

b) The defect was personally observed by the QAE or NRC CO.

c) The QAE inspection report contains specific documentation of the deficiency (not just a vague reference).

d) The NRC CO makes periodic spot inspections to check the QAE's work for reasonableness, completeness, and accuracy.

e) The contractor is given the opportunity to correct the defect (if circumstances permit).

f) The amount deducted is based on the Schedule of Deductions and is related to the specific defect (the deduction does not include items that were subsequently accomplished).

A thorough understanding of the contract terms and good documentation are the key elements of successful QA monitoring of a contract.

APPENDIX D

CONTROL INSPECTION PROGRAM

1. Establishing a Control Inspection Program.

A Control Inspection (CI) Program is an important part of maintaining NRC facilities. It is the technical inspection of structural, electrical, mechanical, roof, and other facility components by trained personnel on a scheduled basis to identify and report deficiencies requiring correction now or in the foreseeable future. It is the backbone of the Facilities Maintenance Program and the Annual Inspection Summary (AIS).

1.1 Goals of the CI Program. The objective is to restore facilities to an acceptable condition necessary to support their designed purpose and to prevent advanced deterioration and costly future repairs. The CI program should generate 50 to 75 percent of the Resources Requests submitted to the DIRFAC, extend the useful life of facilities, and minimize disruption of operations resulting from deficiencies.

1.2 CI Program Procedures. Steps for developing a simple CI program are as follows:

a. Step One - List all of the facilities at the activity on the CI Program Plan (See Appendix F for sample form and example plan shown below).

b. Step Two - Record the priority of each facility using the suggested priorities noted in Section Four.

c. Step Three - Record the number of work units (SF, SY, acres) for each facility using the NAVFAC P-164.

d. Step Four - Record the estimated number of structural, electrical, mechanical, and roof inspection hours required to inspect each aspect of the facility. (Guidelines for making estimates can be found in Appendix A to NAVFAC MO-322, Volume I).

e. Step Five - If inspections are to be accomplished by in-house personnel, schedule the inspections over a one year period ending 1 September. The necessary expertise may not be available at the NRC to perform CI's. Normally, the assigned FSO will perform the CI's and prepare the AIS. Inspections can also be performed by the DIRFAC, EFD, or an A&E firm (under contract by the EFD).

f. Step Six - Allocate sufficient hours for the inspector to inspect the facilities in accordance with the schedule. Inspectors should be qualified by trade background and training. The inspector should be skilled in one craft with a working knowledge of the others. Attendance at NAVFAC training courses for inspectors is recommended.

EXAMPLE:

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*                           CI PROGRAM PLAN                             *
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* FAC. * FAC. * PRIORITY * NO.   *     ESTIMATED HOURS     * SCHEDULED *
* NO.  * NAME *          * OF    /)))))0))))))0))))))0))))1 ACT WEEK  *
*      *      *          * WORK  *      *      *      *    *           *
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*      *      *          *       *TURAL *TRICAL*ANICAL*    *           *
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* 79   * BOQ  *    2     * 28000 *4.0   *4.0   *5.0   *2.0 * 31/89     *
*      *      *          * SF    *      *      *      *    *           *
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* 84   * COMM *    1     * 40000 *6.0   *8.0   *9.0   *3.0 * 50/89     *
*      * BLDG *          * SF    *      *      *      *    *           *
/)))))3))))))3)))))))))))3)))))))3))))))3))))))3))))))3))))3)))))))))))1
* 108  * GYM  *    3     * 19000 *1.9   *1.3   *1.5   *1.5 * 2/90      *
*      *      *          * SF    *      *      *      *    *           *
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*      *      *          *       *    FROM MO-322, VOL 1   * #WK/#YEAR *
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g. Step Seven - Pull the appropriate CI inventory/checklists from this Appendix D and place copies in the Facilities Notebook. Complete the top portion of each using the information from Steps 3 and 4. Submit copies of the checklists and proposed schedule to the DIRFAC.

h. Step Eight - Perform the inspections when scheduled.

- Take a flashlight, measuring tape, ladder, camera, pocket calculator, inspection report forms (or tape recorder), specialized tools of the trade required, and keys to gain access to the areas to be inspected, including attics.

- Physically inspect, record deficiencies, and estimate the cost of the repairs by craft area for each deficiency.

- Look beyond the obvious cosmetic deficiency to determine the cause of the problem.

- Get quantities on-site.

- Talk to the building occupants to determine if they have noted deficiencies that may have been overlooked during the inspection.

- Make a detailed inspection report including a cost estimate (Blank inspection forms are included in Appendix F).

- Obtain a sample inspection report from the EFD or the DIRFAC for guidance (if needed).

i. Step Nine - Complete Resources Requests for specific projects as identified by the inspection. Send a copy of the inspection report with the Resources Requests to the DIRFAC for information, funding, scheduling, and correction of deficiencies.

j. Step Ten - The CI reports will be used to:

- Develop contract scope and specifications.

- Develop Resources Requests.

- Develop AIS requirements.

- Develop budget data.

1.3 Get Help Before It's Too Late. If you don't have the time or expertise to do your CI's, request FSO, DIRFAC, or EFD assistance early in the fiscal year.

1.4 CI Inventory/Checklists. CI inventory/checklists are included hereinafter as part of Appendix D. An index of the checklists is as follows:

a. BUILDINGS

CHECKLIST NUMBER	PAGE NO.	DESCRIPTION
CI-001	114	Floors, Floor Coverings, Foundations
CI-002	117	Ceilings, Interior
CI-003	118	Windows, Exterior (All Types)
CI-004	120	Windows, Interior
CI-005	122	Walls, Metal, Exterior
CI-006	124	Walls, Masonry, Exterior
CI-007	126	Walls, Wood, Exterior
CI-008	127	Walls, Asbestos Shingle, Exterior
CI-009	128	Walls, Interior
CI-010	130	Roof, Built-Up
CI-011	132	Roof, Aluminum, Iron, Steel
CI-012	134	Roof, Asbestos Shingle
CI-013	136	Roof, Asphalt Shingle
CI-014	138	Roof, Clay Tile
CI-015	140	Roof, Wood Shingle
CI-016	142	Roof, Single Ply Membrane
CI-017	144	Roof, Polyurethane Foam
CI-018	146	Stairs and Railings
CI-019	148	Fire Sprinkler System, Wet/Dry Pipe Type
CI-020	150	Dry Chemical Fire Extinguishing System

CHECKLIST NUMBER	PAGE NO.	DESCRIPTION
CI-021	152	Electrical Distribution, Motor, Generator, and Rectifier
CI-022	156	Electrical Ground and Grounding System
CI-023	157	Interior Electrical System, Service Panel, and Circuits
CI-024	160	Alarm Systems, Fire/Intrusion Detection

b. EXTERIOR FACILITIES

CI-025	162	Swimming Pool
CI-026	164	Liquid Fuel Facilities Storage/Distribution System
CI-027	168	Fence, Chain Link
CI-028	170	Fence, Wood
CI-029	172	Fresh Water Storage, Elevated Tank
CI-030	175	Fresh Water Storage, Ground/Underground
CI-031	177	Grass, Landscaped Areas
CI-032	179	Shrub, Tree, Plant, Landscaped Areas
CI-033	181	Playground, Non-Paved
CI-034	182	Playground, Paved
CI-035	183	Courts, Basketball, Tennis

c. EXTERIOR UTILITIES

CI-036	184	Roads, Concrete/Asphalt
CI-037	186	Roads, Gravel/Earth
CI-038	187	Parking and Other Paved Areas
CI-039	188	Curb, Gutter, and Sidewalks
CI-040	190	Storm Drainage Ditch and System
CI-041	191	Aeration Equipment (Water)-Electrical
CI-042	192	Aeration Equipment (Water)-Mechanical
CI-043	194	Aeration Equipment (Sewage)-Electrical
CI-044	195	Aeration Equipment (Sewage)-Mechanical
CI-045	197	Chemical Feed Equipment for Water Supply-Electrical
CI-046	198	Chemical Feed Equipment for Water Supply-Mechanical
CI-047	200	Chlorinator and Hypochlorinator-Electrical
CI-048	202	Chlorinator and Hypochlorinator-Mechanical
CI-049	204	Fresh Water Supply Distribution System
CI-050	206	Gas Distribution System and Storage
CI-051	208	Septic Tank System
CI-052	210	Sewage Lift Station and Collection System
CI-053	212	Sewage Plant Equipment and Treatment
CI-054	214	Unfired Pressure Vessels
CI-055	218	Substation and Safety Fencing
CI-056	221	Power Transformer, Deenergized
CI-057	224	Power Transformer, Energized

APPENDIX D (continued)

CHECKLIST NUMBER	PAGE NO.	DESCRIPTION
CI-058	227	Electrical Distribution Lines and Associated Equipment
CI-059	230	Electrical Distribution Line/Poles and Associated Equipment
CI-060	233	Electrical Distribution, Power Plant
CI-061	236	Electrical Distribution, Switchgear, Fuses, and Circuits Breakers
CI-062	241	Street Lights and Other Exterior Lighting
CI-063	243	Electrical Instruments/Metering

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: FLOORS, FLOOR COVERINGS, FOUNDATIONS

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-001

Obtain equipment and materials and transport to inspection site. The inspection is made by walking and observing all floor areas included in the inspection site. An awl is used to probe any areas that cannot be readily observed such as rotted wood, cracks, etc. A tape measure is used to estimate areas or quantities of repair work which should be accomplished.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each type of floor, floor covering, and foundation. In each case where a deficiency exists, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. All floors - General inspection for inadequacy of floor load posting or lack of conformance by occupant to posted loading; lack of rigidity of supporting beams or other structural supports and need for immediate correction; looseness, splintering, missing, or damage to supports.

a. If critical, post floor loading requirements.
b. Occupant should conform with posted floor loadings.
c. Repair or replace damaged structural members which support floor.

2. Wood for sagging, wear, splintering, looseness, warping, scratches, shrinkage cracks, rotting, staining, discoloring, moisture penetration, indentations, absence of protective coatings, evidence of insect infestation in finish and subflooring indicated by presence of sawdust, wood pellets, or small round emergence holes. Check damp areas of long duration for infestation and fungus growth.

a. Resecure loose flooring.

b. Clean and apply protective coating as appropriate.
c. Repair or replace damaged areas of flooring and subflooring caused by insects or moisture.
d. Treat insect infestation in flooring, subflooring and structural members.
e. Correct cause of excessive dampness.

3. Concrete for wear, pitting, roughness, discoloring, staining, settling, shrinkage cracks (particularly where placed over wood framing), absence of treatment or waxing to prevent surface dusting; cracking, chipping, or damage caused by settlement.

a. Repair cracked, chipped or damaged areas.
b. Clean and apply protective coating on floor as appropriate.

4. Terrazzo for cleanliness, wear, pitting, roughness, discoloring, settlement cracks.

a. Repair damaged or cracked areas.
b. Clean and apply protective coating as appropriate.

5. Clay, quarry tile, and brick for sandy and eroded mortar joints, stained, broken, chipped, or loose tiles resulting in uneven surfaces.

a. Replace broken, chipped or loose tiles or brick as appropriate.
b. Repair and repoint sandy or eroded mortar joints.
c. Clean and apply protective coating as appropriate.

6. Metal for wear, rusting, corrosion, looseness, bending, or other damage to surfaces and structural supports, broken welds; loose, missing, or damaged bolts, nuts, rivets, and screws.

a. Repair damaged structural supports.
b. Remove rust and corrosion and apply protective coating to structural members.
c. Repair or replace damaged or missing bolts, rivets, nuts, and screws.
d. Reweld joints as required.

7. Conductive floors for chips, broken surfaces, discontinuity.

a. Make appropriate repairs of conductive floors as required. Follow manufacturer's instructions for the particular floor installed.

8. All floor coverings for loose, damaged, or missing bases, binding strips, or thresholds, projecting nails, bolts, or screws, slippery surfaces from oil or water spillage, inadequate exposure of abrasive necessary for nonslip finish surfaces.

a. Repair or replace loose, damaged or missing bases, binding strips, or thresholds.
b. Replace abrasive material on nonslip finished surfaces.
c. Replace or resecure projecting or loose bolts or screws; renail or replace projecting nails.
d. Remove oil or water spills and correct cause.

e. Replace portion of floor covering.
f. Replace entire area of floor covering.

9. Carpets and rugs for wear, tear, cuts, raveling, discoloring, fading; binding or anchoring strips for wear, damage, poor anchorage; worn or missing tractive substance on backing of small rugs or carpets where placed over polished floor; beetle or moth damage.

a. Repair tears, cuts, and other spot damaged areas.
b. Resecure carpeting anchorage where necessary.
c. Replace carpeting.
d. Clean carpets.
e. Replace tractive substance on rugs located over highly polished floors.

10. Resilient floor coverings (linoleum, vinyl plastic, vinyl asbestos, cork, rubber, and asphalt tiles) for wear, cracking, chipping, breaking, scratches, tears, indentations, lack of bonding and uneven underlayment; evidence of damage resulting from use of solvents or excessive use of water for cleaning; absence of protective wax coatings.

a. Replace excessively worn or damaged tiles.
b. Replace entire floor area with appropriate tiles.
c. Clean and apply protective wax coatings as appropriate.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: CEILINGS, INTERIOR

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-002

Obtain tools and equipment and transport to inspection site. The visual inspection is usually performed from the floor level; however, binoculars or a ladder may be used for a closer look at troubled areas. An awl or other pointed tool may be used if probing is required to determine the soundness of the ceiling. A camera may be utilized to record a visual portrayal of major deficiencies which may require an engineering evaluation. A tape measure is used to estimate areas or quantities of repair work required.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Ceilings for cracks, holes, aging, water stains, open joints and damage.

a. Spackle, retape joints, patch, renail, or renew section.
b. Repair water leaks as appropriate.

2. Paint for scaling, peeling, fading, mildew, failure of bonding and bleeding.

a. Brush, sand, wash, wipe, seal, prime, and paint.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: WINDOW, EXTERIOR (ALL TYPES)

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-003

Obtain inspection kit and transport to inspection site. A ladder will be used for close visual examination to evaluate the deficiencies. An awl is used to probe the wooden portion of the windows, if required. A putty knife is used to check the glazing material, caulking compound, and paint.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each type of window. In each case where a deficiency exists, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Wood sash, frame, casing and trim for splitting, rotting, cracking, looseness, poor fit, binding, missing parts; loose or missing caulking; weatherproofness.

a. Replace any wood part that is rotten or missing.
b. Renail or replace if necessary.
c. Secure splitting part by nailing together, or replace.
d. Plane sash, remove and resecure trim for binding sash.
e. Replace missing or loose caulking.
f. Replace missing or cut sash cord.
g. Replace broken or missing sash locks, spring or defective hardware.
h. Replace sash or complete unit if necessary.
i. Add weatherstripping for weatherproofness.
j. Prime and paint repaired or replaced areas.

2. Metal sash and trim or metal storm sash for rust, corrosion, warping, binding, poor fit, weatherproofness.

a. Remove rust or corrosion.
b. Straighten sash if warped, or binding; replace.
c. Replace loose or missing glazing compound.
d. Replace missing or loose caulking.
e. Replace sash or complete unit, if necessary.
f. Replace broken or missing hardware.
g. Add weatherstripping for weatherproofness.
h. Prime and paint repaired or replaced areas.

3. Screens for loose, broken, or missing hardware; binding, jamming, poor fit of frames; metal parts for rust, corrosion, holes in fabric; and wooden parts for rotting, stain, other damage.

a. Replace damaged or deteriorated screen wire.
b. Remove rust or corrosion from frame.
c. Repair or replace bent, split, rotting or damaged frame.
d. Prime and paint repaired or replaced frame.

4. Shutters for splitting, rotting, cracking, looseness, missing, misalignment, freedom of swing or little or no free motion as required.

a. Replace rotted or missing wood.
b. Renail loose, splitting or cracking wood parts.
c. Adjust or replace hinges for misalignment to allow freedom of swing.
d. Remove corrosion.
e. Lubricate hardware.

5. Hardware for looseness, missing or broken parts, binding, misalignment, improper installation or adjustment, lack of lubrication, corrosion, abrasion, loss of finish coating.

a. Secure loose hardware.
b. Replace missing or broken hardware.
c. Realign hardware for proper installation, adjustment or alignment.
d. Remove corrosion.
e. Lubricate hardware.

6. Glass for missing or broken panes, disintegration of putty.

a. Replace broken and missing panes.
b. Replace missing or loose glazing compound.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: WINDOW, INTERIOR

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-004

Obtain inspection equipment and transport to inspection site. A ladder will be used for close visual examination to evaluate the deficiencies. An awl is used to probe the wooden portion of the windows, if required. A putty knife is used to check the glazing material, caulking compound, and paint.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each type of window. In each case where a deficiency exists, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Wood sash, frame, casing and trim for splitting, rotting, binding, cracking, missing parts; looseness, poor fit, weatherproofness.

a. Replace any wood part that is rotten or missing.
b. Renail or replace if necessary.
c. Secure splitting part by nailing together, or replace.
d. Plane sash, remove and resecure trim for binding sash.
e. Replace missing or cut sash cord.
f. Replace broken or missing sash locks, spring or defective hardware.
g. Replace sash or complete unit if necessary.
h. Add weatherstripping for weatherproofness.
i. Prime and paint repaired or replaced areas.

2. Metal sash and trim or metal storm sash for rust, corrosion, warping, binding, poor fit, weatherproofness.

a. Remove rust or corrosion.
b. Straighten sash if warped, or binding; replace.

c. Replace loose or missing glazing compound.
d. Replace missing or loose caulking.
e. Replace sash or complete unit, if necessary.
f. Replace broken or missing hardware.
g. Add weatherstripping for weatherproofness.
h. Prime and paint repaired or replaced areas.

3. Screens for loose, broken, or missing hardware; binding, jamming, poor fit of frames; metal parts for rust, corrosion, holes in fabric; and wooden parts for rotting, stain, other damage.

a. Replace damaged or deteriorated screen wire.
b. Remove rust or corrosion from frame.
c. Repair or replace bent, split, rotting or damaged frame.
d. Prime and paint repaired or replaced frame.

4. Glass for missing or broken panes, disintegration of putty.

a. Replace broken and missing panes.
b. Replace missing or loose glazing compound.

5. Venetian blinds, window shades for insecure or broken fasteners, poor operation, frayed or broken cords or tapes, broken or damaged slats, worn or torn material.

a. Replace worn or torn window shades.
b. Replace broken fasteners, frayed or broken cord.
c. Adjust for proper operation.
d. Replace unit if necessary.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: WALLS, METAL, EXTERIOR

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-005

Obtain materials and equipment and transport to inspection site. The visual inspection is usually performed from the ground level; however, binoculars or a ladder may be used for a closer look at troubled areas. An awl or other pointed tool may be used if probing is required to determine the soundness of the wall. A camera may be utilized to record a visual portrayal of major deficiencies which may require an engineering evaluation. A tape measure is used to estimate areas or quantities of repair work required.

Observe all rules and regulations for environmental hazards, especially lead paint.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Walls for stains, holes, rotting, sagging, buckling, support failure, open joints, rust, corrosion, and damage.

a. Patch.
b. Caulk.
c. Renail or rebolt.
d. Replace section.
e. Wire brush, scrape, sand.
f. Check for leaks.

2. Paint for alligatoring, blistering, scaling, peeling, wrinkling, fading, chalking, mildew, bleeding, staining, and bonding failure.

a. Wire brush, wash, scrape, sand.
b. Prime and paint.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: WALLS, MASONRY, EXTERIOR

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-006

Obtain materials and equipment and transport to inspection site. The visual inspection is usually performed from the ground level; however, binoculars or a ladder may be used for a closer look at troubled areas. An awl or other pointed tool may be used if probing is required to determine the soundness of the wall. A camera may be utilized to record a visual portrayal of major deficiencies which may require an engineering evaluation. A tape measure is used to estimate areas or quantities of repair work required.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each type of surface. In each case where a deficiency is identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Concrete for spalling, cracks, exposed reinforcing, settlement or damage.

   a. Patch.
   b. Caulk.
   c. Replace section.
   d. Jack and fill underneath.

2. Brick, block or stone for cracks, loose blocks, damage, missing units.

   a. Patch cracks.
   b. Replace blocks, bricks, or stones as appropriate.

3. Paint for alligatoring, blistering, scaling, peeling, wrinkling, fading, chalking, mildew, bleeding, staining, and bonding failure.

a. Wire brush, wash, scrape, sand.
b. Prime and paint.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: WALLS, WOOD, EXTERIOR

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-007

Obtain materials and equipment and transport to inspection site. The visual inspection is usually performed from the ground level; however, binoculars or a ladder may be used for a closer look at troubled areas. An awl or other pointed tool may be used if probing is required to determine the soundness of the wall. A camera may be utilized to record a visual portrayal of major deficiencies which may require an engineering evaluation. A tape measure is used to estimate areas or quantities of repair work required.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Wood for cracked and missing boards, rotten areas.

a. Replace missing boards.
b. Resecure boards.
c. Cut out and patch rotted areas.
e. Caulk cracks.

2. Paint for alligatoring, blistering, scaling, peeling, wrinkling, fading, chalking, mildew, bleeding, staining, and bonding failure.

a. Wire brush, wash, scrape, sand.
b. Prime and paint.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: WALLS, ASBESTOS SHINGLE, EXTERIOR

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-008

Obtain materials and equipment and transport to inspection site. The visual inspection is usually performed from the ground level; however, binoculars or a ladder may be used for a closer look at troubled areas. An awl or other pointed tool may be used if probing is required to determine the soundness of the wall. A camera may be utilized to record a visual portrayal of major deficiencies which may require an engineering evaluation. A tape measure is used to estimate areas or quantities of repair work required.

Observe all rules and regulations for environmental hazards of asbestos.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Asbestos shingles for cracked, missing shingles and damaged areas.

a. Replace missing shingles, boards.
b. Resecure shingles or boards.
c. Cut out and patch damaged areas.
e. Caulk cracks.

2. Paint for alligatoring, blistering, scaling, peeling, wrinkling, fading, chalking, mildew, bleeding, staining, and bonding failure.

a. Wire brush, wash, scrape, sand.
b. Prime and paint.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: WALLS, INTERIOR

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-009

Obtain materials and equipment and transport to inspection site. The visual inspection is usually performed from the ground level; however, binoculars or a ladder may be used for a closer look at troubled areas. An awl or other pointed tool may be used if probing is required to determine the soundness of the wall. A camera may be utilized to record a visual portrayal of major deficiencies which may require an engineering evaluation. A tape measure is used to measure areas or quantities of repair work required.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each type of surface. In each case where a deficiency is identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Walls for stains, holes, sagging, buckling, support failure, open joints, rust, corrosion, rot, and damage.

a. Patch.
b. Caulk.
c. Renail or retape.
d. Replace section.
e. Wire brush, scrape, sand.
f. Check for leaks.

2. Wall covering for curling, looseness, punctures, fading, wrinkling, staining and damage.

a. Renail or reglue.
b. Patch.
c. Replace section of wall covering.
d. Replace complete wall covering.

3. Paint for alligatoring, blistering, scaling, peeling, wrinkling, fading, chalking, mildew, bleeding, staining, and bonding failure.

a. Wire brush, wash, scrape, sand.
b. Spackle.
c. Size walls.
d. Prime and paint.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ROOF, BUILT-UP

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF X OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-010

Obtain materials and equipment and transport to inspection site. Where no other means is available for obtaining access to roof for inspection, a ladder should be used. The inspection is made by observing the entire area of the roof. A camera should be utilized by the inspector to record a visual portrayal of major deficiencies which may require an engineering evaluation before such deficiencies are corrected. Those deficiencies which would be difficult to identify at a later date, such as cracks in membrane, cracks in wall coping, blisters in tar and gravel roofs, should be marked with spray paint or lumber crayon. A tape measure is used to measure areas or quantities of repair work which should be accomplished.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each type of roof construction. In each case where a deficiency exists, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect interior ceilings or roof decking beneath roof where possible for discoloration from weather leaks. Check uppermost portion of interior walls for discoloration and alligatoring from leaks. Also, check with building occupants to determine if roof has leaked in past.

a. To be determined when other checks are completed.

2. Built-up roofing for cracks, alligatoring, bare spots, blistering, rupturing, curling or buckling felts, low spots and water ponding.

a. Repair bare spots by replacing bitumen and aggregate.
b. Cut and repair blisters.

c. Repair curls and ruptures by spudding aggregate, applying roof cement and membrane, and replacing bitumen and aggregate.
d. Repair cracked, buckled, or split areas using methods in c. above.
e. Seal alligator cracks with appropriate coating.
f. Unstop roof drains, scuppers, or gutters which might cause ponding.
g. Recover entire roof or portion thereof.

3. Built-up roofing for broken, failed or missing gravel stops.

a. Repair broken or failed gravel stops and guards.
b. Replace missing gravel stops.

4. Metal base flashings for rust, vertical joints, flanges, adequate nailing, proper fastening, proper sealing, cant stripping.

a. Secure loose sheet metal and seal counterflashing.
b. Repair or replace base and counterflashings.

5. Other type base flashings for sagging, deterioration, separation, adequate coverage or embedment; vertical joints for proper fastening, buckling, cracking, surface coat, cant strip.

a. Reseal or recoat flashing.
b. Replace felt base flashings.
c. Reseal all joints as required.
d. Secure, repair, and recoat buckled flashing.

6. Cap flashing, for open joints, buckling, cracking, surface coating, proper fastenings, rust, and corrosion, as applicable.

a. Secure loose cap flashing and seal.
b. Replace damaged cap flashing.
c. Prepare cap flashings (remove rust and corrosion) and surface coat as necessary.

7. Pitch pockets or pans for replenishment of pitch.

a. Fill pitch pockets or pans with coal tar or asphalt to a level that will prevent ponding of water.

8. Roof surface and drains for trash and debris.

a. Remove trash and debris from roof surface and drains.

9. Parapet walls for cracks, spalling, open joints, porosity.

a. Repair or repoint mortar joints and cracks in parapet walls with appropriate joint material.
b. Apply appropriate waterproofing material and liquid asphalt or felt to spalled and porous areas of parapet walls.

10. Wall copings for cracks, open joints and deterioration of joint material.

a. Seal cracks in coping and replace open and deteriorated joint material with appropriate material.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ROOF, ALUMINUM, IRON, STEEL

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF X OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-011

Obtain materials and equipment and transport to inspection site. Where no other means is available for obtaining access to roof for inspection, a ladder should be used. The inspection is made by observing the entire area of the roof; extreme care should be taken when walking on roofs so as not to damage roof surface. A camera should be utilized by the inspector to record a visual portrayal of major deficiencies which may require an engineering evaluation before such deficiencies are corrected. Those deficiencies which would be difficult to identify at a later date, such as punctures in metal, cracks in wall copings, should be marked with spray paint or lumber crayon. A tape measure is used to measure areas or quantities of repair work which should be accomplished.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each type of roof construction. In each case where a deficiency exists, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect interior ceilings or roof decking beneath roof where possible for discoloration from weather leaks. Check uppermost portion of interior walls for discoloration and alligatoring from leaks. Also, check with building occupants to determine if roof has leaked in past.

a. To be determined when other checks are completed.

2. Metal for holes, looseness, punctures, broken seams, adequate side and end laps, adequate expansion joints, rust or corrosion, and damage.

a. Repair holes and punctures.
b. Secure loose metal.
c. Repair broken seams.
d. Repair or replace rusted or damaged metal.
e. Prepare and paint areas or entire roof if required.
f. Seal side or end laps.
g. Replace entire roof covering.
h. Replace damaged and rotted roof trusses.

3. Chimney, wall, vent, valley, and edge flashings for open joints, looseness, proper fastenings, and other deficiency.

a. Secure and seal chimney, valley, and edge flashings where required.

4. Cap flashing, for open joints, buckling, cracking, surface coating, proper fastenings, rust, and corrosion as applicable.

a. Secure loose cap flashing and seal.
b. Replace damaged cap flashing.
c. Prepare cap flashings (remove rust and corrosion) and surface coat as necessary.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ROOF, ASBESTOS SHINGLE

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF X OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-012

Obtain materials and equipment and transport to inspection site. Where no other means is available for obtaining access to roof for inspection, a ladder should be used. The inspection is made by observing the entire area of the roof; extreme care should be taken when walking on roofs so as not to damage roof surface. A camera should be utilized by the inspector to record a visual portrayal of major deficiencies which may require an engineering evaluation before such deficiencies are corrected. Those deficiencies which would be difficult to identify at a later date, such as punctures in metal or cracks in wall copings, should be marked with spray paint or lumber crayon. A tape measure is used to measure areas or quantities of repair work which should be accomplished.

Observe all rules and regulations for environmental hazards of asbestos.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect interior ceilings or roof decking beneath roof where possible for discoloration from weather leaks. Check uppermost portion of interior walls for discoloration and alligatoring from leaks. Also, check with building occupants to determine if roof has leaked in past.

a. To be determined when other checks are completed.

2. Asbestos shingle roofing for wear from weathering, broken, cracked, loose, or missing units; check for sufficient side or end lap.

a. Replace broken, cracked or missing shingles.
b. Secure loose shingles.
c. Replace excessively deteriorated shingles which do not have sufficient side or end lap.
d. Repair and seal sheet flashing.
e. Repair and seal vent flashings.
f. Replace entire roof or portion thereof.
g. Replace damaged and rotted roof decking.

3. Where possible, without damaging roof covering, use screwdriver to probe under edge of roof covering at overhang to check for rotted decking or facia board caused by dampness.

a. Replace deteriorated facia and edge boards.
b. Seal under edge of roof covering at overhang.

4. Chimney, wall, vent, valley, and edge flashings for open joints, looseness, proper fastenings, and other deficiency.

a. Secure and seal chimney, valley, and edge flashings where required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ROOF, ASPHALT SHINGLE

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF X OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-013

Obtain materials and equipment and transport to inspection site. Where no other means is available for obtaining access to roof for inspection, a ladder should be used. The inspection is made by observing the entire area of the roof; extreme care should be taken when walking on roofs so as not to damage roof surface. A camera should be utilized by the inspector to record a visual portrayal of major deficiencies which may require an engineering evaluation before such deficiencies are corrected. Those deficiencies which would be difficult to identify at a later date, such as punctures in metal or cracks in wall copings, should be marked with spray paint or lumber crayon. A tape measure is used to measure areas or quantities of repair work which should be accomplished.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect interior ceilings or roof decking beneath roof where possible for discoloration from weather leaks. Check uppermost portion of interior walls for discoloration and alligatoring from leaks. Also, check with building occupants to determine if roof has leaked in past.

a. To be determined when other checks are completed.

2. Asphalt shingle roofing for wear from weathering, broken, cracked, looseness, missing units; check for sufficient side or end lap.

a. Replace broken, cracked or missing shingles.
b. Secure loose shingles.
c. Replace excessively deteriorated shingles which do not have sufficient side or end lap.
d. Repair and seal sheet flashing.
e. Repair and seal vent flashings.
f. Replace entire roof or portion thereof.
g. Replace damaged and rotted roof decking.

3. Where possible, without damaging roof covering, use screwdriver to probe under edge of roof covering at overhang to check for rotted decking or facia board caused by dampness.

a. Replace deteriorated facia and edge boards.
b. Seal under edge of roof covering at overhang.

4. Chimney, wall, vent, valley, and edge flashings for open joints, looseness, proper fastenings, and other deficiency.

a. Secure and seal chimney, valley, and edge flashings where required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ROOF, CLAY TILE

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF X OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-014

Obtain materials and equipment and transport to inspection site. Where no other means is available for obtaining access to roof for inspection, a ladder should be used. The inspection is made by observing the entire area of the roof; extreme care should be taken when walking on roofs so as not to damage roof surface. A camera should be utilized by the inspector to record a visual portrayal of major deficiencies which may require an engineering evaluation before such deficiencies are corrected. Those deficiencies which would be difficult to identify at a later date, such as punctures in metal or cracks in wall copings, should be marked with spray paint or lumber crayon. A tape measure is used to measure areas or quantities of repair work which should be accomplished.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect interior ceilings or roof decking beneath roof where possible for discoloration from weather leaks. Check uppermost portion of interior walls for discoloration and alligatoring from leaks. Also, check with building occupants to determine if roof has leaked in past.

a. To be determined when other checks are completed.

2. Clay tile for weathering, broken, cracked, loose, or missing units; check for flashing failures, deterioration of expansion joint material or tile raising.

a. Replace broken, cracked or missing tiles.
b. Resecure loose tiles.
c. Repair and seal sheet flashing.
d. Replace expansion joint material.
e. Replace damaged and rotted lathing.
f. Repair and seal vent flashing.

3. Where possible, without damaging roof covering, use screwdriver to probe under edge of roof covering at overhang to check for rotted decking or facia board caused by dampness.

a. Replace deteriorated facia and edge boards.
b. Seal under edge of roof covering at overhang.

4. Chimney, wall, vent, valley, and edge flashings for open joints, looseness, proper fastenings, and other deficiency.

a. Secure and seal chimney, valley, and edge flashings where required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ROOF, WOOD SHINGLE

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF__X__ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-015

Obtain materials and equipment and transport to inspection site. Where no other means is available for obtaining access to roof for inspection, a ladder should be used. The inspection is made by observing the entire area of the roof; extreme care should be taken when walking on roofs so as not to damage roof surface. A camera should be utilized by the inspector to record a visual portrayal of major deficiencies which may require an engineering evaluation before such deficiencies are corrected. Those deficiencies which would be difficult to identify at a later date, such as punctures in metal or cracks in wall copings, should be marked with spray paint or lumber crayon. A tape measure is used to measure areas or quantities of repair work which should be accomplished.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect interior ceilings or roof decking beneath roof where possible for discoloration from weather leaks. Check uppermost portion of interior walls for discoloration and alligatoring from leaks. Also, check with building occupants to determine if roof has leaked in past.

a. To be determined when other checks are completed.

2. Wood shingles for weathering, warped, broken, loose, split, curling, missing units or flashing failures.

a. Replace warped, broken, split, curling and missing shingles.
b. Resecure loose singles.
c. Repair and seal sheet flashing.
d. Replace flashing.
e. Replace sections or entire roof.
f. Replace damaged and rotted roof decking or lathing.
g. Replace facia and edge boards.

3. Where possible, without damaging roof covering, use screwdriver to probe under edge of roof covering at overhang to check for rotted decking or facia board caused by dampness.

a. Replace deteriorated facia and edge boards.
b. Seal under edge of roof covering at overhang.

4. Chimney, wall, vent, valley, and edge flashings for open joints, looseness, proper fastenings, and other deficiencies.

a. Secure and seal chimney, valley, and edge flashings where required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ROOF, SINGLE PLY MEMBRANE

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF X OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-016

Obtain materials and equipment and transport to inspection site. Where no other means is available for obtaining access to roof for inspection, a ladder should be used. The inspection is made by observing the entire area of the roof; extreme care should be taken when walking on roofs so as not to damage roof surface. A camera should be utilized by the inspector to record a visual portrayal of major deficiencies which may require an engineering evaluation before such deficiencies are corrected. Those deficiencies which would be difficult to identify at a later date, such as punctures or cracks, should be marked with spray paint or lumber crayon. A tape measure is used to measure areas or quantities of repair work which should be accomplished.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect interior ceilings or roof decking beneath roof where possible for discoloration from weather leaks. Check uppermost portion of interior walls for discoloration and alligatoring from leaks. Also, check with building occupants to determine if roof has leaked in past. Check walls for settlement cracks, efflorescence, evidence of expansion and contraction that can damage roof membrane. Check for physical damage from new equipment installation, alterations.

a. To be determined when other checks are completed.

2. Check general condition of roof, physical defects, drainage, expansion joints, presence of debris. Check for cracks and slippage in membrane, blistering, splitting, ridging, open seams, wrinkling, chalking, and surface erosion. Check securement to substrate, fasteners. Check flashing/counterflashing condition for punctures, deterioration, blisters, open laps, attachment, ridging and wrinkling, rusting (if applicable), drainage. Check roof penetrations, vents for leaks, flashing, caulking. Check gutters for debris and proper attachment. Check flashing terminations for proper seal/closure.

a. Repair or replace damaged or defective membrane and insulation (if wet).
b. Repair and seal sheet flashing.
c. Repair and seal vent and other penetration flashings.
d. Replace entire roof or portion thereof, as applicable.
e. Replace damaged and rotted roof decking, or other structural damage.
f. Remove debris.
g. Repair fasteners.

3. Where applicable without damaging roof covering, use screwdriver to probe under edge of roof covering at overhang to check for rotted decking or facia board caused by dampness.

a. Replace deteriorated facia and edge boards.
b. Seal under edge of roof covering at overhang.

4. Check chimney, wall, vent, valley, and edge flashings for open joints, looseness, proper fastenings, and other deficiencies.

a. Repair/secure and seal chimney, valley, and edge flashings where required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ROOF, POLYURETHANE FOAM

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF X OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-017

Obtain materials and equipment and transport to inspection site. Where no other means is available for obtaining access to roof for inspection, a ladder should be used. The inspection is made by observing the entire area of the roof; extreme care should be taken when walking on roofs so as not to damage roof surface. A camera should be utilized by the inspector to record a visual portrayal of major deficiencies which may require an engineering evaluation before such deficiencies are corrected. Those deficiencies which would be difficult to identify at a later date, such as punctures, should be marked with spray paint or lumber crayon. A tape measure is used to measure areas or quantities of repair work which should be accomplished.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect interior ceilings or roof decking beneath roof where possible for discoloration from weather leaks. Check uppermost portion of interior walls for discoloration and alligatoring from leaks. Also, check with building occupants to determine if roof has leaked in past. Check walls for settlement cracks, efflorescence, evidence of expansion and contraction. Check for physical damage from new equipment installation, alterations.

a. To be determined when other checks are completed.

2. Check for general condition of roof by a walk-over to examine for cracks, texture, punctures, penetrations, pinholes, coating blisters, foam blisters, or delamination of foam or coating. Check drainage, wall scuppers for debris.

Check over all roof for debris. Check flashings around drains, equipment, roof vents, stacks, hatches, along roof edges and parapet walls for defects, cracks, or loss of adhesion of foam or coating. Check expansion joints and other peripheral items. Check for evidence of "bird pecking".

a. Repair foam roof using materials compatible with existing roof, including caulk sealants. (Use of asphaltic, bitumen, or coal tar based mastics and plastic type patching materials should be avoided). Follow guidance in manufacturer's instructions and NAVFAC guidance.
b. Make minor repairs using compatible caulk sealant and small amount of coating material and granules.
c. Make more extensive repairs to areas of poor quality foam, wet foam, foam blisters, foam delamination, or damaged areas. Remove and replace affected areas using proper density pour foam.
d. Recoat repaired areas.
e. Make major repairs including total replacement of roof by contract.
f. Repair/replace expansion joint material.
g. Repair flashing/coating.
h. Repair vent and other penetration flashing/coating.
i. Repair damage from "bird pecking".

3. Where applicable without damaging roof covering, use screwdriver to probe under edge of roof covering at overhang to check for rotted decking or facia board caused by dampness.

a. Replace deteriorated facia and edge boards.
b. Seal under edge of roof covering at overhang.

4. Chimney, wall, vent, valley, and edge flashings for open joints, looseness, proper fastenings, and other deficiencies.

a. Secure and seal chimney, valley, and edge flashings where required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: STAIRS AND RAILINGS

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-018

Obtain materials and transport to inspection site. The inspection is made by observing all areas of the stairway. A screwdriver is used to probe any areas that cannot be readily observed, such as rotted wood and cracks.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each stair. In each case where a deficiency exists, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Risers and treads for wear, or for splintered, split, cracked, chipped, loose, broken, sagging, or rotted wood, or damage to supporting structure.

a. Repair or replace excessively worn or damaged treads.
b. Repair or replace damaged or rotted supporting structure.
c. Repair or replace damaged or rotted risers.

2. Finished treads for absence of protective coatings, evidence of insect infestation in finish and support members, inadequate exposure of abrasive necessary for non-slip finish surfaces, loose, missing, broken, or other damage to abrasive stair nosings or treads.

a. Prepare surface and apply protective coating as appropriate.
b. Repair or replace abrasive material on non-slip finish surfaces including stair nosings.
c. Repair or replace damaged support members.

3. Hand railing and supports for lack of rigidity of support members, looseness, splintering, missing, other deficiency for handrails, lattices, and supports; absence of protective coatings. Metal railings for rust, looseness, bending, or other damage to surfaces and structural supports, broken welds, and loose, missing, or damaged bolts, nuts, rivets and screws.

a. Repair or replace support members.
b. Secure handrail supports.
c. Repair or replace loose or damaged handrails.
d. Repair or replace damaged or loose handrail lattices.
e. Prepare and apply protective coating to handrails, lattices, and support members.
f. Repair bent or damaged metal railings.
g. Reweld broken joints on metal railings or supports.
h. Repair or replace damaged or missing bolts, rivets, nuts, screws on metal railings.
i. Remove rust from metal railings.
j. Prime and paint as appropriate.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: FIRE SPRINKLER SYSTEM, WET/DRY TYPE

TYPE: STRUCTURAL____ MECHANICAL X ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-019

Obtain materials and equipment and transport to inspection site. Since it will be necessary to test all alarm systems associated with the sprinkler system, all building occupants and the fire department, if the sprinkler system is connected to the fire alarm system, should be notified that the sprinkler system's alarms will be tested.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each system and component. In each case where a deficiency exists, the associated repair requirements should be noted.

CHECKS TO BE MADE UNLESS PERFORMED BY PM AND ASSOCIATED REPAIRS TO BE MADE:

DRY PIPE SYSTEM

1. Open 2-inch drain valve (below dry pipe valve) and flow water at full pressure long enough to clean line of accumulated scale, sediment and foreign material. Record static and flow pressures from gauge before and during operation of drain.

a. Clean sprinkler system supply.

2. Check pressure gauge on air side of system to ensure that air pressure of 50 to 60 pounds per square inch (PSI) is being maintained on the system air compressor.

a. Pump up sprinkler system as necessary.
b. Repair air compressor if this is the cause for low air pressure.
c. Ensure that test and other valves on air side of system are fully closed.

3. Open alarm test valve to ensure that outside water motor alarm will operate and that alarm has been transmitted over fire alarm system to the Fire Department. Reset alarm box.

a. Repair outside water motor alarm.
b. Repair electrical switches, wiring, boxes and panel on fire alarm transmitting equipment.

WET PIPE SYSTEM

1. Thoroughly flush water supply line by opening drain valve and flowing water at full pressure long enough to clean pipe of accumulated scale, sediment and foreign material. Record static and residual pressures from gauge readings before and during flow tests.

a. Clean sprinkler system supply line.

2. During flow tests, ensure that outside water motor alarm operates and that alarm has been transmitted over fire alarm system to the fire department. Reset alarm box.

a. Repair outside water motor alarm.
b. Repair electrical switches, wiring, boxes, and panel on fire alarm transmitting equipment.

3. If system is equipped with retard chamber or excess pressure pump, test in accordance with manufacturer's instructions, as appropriate. Release water from chamber after alarm has been tested.

a. Repair retard chamber or excess pressure pump.

BOTH WET AND DRY PIPE SYSTEMS

1. Check general condition of piping, valves, hangers and sprinkler heads to ensure that heads are free of excessive dirt and paint.

a. Replace or repair sprinkler system hangers.
b. Install missing hangers.
c. Remove all obstructions to a distance of at least 12 inches below sprinkler heads.
d. Clean sprinkler heads of dirt and replace painted heads with new heads of the same type and temperature rating.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: DRY CHEMICAL FIRE EXTINGUISHING SYSTEM

TYPE: STRUCTURAL_____ MECHANICAL__X__ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-020

Obtain materials and equipment and transport to inspection site. Notify building occupants in immediate vicinity that system will be checked.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, checks indicated below should be completed. In each case where a deficiency exists, the associated repair requirements should be noted.

CHECKS TO BE MADE UNLESS PERFORMED BY PM AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect nozzles, heads and fusible links to ensure that they are free of dirt, grease and paint, and have not been damaged.

a. Clean nozzles, heads, fusible links and piping of all foreign matter.
b. Replace damaged heads and or fusible links with units of the same type and temperature rating as existing units. Note: fusible links should be replaced once every 12 months.

2. Observe gas pressure on system to ensure that proper pressure is being maintained in accordance with manufacturer's specifications.

a. Notify supervisor if proper operating pressure is not being maintained on system.

3. Turn valve on dry chemical bottle or cylinder to off position and remove bottle or cylinder from system, depending on manufacturer's specifications, and test operation of control head by removing fusible line or pulling test control. Operation of the control head should also activate fan, if installed. Upon completion of test, reinstall chemical bottle, reset control

head, reinstall or reset fusible link, and open and seal dry chemical supply valve.

a. Notify supervisor if system does not properly operate in accordance with manufacturer's specifications.

4. Adequate clearance of heads, nozzles and fusible links from obstructions.

a. Remove obstructions in order to maintain adequate clearance around heads, nozzles and fusible links.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ELECTRIC DISTRIBUTION, MOTOR, GENERATOR, AND RECTIFIER

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-021

Obtain inspectors kit and transport to inspection site. The inspection is performed by physically moving through the area containing the equipment and checking the operation of each piece of equipment. Current OSHA safety requirements, safety standards for electrical systems, should be observed when inspecting electrical equipment.

For each repair requirement identified during inspection, provide the following information:

A. Unit or item and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection checks listed below should be completed. In each case where a deficiency exists, the associated repair requirements should be noted. Except noted below, all checks are made while equipment is operating.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

MOTORS AND GENERATORS

1. Log or operator records for documentation of motor or generator overload, low power factor of load, excessive variation in bearing temperature, or other operating difficulties.

a. Accomplish repairs as indicated from records or perform further tests.

2. Equipment exposure for accessibility for maintenance of instrumentation, physical or other damage, inadequate personnel guards or fences, insufficient or missing safety signs, or operating instructions.

a. Insure posting of proper safety and operating instructions.
b. Repair personnel safety guards and fences.
c. Correct unsafe accessibility problems to allow maintenance of equipment.

3. Housekeeping procedures in plant or equipment room.
   a. Clean up plant interior or equipment room.

4. Machine operation for noise, excessive vibration, rattling.
   a. Report abnormal machine operations for further investigations.

5. Structural supports for cracks, defective vibration pads, shock mounts, loose or corroded bolts and fittings.

   a. Tighten or replace mounting bolts and fittings.
   b. Replace defective vibration pads.
   c. Repair structural supports as necessary.

6. Machine for adequate ventilation and cleanliness of air slots.

   a. Clean air slots on motor or generator to insure adequate ventilation.

7. Motor and generator leads for damaged insulation, poor taping, moisture, arcs, burns, overheating, inadequate terminal connections.

   a. Repair or replace damaged machine leads.
   b. Install proper terminal connections.

8. Bearings for proper lubrication (check lubrication schedules), improper oil level in oil gauges, noise, overheated bearing caps or housings.

   a. Report bearing overheating or excessive machine noise for investigation.
   b. Ensure that bearings are properly lubricated.
   c. Maintain proper level of oil in gauges.

9. Collector rings, commutators and brushes for excessive sparking, surface dirt and grease, excessive brush movement.

   a. Submit report of deficiencies for further investigation.

10. Starters, motor controllers, rheostats and associated switches for damaged or defective insulation, loose laminations, defective heater or resistance elements, worn or arcing contacts.

   a. Repair or replace parts as necessary.
   b. Replace defective heater elements.

11. Protective equipment for dirt, signs of arcing, symptoms of faulty operation, burned out pilot lamps or fuses.

   a. Replace burned-out pilot lights or fuses.
   b. Report symptoms of faulty operation or excessive arcing for further investigation.

12. Generator fuel tank and system, if applicable, for leakage, loose connections, mechanical damage, obstructed vents, loose grounding connections, adequacy of fuel level; strainers and filters for leaks or obstructions; meters and gauges for leakage or breakage.

   a. Clean obstructions from vent screens.

b. Clean grounding connections and tighten.
c. Repair leaks or replace defective piping.
d. Tighten valve packing glands.
e. Clean, tighten, repair or replace strainers or filters as required.
f. Repair or replace defective meters and gauges.
g. Insure that an adequate level is maintained in fuel tank during generator operations.

13. Grounding system for loose, missing and broken connections, signs of burning or overheating, corrosion, rust, frayed cable strands.

a. Repair or replace as required.

RECTIFIERS - Rectifier cabinets and enclosures contain energized electrical equipment. Do not make adjustments, or disturb any valve, control, or other adjustable device during inspection of this equipment.

14. Enclosures for mechanical damage, rust or corrosion, indications of excessive heating.

a. Remove rust and corrosion from rectifier enclosures and apply paint.
b. Submit report of incidents of excessive overheating of enclosure for further investigation.

15. Wiring for damage, missing insulation or clamps, mechanically damaged conduit, cracked or broken sleeves on floor or wall bushings.

a. Repair or replace damaged wiring or clamps.
b. Replace broken sleeves on floor or wall bushings.

16. Record meter readings from all AC and DC ammeters and voltmeters for metallic rectifiers.

a. Submit report for further investigation if supply voltage is more than five percent below or above name plate rating.
b. Replace defective meters.

17. Record readings or water temperature indicators on metallic rectifiers; if provided in indoor installations, record ambient temperature at apparent hottest point five feet from units.

a. Submit report for further investigation if temperature of cooling water is more than ten percent above that recommended by manufacturer.

18. Fans for dirt, excessive vibration, loose hold-down bolts, inadequate or improper lubrication.

a. Tighten fan hold-down bolts and correct blade vibration and alignment.
b. Clean fan and properly lubricate bearings.

19. Water cooling system of mercury arc rectifiers for leaks, rust, corrosion, mechanical damage, excessive vibration, pump vibration, loose or missing hold-down bolts and deteriorated pump mounting pads.

a. Repair leaks in water cooling system.
b. Tighten or replace pump hold-down bolts.
c. Replace pump mounting pads.
d. Remove rust and corrosion from cooling system parts and apply paint.

20. Rectifier grounding system for connections - loose, missing, broken, cables or connections; signs of overheating, corrosion, rust, frayed cable strands.

a. Make repairs as necessary.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ELECTRIC GROUND AND GROUNDING SYSTEM

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-022

Obtain inspectors kit and transport to inspection site. The inspection is performed by physically moving through the area containing the equipment and checking the operation of each piece of equipment. Current OSHA safety requirements, safety standards for electrical systems, should be observed when inspecting electrical equipment.

For each repair requirement identified during inspection, provide the following information:

A. Unit or item and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection checks listed below should be completed. In each case where a deficiency exists, the associated repair requirements should be noted. Except noted below, all checks are made while equipment is operating.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Connections for loose, missing, broken cables or connections; signs of burning or overheating, corrosion, rust, and frayed cable strands.

a. Tighten connections.
b. Replace clamps.
c. Clean connections.
d. Replace cable.

2. Electrical resistance tests for allowable resistance.

a. Repair contact between metallic portions of grounding system and earth.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: INTERIOR ELECTRICAL SYSTEM, SERVICE PANEL, AND CIRCUITS

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X___ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-023

Obtain materials and equipment and transport to work site. The inspection is performed by checking the operation of panel for signs of dirt, corrosion, overheating and circuits for broken inoperative switches and receptacles.

For each repair requirement identified during inspection, provide the following information:

A. Type of item or unit and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection checks listed below should be completed. In each case where a deficiency exists, the associated repair requirements should be noted. Except noted below, all checks are made while equipment is operating.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Service panel for dirt, loose connections, signs of overheating, operation of circuit breakers, frayed or broken wires and proper grounding.

a. Clean dirt and corrosion from panel.
b. Tighten connections.
c. Replace defective circuit breakers.
d. Replace frayed wiring.

2. Circuits for operation of switches, receptacles; wiring for overloaded circuits and missing cover plates.

a. Replace switches and receptacles.
b. Install cover plates.
c. Run additional circuits.

3. Voltages at panelboards.

a. Record voltages.
b. Determine causes of voltages outside tolerable limits.

4. Loading (amperes) on each panelboard and each branch circuit.

   a. Record load readings.
   b. Determine causes of all overloads.
   c. Replace wiring, split loads on circuits, or otherwise correct overloading.

5. Overheated busses, connections, breakers in panelboard using infrared temperature indicating instrument (hand held).

   a. Tighten busses, connections.
   b. Replace defective breakers.
   c. Replace wiring, split loads, or otherwise correct overheating.

6. Panelboard directories for accuracy.

   a. Make corrections to directory.
   b. Provide new typed legible directory.

7. Panelboard identification, panel designation, voltage rating.

   a. Stencil identification, ratings on panelboards.

8. Equipment ground bus and equipment grounding conductors (green wire).

   a. Provide equipment ground bus.
   b. Provide equipment ground conductors.
   c. Replace panelboard.
   d. Replace wiring (rewire building).

9. Lighting fixtures for broken, cracked, discolored diffusers, broken sockets; ballasts for evidence of overheating, thermal protection ("P" rating).

   a. Replace damaged diffusers.
   b. Replace ballasts with "P" rated type.
   c. Replace sockets.
   d. Replace fixtures.

10. Emergency lighting fixtures for proper operation, condition of battery, rust, corrosion; pilot lamps; connections for tightness, signs of overloads, overheating.

   a. Provide water in batteries.
   b. Clean interior of cabinet, top of battery, battery terminals.
   c. Replace broken or defective parts.
   d. Apply anti-corrosion coating to battery terminals.
   e. Replace battery.
   f. Replace emergency light unit.

11. Receptacles for proper rating, polarity, grounding, broken, cracked parts, equipment grounding conductor.

   a. Correct polarity of wiring.
   b. Provide grounding jumper or conductor.
   c. Replace receptacle.

12. Switches for proper rating, grounding, broken parts, grounding conductor.

    a. Provide grounding jumper or conductor.
    b. Replace switch.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ALARM SYSTEMS, FIRE/INTRUSION DETECTION

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-024

Obtain materials and equipment and transport to inspection site. For each local interior building system tested such as a smoke detector system, pull-box system, and sprinkler alarm, the Duty Fire Chief or Fire Department Officer should be notified so that the main alarm board may be secured. Notify the Fire Department Officer upon completion of testing operations. Building occupants should be notified that fire alarm system is to be tested. Comply will all current safety precautions when inspecting and testing fire alarm systems.

For each repair requirement identified during inspection, provide the following information:

A. Type of item or unit and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, checks below should be completed for each type of alarm system. In each case where a deficiency exists, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

FIRE ALARM SYSTEM

1. Wire terminal connections in panel and pull boxes for tightness or corrosion.

a. Tighten wiring connections in panel and pull boxes.
b. Remove corrosion from terminal connections.

2. Pull boxes and mechanisms for proper lubrication.

a. Lubricate pull box mechanism.

3. Actuate interior pull box to determine that it operates the local building alarm and that a proper signal is transmitted over the station fire alarm system by checking with the Fire Department's operator.

a. If system does not operate properly, make repairs as necessary.

4. Actuate interior heat or smoke detector system by applying heat or smoke to selected heat or smoke detectors respectively, to determine that the local building alarm operates properly and that a proper signal is transmitted over the station fire alarm system by checking with the Fire Department's operator.

a. Make appropriate repairs if system does not operate properly.

5. Actuate individual heat or smoke detector not connected to local fire alarm system manually to insure that unit operates properly.

a. Replace individual heat or smoke detector.
b. Replace batteries in heat or smoke detector as appropriate.

AUTOMATIC SPRINKLER SYSTEM

6. Alarm lights, alarm bells, fire boxes for proper operation including zone panels.

a. Make necessary repairs.

7. Low air switches for corrosion and moisture.

a. Remove corrosion and moisture from switch panels and boxes.

8. Actuate trip switch to determine that it operates the local building alarms and that a proper signal is transmitted over the station fire alarm system by checking with the Fire Department's operator. This test should also be made when dry pipe sprinkler valves are drip tested under wet conditions.

a. Make necessary repairs.
b. Reset panel, system, and alarm boxes upon completion of tests.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: SWIMMING POOL, STRUCTURE

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-025

Obtain materials and equipment and transport to inspection site. A complete inspection of each swimming pool should be made when the pool has been drained either temporarily or after seasonal operations at which time all of the items on the following checklist should be thoroughly checked. Inspections made during seasonal operations should include as many of the items on the checklist as applicable when pool is full of water.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, when a deficiency identified, the associated repair requirements should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Concrete for cracks, breaks, spalling, exposed reinforcing, settlement.
   a. Patch cracks, repair breaks, and spalled areas in concrete.
   b. Replace section of concrete.

2. Tile for chipping, cracking, loose, and missing pieces; mortar joints.
   a. Replace chipped, cracked, loose or missing pieces of tile.
   b. Grout or repoint deteriorated mortar joints.

3. Expansion joints for leakage and damage.
   a. Recaulk expansion joints.
   b. Replace or repair expansion joints as appropriate.

4. Wall and floor finishes for roughness and dirt.
   a. Clean wall and floor surfaces.

5. Depth markers and lane stripes for visibility.

   a. Clean depth markers and lane stripes.
   b. Replace stripes.

6. Springboards for cracks, breaks, splintering and other damage; loose or missing fastenings; absence of nonslip coverings.

   a. Repair damaged springboard.
   b. Replace springboard.
   c. Tighten springboard fasteners and replace missing fasteners.
   d. Replace damaged nonslip coverings on springboard.

7. Ladders for rust or corrosion of metal parts; loose, missing, broken parts, rot, or other damage; alignment of towers.

   a. Remove rust and corrosion from metal ladders; apply protective coating as appropriate.
   b. Replace damaged and missing wooden parts of ladders.
   c. Align towers as required.

8. Main drains for sediment and rust.

   a. Clean main drains.
   b. Remove rust from main drain metal parts and apply protective coating as appropriate.

9. Gutter drains for obstructions.

   a. Clean gutter drains.

10. Walls for stains.

   a. Clean stains from pool walls.

11. Fences, barricades, dividing walls and footings for broken, loose, missing, or other deficient sections.

   a. Repair damaged metal cloth fencing.
   b. Repair damaged masonry dividing walls.
   c. Replace broken and loose footings to fence poles.

12. Painted surfaces for blistering, checking, cracking, scaling, wrinkling, flaking, peeling, rust, corrosion, absence of paint.

   a. Prepare and paint surfaces as indicated.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: LIQUID FUEL FACILITIES STORAGE/DISTRIBUTION SYSTEM

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-026

Obtain materials and equipment and transport to inspection site. A ladder is utilized to gain access to roofs and other overhead places. A tape measure should be used to measure areas or quantities of repair work which should be accomplished. Comply with all current safety precautions.

For each repair requirement identified during inspection, provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each component. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

FUEL FACILITIES (STORAGE)

1. Inspect foundations for settlement, cracking, and heaving.
   a. Shore up or replace foundation.

2. Inspect exterior concrete surfaces for cracks, exposed reinforcing, leaks and spalling.
   a. Repair and seal cracks.
   b. Cover exposed reinforcing.
   c. Repair leaks and concrete surfaces.

3. Inspect exterior steel surfaces for rust, corrosion, and deteriorated paint.
   a. Prepare surface, prime, and paint.

4. Inspect roof surfaces.
   a. Repair or replace roof.

5. Inspect floating and expansion type roofs, seals, supports, and support guides for rust, corrosion, sealing, paint, and damage.
   a. Repair roof and replace seals.
   b. Remove rust and corrosion, repair damaged parts.
   c. Prime and paint metal surfaces.

6. Inspect structural supports and connections for rust, corrosion, rot, and for broken, cracked, distorted, loose, missing members; deteriorated paint.
   a. Repair or replace deteriorated parts or supports, as required.
   b. Prepare surfaces, prime and paint as necessary.

7. Inspect tank linings.
   a. Replace or repair as appropriate.

8. Inspect tank interior.
   a. Repair cracks and leaks.
   b. Clean interior of tank of residue and rinse clean.

9. Inspect frames and covers on manholes and hatches for rust, corrosion, cracks, breaks, missing or damaged bolts, defective hinges and gaskets.
   a. Remove rust and corrosion.
   b. Replace defective and missing parts.
   c. Renew gaskets.
   d. Prime and paint metal surfaces.

10. Inspect vents for rust, corrosion, dirty screens.
   a. Remove rust and corrosion and apply protective coating as appropriate.
   b. Clean dirty screens.

11. Check pressure and vacuum relief valves for operation, leakage, adjustment.
   a. Repair or replace valves.
   b. Adjust valves as required.

12. Check manometers and thermometers for accuracy, damage, level of fluid.
   a. Calibrate manometers and thermometers.
   b. Replace damaged instruments.

13. Check float gauges for wear, binding, accuracy.
   a. Replace float gauge and adjust.
   b. Adjust float gauge.

14. Check cables, sheaves, and winch of swing lines for wear; damage, seals, operation.
   a. Replace frayed or rusty cables and damaged or badly worn sheaves.
   b. Repair winch, lubricate, adjust for smooth operation.
   c. Replace seals.

15. Inspect stairs, ladders, platforms, and walkways for rust, corrosion, rot, and for broken, cracked, loose, missing, members or connections; deteriorated paint.
    a. Remove rust and corrosion from metal parts.
    b. Replace or repair damaged or missing parts.
    c. Prime and paint surfaces.

16. Inspect roof drains and screens.
    a. Clean out drains and screens.
    b. Repair or replace damaged drains and screens.

17. Inspect ground connections for looseness, damage, corrosion.
    a. Tighten loose connections.
    b. Clean or remove corrosion.
    c. Replace damaged parts.

18. Inspect berms and dikes for cracks, spalling, rust, corrosion, settlement, heaving, soil erosion, water seepage, adequate sod cover on outer face, breaks, other damage.
    a. Repair and seal cracks and breaks.
    b. Repair damaged concrete surfaces as appropriate.
    c. Remove rust and corrosion, prime and repaint surfaces.
    d. Replace eroded soil, grade and reseed or resod as necessary.

19. Inspect drainage ditches, sumps, and earth surfaces between ditch and foundation for slope, trash, and erosion.
    a. Clean out ditches and sumps.
    b. Remove trash.
    c. Replace eroded soil; resod to prevent erosion.

<u>FUEL FACILITIES (DISTRIBUTION)</u>

1. Inspect all above ground piping for leaks, missing hangers or supports, defective gland nuts and bolts, and deterioration or damage to paint or protective coverings.
    a. Repair leaks.
    b. Replace defective piping, missing hangers or supports, defective gland nuts and bolts.
    c. Repaint and replace protective coverings.

2. Check valves for leaks, corrosion, damage, or other deficiencies.
    a. Tighten, repair, clean, replace and lubricate valves.

3. Check meters and gauges for leaks, cracked or broken glass, defective gaskets, moisture and accuracy of indicating and recording mechanism.
    a. Repair or replace defective meters and gauges.

4. Check accuracy of thermometers.
    a. Adjust or replace thermometers as necessary.

5. Check strainers for leaks, obstructions, damage and wear.
   a. Clean, tighten, repair or replace strainers as required.

6. Check shock arrester for leaks and proper operations.
   a. Repair or replace shock arrester as required.

7. Check liquid in U-bend of liquid cushion arrester for proper level of liquid as required.
   a. Add or remove liquid as required.

8. Check all signs and markings for accuracy and legibility.
   a. Replace or repaint signs and markings as required.

CATHODIC PROTECTION SYSTEM

1. Check terminals for rust, corrosion, broken or frayed wires, loose connections.
   a. Clean, repair, and tighten as required.

2. Check anode suspensions for rust, corrosion, bent or broken members, frayed or broken wires, loose connections.
   a. Clean, tighten connections, and repair as required.

3. Check enclosure or rectifier power system for damage, rust, or corrosion.
   a. Clean and repair as necessary.

4. Check voltmeter and ammeter readings, if installed.
   a. Make adjustments as required in accordance with manufacturer's specifications.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: FENCE, CHAIN LINK

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-027

Obtain inspection kit and equipment and transport to inspection site. The inspector will walk the fence line for close visual examination to evaluate the deficiencies. A steel tape or rolatape is used to measure areas in need of repairs.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Metal posts for rust, corrosion, looseness, distortion, leaning, broken parts, missing units, inadequate base support, or settlement of concrete foundations.
   a. Remove rust or corrosion; prime and paint as necessary.
   b. Straighten bent or leaning post; secure fabric.
   c. Replace broken or missing post; refasten fabric.
   d. Replace inadequate base support or settlement of concrete foundations.

2. Fabric for looseness, rust, corrosion, broken areas, holes, and loose, missing, broken, or other damage to guard and stretch wires, fastening wires and clamps, particularly at endposts, cornerposts, gateposts, and where attached to structures.
   a. Restretch fabric to eliminate looseness.
   b. Remove rust or corrosion; prime and paint as necessary.
   c. Replace broken areas or repair holes in fabric.
   d. Replace missing or broken guard or stretch wires.

e. Replace missing or broken fastening wires or clamps on posts.

3. Top, bottom and mid bracing rails for rust, corrosion, bent, broken or missing components, particularly at corners.

a. Remove rust or corrosion; prime and paint as necessary.
b. Straighten rail if bent, refasten fabric.
c. Replace broken or missing rails.

4. Metal gates for misalignment, difficult opening and closing, and loose, missing or broken stops, checks, rollers, hinges, latches, and locks.

a. Straighten bent or misalignment of rails.
b. Adjust difficult opening or closing gate.
c. Remove rust or corrosion; prime and paint as necessary.
d. Repair or replace loose, missing or broken rollers, hinges, latches, locks, stops, or checks.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: FENCE, WOOD

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-028

Obtain inspection kit and equipment and transport to inspection site. The inspector will walk the fence line for close visual examination to evaluate the deficiencies. An awl is used to probe for rotten wood, and a steel tape or rolatape is used to measure areas in need of repairs.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Wood posts for looseness, leaning, splintering, breakage, missing units, rot, termite infestation, improper wood species or failure to receive treatment to resist damage from weather or insects.
   a. Straighten leaning or loose post.
   b. Replace inadequate post support or concrete foundation.
   c. Replace broken, missing or damaged post.
   d. Treat or replace post with termite infestation, damage from weather or insects.

2. Wood pickets or planks, and rails for looseness, missing units, broken units, decay, and insect infestation; failure to provide ground clearance under fence pickets, planks, or bottom rails.
   a. Renail loose pickets, planks, or rails.
   b. Replace broken, decayed sections.
   c. Treat for insect infestation.
   d. Remove underbrush or soil to provide ground clearance.

3. Wood gates for looseness, broken units, splintering, rotten, or missing parts, misalignment, difficulty of opening and closing, loose, missing, or broken stops, checks, rollers, hinges, latches, and locks.

a. Renail loose section of gate.
b. Replace broken splintered, rotted or missing gate parts.
c. Adjust difficult opening and closing.
d. Repair or replace loose, broken missing stops, rollers, hinges, latches and locks.

4. Painted surfaces for flaking, scaling, peeling, blistering, or complete absence of paint.

a. Prime and paint as necessary.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: FRESH WATER STORAGE, ELEVATED TANK

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-029

Obtain materials and equipment and transport to inspection site. Perform inspection by walking through the site and climbing foot ladders as necessary in order to check and examine the condition of tank and associated equipment. Comply with all current safety precautions.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Items or unit
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Receptacles, outlets, and conduits for protection against dirt, weather, and entrance of moisture; proper grounding.
   a. Clean and touch up corroded parts with paint.
   b. Repair weather tightness as required.
   c. Repair grounding as required.
   d. Replace defective units.

2. All threaded caps for security.
   a. Make repairs as required.

3. Wiring and electrical controls for loose connections, charred, broken or wet insulation, evidence of short circuiting and other deficiencies.
   a. Tighten, repair or replace as required.

4. Recirculating pump.
   a. Repair or replace packing as necessary.
   b. Replace missing or defective parts.
   c. Repair leaks.
   d. Lubricate pump and motor.

5. All covers and seals, bolts and screws; check for rust, corrosion, and other deficiencies.
   a. Remove rust and corrosion and spot paint; make repairs as necessary.

6. Proper identification and markings.
   a. Renew improper or illegible identification and markings.

7. Steel tanks for rust, corrosion, leakage, scale, damaged protective coating.
   a. Remove rust, corrosion and scale.
   b. Repair leaks and damaged areas.
   c. Prepare surface and paint as necessary.

8. Wood tanks for leakage, rot, and insect infestation and damage.
   a. Repair leaks and damaged areas.
   b. Treat for insect infestation.
   c. Replace defective wood sections.

9. Tower for rust, corrosion, damage, rot, and insect infestation as applicable.
   a. Remove rust and corrosion.
   b. Repair damaged areas.
   c. Replace defective wood sections.
   d. Treat for insect infestation.

10. Valves, piping, fittings, and sleeves for rust, corrosion, leakage, and damage.
   a. Remove rust and corrosion and paint as necessary.
   b. Repair leaks and damage.

11. Ladders for deterioration and safety requirements.
   a. Repair, remove rust and corrosion, and paint.

12. Aircraft warning lights for operation.
   a. Tighten, repair or replace as required.
   b. Replace burned out lamps.

13. Cathodic protection system for rust, corrosion, broken or frayed wires, loose connections; impressed current systems for proper operation.
   a. Remove rust and corrosion.
   b. Tighten connections.
   c. Note condition and degree of dissipation of protective anodes.

d. Repair defective impressed current system.

14. Water level indicator for proper operation.
    a. Repair or replace as necessary.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: FRESH WATER STORAGE, GROUND/UNDERGROUND

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-030

Obtain materials and equipment and transport to inspection site. Perform inspection by walking through the site and climbing foot ladders as necessary in order to check and examine the condition of all storage tanks and associated equipment. Comply with all current safety precautions.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Items or unit
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Foundations for settlement, damage, rot, insect infestation.
   a. Shore up and repair damage.
   b. Replace timbers.
   c. Treat for insect infestation.

2. Steel tanks for rust, corrosion, leakage, scale, damaged protective coating.
   a. Remove rust, corrosion and scale.
   b. Repair damage, leaks, and protective coating.

3. Concrete tanks for damage, cracks, spalling, leakage, and damaged protective coating.
   a. Repair damaged areas and leaks.
   b. Recoat areas as necessary.

4. Wood tanks for leakage, rot, insect infestation, and damage.
   a. Repair leaks and damaged areas.
   b. Treat for insect infestation.
   c. Replace defective wood sections.

5. Expansion joints for loose or missing sealant.
   a. Replace sealant.

6. Earth embankments for erosion, ponding of water, and leakage.
   a. Resod as necessary; replant ground cover.
   b. Open drainage ditches or pipes.
   c. Correct leakage through embankment or along outlet piping.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: GRASS, LANDSCAPED AREAS

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER__X__

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-031

Obtain materials and equipment and transport to inspection site. A visual inspection is normally performed by walking over the entire area covering a small section at a time until the entire area has been inspected. A rolatape is used to measure areas or quantities of repair work which should be accomplished.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Lawn and other turf areas including borders for traffic damage, color, density, sparse and bare spots, weeds, undesirable grasses, diseases, insect damage, erosion, silt deposits, excessive height, damage caused by burrowing animals, and low spots.

a. Repair areas damaged by traffic, fertilize, and reseed.
b. Fill in bare spots if necessary, remove soil, fertilize and reseed area.
c. Spray area with herbicide to remove weeds and undesirable grasses.
d. Spray area damaged by insects with appropriate insecticide.
e. Repair eroded area as appropriate and stabilize by reseeding and applying mulch.
f. Fill in low spots and areas, fertilize and reseed.
g. Mow lawn areas.
h. Fertilize lawn areas.
i. Apply lime to lawn areas.

j. Aerate lawn areas.
k. Exterminate burrowing animals and repair damaged areas to lawn as appropriate.
l. Reseed lawn areas.

2. Where sections or patches of grass have died, pull up a sample of dead grass and check blades and roots for possible cause(s) of grass dying.
a. Correct cause of grass dying as appropriate.

3. Border strips and areas seeded to rough grasses for poisonous or noxious weeds; seedling trees that may hinder mowing operations, erosion and siltation, stunted growth.
a. Spray border strips with herbicide to kill poisonous and noxious weeds.
b. Remove seedling trees in border areas.
c. Repair eroded areas and stabilize as appropriate.
d. Apply fertilizer to border strips and areas.
e. Reseed border strips and areas as appropriate.

4. Sprinkler system nozzles, sprayers, hose, pipe, and valves for rust, corrosion, clogging, inadequate width or pressure, leakage, defective operation, evidence of water usage waste.
a. Repair or replace as appropriate sprinkler system nozzles, sprayers, hose, pipe and valves.
b. Repair leaks in sprinkler system piping.
c. Unstop clogged sprinkler system piping, nozzles or other parts as appropriate.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: SHRUB, TREE, PLANT LANDSCAPED AREAS

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER__X__

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-031

Obtain inspector's kit and equipment and transport to inspection site. A rolatape is used to measure areas or quantities of repair work which should be accomplished. The inspection is made by walking or riding over the area, depending on the density of the area and accessibility of riding equipment.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Trees and shrubs in landscaped areas for stunted growth, need of trimming, interference with utilities or buildings, injury from mowers, structural weaknesses, and storm, disease, or insect damage.
   a. Trim shrubs.
   b. Prune trees.
   c. Apply fertilizer to area.
   d. Spray trees and shrubs with insecticide or fungicide to control insects and disease as appropriate.
   e. Install guards around trees for protection from mower damage.
   f. Trim or prune trees where limbs interfere with utility lines or buildings.

2. Flower, plant and shrub areas for undesirable weeds and grasses, damage caused by burrowing animals, diseases, insect damage, erosion, dead plants, excessive height, need of trimming and cultivation, need for mulching, need for replacing flowers and other plants.

a. Weed plant areas.
b. Cultivate plant areas.
c. Apply mulch to plant areas.
d. Remove and replace flowers and other plants.
e. Exterminate burrowing animals and repair damaged areas as appropriate.
f. Repair eroded area as appropriate and stabilize by mulching.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: PLAYGROUND, NON-PAVED

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER__X__

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-033

Obtain tools and equipment and transport to inspection site. The inspection is performed by walking over the entire area. A camera may be used to record a visual portrayal of major deficiencies which may require an engineering evaluation or justification for equipment replacement. A tape is used to measure areas or quantities of repairs required.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Surface area for potholes, uneven areas, bare spots, dead grass, low spots, stunted growth.
   a. Fill holes, grade, fertilize, reseed as required.
   b. Mow grass.
   c. Spray insecticide or herbicide as appropriate.
   d. Fertilize.
   e. Check, clean or replace spray nozzles.

2. Equipment for broken, bent, loose, missing, rusted parts. Safety hazards, and improper installation.
   a. Straighten, tighten, replace parts.
   b. Clean, prime and paint.
   c. Realign or reinstall equipment.

3. Signs for proper installation.
   a. Secure or replace signs.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: PLAYGROUND, PAVED

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER X

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-034

Obtain tools and equipment and transport to inspection site. The visual inspection is performed by walking over the entire area. A camera may be used to record a visual portrayal of major deficiencies which may require an engineering evaluation or justification for equipment replacement. A tape is used to measure areas or quantities of repairs required.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Surface area for potholes, cracks, spalling, depressions, open expansion joints and frost heaves.
   a. Fill potholes, seal cracks and expansion joints.
   b. Repair spalled areas, replace sections.

2. Equipment and signs for broken, bent, rusted parts, safety hazards, improper installation.
   a. Replace, straighten, clean and paint parts.
   b. Realign and reinstall equipment.
   c. Replace signs or resecure.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: COURTS, BASKETBALL/TENNIS

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER__X__

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-035

Obtain tools and equipment and transport to inspection site. The inspection is made by moving over the entire area. A ladder my be used for a close look at the backboards, basket rings and nets. An awl or other pointed tool may be used to probe wooden posts for rot. A tape measure is used to meassure areas or quantities of repairs required.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each inspection. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Court surfaces for expansion joint filler, cracks, holes; lines for visibility and signs for legibility and fastening.
   a. Clean and reseal expansion joints.
   b. Fill cracks.
   c. Patch holes.
   d. Reline court.
   e. Replace or repair signs.
   f. Resurface court.

2. Fixtures for holes, rips, tears in nets, metal post for rust, corrosion; loose, bent, broken parts; wood parts for rot, loose, peeling paint.
   a. Repair holes or replace nets.
   b. Straighten, tighten or replace metal poles.
   c. Repair, tighten or replace wood poles.
   d. Wirebrush, scrape, sand, prime and paint where required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ROADS, CONCRETE/ASPHALT

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER X

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-036

Obtain inspections kit and equipment and transport to inspection site. At both ends of road being inspected place signs, "Men Working" on right side of road and "Resume Speed" on left side of road. The inspector will walk down one side of road and back on the other side for close visual examination to evaluate the deficiencies. A camera may be utilized to record a visual portrayal of major deficiencies which may require an engineering evaluation.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for the applicable road surface. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

CONCRETE ROADS

1. Expansion joints for verticality, excessive or insufficient joint filler, filler not bonded to side of joints, foreign material wedged in joint.
   a. Remove excessive expansion joint filler.
   b. Clean joint and add joint filler for insufficient filler.
   c. Remove expansion joint filler, clean joint, replace filler.
   d. Remove foreign material from joint, reseal joint.

2. Surface for buckling caused when pavement expands beyond joint capacity.
   a. Remove and replace buckled area.
   b. Install new joint filler and seal.

3. Surface for frost heave caused by expansion of a wet subgrade when it freezes.
   a. Remove damaged concrete, replace subgrade and install and finish new concrete.

4. Surface for depressions caused by consolidation of soft soil under load. May be evidenced by ponding of water after rains.
   a. Remove concrete, replace soft soil under concrete with stable soil, and install new concrete.

5. Surface for cracks caused by poor subbase support, overload, improper joint spacing, poor concrete mix, soft or wet subgrade.
   a. Remove dirt from cracks and pour filler in cracks.
   b. Remove concrete, remove subbase soil, replace soil and concrete.

ASPHALT ROADS

1. Surface for bleeding caused by excess bitumen on surface.
   a. Remove, absorb bitumen from asphalt surface.

2. Surface for potholes caused by holes in asphalt from water, freezing.
   a. Clean hole, replace asphalt.

3. Surface for ravelling caused by aggregate particles pulled loose from surface by abrasive erosion.
   a. Resurface with top coat.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ROADS, GRAVEL/EARTH

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER__X__

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-037

Obtain inspections kit and equipment and transport to inspection site. At both ends of road being inspected place signs, "Men Working" on right side of road and "Resume Speed" on left side of road. The inspector will walk down one side of road and back on the other side for close visual examination to evaluate the deficiencies.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. High and low areas for bedding courses, breaks, potholes, corrugations, rutting, inadequate crown, general deterioration.
   a. Grade road removing corrugations, rutting, potholes, inadequate crown.
   b. Add gravel, grade, roll for bedding course, breaks and general deterioration.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: PARKING AND OTHER PAVED AREAS

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER X

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-038

Obtain tools and equipment and transport to inspection site. The visual inspection is usually performed by walking over the entire area to be inspected. A camera may be utilized to record a visual portrayal of major deficiencies which may require an engineering evaluation. A tape is used to measure areas or quantities of repair work required.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each type of surface. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Asphalt areas for potholes, cracks, frost heave, bleeding and revelling.
   a. Patch potholes, cut out and patch frost heave and bleeding areas, seal cracks.
   b. Resurface with top coat.

2. Concrete areas for cracks, spalling, breaks, open expansion joints and buckling.
   a. Seal cracks, open expansion joints.
   b. Patch spalling areas.
   c. Cut out and replace broken and buckled areas.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: CURB, GUTTER, AND SIDEWALKS

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER X

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-039

Obtain materials and equipment and transport to inspection site. Walk along sidewalk while inspecting sidewalks, curbs, and gutters. A tape measure is used to measure areas or quantities of repair work required.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each type of surface. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Check curbs, gutters for cracks, breaks, alignment, damaged tops, and adequacy of expansion joints.
   a. Repair or seal cracks or breaks.
   b. Replace section of concrete.

2. Check expansion joints in sidewalks for sufficient joint filler, proper bonding of filler, and for foreign material in joints.
   a. Clean out joints; replace filler.

3. Check rigid pavements in sidewalks for spalling, cracks, depressions, scaling, buckling, and damage.
   a. Remove and replace concrete.
   b. Repair and seal cracks.
   c. Repair damaged area.
   d. Remove tree roots and realign.

4. Check flexible sidewalk pavements for ravelling, bleeding, depressions, and damage.
   a. Repair as necessary and seal coat.

5. Check brick and stone sidewalks for depressions, loose or missing parts, and grout or bedding failure.
   a. Remove brick or stone, build up base, replace brick or stone.
   b. Replace loose or missing pieces.
   c. Regrout parts.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: STORM DRAINAGE DITCH AND SYSTEM

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER__X__

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-040

Obtain tools and equipment and transport to inspection site. The visual inspection is normally performed by observation from the edge of the ditch or culvert. Binoculars may be used for a closer look at distant trouble areas. Travel can be by walking or riding, depending on the vegetation density of the area and the availability of suitable equipment. A camera may be utilized to record a visual portrayal of major deficiencies which may require an engineering evaluation. A tape measure is used to measure areas or quantities for repair work required.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, where a deficiency is identified, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Valley drainage channels including culverts and manholes for overflow, stoppage, silt, debris, vegetation, erosion, and caving (includes removing and reinstalling manhole covers).
   a. Clean as required.
   b. Fill, seed, and mulch.
   c. Construct retainer.
   d. Perform appropriate repair to culverts.
   e. Cut or trim vegetation as appropriate.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: AERATION EQUIPMENT (WATER) - ELECTRICAL

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-041

Obtain materials and equipment and transport to inspection site. Perform the inspection by checking operation of the controls and observation of systems. Comply with all current safety precautions when conducting the inspection.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Type unit or item and location
B. Repair required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Motors for operation, noise, and excessive heating.
   a. Replace bearings.
   b. Clean connections.
   c. Secure anchor bolts.
   d. Lubricate bearings.
   e. Align motor shaft.
   f. Replace motor and align shaft.

2. Wiring and electrical controls for loose connections, charred, broken or wet insulation, evidence of short circuiting, and other deficiencies.
   a. Tighten loose connections.
   b. Repair or replace damaged wiring as necessary.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: AERATION EQUIPMENT (WATER) - MECHANICAL

TYPE: STRUCTURAL_____ MECHANICAL___X__ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-042

Obtain materials and equipment and transport to inspection site. Perform the inspection by checking operation of the controls and observation of systems. Comply with all current safety precautions when conducting the inspection.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Item or unit
B. Repair required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Operation of air diffuser for proper operation; drain air diffuser and examine joints for leaks, diffusers for breakage, piping for rust and corrosion.
   a. Clean, adjust, repair or replace defective parts as required.
   b. Repair all leaking joints and piping.

2. Compressor for unusual noises, excessive vibration, leakage, overheated bearing, dirty air filter, defective pressure relief valve.
   a. Clean or replace intake air filter.
   b. Repair leak.
   c. Lubricate as required by manufacturer.
   d. Tighten mounting supports.
   e. Replace pressure relief valve.
   f. Drain moisture from tank and replace filter in air line.

3. Drive unit for proper operation.
   a. Lubricate in accordance with manufacturer's instructions.
   b. Adjust or replace parts as necessary.
   c. Replace filter, if required.

4. Packing glands for leakage.
   a. Tighten or replace as required.

5. Valves for proper operation, leakage, damage.
   a. Lubricate valve stem threads.
   b. Tighten packing glands or flange bolts, as required.
   c. Replace valves if beyond repair.

6. Piping for corrosion, leakage, or defective joints.
   a. Tighten loose bolts on flanged pipe.
   b. Repair leaks as required.
   c. Remove corrosion and apply appropriate protective coating.

7. Inspect structure for damage or deterioration.
   a. Replace wood, screens, metal as required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: AERATION EQUIPMENT (SEWAGE) - ELECTRICAL

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-043

Obtain materials and equipment and transport to inspection site. Perform the inspection by checking operation of the controls and observation of systems. Comply with all current safety precautions when conducting the inspection.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Type unit or item and location
B. Repair required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Motors for operation, noise, and excessive heating.
   a. Replace bearings.
   b. Clean connections.
   c. Secure anchor bolts.
   d. Lubricate bearings.
   e. Align motor shaft.
   f. Replace motor and align shaft.

2. Wiring and electrical controls for loose connections, charred, broken or wet insulation, evidence of short circuiting, and other deficiencies.
   a. Tighten loose connections.
   b. Repair or replace damaged wiring as necessary.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: AERATION EQUIPMENT (SEWAGE) - MECHANICAL

TYPE: STRUCTURAL_____ MECHANICAL__X__ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-044

Obtain materials and equipment and transport to inspection site. Perform the inspection by checking operation of the controls and observation of systems. Comply with all current safety precautions when conducting the inspection.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Type unit or item and location
B. Repair required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Blowers for operation, noise and output.
   a. Replace bearings.
   b. Adjust belt tension or replace belt as appropriate.
   c. Balance or replace rotary vane blower.
   d. Clean and paint housing.
   e. Lubricate bearings.
   f. Align motor shaft.

2. Air lines and diffusers for operation, clogging, bends or corrosion.
   a. Clean diffusers.
   b. Replace diffusers.
   c. Replace piping.
   d. Straighten pipes.

3. Airlifts for operation, clogged or corroded lines.
   a. Clean lines.
   b. Replace lines.
   c. Clean venturi.

4. Gate valves for operation and leaking.
   a. Repack valve.
   b. Replace valve.
   c. Replace defective parts.
   d. Tighten packing glands.

5. Check valves for operation and sealing.
   a. Replace flapper.
   b. Replace valve.
   c. Refinish seat.
   d. Replace seal.

6. Compressor for unusual noises, excessive vibration, leakage, overheated bearings, dirty air filter, defective pressure relief valve.
   a. Clean or replace intake air filter.
   b. Repair leak.
   c. Lubricate as required by manufacturer.
   d. Tighten mounting supports.
   e. Replace pressure relief valve.
   f. Drain moisture from tank and replace filter in air line.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: CHEMICAL FEED EQUIPMENT FOR WATER SUPPLY - ELECTRICAL

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-045

Obtain materials and equipment and transport to inspection site. Perform the inspection by walking through the site checking operation of each piece of equipment and examining the condition of each component. Comply with all current safety precautions when conducting the inspection.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Items or unit
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Motors for overheating and vibration
   a. Lubricate, repair, or replace.

2. Wiring and electrical controls for loose connections, charred, broken or wet insulation, evidence of short circuiting, and other deficiencies.
   a. Tighten, repair or replace as required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: CHEMICAL FEED EQUIPMENT FOR WATER SUPPLY - MECHANICAL

TYPE: STRUCTURAL_____ MECHANICAL__X__ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-046

Obtain materials and equipment and transport to inspection site. Perform the inspection by walking through the site checking operation of each piece of equipment and examining the condition of each component. Comply with all current safety precautions when conducting the inspection.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Items or unit
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. General condition of equipment for leakage, rust, corrosion, loose bolts and damage.
   a. Tighten, repair or replace and clean as required.

2. Piping for encrustation, potable waterlines below rim of tank, air gap to prevent siphonage.
   a. Clean and make adjustments.

3. Strainers for clogs or partial obstructions.
   a. Clean as required.

4. Valves for proper operation.
   a. Clean orifices and foot valves.
   b. Replace or repair as necessary.

5. Sight glasses and rate of flow indicators for dirty glass and proper operation.
   a. Clean and adjust as required.

6. Water meters for proper operation.
   a. Clean, adjust and repair as necessary.

7. Feed control units for proper operation.
   a. Clean, adjust and repair as necessary.

8. Pumps for vibration and adequate belt tension.
   a. Lubricate, repair or replace pump.
   b. Replace or adjust belt tension.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: CHLORINATOR AND HYPOCHLORINATOR - ELECTRICAL

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-047

Obtain materials and equipment and transport to inspection site. Perform the inspection by walking through the site checking operation and examining the condition of each piece of equipment. Comply with all current safety precautions, particularly with respect to chlorine gas when checking chlorinator.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Item or unit
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Motors for excessive heat or vibration, noisy operation.
   a. Replace or repair motor.
   b. Lubricate motor bearings as required.
   c. Tighten mounting bolts.

2. Wiring, motor controllers and other electrical controls for loose connections, charring broken or wet insulation, evidence of short circuiting, worn contacts, arcing, grounds, defective heater or resistance elements, and other deficiencies.

   a. Replace worn contacts.
   b. Tighten loose connections.
   c. Replace defective heater or resistance element.
   d. Make other repairs as necessary.

3. Adequacy and operation of ventilation system.
   a. Repair motors or fans as necessary.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: CHLORINATOR AND HYPOCHLORINATOR - MECHANICAL

TYPE: STRUCTURAL_____ MECHANICAL__X___ELECTRICAL_____ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-048

Obtain materials and equipment and transport to inspection site. Perform the inspection by walking through the site checking operation and examining the condition of each piece of equipment. Comply with all current safety precautions, particularly with respect to chlorine gas when checking chlorinator.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Items or unit
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Gas mask and ammonia water bottle for proper placement. Check gas mask cartridge date and seal.
   a. Insure installation of gas masks and ammonia water bottle.

2. Leakage or corrosion on cylinders, piping, valves and connections.
   a. Tighten leaking connections.

3. Bottle assembly for proper operation, accurate scales, cylinder pressure gauge, or flow meter.
   a. Replace pressure gauge.
   b. Adjust or replace flow meter.
   c. Repair or adjust scales.

4. Water supply systems for leakage, corrosion, proper water levels, water splash, dirty or clogged strainers, backflow preventers.
   a. Clean strainers.
   b. Tighten connections.
   c. Make other repairs as necessary.

5. Valves for proper operation, leakage, evidence of sticking.
   a. Make finger tight adjustments on exposed hard rubber fittings as required.

6. Vacuum relief for proper operation, plugging.
   a. Make repairs as necessary.

7. Metering devices for proper operation.
   a. Make repairs as necessary.

8. Ventilation for proper operation and adequacy.
   a. Make repairs as necessary.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: FRESH WATER SUPPLY DISTRIBUTION SYSTEM

TYPE: STRUCTURAL_____ MECHANICAL__X__ ELECTRICAL_____ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-049

Obtain materials and equipment and transport to inspection site. Perform the inspection by operating each piece of equipment and examining the condition of each component. Comply with all current safety precautions.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Items or unit
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. All exposed piping for leakage, corrosion, loose connections and damage.
   a. Tighten, repair, replace and clean as required.

2. All underground piping for leakage, ponding, erosion, or settlement.
   a. Tighten, repair, replace and clean as required.

3. Buried valves for bent stem, leakage, corrosion, and proper operation.
   a. Replace or repair damaged parts.
   b. Lubricate stem threads and packing as required.

4. Exposed valves for bent stem, leakage, corrosion, and proper operation.
   a. Repair or replace damaged parts.
   b. Lubricate stem threads and packing as required.

5. Hydrants and hydrant shut off valves for missing caps, broken or missing chains, damaged threads, missing or damaged guards and identification markings.
   a. Repair or replace parts as necessary.
   b. Lubricate hydrant stem threads.
   c. Replace identification markings.

6. Hydrants for rust and corrosion.
   a. Remove rust and corrosion and apply paint where applicable.

7. Valve, meter pit manholes, and roadway boxes for rust, corrosion and damage.
   a. Remove rust and corrosion and apply paint where applicable.
   b. Repair or replace damaged parts as required.

8. Manhole frames, covers and ladder rungs for rust, corrosion, loose or missing rungs and other damage or deficiencies.
   a. Remove rust and corrosion and apply paint where applicable.
   b. Repair or replace damaged or missing parts.

9. Concrete and mortar joints in manholes.
   a. Repair as necessary.

10. Walkways, guardrails, stairs and ladders for rust, corrosion, broken or missing parts.
   a. Remove rust and corrosion and apply paint where applicable.
   b. Repair or replace parts as required.

11. Overflow pipes for water entrance, rust and damage to screen.
   a. Remove rust and repair or replace screen as required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: GAS DISTRIBUTION SYSTEM AND STORAGE

TYPE: STRUCTURAL_____ MECHANICAL__X__ ELECTRICAL_____ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-050

Obtain materials and equipment and transport to inspection site. A ladder is utilized to gain access to inspect larger tanks or other overhead places.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, any applicable checks listed below should be completed for each component. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect foundations for settlement, cracking and heaving.
   a. Shore up or replace foundation.

2. Inspect exterior steel surfaces for rust, corrosion and deteriorated paint.
   a. Remove rust and corrosion.
   b. Prime and paint.

3. Inspect pressure regulating relief and reducing valves for leakage, loose connections, rust, corrosion, defective operation and deterioration.
   a. Tighten loose connections.
   b. Remove rust and corrosion.
   c. Replace defective valves.

4. Inspect meters for loose connections, leakage, corrosion, rust, broken glasses, moisture behind glasses, defective gaskets, dirt or difficulty to read.

a. Tighten loose connections.
b. Remove rust and corrosion.
c. Replace broken or missing parts.
d. Clean meters.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: SEPTIC TANK SYSTEM

TYPE: STRUCTURAL_____ MECHANICAL__X__ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-051

Obtain equipment and transport to inspection site. Perform the inspection by removing the top and checking condition of tank and contents. Replace top when finished. Comply with all safety precautions when conducting the inspection.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Type unit or item and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Septic tanks for condition of tops, liquid level, scum thickness, sludge depth; pipes for clogging and drainage; foreign materials in tank and the presence of odor.
   a. Repair cracks in concrete if appropriate.
   b Clean rust, corrosion, and paint if appropriate.
   c. Replace tops if beyond repair.
   d. Clean lines.
   e. Pump tank.

2. Distribution box, dosing siphon chamber and absorption field for clogging and liquid rising to the surface.

a. Pump liquid from box or chamber.
b. Rod or unclog the openings to the drain lines.
c. Replace the box or chamber.
d. Replace drain lines.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: SEWAGE LIFT STATION AND COLLECTION SYSTEM

TYPE: STRUCTURAL_____ MECHANICAL__X__ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-052

Obtain materials and equipment and transport to work site. Perform the inspection by operating the equipment and observing the results. Comply with all safety precautions when conducting the inspection.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Type unit or item and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Lift stations and collection system for operation, condition, clogged or broken pipes.
   a. Clean clogged pipes.
   b. Replace broken pipes.
   c. Clean and paint.

2. Electrical system for loose connections, broken wires.
   a. Clean and tighten connections.
   b. Replace as required.

3. High and low switches for correct operation
   a. Clean and tighten connections.
   b. Replace.

4. Pumps for rust, corrosion, proper operation and leakage.
   a. Remove rust and corrosion.
   b. Repack as required.

5. Emergency generators for proper automatic and manual operation, weathertightness, rust, corrosion, loose foundation bolts, defective strip heaters; battery charger, batteries for loose or broken, corroded connections; metering for proper operation; simulate a power failure to check operation.
   a. Correct all faulty emergency generator operations.
   b. Remove rust, corrosion and prime and paint.
   c. Replace gaskets, covers, cover clamps, fastenings to make weathertight.
   d. Remove corrosion from battery terminals, tighten and apply anti-corrosion coating.
   e. Replace defective batteries.
   f. Add water to batteries.
   g. Tighten foundation bolts.
   h. Repair battery charger.
   i. Repair metering.

6. Emergency transfer switch for proper operation, defective relays, loose or broken connections, burned contacts, manual and emergency operation.
   a. Correct faulty operation.
   b. Replace defective relays.
   c. Tighten loose connections.
   d. Clean and adjust contacts.
   e. Replace transfer switch.

7. Float switches and alternator switches for proper operations; simulate high wet well to check operation; switches for burned contacts, loose connections.
   a. Repair defective switches.
   b. Repair defective floats.
   c. Repair defective alternator.
   d. Replace floats, switches.
   e. Tighten all loose connections.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: SEWAGE PLANT EQUIPMENT AND TREATMENT

TYPE: STRUCTURAL_____ MECHANICAL__X__ ELECTRICAL_____ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-053

Obtain inspectors kit and transport to work site. Perform the inspection by physically moving through the plant and checking the operation of each piece of equipment. Comply with all safety precautions when conducting the inspection.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Type unit or item and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Surge tank for proper operations, conditions, and leaks.
   a. Repair leaks as required.
   b. Clean and paint.

2. Comminutor for operation, unusual noise, quality of cutting and leaks.
   a. Sharpen or replace cutting teeth and bars.
   b. Lubricate motor and gear unit.
   c. Replace motor.
   d. Repair leaks.
   e. Replace unit.

3. Raw sewage tank for condition and leaks.
   a. Repair leaks.
   b. Clean and paint.

4. Treatment plant for operations, condition and leaks.
   a. Repair leaks.
   b. Clean and paint.
   c. Correct operating deficiency.

5. Magnetic flow meter for operation and ink supply.
   a. Replace ink cartridge.
   b. Clean marker tip.

6. Final holding tank for operation, condition and leaks.
   a. Repair leaks.
   b. Clean and paint.
   c. Tighten packing glands.

7. Valves for operation and leaks.
   a. Repack valve stems.
   b. Replace valves.
   c. Tighten packing glands.

8. Operation of mechanical linkage systems for loose, worn, broken parts and proper adjustment.
   a. Replace parts.
   b. Adjust linkage for proper operation.

9. Electrical system for loose, broken, frayed, or corroded connections.
   a. Clean, replace, tighten wires and connections as required.

10. Pumps for operation and leakage.
   a. Repack or replace as required.

11. Electric motors for noise, heating, vibration and proper operation of high and low cut in and off switches.
   a. Repair or replace as required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: UNFIRED PRESSURE VESSELS

TYPE: STRUCTURAL_____ MECHANICAL__X__ ELECTRICAL_____ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-054

SAFETY - Comply with all applicable safety precautions. Before entering an unfired pressure vessel, make sure that it has been properly ventilated, that there is no flammable gas or toxic material present, that all valves on connecting pipes are closed, and that a reliable method is used to safeguard these valves while anyone is inside the vessel. When electric cords are used inside an unfired pressure vessel they should be in good condition, well insulated, designed to withstand mechanical injury, and provided with a suitable guard. Under no circumstances should naked lights be used.

Obtain materials and equipment and transport to inspection site. Inspection is made by checking operation of the equipment and examining the condition of each component. Vessel is normally prepared in advance for internal inspection by shop personnel as well as applying pressure to vessel for operational test.

For each repair requirement identified during inspection, provide the following information:

A. Unit and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, any applicable checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS TO BE MADE UNLESS PERFORMED BY PM AND ASSOCIATED REPAIRS TO BE MADE:

EXTERNAL INSPECTION

1. Safety and relief valves for accumulated rust, scale, or other debris, obstructed drain, hazardous conditions created by discharge, frozen lever, bent stem.
   a. Clean, repair or replace safety and relief valves as necessary.

2. Rupture disks for busting, leaking; deteriorated, plugged vent.
   a. Replace ruptured disks.
   b. Clean vent.

3. Pressure indicating gauges for broken, missing, or dirty glass, illegible markings, bent pointer, leaking connections, non-operation.
   a. Repair or replace pressure indicating gauges as necessary.

4. Lagging for loose or missing materials, cracks, open seams, evidence of vapor or water leaks.
   a. Repair or replace damaged lagging.

5. Shell for corrosion, leakage, cracks, distortion, loose or cracked rivets.
   a. Repair shell as necessary.
   b. Remove rust and corrosion from shell, prime and paint.

6. Supports for settlement, deterioration, lack of rigidity, cracks, loose or dislodged material, excessive corrosion, cracked or broken welds, loose or missing bolts or rivets, warped or bent structural members.
   a. Tighten support bolts; replace missing bolts or rivets.
   b. Make appropriate repairs to support members.

7. Piping for leakage, strain or torsion, excessive corrosion, improper drainage, misalignment, lack of support, inadequate provision for expansion or contraction, excess vibration.
   a. Repair leaks in piping.
   b. Align piping and install adequate supporting members.

8. Stop and check valves for loose, missing, broken parts, excessive wear or corrosion, leakage, obstructed drain openings.
   a. Repair or replace stop check valves.
   b. Tighten packing gland on stop valves.
   c. Clean obstructions from drain openings.

9. Pressure reducing valves for loose, missing, broken parts, rust, scale, or other substance preventing proper operation.
   a. Clean PRV and repair as necessary.
   b. Replace pressure reducing valve.

10. Pressure control switch for loose, missing, broken parts or connections, corrosion, rust or other substance preventing proper operation.
    a. Clean, repair and adjust pressure control switch.
    b. Replace pressure control switch.

INTERNAL INSPECTION

11. Corrosion resistant lining for cracks, corrosion behind lining, corrosion behind deposits on lining.
    a. Remove corrosion from internal surfaces and repair and replace corrosion resistant lining.

12. Shell plates and reinforcing plates for cracks, defective joints, distortion, erosion, corrosion, grooving, lap seam cracks, cracked or severely corroded rivets, cracked welds.
    a. Make necessary repairs to shell and reinforcing plates.
    b. Remove corrosion and apply appropriate protection to plates.

13. Heads for cracks, deformation, excessive corrosion.
    a. Repair cracks by welding or other approved method.
    b. Remove corrosion and apply appropriate protection to metal parts.

14. Stays and braces for cracks, bends, looseness, excessive tension, excessive corrosion or erosion, loose, cracked, broken connections.
    a. Repair stays and braces as necessary.

15. Nozzles for distortion, excessive corrosion, cracked welds, loose cracked, or severely corroded rivets or bolts, poor or ineffective threaded connections.
    a. Repair nozzles as appropriate.

16. Openings and connections for piping and external attachments for obstructions, inadequacy, excessive corrosion.
    a. Remove obstructions from openings for external attachments.
    b. Remove corrosion and paint as required.
    c. Repair or replace components to correct inadequacies.

INSPECTION OF OPERATION

17. Apply hydrostatic or pneumatic test to vessel and observe drop in pressure for 15 minutes. An excessive drop in pressure indicates leakage which must be corrected.
    a. Repair leaks in vessel as necessary.

18. Controls for inability to maintain proper pressures, improper adjustment for cut-out and cut-in devices.
    a. Repair and adjust controls as necessary.

19. Pressure indicating gauges for stuck pointer, restricted movement of pointer, obstructed connections.
    a. Repair or replace pressure indicating gauges.

20. Temperature indicating devices for excessive temperatures indicated, particularly during and immediately after high load demands.
    a. Repair or replace temperature indicating device as necessary.

21. Piping stop and check valves for excessive vibration, ineffective or defective operation, leakage.
    a. Repair as indicated.
    b. Stop leaks by making appropriate repairs and adjustments.

22. Pressure reducing valves for defective, inadequate, improper operation.
    a. Replace pressure reducing valves.
    b. Adjust pressure reducing valves as necessary.

23. Metering and recording devices for improper operation.
    a. Adjust metering and recording devices.

24. Safety and relief valves for improper operation, obstructed discharge, improper release at required pressure.
    a. Adjust relief valves to proper pressure requirements.
    b. Clean discharge line.
    c. Replace relief valve.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: SUBSTATION AND SAFETY FENCING

TYPE: STRUCTURAL X MECHANICAL_____ ELECTRICAL_____ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-055

Obtain inspectors kit and transport to inspection site. Do not contact any part of electrical equipment within the substation area. Before inspecting, make arrangements to have an electrician available. Current OSHA safety requirements, standards for electrical systems, should be met when inspecting electrical equipment. Maintenance of transformers and other operating equipment is covered under the preventive maintenance program. Take special precautions if any equipment contains PCB's.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Type unit or item and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS TO BE MADE UNLESS COVERED BY PM AND ASSOCIATED REPAIRS TO BE MADE:

1. Concrete foundations and pads for settling and movement, surface cracks, crumbling.
   a. Repair concrete foundations as appropriate.

2. Wooden mounting platforms for breaks, rot, signs of weakening around supporting members, inadequate wood preservation treatment.
   a. Make repair to wood mounting platforms as necessary.
   b. Apply wood preservative as appropriate.

3. Metal mounting platforms for rust, corrosion, or other signs of deterioration likely to weaken structure.
   a. Make repairs to metal platforms as required.

4. Hangers, brackets, braces and connections for rust, corrosion, mechanical damage, burned or charred points resulting from grounding deficiency.
   a. Remove rust and corrosion from hangers, brackets, braces and connections and make necessary repairs.

5. Enclosures and cases of electrical equipment for rust, scaling, corrosion, leaks.
   a. Remove rust and corrosion.
   b. Prime and paint equipment enclosures.
   c. Repair leaks on liquid-filled equipment.
   d. Report all leaks or spills of PCB's.

6. Grounding systems for loose, missing or broken connections, signs of burning, corrosion, frayed cables.
   a. Make necessary repairs to grounding systems.

7. Bushings and insulators for cracked, chipped or broken porcelain, carbon deposits, flashover streaks, signs of oil or moisture at points of insulator entrance.
   a. Replace damaged insulators and bushings on equipment as required.

8. Safety fencing, posts and gates for damage, rust, corrosion and presence of excessive weeds or trash.
   a. Make appropriate repairs to safety fencing, posts, and gates.
   b. Remove weeds and cut grass around fences and inside substation area.

9. Fence ground system for loose cables, missing or damaged connections, rust, corrosion, frayed cable strands.
   a. Tighten or replace missing or damaged cable connections.
   b. Replace damaged grounding cables on safety fencing.

10. Warning signs for proper installation on all gates and fencing; identification and warning signs on equipment, such as signs noting presence of PCB's.
   a. Replace warning signs as required.
   b. Resecure warning signs.

11. Locks on gates for proper installation, damage.
   a. Install new locks on gates.

12. One-line diagrams of substation showing all switches, breakers, transformers, regulators, capacitors, and other components.
   a. Make correction to diagram if inaccurate.
   b. Post diagram if not in place in a weatherproof jacket or housing.

13. Equipment, breakers, switches for identification tags, marks corresponding to one-line diagram.
    a. Provide identification tags, clearly legible from ground level. Tags shall be weatherproof.

14. Warning signs for high voltage on equipment.
    a. Provide or replace illegible warning signs.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: POWER TRANSFORMER, DEENERGIZED

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-056

Obtain inspectors kit and transport to inspection site. The inspection is performed by physically moving through the area containing the equipment and checking the operation of each piece of equipment. Current OSHA safety requirements and safety standards for electrical systems, should be met when inspecting electrical equipment. Take special precautions for transformers containing PCB's.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Unit or item and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted. Except as noted below, all checks are made while equipment is de-energized.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Bushings and insulators for cleanliness, cracks, chips, breaks in porcelain, cracked, chipped cement, corrosion, loose cable clamps and terminal ends, oil level.
   a. Remove all dirt, grease and foreign matter.
   b. Replace parts as required.
   c. Fill bushing oil to proper level.
   d. Clean all corroded connections.
   e. Tighten all loose bolts and fittings.
   f. Repair or replace all frayed or broken cables and insulators.

2. Enclosure and cases for moisture, plugged breathers, inactive desiccant, leakage, rust and corrosion.
   a. Clean breathers.
   b. Replace desiccant material.
   c. Clean rust and corrosion and paint.

3. Coils and cores for dirt, sludge; oil level.
   a. Filter insulating oil.
   b. Change or add oil as required.
   c. Clean coils and cores.

4. Bushing-type instrument transformers for deteriorated insulation, corrosion, loose connections on terminals, broken, cracked or frayed insulation on leads.
   a. Clean, tighten or repair terminals.
   b. Tighten all loose components and accessories.
   c. Remove rust and corrosion and repaint, if applicable.
   d. Check fuses and replace as required.

5. Forced air fans and controls for dirt, noise, broken or bent blades, rigidity of mounting, rust and corrosion.
   a. Lubricate bearings.
   b. Make repairs as required.
   c. Replace parts as required.

6. Gauges and alarms for operation and condition.
   a. Repair or replace as appropriate.

7. Tests for grounding system, dielectric strength of insulating liquid, insulation resistance.
   a. Repair or replace as appropriate.

8. Name plates and warning signs for dirt, and legibility; missing signs.
   a. Clean.
   b. Replace.

9. Gaskets for leakage, cracks, breaks, brittleness.
   a. Tighten bolts.
   b. Replace gaskets.

10. Inert gas systems for pressure, leaks, loose fittings.
   a. Tighten fittings.
   b. Replace parts as needed.

11. Manual and automatic tap-changers for loose connections, rust, corrosion, defects, improper operation.
    a. Clean, remove rust, corrosion.
    b. Apply rust inhibitor or paint as applicable.
    c. Lubricate moving parts.
    d. Replace damaged or broken parts.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: POWER TRANSFORMER, ENERGIZED

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER_____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-057

Obtain inspectors kit and transport to inspection site. The inspection is performed by physically moving through the area containing the equipment and checking the operation of each piece of equipment. Current OSHA safety requirements, safety standards for electrical systems, should be met when inspecting electrical equipment. Take special precautions for transformers containing PCB's.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Unit or item and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted. Except as noted below, all checks are made while equipment is operating.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Enclosures and cases for dirt, grease, leaks (if liquid filled), deteriorated paint, rust, and corrosion.
   a. Clean dirt and grease.
   b. Repair leaks.
   c. Scrape, sand, wipe and repaint.
   d. Report PCB leaks or spills.

2. Nameplates and warning signs for dirt, chips, wear, legibility and missing units.
   a. Clean.
   b. Replace.

3. Gaskets for leakage, cracks, breaks, brittleness.
   a. Tighten bolts.
   b. Replace gasket.

4. Inert gas systems for pressure leaks, loose fittings.
   a. Tighten fittings.
   b. Replace parts as required.

5. Bushings and insulators for cracked or chipped porcelain, dirt, dust, grease, oil.
   a. Clean.
   b. Replace parts as required.

6. Grounding and phase terminals for overheating, loose bolts, cable insulation, flashovers, dirt, dust.
   a. Clean terminals.
   b. Tighten bolts.
   c. Repair insulation.
   d. Replace parts as required.

7. Instrument transformer junction boxes and conduits for loose bolts, corrosion.
   a. Clean leads.
   b. Tighten bolts.
   c. Replace defective parts.

8. Breathers for plugged holes.
   a. Clean and service.
   b. Replace.

9. Gauges and alarm systems for loose fastenings, rust, corrosion, deteriorated paint, loose connections.
   a. Tighten fastenings.
   b. Clean.
   c. Paint.
   d. Replace components.

10. Liquid level indicators for rust, corrosion, broken glass, leaks, low liquid level.
   a. Clean.
   b. Replace glass.
   c. Repair leaks.
   d. Add liquid.
   e. Replace parts as appropriate.

11. Fans and controls for dirt, grease, noise, deteriorated wiring, broken or bent blades.
    a. Clean motor and fan assembly.
    b. Lubricate bearings.
    c. Repair or replace wiring
    d. Repair or replace blades.

12. Water cooling systems for leaks, noise, loose connections, rust, corrosion, broken gauges, strainer.
    a. Clean system.
    b. Lubricate bearings.
    c. Repair or replace gauges.
    d. Clean or replace strainer.
    e. Replace components as required.

13. Grounding for loose or missing connections, rust, corrosion, frayed or broken cable.
    a. Clean.
    b. Tighten bolts.
    c. Replace missing connections.
    d. Repair or replace cable.
    e. Replace parts as required.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ELECTRICAL DISTRIBUTION LINES AND ASSOCIATED EQUIPMENT

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-058

Obtain materials and equipment and transport to inspection site. Because overhead electric distribution systems are energized almost continually, inspection of components and associated accessories should be made from the ground except during those periods when planned outages of the various systems will permit a climbing inspection. Binoculars may be used to inspect overhead equipment where a close observation is desired. Comply with all current OSHA safety requirements, and safety standards for electrical systems.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Unit, pole number or location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, checks listed below should be completed for each separate component. In each case where a deficiency exists, the associated repair requirement should be noted. Except as noted below, all checks are made while equipment is operating.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

INSULATORS, PINS, TIE WIRES

1. Insulators for cracks, breaks, chips, dirt or damage.
   a. Replace damaged or missing insulators.

2. Pins for cracks, breaks, or damage.
   a. Replace damaged or missing pins.

3. Insulators for corrosion, or loose bolted connections and fastenings to crossarms resulting in strains on line wires and movement of wires on insulators.
   a. Replace insulator connections and fastenings.

4. Tie wires for looseness, chafing, slippage, or other deficiency within a few feet of insulators and corrosion at points where line wires and tie wires come together near insulators.
   a. Replace tie wires.

POTHEADS

5. Insulators for cracks, breaks, flashovers, dirt or other deposits, deteriorated cement or sealing compound, leakage or signs of moisture.
   a. Replace or reseal deteriorated cement sealing.
   b. Replace damaged insulators.
   c. Replace pothead.

6. Cable clamps for corrosion, loose bolts or poor connections.
   a. Tighten clamp bolts and loose connections.
   b. Resolder connections if applicable.

7. Terminal studs, bolting pads and mountings for loose connections, corrosion, poor contacts, or other deficiency.
   a. Tighten terminal studs and bolting pad connections.
   b. Remove corrosion and tighten all mountings as required.

LIGHTNING ARRESTORS

8. Foundations, supports and grounding conductor for loose hold down bolts, corrosion, breaks, or damaged protective moldings.
   a. Remove corrosion and tighten loose connections and hold down bolts.
   b. Replace damaged protective moldings.
   c. Replace damaged grounding cable.

9. Porcelain insulators for signs of flashovers, damage, dirt or grease.
   a. Replace damaged insulators.
   b. Clean insulators as required.

10. Metal bases, caps and section couplings for loose bolts, rust, corrosion, or loose cement.
   a. Tighten loose bolts and connections.
   b. Replace cement where required.

11. Expulsion-gap type arrestors for signs of burning on external air gaps, looseness of mounting, signs of burning or arcing of gap opening.
   a. Tighten mounting bolts and connections.
   b. Adjust air gap in accordance with manufacturer's specifications.

12. Perform infrared scan of lines, connections, equipment for hot spots indicating loose connections or overloaded components.
    a. Tighten loose connections.
    b. Replace overloaded lines with lines of greater capacity.
    c. Replace overloaded equipment and components.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ELECTRICAL DISTRIBUTION LINE/POLES AND ASSOCIATED EQUIPMENT

TYPE: STRUCTURAL_____ MECHANICAL_____ELECTRICAL__X___ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-059

Obtain materials and equipment and transport to inspection site. Because overhead electric distribution systems are energized almost continually, inspection of components such as poles, hardware, and associated accessories should be made from the ground except during those periods when planned outages of the various systems will permit a climbing inspection. Binoculars may be used to inspect overhead equipment where a close observation is desired. Inspection is made by walking the pole lines as well as using a vehicle when practical. Comply with all current OSHA safety requirements and safety standards for electrical systems.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Unit, pole number or location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

POLES

1. Water ponding at base, and debris or weeds within three feet of pole.
   a. Remove debris and trash and cut grass and weeds around pole base.
   b. Fill area around pole to prevent water ponding.

2. Sound-test with hammer for hollowness or decay from ground line to the highest reachable point from standing position.
   a. Replace pole.
   b. Repair pole if feasible.

3. Splits from lightning, insect, vehicle or other damage.
   a. Replace pole.
   b. Repair pole if feasible.

4. Make shallow excavation around pole and check pole with awl for soundness if faulty condition is suspected.
   a. Apply ground-line treatment to pole.

5. Alignment or lean of pole. Pole should not lean more than one foot at top.
   a. Straighten pole and install guy wires, if required.

6. Structural inadequacy or other deficiencies.
   a. Install stub reinforcement or replace pole, as appropriate.

POLE HARDWARE

7. Signs of rot, insect damage or other damage around all hardware in contact with pole or crossarms; rust, corrosion, or looseness of all parts.
   a. Make repair or replace damaged parts as appropriate.

GROUND WIRES

8. Rust, corrosion, frayed or broken strands, discoloration that may indicate overheating, or complete failure of connections, including connection to ground rod at base of pole.
   a. Make appropriate repairs to ground wires.
   b. Replace damaged ground wire.
   c. Replace grounding pad and grounding wire connection.

9. Protective moldings for looseness, missing units, broken, cracks, decay.
   a. Secure protective ground wire molding to pole.
   b. Replace damaged section of ground wire molding.

GUY WIRES

10. Loose, missing, or corroded clamps, wires or holding bolts, and brackets.
   a. Replace damaged guy wire.
   b. Replace clamps, holding bolts and brackets on guy wire.

11. Broken or cracked insulators and complete absence of insulators on circuit over 300 volts.
   a. Replace damaged insulators on guy wires.
   b. Install insulators on guy wire where required.

12. Excessive tautness or looseness and failure of guys and guy anchors; vehicle damage, inadequacy and nonvisibility of shields or protectors; corrosion, fraying, or broken strands.
   a. Tighten guy wires.
   b. Replace failed guy wires.
   c. Replace damaged guy wire shields.

LINE WIRES/CONDUCTORS

13. Inadequate separation from limbs, branches, and foliage; dead trees or limbs that may fall on line.

    a. Remove trees or tree limbs to provide adequate clearance from lines.

CROSSARMS

14. Splits, burns, decay, twists, weathering, damage, other defects.

    a. Replace damaged crossarms.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ELECTRICAL DISTRIBUTION, POWER PLANT

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-060

Obtain material and equipment and transport to power plant. Prior to performing the inspection, contact should be made with the plant operator to determine any operating problems or deficiencies which may exist at time of inspection. Comply with all current OSHA safety requirements and safety standards for electrical systems when inspecting power plants.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Type of item or unit
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

1. Power plant for cleanliness and orderliness.
   a. Clean interior of power plant.

2. Posting of proper safety signs and operating instructions.
   a. Post appropriate safety signs and operating instructions.

3. Use of operating log, plant log and maintenance records.
   a. Require use of appropriate logs and records.

4. Generator field, armature windings, and cable insulation for visual defects.
   a. Make insulation test measurements and appropriate repairs as indicated by test.

5. Generator excitation system for adequacy, serviceability and reliability.
   a. Make appropriate repairs as indicated.

6. Emergency exciters and associated equipment including rheostats, pilot exciters, voltage regulators and drives for defects.
   a. Repair as necessary.

7. Ground in ungrounded exciter circuits for defects.
   a. Repair as necessary.

8. Wiring and electrical controls for loose connections, charred, broken or wet insulation, evidence of short circuiting, proper calibration of controls, and other deficiencies.
   a. Tighten connections, repair or replace wiring or other parts as required.
   b. Calibrate controls in accordance with manufacturer's specifications.

9. Instruments for proper calibration, loose electrical connections, broken glass, physical damage, or need of cleaning.
   a. Calibrate instruments as required.
   b. Repair or replace instruments as necessary.
   c. Clean instruments.

10. Machine operations for noise, unbalance, rubbing, excessive vibration, rattling parts.
   a. Report abnormal machine operations for further investigation.

11. Bearings for proper lubrication (check lubrication schedules), improper oil level in oil gauges, noise, overheated bearing caps or housings.
   a. Report bearing overheating or excessive machine noise for investigation.
   b. Insure that proper level of oil is maintained in system for required bearing lubrication.

12. Machine cooling system for leaks, mechanical damage, rust, corrosion, pump vibration, loose or missing hold down bolts, antifreeze.
   a. Tighten or replace pump hold down bolts.
   b. Repair leaks in cooling system.
   c. Drain and refill cooling system as necessary, adding antifreeze as required.

13. Check with plant operator to determine if machine governor voltage regulator, and similar equipment is functioning properly.
   a. If indicated, conduct operating tests to determine if governor or other equipment is operating as designed.
   b. Adjust and calibrate governor as required.
   c. Adjust and repair voltage regulator as required.

14. Circuit breakers and associated protective equipment for proper operation.

a. Repair as necessary.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ELECTRICAL DISTRIBUTION, SWITCHGEAR, FUSES, AND CIRCUIT BREAKERS

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-061

Obtain material and equipment and transport to inspection site. Inspection is made by observation and, in some cases, manually operating the component under de-energized conditions, when condition cannot be determined just by visual observation. Do not operate any components without prior clearance from responsible operating personnel. Comply with all current OSHA safety requirements safety standards for electrical systems when inspecting components of electrical distribution systems.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Item or unit and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, checks listed below should be completed for each separate component. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS AND ASSOCIATED REPAIRS TO BE MADE:

SWITCHES AND DISCONNECTS - Manually group-operated and hook-stick-operated. Do not operate switches until tests show circuit is dead and grounding harnesses have been attached.

1. Group-operated switches for rust, corrosion, loose brackets and holding bolts, non-rigid bearings and supports.
   a. Tighten brackets and holding bolts.
   b. Remove rust and corrosion from switch parts.

2. Grounding cables, clamps, and straps for weak supports, broken or frayed portions of conductors, loose connections.
   a. Replace damaged conductors.
   b. Tighten loose connections or grounding cables, clamps and straps of operating gear.

3. Insulating section of operating rod for indications of cracks or signs of flashovers.
   a. Replace operating rod or insulation as necessary.

4. Movable parts for inadequate lubrication, rust, corrosion, other conditions resulting in deficient operation.
   a. Remove rust and corrosion from operating gear and apply proper lubrication.

5. Switch for stiff gears or proper adjustment. Operate switch several times to determine if adjustment is required. DO NOT operate without prior clearance.
   a. Clean switch gears, lubricate and adjust as required.

6. Locking and interlocking devices and mechanisms for functional adequacy to prevent unauthorized operations.
   a. Repair locking and interlocking mechanisms as necessary.

7. Mountings and bases for rust, corrosion, twists, bends, or warping, loose or missing ground wire.
   a. Remove rust and corrosion from mountings and bases.
   b. Repair mountings as necessary.
   c. Tighten or replace ground wire on bases as appropriate.

8. Insulators for cracks, breaks, chips, or checking of porcelain glaze. Damage indicated by streaks of carbon deposits from flashovers; loose, broken, or deteriorated cement holding insulator to other parts. (Arrange for insulator cleaning during this inspection since it is performed only when line is de-energized).
   a. Replace damaged insulators.
   b. Clean insulators.

9. Blades and contacts for excessive discoloration from overheating, roughness and pitting, misalignment, inadequate tension of bolts and springs, inadequate blade stop, lack of hinge lubrication, insufficient non-oxide grease; failure of contacts to mate throughout their length when switch is opened and closed.

a. Repair switch blades and contacts as necessary.
b. Align switch blades and contacts.
c. Adjust blade stop.
d. Lubricate switch hinges, blades and contacts with appropriate lubricant.
e. Adjust arcing horn contacts or replace as necessary.

10. Cable or other electrical connections for loose bolts, discolorations indicating excessive heating at connection points, corrosion.

a. Tighten cable and other electrical connections.
b. Remove corrosion from cable and other electrical connections.

11. Electrical clearances of cable or other conductors to other phases or to ground for applicable circuit voltage (switch both open and closed).

a. Maintain adequate clearances, with switch in both open and closed position, with other phases or ground conductors.

12. Flexible connections for fraying, breaks, or brittleness (excessive discoloration indicates overheating).

a. Repair or replace damaged flexible connections on switches.

13. Cable from grounding switch to grounding system for fraying, broken strands, loose connections.

a. Tighten loose cable connections on grounding switch.
b. Replace damaged grounding cable on grounding switch.

<u>INSTRUMENTS AND METERS</u>

14. Instruments and meters for improper shielding, mounting, or enclosures located too close to near strong magnetic fields, excessive vibrations, extremes in temperature, moisture, metallic and other dust, and acid or corrosive vapors.

a. Make corrective repairs in instrument shielding, mountings or enclosures as necessary.

15. Instruments for cleanliness, proper markings and identification, correct type and range for application; availability of manufacturer's instructions for servicing.

a. Clean contact surfaces of dirt and corrosion.
b. Replace damaged instrument leads.
c. Service in accordance with manufacturer's instructions.

16. Instruments for loose electrical connections, dirty or corroded contact surfaces, inadequate, poorly arranged, or improperly insulated wire, cable and leads.
    a. Clean contact surfaces of dirt and corrosion.
    b. Replace damaged instrument leads.

17. Instruments and meters for broken glass, pointer friction, warped or dirty scale, bent pointers, and missing parts.
    a. Repair or replace instrument.

18. Moving elements for locking when instruments provided with locking devices are not in use.
    a. Insure that moving elements are locked when instruments are not in use.

19. Instruments and meters for servicing, calibration, or tests at appropriate intervals to accepted standard of accuracy for particular instrument, and availability of test records.
    a. Service and calibrate instruments as required.

20. Outdoor service meters for physical condition, loose weather seals, moisture or dirt in enclosure, corrosion, loose connections, missing parts.
    a. Replace damaged and defective outdoor service meters.

RELAYS - Electrical tests are not covered by this inspection. Schedule periodic electrical tests at which time trip settings and time delays are determined and compared with design settings.

21. Relays for corrosion, deterioration, or pitting of contacts, pivots, and coils.
    a. Repair relays as appropriate.

22. Relays for dirt, evidence of moisture, high temperature, and other adverse conditions.
    a. Clean relay.
    b. Remove adverse conditions which may be detrimental to relay operation.

FUSES, CUTOUTS, AND CIRCUIT BREAKERS - Do not remove covers, fuses or de-energize circuits.

23. Cutouts and circuit breakers for by-passing.
    a. Report obvious by-passing of fuses or circuit breakers for further investigation. In these cases, fuse sizes should be identified and compared with good design code practice.

24. Fuses for overheating, indicated by discoloration of brass or copper at contact point, distortion, charring, deterioration of fiber cases of cartridge type cases, or overheating of enclosure.

a. Report apparent overheating of fuse enclosure for further investigation.

25. Circuit breakers for distortion, charring, deterioration of molded portions of case, or overheating of enclosure.

a. Report apparent overheating of fuse enclosure for further investigation.

26. Grounding for loose or corroded connections, deteriorated or abraded insulation, frayed or broken cables.

a. Clean and tighten grounding cable connections.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: STREET LIGHTS AND OTHER EXTERIOR LIGHTING

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X___ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-062

Obtain materials and equipment and transport to inspection site. Ride truck equipped with bucket lift to assigned work area. Light installations may be visually inspected from the ground; binoculars may be utilized where appropriate. The truck-mounted bucket lift is employed to inspect lights mounted on poles or buildings which are inaccessible to inspect from the ground.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Quantity of repairs required
B. Method of repair
C. Type and amount of materials
D. Estimated man-hours

During the inspection, checks listed below should be completed for each type exterior light fixture. In each case where a deficiency exists, the associated repair requirement should be noted.

CHECKS TO BE MADE UNLESS COVERED BY PM AND ASSOCIATED REPAIRS TO BE MADE:

1. Inspect lighting fixture for proper support and location.
   a. Repair or replace support.
   b. Relocate as appropriate.

2. Inspect for cracked or broken luminaries and fixtures, missing parts, evidence of overheating or other damage.
   a. Replace glass luminaries.
   b. Replace missing fixture parts.
   c. Repair or replace overheated sockets.

3. Inspect wiring, electrical controls, and switches for loose connections, charred or broken insulation, evidence of short circuiting and other deficiencies. Photocells for proper operation.
   a. Repair or replace exposed live wires.
   b. Repair or replace defective electrical controls and switches.
   c. Tighten loose connections.
   d. Replace defective photocells.

4. Inspect reflectors and diffusers for cleanliness.
   a. Clean lighting fixture and remove foreign matter.

5. Assure that light operates as designed.
   a. Troubleshoot and repair as appropriate.

CONTROL INSPECTION INVENTORY/CHECKLIST

ITEM: ELECTRICAL INSTRUMENTS/METERING

TYPE: STRUCTURAL_____ MECHANICAL_____ ELECTRICAL__X__ ROOF_____ OTHER____

FREQUENCY: ANNUAL

APPLICABLE TO: (FACILITY NUMBERS):

CHECKLIST NO. CI-063

Obtain inspectors kit and transport to inspection site. The inspection is performed by physically moving through the area containing the equipment and checking the operation of each piece of equipment. Current OSHA safety requirements and safety standards for electrical systems, should be met when inspecting electrical equipment.

For each repair requirement identified during inspection, the inspector will provide the following information:

A. Unit or item and location
B. Quantity of repairs required
C. Method of repair
D. Type and amount of materials
E. Estimated man-hours

During the inspection, checks listed below should be completed. In each case where a deficiency exists, the associated repair requirement should be noted. Except as noted below, all checks are made while equipment is operating.

CHECKS TO BE MADE AND ASSOCIATED REPAIRS TO BE MADE:

1. Outdoor service meters for physical condition, loose weather seals, moisture or dirt in enclosure, corrosion, loose connections, missing parts, broken glass, pointer friction, warped or dirty scale, bent pointer.
   a. Clean meter, replace weather seals, tighten connections.
   b. Replace glass, damaged or missing parts.
   c. Replace complete meter.

2. AC power metering for proper operation, damaged or missing units.
   a. Repair and check connections.
   b. Replace.

3. Calibration for correct readings.
   a. Clean and adjust.
   b. Replace.
   c. Have meters calibrated if accuracy is questionable.

APPENDIX E

PREVENTIVE MAINTENANCE INSPECTION PROGRAM

1. Establishing a Preventive Maintenance Inspection (PMI) Program. A PMI program is an important part of NRC facilities maintenance. It is the regularly scheduled examination of dynamic equipment to provide for required lubrication, adjustment, and change out of such items as filters and belts as recommended by the manufacturer and required by good maintenance practices.

Dynamic equipment is essentially equipment that has moving parts subject to wear, tear, or replacement which requires PMI to maintain or extend its useful life.

1.1 Goals of the PMI Program. The goals of a properly operated PMI program are to minimize the amount of emergency/service calls, extend the useful life of the equipment, and minimize disruption of operations resulting from equipment failure.

1.2 PMI Program Procedures. Steps for developing a simple PMI program are as follows:

a. Step One - List all the items of dynamic equipment subject to Preventive Maintenance (PM), the building number, and location of the equipment in the building on the "DYNAMIC EQUIPMENT SUBJECT TO PM" Form. (See Appendix F for sample form).

b. Step Two - Record the priority of each piece of equipment using the work control system priorities (See Section Four).

c. Step Three - If PM is to be excluded for any item, write the rationale in the remarks column. The remarks will give future maintenance managers reasons PM was not performed and a basis for deciding if the condition still exists.

d. Step Four - Collect pertinent data on each piece of equipment including:

- Nameplate data, such as type of equipment, model number, identification number, and manufacturer.

- Obtain manufacturer's Operation and Maintenance Guides, where available.

- Post HVAC control diagram in each building.

- Identify the systems affected by failure.

- Identify the effect of failure on the mission.

e. Step Five - Pull the appropriate PMI Inventory/Checklists from this Appendix E and place copies in the Facilities Notebook. Complete the top portion of the checklist using information from Steps One through Four. Fill out a checklist for each item of equipment on the "Dynamic Equipment Subject to PM" Form.

The lower part of the form identifies:

- Frequency of the PM.

- Crew size.

- PM tasks requiring general skills.

- PM tasks requiring trade skills.

f. Step Six - Develop a PMI schedule using the "PMI Schedule" form (See Appendix F for sample form).

Complete the form as follows:

- List each building number and its respective items of equipment to receive PM.

- Use EPS to determine the standard amount of time required to perform the PM annually and indicate the total annual hours on the form (Request assistance from FSO, DIRFAC, or EFD for help in estimating time required).

- Indicate the PM frequency from the PMI checklist.

- Schedule the hours in the months the PM is to be done.

- Schedule high frequency inspections (monthly, quarterly) first. Use lower frequency inspections to balance the workload as much as possible.

g. Step Seven - The NRC CO should schedule the PM work in coordination with the DIRFAC Staff and the NRC Staff person assigned facilities maintenance responsibilities.

The PM Inspection Record (card) should be provided to whoever is assigned PM responsibility (See Appendix F for sample PM Inspection Record).

h. Step Eight - Inspect the equipment using the Inspection Record (card) and return the completed card to the NRC CO. A PM Inspector's Report should be submitted for maintenance and repair work that cannot be accomplished during PM. (A blank form is included in Appendix F).

1.3 PMI Checklists - PMI checklists are included hereinafter as part of this Appendix E. The manufacturer's operation and maintenance manuals should be obtained and used in conjunction with these checklists. An index of the checklists is as follows:

a. Mechanical Equipment and Systems

Air Conditioning

CHECKLIST NO.	PAGE NO.	DESCRIPTION	FREQUENCY	SKILL TRADE/GENERAL
PM-001	252	Central Air Conditioning System	Semiannual	Both
PM-002	253	Air Conditioning, Package Unit (Inside Building)	Semiannual	Both
PM-003	254	Air Conditioning, Window Unit	Annual	General
PM-004	255	Heat Pump, Package Unit	Semiannual	Both
PM-005	257	Refrigeration Package Unit	Quarterly	Trade
PM-006	259	Air Conditioning System, Cooling Tower	Semiannual	Both
PM-007	260	Air Conditioning System, Air Cooled Condenser	Semiannual	Both
PM-008	261	Air Conditioning System, Reciprocating Compressor	Semiannual	Trade
PM-009	262	Chiller/Cooler	Semiannual	Both
PM-010	263	Refrigeration Freezer, Domestic	Semiannual	Trade
PM-011	264	Refrigerator, Walk-In	Quarterly	Both
PM-012	266	Fan Coil Unit	Quarterly	Both
PM-013	267	Humidifier/Dehumidifier	Semiannual	Trade

Air Handling

PM-014	268	Air Handling System	Quarterly	Trade
PM-015	269	Exhaust Fan, Roof	Semiannual	Both
PM-016	270	Exhaust Hood	Quarterly	Both
PM-017	271	Exhaust, Room Unit	Semiannual	Both
PM-018	272	Air Compressor, Small, Electric	Quarterly	Trade
PM-019	273	Air Compressor, Gasoline Engine	Quarterly	Trade
PM-020	274	Air Compressor, Two Stage Tandem	Quarterly	Trade
PM-021	275	Compressed Air Distribution System	Quarterly	Both

APPENDIX E (continued)

CHECKLIST NO.	PAGE NO.	DESCRIPTION	FREQUENCY	SKILL TRADE/GENERAL
		Heating		
PM-022	276	Furnace, Oil Fired	Annual	Both
PM-023	277	Heater, Unit, Steam	Annual	Both
PM-024	278	Heating System, Solar	Semiannual	Both
PM-025	279	Heating System, Hot Air, Gas Fired	Semiannual	Both
PM-026	280	Heating, Distribution System, Steam	Semiannual	Both
PM-027	282	Heating, Distribution System, Hot Water	Annual	Both
PM-028	283	Furnace, Oil Fired	Semiannual	Both
PM-029	284	Fuel System, Gas Distribution and Storage System	Annual	Both
PM-030	286	Heating System, Hot Air, Oil Fired	Semiannual	Both
PM-031	288	Furnace, Gas Fired	Annual	Both
PM-032	289	Heater, Unit, Gas/Oil	Quarterly	Both
PM-033	290	Heater, Unit, Hot Water	Quarterly	Both
PM-034	291	Heating and Central Air Conditioning, Combination	Semiannual	Both
PM-035	293	Heating and Chiller System, Combination	Semiannual	Both
PM-036	295	Hot Water Generator	Semiannual	Both
PM-037	296	Steam Trap	Semiannual	Both
PM-038	297	Boiler, Hot Water	Monthly	Trade
PM-039	299	Boiler, Steam	Monthly	Trade
PM-040	301	Boiler, Vertical, Steam/ Hot Water	Monthly	Trade
		Pumps		
PM-041	303	Pump, Centrifugal	Semiannual	Trade
PM-042	304	Pump, Reciprocating	Quarterly	Trade
PM-043	305	Pump, Submersible	Quarterly	Both
PM-044	306	Pump, Sump	Quarterly	Both
PM-045	307	Pump, Vacuum	Annual	Both
PM-046	308	Pump, Sewage Ejector	Monthly	Both
		Interior Plumbing, Water Piping, Water Treatment		
PM-047	309	Bathroom/Restroom Fixtures	Semiannual	Trade
PM-048	310	Shower Heads, Mixing Valves	Semiannual	Trade
PM-049	311	Grease Trap	Semiannual	General

APPENDIX E (continued)

CHECKLIST NO.	PAGE NO.	DESCRIPTION	FREQUENCY	SKILL TRADE/GENERAL
PM-050	312	Water Heater, Oil Fired	Semiannual	Both
PM-051	313	Water Heater, w/Oil Burner	Semiannual	Both
PM-052	314	Water Heater, Gas Fired	Semiannual	Trade
PM-053	315	Drinking Fountain	Semiannual	Trade
PM-054	316	Water Softener	Monthly	General
PM-055	317	Chlorinator, Gas	Monthly	Trade
		Fire Protection Equipment		
PM-056	318	Dry Chemical Fire Extinguishing System	Quarterly	Trade
PM-057	319	Sprinkler System, Wet Pipe, Fire Protection	Annual	Trade
PM-058	320	Sprinkler System, Dry Pipe, Fire Protection	Annual	Trade
PM-059	322	Fire Hydrant	Semiannual	General
		Miscellaneous Mechanical		
PM-060	323	Mechanical (Electric) Overhead Rolling Door	Semiannual	Both
PM-061	324	Manual Overhead Rolling Door	Semiannual	Both
PM-062	325	Conveyor	Monthly	Trade
PM-063	327	Dust Collector	Quarterly	Trade
PM-064	328	Paint Spray Booth	Semiannual	Both
PM-065	329	Elevator	Monthly	Trade
PM-066	331	Fire Extinguisher	Monthly	Both
b.		Electrical Equipment and Systems		
PM-067	333	Interior Electrical System, Service Panel, Interior Circuits	Annual	Both
PM-068	334	Interior Electrical System, Emergency Lighting	Quarterly	Both
PM-069	335	Interior Electrical System, Exit Lighting	Quarterly	Both
PM-070	336	Electric Motor	Quarterly	Both
PM-071	337	Generator, Portable Electric	Quarterly	Trade
PM-072	338	Generator, Emergency, Diesel	Monthly	Both
PM-073	339	Dry Battery Unit, Emergency	Quarterly	General
PM-074	340	Wet Battery Unit, Emergency	Quarterly	Both
PM-075	341	Heating System, Electric Furnace	Annual	Trade

APPENDIX E (continued)

CHECKLIST NO.	PAGE NO.	DESCRIPTION	FREQUENCY	SKILL TRADE/GENERAL
PM-076	342	Fire Alarm Box and Fire Alarm Box Light	Monthly	Trade
PM-077	344	Fire Alarm Board and Panel	Monthly	Trade
PM-078	345	Fire Alarm, Local System, Interior	Quarterly	Trade
PM-079	347	Security and Intrusion Alarm System	Semiannual	Trade
PM-080	348	Cathodic Protection	Semiannual	Trade
c.	Food Service Equipment			
PM-081	349	Dishwasher w/Steam Booster	Quarterly	Trade
PM-082	350	Dishwasher w/Electric Booster	Quarterly	Trade
PM-083	351	Drink Dispenser	Monthly	Trade
PM-084	352	Electric Grill	Quarterly	Trade
PM-085	353	Gas Grill	Quarterly	Trade
PM-086	354	Oven, Gas	Semiannual	Trade
PM-087	355	Range, Electric	Semiannual	Trade
PM-088	356	Range, Gas	Semiannual	Trade
PM-089	357	Disposal Unit	Semiannual	Trade
PM-090	358	Freezer, Commercial	Semiannual	Trade
PM-091	359	Fryer, Electric	Quarterly	Both
PM-092	360	Fryer, Gas	Quarterly	Both
PM-093	361	Ice Maker	Quarterly	Trade
PM-094	362	Kettle, Steam	Semiannual	Trade
PM-095	363	Water Conditioner	Monthly	General
PM-096	364	Oven, Electric	Quarterly	Trade
PM-097	365	Vegetable and Fruit Peeler	Quarterly	Trade
PM-098	366	Toaster, Gas	Quarterly	Trade
PM-099	367	Steam Table	Annual	Trade
PM-100	368	Coffee Urn, Electric/Gas	Quarterly	Trade
PM-101	369	Oven, Gas Rotary	Quarterly	Trade
PM-102	370	Food Mixer	Quarterly	Trade
PM-103	371	Food Slicer	Quarterly	Trade
PM-104	372	Meat Saw	Quarterly	Trade
PM-105	373	Food Chopper	Quarterly	Trade
d.	Miscellaneous Items			
PM-106	374	Laundry Equipment, Dryer (Electric/Gas/Steam)	Quarterly	Both
PM-107	376	Laundry Equipment, Extractor	Quarterly	Both
PM-108	377	Laundry Equipment, Washer	Quarterly	Both
PM-109	378	Fire Door, Single Sliding Type	Quarterly	Both

APPENDIX E (continued)

CHECKLIST NO.	PAGE NO.	DESCRIPTION	FREQUENCY	SKILL TRADE/GENERAL
PM-110	379	Fire Door, Roll-Up Type (Manual or Electric)	Quarterly	Both
PM-111	380	Fire Door, Swinging Type	Quarterly	Both
PM-112	381	Liquid Fuel Facilities, Distribution and Storage	Semiannual	Both
PM-113	383	Liquid Fuel Facilities, Receiving and Issue	Semiannual	Trade
PM-114	384	Incinerator	Quarterly	Both
PM-115	385	Overhead Crane	Quarterly	Trade
PM-116	386	Mechanical Hoist	Semiannual	Trade
PM-117	387	Chain Hoist, Winch, Electric	Semiannual	Trade
PM-118	388	Swimming Pool, Operating Equipment	Monthly	Both

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-001

ITEM: CENTRAL AIR CONDITIONING SYSTEM _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

_____

FREQUENCY OF PM: SEMIANNUAL

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check system performance by observing thermostat and interior temperature.
Check air filters, ducts, registers, louvers, and screens for cleanliness.
Inspect coils, fans, and fan motors for proper operation.
Check evaporator drain pan for adequate drainage and rust.
Check exterior units for rust and corrosion.
Check thermal insulation for damage.

PM TASKS REQUIRING TRADE SKILLS:

Check all drive belts for excessive wear, proper tension, and adjustment; replace with new belts as required.
Check and lubricate shaft bearings and motor bearings.
Check and add compressor oil on open compressors.
Clean or replace air filters as appropriate.
Check proper operation of unit by observing outlet temperatures and all operating parts for excessive heating or noise.
Check refrigerant pressures and add refrigerant as required. If a refrigerant leak is suspected, check all piping and connections for leaks.
Check and clean evaporator drainage system as required.
Check air cooled condenser coils for cleanliness, freedom from shrubs, excessive vibration and noise, loose, missing, or damaged parts.

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-002

ITEM: AIR CONDITIONING, PACKAGE UNIT (INSIDE BUILDING) DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

_____

FREQUENCY OF PM: SEMIANNUAL

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check system performance by observing operation temperatures.
Check evaporator drain pan for proper drainage and rust.
Check operating unit for excessive noise or vibration.
Check external parts for rust, corrosion, or physical damage.

PM TASKS REQUIRING TRADE SKILLS:

Check and clean coils, fans, fan motors, and internal areas.
Check, adjust, or replace belts as required.
Lubricate shaft and motor bearings.
Clean or replace air filters.
Check compressor oil level and add oil if required.
Check and clean evaporator drainage system.
Check operating unit for low refrigerant, excessive noise, vibration, and heating.
Check electrical relay contactors for excessive pitting or burning.
Correct all minor defects; report any major repairs required to supervisor.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-003

ITEM: AIR CONDITIONING, WINDOW UNIT _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-004

ITEM: HEAT PUMP, PACKAGE UNIT _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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PMI CONTINUATION SHEET

Check for indication of low refrigerant and check operating pressures; add refrigerant as necessary in accordance with manufacturer's instructions. Correct all minor defects; report major repairs to supervisor.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-005

ITEM: REFRIGERATION PACKAGE UNIT _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: QUARTERLY

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check unit while operating for excessive noise, vibration, or heating.
Visually inspect external electrical wiring.
Check to ensure that proper temperatures are being maintained while unit is operating.
Check for adequate defrosting, if applicable.

PM TASKS REQUIRING TRADE SKILLS:

Clean coils, fans, motors, drip pan, and other areas by vacuuming or hand wiping.
Check belts for excessive wear, proper tension, and alignment; install new belts as required and adjust.
Check electrical wiring and controls for loose connections, corrosion, and failed insulation; make necessary repairs.
Lubricate shaft and motor bearings.
Check piping for refrigerant, water, and oil leaks; tighten loose connections as required.
Clean or replace filters, as appropriate.
Check compressor oil level; add oil if required.

PMI CONTINUATION SHEET

Check refrigerant sight glass with unit operating for indication of low refrigerant; add refrigerant to proper pressure. While unit is operating, check fans, motors, and other operating parts for excessive heating, vibration, or noise; make adjustments as necessary.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-006

ITEM: AIR CONDITIONING SYSTEM, COOLING TOWER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-007

ITEM: AIR CONDITIONING SYSTEM, AIR COOLED CONDENSER DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY:_____

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PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-008

ITEM: AIR CONDITIONING SYSTEM, RECIPROCATING COMPRESSOR ____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: SEMIANNUAL

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

PM TASKS REQUIRING TRADE SKILLS:

Check oil in reservoir for proper level, discoloration, and contamination; drain and refill with new oil if required.
Check belt assembly for proper alignment, excessive wear, and tension; adjust or replace if required.
Check and lubricate motor bearings.
Check operating refrigerant pressures. If a refrigerant leak is suspected, check all pipe connections and associated piping for leaks; make repairs as necessary.
Check for excessive noise or vibration when operating; make repairs as required.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-009

ITEM: CHILLER/COOLER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: SEMIANNUAL

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check unit and associated water piping for leaks. Visually inspect external electrical wiring.

PM TASKS REQUIRING TRADE SKILLS:

Check control panel, electrical connections, and starter or motor contacts; tighten connections as necessary and replace worn or burned contacts.
Check compressor oil level while unit is operating; add oil as necessary.
Check sight glass in refrigerant line for evidence of gas bubbles. Any appearance of bubbles indicates low refrigerant, probably caused by a leak. This condition is considered a major repair and the supervisor should be notified.
Check drain to ensure that it is open to carry away all wastewater; clean as required.
Check entire unit and associated water piping for any unusual conditions or leaks; make minor repairs as required.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-010

ITEM: REFRIGERATOR FREEZER, DOMESTIC _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-011

ITEM: REFRIGERATOR, WALK-IN _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: QUARTERLY

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check to ensure that proper temperatures are being maintained while unit is operating.

PM TASKS REQUIRING TRADE SKILLS:

Check compressor and condenser fans for proper operation, unusual vibration, and short cycling while unit is operating; make minor repairs as required. Notify supervisor if short cycling persists as this could result in major repairs.
Check refrigerant sight glass with unit operating; add refrigerant as necessary.
Check controls for proper operation, burned or loose contacts, and loose connections.
Vacuum clean condenser coil and associated equipment.
Clean and lubricate fan motors as required.
Check belts for excessive wear, proper tension, and alignment; install new belts as required and adjust.
Check evaporator for excessive ice buildup.
Check condition of racks and shelving.

PMI CONTINUATION SHEET

Check door hardware and gaskets; repair or replace as necessary.
Check safety devices such as inside door opener, bell or buzzer, and lights for proper operation.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-012

ITEM: FAN COIL UNIT _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: QUARTERLY

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check housing for corrosion, physical damage, and cleanliness; visually inspect external electrical wiring.

PM TASKS REQUIRING TRADE SKILLS:

Vacuum clean interior of unit and coils.
Check coils for leaks and repair as required.
Inspect thermostat contacts for wear or corrosion; clean or replace as required.
Check thermostat control valve for proper operation; adjust or replace as required.
Check fan belts for excessive wear; replace worn or frayed belts with new belts and adjust for proper tension and alignment.
Check all mechanical and structural components; tighten bolts, nuts and supports as required.
Check electrical wiring for damage; repair or tighten connections.
Lubricate fan and motor bearings.
Perform operational check of unit and make adjustments as required.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-013

ITEM: HUMIDIFIER/DEHUMIDIFIER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-014

ITEM: AIR HANDLING SYSTEM _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-015

ITEM: EXHAUST FAN, ROOF _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-016

ITEM: EXHAUST HOOD _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-017

ITEM: EXHAUST, ROOM UNIT _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-018

ITEM: AIR COMPRESSOR, SMALL ELECTRIC _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-019

ITEM: AIR COMPRESSOR, GASOLINE ENGINE DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-020

ITEM: AIR COMPRESSOR, TWO STAGE TANDEM _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-021

ITEM: COMPRESSED AIR DISTRIBUTION SYSTEM _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-022

ITEM: FURNACE, OIL FIRED _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: ANNUAL

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check burner operation through complete cycle.
Check air filter when appropriate.
Visually inspect for oil leaks.
Check flue pipe and damper.

PM TASKS REQUIRING TRADE SKILLS:

Remove burner gun; clean electrodes, reset points, and replace burner nozzle with new nozzle.
Lubricate burner motor bearings.
Remove and clean pump oil strainer.
Clean firebox, flue pipe, and damper.
Remove oil filter element and replace with new element.
Replace air filter if appropriate.
Check electrical wiring for frayed or loose connections; tighten connections if required.
If installed, check blower and motor for proper alignment and vibration; replace belt or adjust for proper tension and lubricate blower motor.
Check burner operation through complete cycle; adjust fuel air supply and flue damper for peak operating efficiency.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-023

ITEM: HEATER, UNIT, STEAM _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-024

ITEM: HEATING SYSTEM, SOLAR _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.: _____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: SEMIANNUAL

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check all piping, valves, collectors, and tanks for leaks and damaged insulation.
Check pump motors for excessive overheating.
Check collector glazing for cracks and glazing seals for water tightness.
Check collector mounting brackets and bolts for tightness.

PM TASKS REQUIRING TRADE SKILLS:

Check control panel, including differential thermostat, for proper operation (operate system manually if not operating normally).
Check zone and circulating pump motors for excessive vibration and overheating; lubricate pump motors and pump shafts.
Check all piping, valves, collectors, and tanks for leaks; make necessary repairs.
Drain and refill system with fresh solution of water and antifreeze or a solution recommended by manufacturer every two years or on a frequency recommended by manufacturer.
Clean glazing on collector panels as needed but at least once every year.
Report necessary major repairs to supervisor.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-025

ITEM: HEATING SYSTEM, HOT AIR, GAS FIRED _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-026

ITEM: HEATING, DISTRIBUTION SYSTEM, STEAM _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: SEMIANNUAL

CREW SIZE: 2

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check lines and equipment for steam leaks.
Visually inspect external electrical wiring.
Check lines for damaged or missing insulation.

PM TASKS REQUIRING TRADE SKILLS:

NOTE: One inspection of the system should be made during the summer months so that any major repairs may be completed prior to the heating season. During the heating season, an inspection is made to correct any minor problems, without disrupting the steam supply.

Check all pumps, motors and regulators for proper alignment and excessive vibration; tighten mounting bolts as necessary.
Lubricate all operating equipment as required.
Check electrical connections for tightness, wiring for damaged or frayed insulation; tighten connections and replace damaged wiring as necessary.
Check thermostats, relays, and all electrical controls for proper operation; replace or adjust as necessary.
Check line joints, valves, traps and other components for leaks; tighten nuts and bolts on flanges and packing glands on valves as necessary.

PMI CONTINUATION SHEET

Clean traps and strainers if required; replace operating mechanisms and scored valve discs where required.
Clean all lines for damaged or missing insulation; repair or replace as required.
Check gauges for proper operation; repair or replace as necessary.
Perform infrared scan of traps lines, and all components to detect abnormal operation or other defects.
Check for presence of asbestos insulation.
All major repair should be reported to supervisor.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-027

ITEM: HEATING, DISTRIBUTION SYSTEM, HOT WATER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: ANNUAL

CREW SIZE: 2

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Visually inspect external electrical wiring.
Check lines and equipment for water leaks.
Check lines for damaged or missing insulation.

PM TASKS REQUIRING TRADE SKILLS:

Check and inspect all electrical connections, relays and thermostats; tighten loose connections, replace defective components and adjust as necessary.
Inspect pumps and drivers for proper alignment and excessive vibration; tighten mounting bolts as required.
Check pumps for leakage; replace seals and tighten packing glands as necessary.
Lubricate pump shafts, motors and other components as required.
Check piping joints, valves, traps and other components for leaks; tighten flange bolts and pack glands as necessary.
Inspect lines for missing or damaged insulation; repair or replace insulation as required.
Perform infrared scan of lines, valves, traps, and other components to detect abnormal operation or defects.
Check for presence of asbestos insulation.
All major repairs should be reported to supervisor.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-028

ITEM: FURNACE, OIL FIRED _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-029

ITEM: FUEL SYSTEM, GAS DISTRIBUTION AND STORAGE SYSTEM DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PMI CONTINUATION SHEET

Check pits for cleanliness and excessive water; clean out pits; caulk cracks if required and paint exposed metal parts.

Inspect metal storage tanks for rust and corrosion; remove rust and corrosion and paint as necessary.

Check cathodic protection system for rust, corrosion, broken or frayed wires, loose connections; make repairs as necessary.

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-030

ITEM: HEATING SYSTEM, HOT AIR, OIL FIRED _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PMI CONTINUATION SHEET

Brush and vacuum clean firebox, flue pipe, and damper. With system operating, check for correct heat distribution and balance of air flow at duct outlets using a velocity meter; adjust registers as necessary to balance system. Sample flue gases with stack analyzer and adjust fuel air ration of burner for most efficient operations.

Check damper control and adjust for proper operations.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-031

ITEM: FURNACE, GAS FIRED _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-032

ITEM: HEATER, UNIT, GAS/OIL _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-033

ITEM: HEATER, UNIT, HOT WATER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-034

ITEM: HEATING AND CENTRAL AIR CONDITIONING, COMBINATION DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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For oil fired units, clean and adjust electrodes, replace burner nozzle with new nozzle, clean oil burner strainer, and lubricate pump motor.
Brush and vacuum clean firebox, flue pipe, damper, burner jets, pilot, and thermocouple for gas fired units.
For gas fired units, check regulator, vents and pressure gauges for proper operation; adjust pilot as required.
Perform operational check including checking heat distribution and balance of air flow at duct outlets using a velocity meter; adjust dampers and registers as necessary to balance system.

TO BE PERFORMED AT BEGINNING OF AIR CONDITIONING SEASON

Check proper operation of air conditioning unit by observing outlet temperatures and all operating parts for excessive heating or noise.
Check refrigerant pressures, if indicated; add refrigerant as required.
If a refrigerant leak is suspected, check all piping and connections for leaks.
Check and add compressor oil in open compressors.
Check condenser and coils for cleanliness, excessive vibration and noise, loose, missing or damaged parts; clean coils and make repairs as necessary.
Check evaporator coil for cleanliness and drain pan for adequate drainage.
Perform operational check of air distribution system and balance of air flow at duct outlets using a velocity meter; adjust dampers and registers as necessary to balance system.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-035

ITEM: HEATING AND CHILLER SYSTEM, COMBINATION _____DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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gas fired units, clean burner jets, pilot and thermocouple; adjust baffles as required.
Check water jackets and coils for leaks; repair as necessary.

PMI CONTINUATION SHEET

Check chilled and hot water circulating pumps(s) for leaks, excessive vibration, or heating; replace pump seals, packing or other parts as necessary.
Lubricate all pump and motor bearings.
Check all water lines, fittings, coils, vectors, traps and other components for leaks; repair as necessary.
Check electrical wiring and controls for loose connections and proper operation; tighten connections and repair components as necessary.
Perform complete operational check on heating system; make adjustments as required.

TO BE PERFORMED AT BEGINNING OF AIR CONDITIONING SEASON

Check proper operation of chiller unit by operating unit, check temperatures and all operating components for excessive vibration, noise or heating; make appropriate repairs to individual components.
Check compressor oil level while unit is operating; add oil as necessary.
Check sight glass in refrigerant line for evidence of gas bubbles; any appearance of bubbles indicates low refrigerant, probably caused by a leak. This condition is considered a major repair and the supervisor should be notified.
Check drain to ensure that it is open to dispose of wastewater; clean as required.
Check all waterlines, fittings, coils, vectors, and associated components for leaks; make repairs as necessary.
Check chilled water pumps for leaks, overheating, or excessive vibration; make appropriate repairs as necessary.
Lubricate pump and motor bearings.
Perform complete operational check on chiller system; make adjustments as necessary.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-036

ITEM: HOT WATER GENERATOR _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-037

ITEM: STEAM TRAP _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-038

ITEM: BOILER, HOT WATER _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PMI CONTINUATION SHEET

FOR GAS FIRED BOILERS:

Check fuel train including pressure regulators, cut-off valves, and associated equipment for leaks and proper operation; tighten connections and clean burners as required.

Check electrical system, thermostat, and all operating controls for proper response when operating.

Using stack analyzer, make proper fuel air ratio adjustments to ensure that boiler is operating at peak efficiency.

All major repairs should be reported to supervisor.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-039

ITEM: BOILER, STEAM _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PMI CONTINUATION SHEET

FOR GAS FIRED BOILERS:

Check fuel train including pressure regulators, cut-off valves, and associated equipment for leaks and proper operation; tighten connections and clean burners as required.

Check electrical system, thermostat, and all operating controls for proper response when operating.

Using stack analyzer, make proper fuel air ratio adjustments to ensure that boiler is operating at peak efficiency.

All major repairs should be reported to supervisor.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-040

ITEM: BOILER, VERTICAL, STEAM/HOT WATER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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PMI CONTINUATION SHEET

Change fuel filter element.

FOR GAS FIRED BOILERS:

Check fuel train including pressure regulators, cut-off valves, and associated equipment for leaks and proper operation; tighten connections and clean burners as required.

Check electrical system, thermostat, and all operating controls for proper response when operating.

Using stack analyzer, make proper fuel air ratio adjustments to ensure that boiler is operating at peak efficiency.

All major repairs should be reported to supervisor.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-041

ITEM: PUMP, CENTRIFUGAL _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-042

ITEM: PUMP, RECIPROCATING _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-043

ITEM: PUMP, SUBMERSIBLE _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-044

ITEM: PUMP, SUMP _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-045

ITEM: PUMP, VACUUM _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-046

ITEM: PUMP, SEWAGE EJECTOR _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-047

ITEM: BATHROOM/RESTROOM FIXTURES DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-048

ITEM: SHOWER HEADS, MIXING VALVES _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-049

ITEM: GREASE TRAP _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-050

ITEM: WATER HEATER, OIL FIRED _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-051

ITEM: WATER HEATER, WITH OIL BURNER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-052

ITEM: WATER HEATER, GAS FIRED _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-053

ITEM: DRINKING FOUNTAIN _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-054

ITEM: WATER SOFTENER _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-055

ITEM: CHLORINATOR, GAS _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-056

ITEM: DRY CHEMICAL FIRE EXTINGUISHING SYSTEM DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-057

ITEM: SPRINKLER SYSTEM, WET PIPE, FIRE PROTECTION DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-058

ITEM: SPRINKLER SYSTEM, DRY PIPE, FIRE PROTECTION DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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Check equipment for leaks; repair as necessary.
Inspect sprinkler heads for proper clearance around heads and to ensure that heads are not subject to physical damage from operations.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-059

ITEM: FIRE HYDRANT _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-060

ITEM: MECHANICAL (ELECTRIC) OVERHEAD ROLLING DOOR _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-061

ITEM: MANUAL OVERHEAD ROLLING DOOR _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-062

ITEM: CONVEYOR _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PMI CONTINUATION SHEET

Check rollers to ensure that they turn freely and are properly secured; lubricate and adjust as required.
Inspect all structural components for any loose or missing bolts or defects, make repairs as necessary.
Lubricate all components according to manufacturer's specifications.
Check conveyor for proper operation.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-063

ITEM: DUST COLLECTOR _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-064

ITEM: PAINT SPRAY BOOTH _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-065

ITEM: ELEVATOR _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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PMI CONTINUATION SHEET

Examine the hoistway and car door mechanisms and ensure that their belts are not worn and the mechanisms work properly.
Ensure that the guide rails are properly aligned and inspect the surface of the guide rails ensuring that the surfaces are free of scoring and rust.
Check the hoistway door gibs for proper installment.

INSPECTING THE ELEVATOR PIT

Ensure that the pit stop switch and the pit light work properly.
Inspect the oil buffers:
a. Ensure that the buffers have the proper amount of oil.
b. Ensure that the buffers are mounted properly and are free of dirt and rust.
c. Ensure that the buffer marking plate is properly installed.
Inspect the spring buffers:
a. Ensure that the buffers are securely fastened to the pit floor.
b. Ensure that the buffers are vertical and aligned with the striker plates on the car and the counterweights.
c. Ensure that the buffers have not been deformed.
d. Ensure that the buffer marking plate is properly installed.
Check to ensure that the elevator pit is cleaned and free of debris, dirt, and water.
Ensure that the final and the directional limit devices work properly.
Check that the counterweight guards are properly installed.
Examine the speed governor-rope tensioning device and ensure that all of the parts are properly lubricated and are working properly.

INSPECTING THE MACHINE ROOM

Ensure that the main line disconnect works properly.
Examine the wire ropes for rust, cracking, grease, and broken strands; check rope sockets.
Inspect all the sheaves for worn grooves and proper alignment. Ensure that all of the bearings are properly lubricated.
Ensure that the brake is setting properly and that there is no excessive noise or wear on the assembly or linings.
Ensure that all linkages, gears, bushings, on the drive unit is properly lubricated and that there is no excessive noise or wear on the unit and components.
Check the motor generator sets and exciters for excessive noise, vibration, and proper operation.
Ensure that the machine room is properly lighted and free of unnecessary equipment, dirt, and debris.

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-066

ITEM: FIRE EXTINGUISHER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PMI CONTINUATION SHEET

PM TASKS REQUIRING TRADE SKILLS:

Tasks requiring trade skills should be done annually by certified fire protection personnel. (Usually by contract to a local fire protection company).

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-067

ITEM: INTERIOR ELECTRICAL SYSTEM, SERVICE PANEL, INTERIOR CIRCUITS DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: ANNUAL

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check interior electrical circuits for proper operation of switches, receptacles, and missing cover plates.

PM TASKS REQUIRING TRADE SKILLS:

Check service panels for dirt and corrosion, loose connections, signs of overheating, faulty circuit breakers, blown fuses, frayed or damaged wiring, and proper grounding; make necessary repair by cleaning panels, tightening connections, replacing faulty circuit breakers and fuses, and repairing damaged wiring.

Check interior circuits for proper operation of switches and receptacles, overloaded circuits, and missing cover plates; replace defective switches and receptacles, install missing cover plates, and make other minor repairs as necessary.

Notify supervisor where cases of overloaded circuits will require installation of additional circuits.

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-068

ITEM: INTERIOR ELECTRICAL SYSTEM, EMERGENCY LIGHTING DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-069

ITEM: INTERIOR ELECTRICAL SYSTEM, EXIT LIGHTING _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-070

ITEM: ELECTRIC MOTOR _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) EFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-071

ITEM: GENERATOR, PORTABLE ELECTRIC _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-072

ITEM: GENERATOR, EMERGENCY, DIESEL _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: MONTHLY

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Check oil level in diesel engine crankcase; add oil, as required.
Check radiator water level; add water and antifreeze as required.
Check battery electrolyte level; add water as required.

PM TASKS REQUIRING TRADE SKILLS:

Check belts for excessive wear; replace worn belts and adjust for proper tension.
Clean or replace air filter as appropriate.
Lubricate generator bearings.
Check all electric wiring and components for corrosion and loose connections; make repairs as necessary.
Test run unit for approximately 20 minutes and check for proper operation of all components; make adjustments as required.
Report major deficiencies to supervisor.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-073

ITEM: DRY BATTERY UNIT, EMERGENCY _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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FREQUENCY OF PM: QUARTERLY

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

Clean cabinet exterior and lamps.
Clean interior of the cabinet, battery tops, and terminals.
Check condition of battery with voltmeter and replace battery as necessary.
Test unit for proper operation and adjust lamps for maximum illumination of the area.

PM TASKS REQUIRING TRADE SKILLS:

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-074

ITEM: WET BATTERY UNIT, EMERGENCY _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-075

ITEM: HEATING SYSTEM, ELECTRIC FURNACE _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: ANNUAL

CREW SIZE: 1

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

PM TASKS REQUIRING TRADE SKILLS:

With power on, check furnace electrical coils, controls, and connections for proper voltage using a voltmeter.
With power on, check load on heater elements with an ammeter and calculate KW load. Check load against nameplate rating. If load is substantially below rating, heating elements are defective/burned out; replace heater elements.
With power off, clean terminals and electrical connections with wire brush; tighten connections and replace defective parts.
Check air filters; clean or replace filters as appropriate.
Check blower and motor for proper alignment and excessive vibration.
Check blower belt for wear and proper tension; replace belt if necessary and adjust for proper tension.
Check operation of furnace and automatic controls through complete cycle; make adjustments as required.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-076

ITEM: FIRE ALARM BOX AND FIRE ALARM BOX LIGHT DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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PMI CONTINUATION SHEET

Check remote fire alarm boxes for proper operation adjust as necessary.
Actuate remote fire alarm box to ensure that remote box actuates the master alarm box.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-077

ITEM: FIRE ALARM BOARD AND PANEL _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-078

ITEM: FIRE ALARM, LOCAL SYSTEM, INTERIOR DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PMI CONTINUATION SHEET

Check automatic sprinkler system fire alarm connections as follows:

a. Check alarm lights, alarm bells, fire boxes for trip and zone light operation; make necessary repairs as appropriate.
b. Check low air switches for corrosion and moisture; remove corrosion and moisture and repair as required.
c. Actuate trip switch to determine that it operates the local building alarms and that a proper signal is transmitted over the station's fire alarm system by checking with the Fire Department's operator; make repairs as appropriate. This test should also be made when dry pipe sprinkler valves are drip tested under wet conditions.
d. Reset panel, system, and alarm boxes upon completion of tests.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-079

ITEM: SECURITY AND INTRUSION ALARM SYSTEM _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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FREQUENCY OF PM: SEMIANNUAL

CREW SIZE: 2

PM CHECKLIST:

PM TASKS REQUIRING GENERAL SKILLS:

PM TASKS REQUIRING TRADE SKILLS:

Check bunker entry box and field distribution box.
Check control panel, standby battery power source and magnetic door switches.
Check operation of ultrasonic motion sensors, passive infrared sensors, and microwave detection sensors.
Check duress switch and capacitance alarm sensor.
Check tamper alarm switch (ultrasonic, microwave, and infrared devices).
Check tamper switch of magnetic door switch.
Correct all defects as necessary.

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-080

ITEM: CATHODIC PROTECTION _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-081

ITEM: DISHWASHER, WITH STEAM BOOSTER _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-082

ITEM: DISHWASHER, WITH ELECTRIC BOOSTER DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-083

ITEM: DRINK DISPENSER _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-084

ITEM: ELECTRIC GRILL _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-085

ITEM: GAS GRILL _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-086

ITEM: OVEN, GAS _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-087

ITEM: RANGE, ELECTRIC _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-088

ITEM: RANGE, GAS _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-089

ITEM: DISPOSAL UNIT _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-090

ITEM: FREEZER, COMMERCIAL _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-091

ITEM: FRYER, ELECTRIC _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

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PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-092

ITEM: FRYER, GAS _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

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APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-093

ITEM: ICE MAKER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-094

ITEM: KETTLE, STEAM _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY: _____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-095

ITEM: WATER CONDITIONER _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-096

ITEM: OVEN, ELECTRIC _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-097

ITEM: VEGETABLE AND FRUIT PEELER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-098

ITEM: TOASTER, GAS _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-099

ITEM: STEAM TABLE _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-100

ITEM: COFFEE URN, ELECTRIC/GAS _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-101

ITEM: OVEN, GAS ROTARY _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-102

ITEM: FOOD MIXER _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-103

ITEM: FOOD SLICER _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-104

ITEM: MEAT SAW _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-105

ITEM: FOOD CHOPPER _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-106

ITEM: LAUNDRY EQUIPMENT, DRYER (ELECTRIC/GAS/STEAM) DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

PMI CONTINUATION SHEET

Clean lint screens.
Check unit for proper operation.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-107

ITEM: LAUNDRY EQUIPMENT, EXTRACTOR _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-108

ITEM: LAUNDRY EQUIPMENT, WASHER _____DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-109

ITEM: FIRE DOOR, SINGLE SLIDING TYPE _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-110

ITEM: FIRE DOOR, ROLL-UP TYPE (MANUAL OR ELECTRIC) DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-111

ITEM: FIRE DOOR, SWINGING TYPE _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-112

ITEM: LIQUID FUEL FACILITIES, DISTRIBUTION AND STORAGE DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PMI CONTINUATION SHEET

Check all electrical ground connections for loose connections and electrical continuity; repair and tighten connections as necessary.
Check shock arrestor for leaks and proper operation; replace or repair as required.
Check meters and gauges for leaks, physical damage, defective gaskets and accuracy of indicating and recording mechanism; replace or repair defective meters and gauges.
Check operation of all pumps; lubricate shaft and motor bearings.
Check all electrical equipment for damage and to ensure that it meets requirements for hazardous areas as applicable; make appropriate repairs or replace components as necessary.

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-113

ITEM: LIQUID FUEL FACILITIES, RECEIVING AND ISSUE DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-114

ITEM: INCINERATOR _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-115

ITEM: OVERHEAD CRANE _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-116

ITEM: MECHANICAL HOIST _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-117

ITEM: CHAIN HOIST, WINCH, ELECTRIC _____ DATE _____

LOCATION: _____

DATE INSTALLED: _____ SIZE/CAPACITY: _____

MANUFACTURER: _____ ID NO.: _____

FREQUENCY OF USE: _____

SYSTEM(S) AFFECTED BY FAILURE: _____

EFFECT ON MISSION OF ACTIVITY: _____

))))))

APPENDIX E (continued)

PREVENTIVE MAINTENANCE INVENTORY/CHECKLIST

PM CHECKLIST NO: PM-118

ITEM: SWIMMING POOL, OPERATING EQUIPMENT _____ DATE_____

LOCATION:_____

DATE INSTALLED:_____ SIZE/CAPACITY:_____

MANUFACTURER:_____ ID NO.:_____

FREQUENCY OF USE:_____

SYSTEM(S) AFFECTED BY FAILURE:_____

EFFECT ON MISSION OF ACTIVITY:_____

))))))

APPENDIX F

BLANK FORMS

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APPENDIX F (continued)

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*  DEFECTS LOG                                                            *
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.))))))))2)))))))))))2)))))))))))2)))))))2)))))))))))))2)))))))))))2)))))))2)))))))-
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RECURRING WORK LIST

DESCRIPTION OF WORK	COST OF MATERIALS	LABOR HOURS	CURRENTLY PERFORMED BY	FREQUENCY OF PERFORMANCE

APPENDIX F (continued)

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+))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
*                        WORK SCHEDULE AND TRACKING LOG                   *
/))))))))))))0)))))))0)))))))))0)))))0)))))))))))))))))))))))))))))))))))))1
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ACTIVITY INFORMATION LOG

NAME OF ACTIVITY_____

REDCOM REGION NO._____

POINT OF CONTACT-NAME_____ PHONE_____

LEAD REDCOM REGION NO._____

POINT OF CONTACT-NAME_____ PHONE_____

SUPPLY ACTIVITY_____

POINT OF CONTACT-NAME_____ PHONE_____

ASSIGNED CEC OFFICER:_____ PHONE_____

STATEMENT OF MISSION:_____

))))))

ACTIVITY INFORMATION CONTINUATION SHEET

DRILL UNITS:

UNIT TITLE	RUIC	RDW	CO

ACTIVITY INFORMATION CONTINUATION SHEET

KEY PERSONNEL ASSIGNED TO NRC:

NAME/RATE	HOME PHONE	ASSIGNED RESPONSIBILITY

APPENDIX F (continued)

RESOURCES REQUEST LOG

PROJECT NO.	PROJECT TITLE/LOCATION	PROPOSED METHOD	ESTIMATED COST	DATE REQS'D	DATE APPR.	DATE COMP

APPENDIX F (continued)

RECURRING FACILITIES SUPPORT CONTRACTS LOG

FILE NO.	TITLE/CONTRACTOR/PHONE	$VALUE	DATE AWARDED	DATE EXPIRES	SATISFACTORY UNSATISFACTORY

APPENDIX F (continued)

MAINTENANCE RECORD LOG

PROJECT NO.	PROJECT TITLE/LOCATION	$VALUE	SCHEDULED START DATE	DATE COMP.	ACCOMPLISHED BY

APPENDIX F (continued)

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+)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
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*   *      *     *     *     *     *     *     *     *     *     *     *     *
/)))3)))))))3)))))3)))))3)))))3))))3))))3))))3)))))3)))))3))))3))))3))))3)))))1
*   *      *     *     *     *     *     *     *     *     *     *     *     *
/)))3)))))))3)))))3)))))3)))))3))))3))))3))))3)))))3)))))3))))3))))3))))3)))))1
*   *      *     *     *     *     *     *     *     *     *     *     *     *
/)))3)))))))3)))))3)))))3)))))3))))3))))3))))3)))))3)))))3))))3))))3))))3)))))1
*   *      *     *     *     *     *     *     *     *     *     *     *     *
.)))2)))))))2)))))2)))))2)))))2))))2))))2))))2)))))2)))))2))))2))))2))))2)))))-
```

APPENDIX F (continued)

FACILITY INSPECTION CHECKLIST INDEX

FACILITY NO. OR DESCRIPTION_____ CAT. CODE_____ COST ACCOUNT NO.

ACTIVITY_____ INVESTMENT CAT. NO._____

ACTIVE [ ] INACTIVE [ ]

PERMANENT CONSTRUCTION [ ] SEMI-PERMANENT CONSTRUCTION [ ]
TEMPORARY CONSTRUCTION [ ]

DATE INSPECTED_____

TYPE INSPECTION [] CIVIL/STRUCTURAL [] ELECT. [] MECH. [] OTHER

INSPECTOR_____

ITEMS/ COMPONENTS	MIL-HDBK 1151 CHECKLIST NO. PAGE NO.	OTHER CHECKLIST USED (IDENTIFY DOCUMENT & SECTION/PAGE(S)	CONDITION OF COMPONENT/FAC SATISFACTORY (S) UNSATISFACTORY (U)	REMARKS

APPENDIX F (continued)

FACILITY DEFICIENCY REPORT
DETAILED LISTING

PAGE OF

Facility No._____ Type Inspection: Struct [] Elec [] Mech [] Other []

Inspector_____ Inspection Time (hrs)_____ Date_____

REPAIR			DESCRIPTION OF DEFICIENCY REQUIRING CORRECTION	C R A F T	ESTIMATED COST			
N O W	W/IN 12 MOS	OVER 12 MOS			LABOR HRS	LABOR COST	MATL COST	TOTAL COST

FACILITY DEFICIENCY
SUMMARY REPORT

FACILITY IDENTIFICATION NO.						
LOCATION AND DESCRIPTION						
CRAFT AREA	PRELIMINARY ESTIMATE					
	LABOR HOURS	LABOR COST	MAT'L COST	CRIT.	DEF	TOTAL COST
PLASTERER						
CARPENTER						
ROOFER						
PAINTER						
MASON						
OTHER						
OTHER						
SUBTOTAL-STRUCTURAL						
PLUMBER/PIPEFITTER						
SHEET METAL MECH.						
REFER AC MECH.						
OTHER						
SUBTOTAL-MECH						
ELECTRICIAN						
LINEMAN						
OTHER						
SUBTOTAL-ELECTRICIAN						
TOTAL						

SIGNED: DATE:

APPENDIX F (continued)

```
+)))))))))))))0)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
*  ANNUAL CI  *                    SCHEDULED HRS./MONTH                    *
*  SCHEDULE   *                                                            *
/))))))0))))))3)))0)))))0)))0)))))0)))0)))))0)))0)))))0)))))0)))))0)))))0)))))0))))1
*FAC NO*TOTAL *OCT* NOV *DEC* JAN *FEB* MAR *APR* MAY * JUN * JUL * AUG * SEP*
*      *ANNUAL*   *     *   *     *   *     *   *     *     *     *     *    *
*      *HRS   *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*      *      *   *     *   *     *   *     *   *     *     *     *     *    *
/))))))3))))))3)))3)))))3)))3)))))3)))3)))))3)))3)))))3)))))3)))))3)))))3)))))3))))1
*TOTALS*      *   *     *   *     *   *     *   *     *     *     *     *    *
.))))))2))))))2)))2)))))2)))2)))))2)))2)))))2)))2)))))2)))))2)))))2)))))2)))))2))))-
```

APPENDIX F (continued)

FACILITY NUMBER	ITEM OF EQUIPMENT	LOCATION IN BUILDING	PRIORITY	PM YES	PM NO	REMARKS
DYNAMIC EQUIPMENT SUBJECT TO PM						

APPENDIX F (Continued)

```
+)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
* SHOP/TRADE                                PMI SCHEDULE                    *
*           )))))))))))))))))))))))))))))))                                  *
/)))))0))))))0))0))))0)))0)))0)))0)))0)))0)))0)))0)))0)))0)))0)))0)))0)))0)))1
*BLDG.* ITEM *PM*FREQ*OCT*NOV*DEC*JAN*FEB*MAR*APR*MAY*JUN*JUL*AUG*SEP*TOTAL  *
*NO.  *      *NO*    *   *   *   *   *   *   *   *   *   *   *   *   *   *ANNUAL *
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *HOURS  *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))3))))))3))3))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*     *      *  *    *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))2))))))2))2))))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))3)))1
*             TOTALS *   *   *   *   *   *   *   *   *   *   *   *   *   *      *
/)))))))))))))))))))2)))2)))2)))2)))2)))2)))2)))2)))2)))2)))2)))2)))2)))2)))1
*                                                                              *
*                   AVERAGE MAN HOURS PER MONTH         HOURS                 *
*                                                 )))))))))                    *
*                 TOTAL MAN HOURS PER YEAR                HOURS                *
*                                              )))))))))))))))))               *
.)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))-
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+)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
*                          PM INSPECTOR'S REPORT                          *
/))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))1
*  BUILDING                        JOB ORDER NO.:                          *
*          ))))))))))))))))))))))                  )))))))))))))))))          *
*  EQUIPMENT NO.:                  PM FREQUENCY:                           *
*                 ))))))))))))))))                  )))))))))))))))))))      *
*  LOCATION:                       PW WORK CENTER:                         *
*           ))))))))))))))))))))))                  )))))))))))))))))       *
*                                  INSPECTED ON:     /    /                *
*                                                 )))) )))) ))))           *
/))))))))))))))))))))))0)))))))))))))))))))))))))0))))))))))))0))))))))))))))1
*  CORRECTION BY:      *                         *  QUANTITY  *  ESTIMATED  *
*                      *   DESCRIBE DEFICIENCY   *  OF WORK   *  LABOR      *
*                      *                         *  REQUIRED  *            *
/))))0)))0)))))0)))0)))1                         /))))))0)))))3)))))))0))))))1
*  I * 1 * 2-6 * 1 * D *                         * QTY. *UNIT * CRAFT * HRS  *
*  M *   *     *   * E *                         *      * OF  *       *      *
*  M * M *  M  * Y * F *                         *      *MEAS.*       *      *
*  E * T *  T  * R * E *                         *      *     *       *      *
*  D * H *  H  *   * R *                         *      *     *       *      *
/))))3)))3)))))3)))3)))3)))))))))))))))))))))))3))))))3)))))3)))))))3))))))1
*    *   *     *   *   *                         *      *     *       *      *
/))))3)))3)))))3)))3)))3)))))))))))))))))))))))3))))))3)))))3)))))))3))))))1
*    *   *     *   *   *                         *      *     *       *      *
/))))3)))3)))))3)))3)))3)))))))))))))))))))))))3))))))3)))))3)))))))3))))))1
*    *   *     *   *   *                         *      *     *       *      *
/))))3)))3)))))3)))3)))3)))))))))))))))))))))))3))))))3)))))3)))))))3))))))1
*    *   *     *   *   *                         *      *     *       *      *
/))))3)))3)))))3)))3)))3)))))))))))))))))))))))3))))))3)))))3)))))))3))))))1
*    *   *     *   *   *                         *      *     *       *      *
/))))3)))3)))))3)))3)))3)))))))))))))))))))))))3))))))3)))))3)))))))3))))))1
*    *   *     *   *   *                         *      *     *       *      *
/))))3)))3)))))3)))3)))3)))))))))))))))))))))))3))))))3)))))3)))))))3))))))1
*    *   *     *   *   *                         *      *     *       *      *
/))))2)))2)))))2)))2)))2)))))))))))))))))))))))2))))))2)))))2)))))))2))))))1
*  RECOMMENDED CHANGES TO THIS PM:                                          *
*                                                                           *
*                                                                           *
*  ))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))  *
*  ))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))  *
*  ))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))  *
/))))))))))))))))))0)))))))))))))))))))))))))))0))))))))))))))))))))))))))))1
*  INSPECTOR:      * APPROVALS:                    * NRC CO ACTION:         *
*                  *                SIGNATURE      *              APPROVED [ ]*
*  ))))))))))))))  * ))))))))))))))))              *           DISAPPROVED [ ]*
*                  *                TITLE          *                       *
*                  * ))))))))))))))))              *                       *
.))))))))))))))))))2)))))))))))))))))))))))))))2))))))))))))))))))))))))))))-
```

PREVENTIVE MAINTENANCE INSPECTION RECORD
SOUTHNAVFACENGCOM 11014/7A (REV.6-84) (FRONT SIDE)

```
))))))))))))))))))))))))))))))))))))))0))))))))))))))))))))))))))))))))))))))))))))))))))))
 EQUIPMENT NUMBER (12 CHARACTERS)   * EQUIPMENT NAME (28 CHARACTERS)
                                    *
))))))))))))))))))))))))))))))))))))))3)))))))))))0))))))))))))0))))))0)))))))
 FACILITY NUMBER                    * FACILITY   * PROPERTY    * USER * PRIOR
                                    * SUFFIX NO. * NO. (12     * CODE * ITY
                                    *            * CHRCTRS.)   *      *
                                    *            *             *      *
))))))))))))))))))))))))))))))))))))))3)))))))))))3))))))))))))3))))))2)))))))
 INSPECTED BY                       * MAP GRID   * ZONE        * ROOM-WING
                                    *            *             * (10 CHRCTRS.)
                                    *            *             *
))))))))))))))))))))))))))))))))))))))3)))))))))))3))))))))))))2))))))))))))))
 INVENTORY CODE                     * WARRANTY   * MODEL (20 CHARACTERS)
                                    * EXPIRES    *
                                    *            *
))))))))))))))))))))))))))))))))))))))3)))))))))))2))))))))))))))))))))))))))))
 MODEL YR                           * MAKE (28 CHARACTERS)
                                    *
))))))))))))))))))))))))))))))))))))))2))))))))))))))))))))))))))))))))))))))))))
 SERIAL NUMBER (28 CHARACTERS)

))))))))))))))))))))))))))))))))))))))))))))))))))))))))0))))))))))))))))))))))))
 USER FIELD (20 CHARACTERS)                           * USER FIELD (20 CHARACTERS)
                                                      *
))))))))))))))))))))))))))))))))))))))))))))))))))))))))2))))))))))))))))))))))))
 NAMEPLATE DATA (70 CHARACTERS)

))))))))))))))))))))))))))))))))))))))
```

MIL HDBK-1151

APPENDIX F (continued)

PREVENTIVE MAINTENANCE INSPECTION RECORD

DATE	CHECK POINTS	ACTUAL INSP. HRS.	DEFICIENCY REPORT MADE		INSPECTOR/ MECHANIC INITIALS	DATE	CHECK POINTS	ACTUAL INSP. HRS	DEFICIENCY REPORT MADE		INSPECTOR/ MECHANIC INITIALS
			YES	NO					YES	NO	

SOUTHNAVFACENGCOM 11014/7A (REV. 6-84) (BACK SIDE)

407

APPENDIX F (continued)

INVENTORY OF SERVICES WORKSHEET
FOR

NUMBER	LOCATION/IDENTIFICATION	FREQUENCY	COMMENTS

```
+)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))),
*                          INSPECTION REPORT SHEET                          *
*                                                                           *
* CONTRACT NO.:                              CONTRACTOR:                    *
*              )))))))))))))))))))))                    )))))))))))))))))))) *
*         DATE:                                                             *
*              )))))))))))))))))))))                                        *
/))))))))))))))0))))))))0))))))))0))))))))0))))))))0))))))))0))))))))0)))))))))1
* AREA/ROOM    *        *        *        *        *        *        *        *
* NUMBER       *        *        *        *        *        *        *        *
/))))))))))))))3))))))))3))))))))3))))))))3))))))))3))))))))3))))))))1         *
* AREA IN SF   *        *        *        *        *        *        *        *
/))))))))))))))3))))))))2))))))))2))))))))2))))))))2))))))))2))))))))1         *
*              *                          RATING                             *
* CONTRACT     /)))0))))0)))0))))0)))0))))0)))0))))0)))0))))0)))0))))0)))3))))))))1
* REQUIREMENTS * S * U  * S * U  * S * U  * S * U  * S * U * S * U * TOTAL   *
*              * / * SF * / * SF * / * SF * / * SF * / * S * / * S * UNSAT   *
*              * U *    * U *    * U *    * U *    * U * F * U * F * SF      *
/))))))))))))))3)))3))))3)))3))))3)))3))))3)))3))))3)))3)))3)))3)))3))))))))1
*              *   *    *   *    *   *    *   *    *   *    *   *    *        *
/))))))))))))))3)))3))))3)))3))))3)))3))))3)))3))))3)))3)))3)))3)))3))))))))1
*              *   *    *   *    *   *    *   *    *   *    *   *    *        *
/))))))))))))))3)))3))))3)))3))))3)))3))))3)))3))))3)))3)))3)))3)))3))))))))1
*              *   *    *   *    *   *    *   *    *   *    *   *    *        *
/))))))))))))))3)))3))))3)))3))))3)))3))))3)))3))))3)))3)))3)))3)))3))))))))1
*              *   *    *   *    *   *    *   *    *   *    *   *    *        *
/))))))))))))))3)))3))))3)))3))))3)))3))))3)))3))))3)))3)))3)))3)))3))))))))1
*              *   *    *   *    *   *    *   *    *   *    *   *    *        *
/))))))))))))))3)))3))))3)))3))))3)))3))))3)))3))))3)))3)))3)))3)))3))))))))1
*              *   *    *   *    *   *    *   *    *   *    *   *    *        *
/))))))))))))))3)))3))))3)))3))))3)))3))))3)))3))))3)))3)))3)))3)))3))))))))1
*              *   *    *   *    *   *    *   *    *   *    *   *    *        *
/))))))))))))))3)))3))))3)))3))))3)))3))))3)))3))))3)))3)))3)))3)))3))))))))1
*              *   *    *   *    *   *    *   *    *   *    *   *    *        *
/))))))))))))))3)))3))))3)))3))))3)))3))))3)))3))))3)))3)))3)))3)))3))))))))1
*              *   *    *   *    *   *    *   *    *   *    *   *    *        *
/))))))))))))))3)))2))))3)))2))))3)))2))))3)))2))))3)))2)))3)))2)))3))))))))1
* OVERALL      *        *        *        *        *        *        *        *
* PERFORMANCE  *        *        *        *        *        *        *        *
/))))))))))))))2))))))))2))))))))2))))))))2))))))))2))))))))2))))))))2))))))))1
* REMARKS:                                                                  *
*                                                                           *
/)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))1
*  QAE                        CONTRACTOR                                    *
* SIGNATURE:                  SIGNATURE:                    DATE:            *
*           )))))))))))))))))            )))))))))))))))))))       )))))))))) *
*                                          COPY RECEIVED                    *
.)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))-
```

APPENDIX F (continued)

CONTRACT DISCREPANCY REPORT

FROM: QAE CONTRACT NUMBER

TO: (CONTRACTOR & MANAGER'S NAME) CONTRACT SECTION

DISCREPANCY & LOCATION: (DESCRIBE IN DETAIL, ATTACH CONTINUATION SHEET IF NECESSARY)

ORAL NOTIFICATION (NAME, TITLE OF CONTRACTOR REPRESENTATIVE)

SIGNATURE OF QAE DATE

CONTRACTOR RESPONSE

FROM: (CONTRACTOR) TO: Commanding Officer

CONTRACTOR RESPONSE:

SIGNATURE OF CONTRACTOR REPRESENTATIVE DATE

GOVERNMENT ACTION

EVALUATION (ACCEPTANCE, PARTIAL ACCEPTANCE, REJECTION)

ACTIONS (CURE NOTICE, SHOW CAUSE, OTHER)

CLOSE OUT

	NAME, TITLE	SIGNATURE	DATE
CONTRACTOR NOTIFIED			
QAE			
COMMANDING OFFICER			

APPENDIX F (continued)

CURE NOTICE--SAMPLE

DEPARTMENT OF THE NAVY

NAVAL FACILITIES ENGINEERING COMMAND

In Reply Refer To:

Firm Name
Street Address
City, State, Zip Code

RE: Contract (Number, Title and Location)

Gentlemen:

You are notified that the Government Considers your [specify the Contractor's failure or failures] a condition that is endangering performance of the contract. Therefore, unless this condition is cured within ten (10) days after receipt of this notice [or insert any longer time that the Contracting Officer may consider reasonably necessary], the Government may terminate for default under the terms and conditions of the [insert clause title] clause of this contract.

Sincerely,

_____
_____ Division
For Commander, NAVFACENGCOM
Contracting Officer

SHOW CAUSE NOTICE--SAMPLE

DEPARTMENT OF THE NAVY

NAVAL FACILITIES ENGINEERING COMMAND

In Reply Refer To:

Firm Name
Street Address
City, State, Zip Code

RE: Contract (Number, Title and Location)

Gentlemen:

Since you have failed to... [insert "perform Contract No._____ within the time required by its terms", or "cure the conditions endangering performance under Contract No._____ as described to you in the Government's letter of_____(date)"], the Government is considering terminating the contract under the provisions for default of this contract. Pending a final decision in this matter, it will be necessary to determine whether your failure to perform arose from causes beyond your control and without fault or negligence on your part. Accordingly, you are given the opportunity to present, in writing, any facts bearing on the question to...[insert the name and complete address of the Contracting Officer], within 10 days after receipt of this notice. Your failure to present any excuses within this time may be considered as an admission that none exist. Your attention is invited to the respective rights of the Contractor and Government and the liabilities that may be invoked if a decision is made to terminate for default.

Any assistance given to you on this contract or acceptance by the Government of delinquent goods or services will be solely for the purpose of mitigating damages, and it is not the intention of the Government to condone any delinquency, or to waive any rights the Government may have under subject contract.*

(End of Notice)

Sincerely,

_____
_____Division
For Commander, NAVFACENGCOM
Contracting Officer

(continued)

APPENDIX F (continued)

SHOW CAUSE NOTICE ---SAMPLE

Page Two

*Stop work instructions may be used when it is definitely known that there are no further requirements for the items or services, but an investigation must be conducted to determine whether an actionable default exists in lieu of termination for convenience. In such a situation, the following may be inserted as the final paragraph of the Show Cause Notice: "Pending decision you are instructed to stop all work immediately and to make no further commitments under subject contract. Advise all subcontractors and suppliers to do likewise."

REFERENCES

NOTE: THE FOLLOWING REFERENCED DOCUMENTS FORM A PART OF THIS HANDBOOK TO THE EXTENT SPECIFIED HEREIN. USERS OF THIS HANDBOOK SHOULD REFER TO THE LATEST REVISIONS OF CITED DOCUMENTS UNLESS OTHERWISE DIRECTED.

NAVY MANUALS, P-PUBLICATIONS, AND MAINTENANCE OPERATING MANUALS:

Unless otherwise indicated, copies are available from the Commanding Officer, Naval Publications and Forms Center, (NPFC), 5801 Tabor Avenue, Philadelphia, PA 19120-5099. To order these documents, Government agencies must use the Military Standard Requisitioning and Issue Procedure (MILSTRIP).

P-PUBLICATIONS

NAVFAC P-68	Contracting Manual
NAVFAC P-78	Navy Facilities Assets Data Base Procedures Manual
NAVFAC P-164	Detailed Inventory of Naval Shore Facilities
NAVFAC P-349	NAVFAC Documentation Index

MAINTENANCE OPERATING MANUALS

MO-321.1	Maintenance Management of Shore Facilities for Small Activities
MO-322, VOL's 1, 2, 3	Inspection of Shore Facilities
MO-327	Facilities Support Contracts Quality Management Manual

NAVY DEPARTMENT INSTRUCTIONS:

COMNAVRESFORINST

11000.2 (Series)	Facilities Management Function
11010.3 (Series)	Requirements for Surface Naval Reserve Basic Facilities Planning Information (BFPI)
11010.7 (Series)	Annual Shore Facilities Basic Facilities Requirements (BFR) Update and Real Property Utilization Analysis

11100.3 (Series)	Whole Center Repair Program
11102.2 (Series)	Facilities Support Officer (FSO) Responsibilities
11320.1 (Series)	Fire Protection and Evaluation for Naval Shore Activities

NAVFACINST

6250/2 (Series)	Pest Management Data System, Indoor Operations
6250/3 (Series)	Pest Management Data System, Outdoor Operations
11010.44 (Series)	Shore Facilities Planning
11300.37 (Series)	Defense Energy Information System (DEIS)

OPNAVINST

4100.5 (Series)	Naval Energy Conservation Goals
4110.2 (Series)	Hazardous Material Control and Management (HMC&M)
5090.1 (Series)	Environmental and Natural Resources Program Manual
5100.23 (Series)	Navy Occupational Safety and Health Manual
6250/4 (Series)	Pest Management Programs
11010.20 (Series)	Navy Special Projects Manual
11010.34 (Series)	Preparation and Submission of the Annual Inspection Summary (AIS)
11011.10 (Series)	Utilization of Navy Real Property
11320.23 (Series)	Shore Activities Fire Protection Program

SECNAVINST

5210.11 (Series)	Department of the Navy File Maintenance Procedure and Standard Subject Identification Codes

OTHER GOVERNMENT DOCUMENTS AND PUBLICATIONS:

DOD 4270.1 (Series)	Construction Criteria Manual
NAVRES Form	
4790/20	Resources Request Form
DD Form	
350	Report for Contract Actions
1155	Order for Supplies or Services/Request for
NAVCOMPT Form	
2276	Request for Contractual Procurement
NAVFAC Form	
11000/7	Engineering Service Request (ESR)
11013/7	Cost Estimating Form
11014/64	Special Projects Request
11014/66	Special Projects Summary List

(Unless otherwise indicated, copies are available from the U. S. Government Printing Office, Washington, DC 20402.)

FEDERAL REGISTER	
49 FR 31528	Uniform Federal Accessibility Standards and Handbook for GSA, DOD, HUD, and Postal Service
U. S. CORPS OF ENGINEERS	
EM 385-1-1	Safety and Health Requirements Manual
OSHA 29 CFR 1910 and 1926	OSHA Safety and Health Guidelines
Commerce Business Daily (CBD)	Daily Publication of Government Contracting Advertisements
Executive Order 12003	Reduce Dependency on Energy Resources

(Available from U. S. Code of Congressional Administrative News, West Publishing Company, P. O. Box 64833, St. Paul, MN 55164-1803).

NON-GOVERNMENT PUBLICATIONS:

National Fire Protection Association

NFPA 101 Life Safety Code

(Available from the National Fire Protection Association (NFPA), Batterymarch Park, Quincy, MA 02269).

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PROJECT NO.
FACR-1100