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NAVAL FACILITIES ENGINEERING COMMAND  
GUIDE PERFORMANCE WORK STATEMENT (GPWS)  
FOR  
WATER PLANTS AND SYSTEMS OPERATION AND MAINTENANCE

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USER'S GUIDE  
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OPERATION AND MAINTENANCE

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USER'S GUIDE  
GUIDE PERFORMANCE WORK STATEMENT FOR  
WATER PLANTS AND SYSTEMS OPERATION AND MAINTENANCE

I. INTRODUCTION

A. Purpose. This NAVFAC Guide Performance Work Statement (GPWS) was written to provide assistance in preparing facilities support contracts to procure operation, maintenance and repair of Water Plants and Systems (WPS) services. Contracts for WPS services may be a continuing contracting effort or conversion from in-house to contract performance under the Commercial Activities (CA) program. This NAVFAC GPWS may be used in either application. This GPWS Package consists of a User's Guide, guide contract sections B, C, and J in the Uniform Contract Format, and a Quality Assurance (QA) guide.

1. The NAVFAC manual MO-327, *Service Contracts: Specifications and Surveillance*, provides extensive information on the preparation of NAVFAC facilities support contracts, from guidance on making the initial decision to contract a given function through the entire PWS and surveillance program development process. This User's Guide is designed to supplement and to be used in conjunction with the MO-327 in developing a PWS for WPS services. It provides specific guidance on developing and tailoring the GPWS, special items which must be considered if the specification is being written in conjunction with a CA program study, and general guidance on required pre-award actions. Additional guidance on implementing CA program requirements can be found in the Supplement to OMB Circular A-76 and in OPNAVINST 4860.7B.

2. Sections B, C, and J provide suggested formats for displaying contract line (bid) items, technical specifications which the user may tailor to site specific needs, and attachments which provide supplemental information, historical data, etc.

3. The QA guide is designed to provide the framework for development of a comprehensive contract surveillance program. The user should modify and expand upon the sample QA plans provided as the GPWS is tailored.

B. Function Definition. Water Plants and Systems functions can be defined in terms of measurable outputs upon which Contractor performance is evaluated. The Contractor is to provide all labor, transportation, equipment, materials, supplies, management, coordination, and supervision required to deliver these outputs. The functions (outputs) to be delivered by the Contractor under the Water Plants and Systems Operation and Maintenance PWS include the following:

1. Quantity of Water
2. Quality of Water
3. Treatment Plant Operating Records
4. Minimum Water Pressure at Specified System End Points
5. Water Supply and Distribution Operating Records
6. Maintenance (including PMI and/or corrective)
7. Maintenance Records
8. Custodial Services
9. Water Quality Sampling, Analysis and Reports

This list of deliverables can be modified as needed for application to a specific system. For example, an output may be added by the user regarding disposal of sludge. The list, however, generally covers all outputs which could result from the operation and maintenance of a water treatment plant and supply distribution system. Careful definition and quantification of measurable outputs is important because these outputs are central to the specifications, the Schedule of Deductions, and the Quality Assurance Guide.

### C. Responsibilities

1. Experience has shown that the best method of developing a facilities support contract specification is to involve a number of activity personnel, each having a portion of the knowledge and experience required to put the entire package together. A team of experienced activity personnel should be formed and a team leader appointed. At least one member of the team must be intimately familiar with each of the following areas:

- a. Must be familiar with and understand the applicable GPWS(s) and QA Guide(s).
- b. Must have working knowledge of basic contracting procedures.
- c. Must have first hand knowledge of the services, and/or equipment/system operations, repairs, and maintenance to be provided by contract.
- d. Must be able to identify local needs/requirements that are different from the GPWS and apply specifically to the activity.

2. The following activity personnel are suggested as members of the specification development team:

a. Specification Writer. The Water Plant and Systems Operation and Maintenance specification is most properly prepared by an engineer or engineering technician at the activity who has had some experience in writing facilities support contracts. The use of a planner and estimator (P&E) is also appropriate if one is experienced with writing contract specifications. The writer, regardless of who he/she is, should have attended the Civil Engineer Corps Officers School (CECOS) course on Facilities Support Contracts. Assistance and guidance may be requested from the geographical NAVFACENGCOM Engineering Field Division (EFD), Code 10.

b. Functional Manager/Customer. The functional manager is the technical representative of the team who is most familiar with the function to be contracted. Early in the tailoring process the Utilities Division Director or other water plant functional expert must determine the total scope of the services required, and the specific needs of the activity which may differ from this GPWS.

c. Contract Specialist. The Contract Specialist provides overall contractual guidance in the preparation of the specification. This person will work with the writer in the preparation of sections B, C, and J, and will prepare the majority of the clauses in sections E, F, G, H, I, K, L, and M. Additionally, there are many pre-award and post-award contract actions to be initiated by the Contract Specialist.

d. CA Program Manager. If the specification is being prepared under the CA program, the CA Program Manager can provide overall guidance on the CA program, and will ensure that the specification is developed in conjunction with required Most Efficient Organization and Management Studies.

3. The tailored specification should be reviewed by customer and functional manager representatives, the activity's Facilities Support Contract

Manager (FSCM) and Quality Assurance Evaluators (QAEs), the Engineering Division Director, and the Utilities Division Director.

II. GPWS DEVELOPMENT AND USER CONSIDERATIONS. This section of the User's Guide discusses certain assumptions which were made and special items that were considered during the development of the Water Plant and Systems Operation and Maintenance GPWS, and provides general information and considerations that the user should be aware of during the tailoring process.

A. Development of the GPWS. In developing this GPWS, a functional analysis, as described in the MO-327, was used to identify each of the major subfunctions for the GPWS. These subfunctions were further subdivided to develop basic work requirements and attributes for each subfunction. Once all of the basic work requirements were identified for each subfunction, the requirements were put in narrative form and a Performance Requirements Summary Table was developed.

B. GPWS User Considerations. The clauses and provisions of this GPWS are arranged in the uniform contract format, as required by the Federal Acquisition Regulations (FAR). The sections to which they are assigned shall not be changed.

1. This standard GPWS contains sections B, C and J only. These sections contain information and clauses peculiar to the technical services required, while Sections D, E, F, G, H, I, K, L and M contain contract clauses and provisions more closely related to administrative and contractual requirements. Since the latter group will generally be the same in the majority of NAVFAC contracts, their inclusion in each GPWS would be unnecessary duplication. Therefore, this group, to be referred to as the standard facilities support contract clauses, shall be packaged at each geographical EFD and contracting office, and made available to specification writers as required.

2. FAR clauses and provisions may be added or deleted as required by the FAR for specific functions, dollar limitations, bonding, small businesses, etc. They may not be altered unless specifically authorized by the FAR. The clauses in sections I and L, other than those requiring tailoring (i.e. blanks to be completed), may be included by reference. All other FAR clauses and provisions shall be included in full text. Procurement offices shall make available to bidders the full text of all clauses incorporated by reference upon request.

3. The "SCHEDULE OF DEDUCTIONS" and "CONSEQUENCES OF CONTRACTOR'S FAILURE TO PERFORM REQUIRED SERVICES" clauses are NAVFAC, not FAR clauses, and shall not be altered without NAVFAC approval. All other non-FAR clauses and provisions in the standard facilities support contract clauses should be used substantially as shown or deleted if not applicable to the solicitation. Extensive deliverable performance requirements should not be added to these clauses, but should be included in Section C.

#### 4. Technical Specification

a. Section C, which describes the services to be provided, should be a performance specification. That is, overdefining the Contractor's responsibilities in terms of methods or procedures should be avoided in writing the technical specifications since we hope to purchase not only the Contractor's labor, but also his/her expertise in the services to be provided and management of those services. A performance oriented specification should minimize the use of words describing "how to" and emphasize the performance standards to which the Contractor must maintain and operate the WPS. Outputs must be described specifically and as explicitly as possible while leaving the Contractor latitude to manage his/her own work force and choose his/her own methods for accomplishing the work.

b. On the other hand, the specification must provide enough information to clearly and precisely define the magnitude (number of services we want to buy) and quality of each of the services to be provided, as well as the scope or limit of each. This is accomplished in the GPWS by specifying, in addition to the desired outputs, schedules of accomplishment and/or specific time limitations in which all services must be completed; listing mandatory operating procedures or steps that the Contractor must follow for some services; and providing historical data on the magnitude of services provided under previous contracts or by in-house forces. Such information will only slightly restrict the Contractor's latitude in managing his/her workforce, but will help ensure all bidders clearly visualize the magnitude of effort which will be required to provide the clearly defined scope of work. Typically this will result in more accurate/realistic Contractor bids, make payment deductions for unsatisfactorily performed or non-performed work easier to calculate, and reduce the number of contract administration problems.

5. As you use this GPWS, you will find that anytime a choice of options is available, there is a "NOTE TO THE SPECIFICATION WRITER". The note informs the user to select the appropriate clause, provide additional information, or delete the clause in its entirety. There are many areas in the GPWS where space has been left to fill in a blank; i.e., start times, dates, quantities, etc. All that is required is to complete the blanks and then delete the adjoining notes. If the final document is to be printed from the DISKETTE, it is not necessary to delete the notes as the equipment will print a justified copy without the notes.

6. High cost corrective maintenance over \$2,000 per occurrence in the routine operation and maintenance of WPS is rare. Additionally, individual repairs in excess of \$2,000 require the Contractor to pay Davis Bacon wage rates, which are normally not included in a facilities support contract. For these reasons individual repairs over \$2,000 generally will be accomplished by separate contract or by Government forces.

7. The Acceptable Quality Levels (AQLs) provided in the Performance Requirements Summary Table are sample levels only. Refer to the NAVFAC MO-327 and select levels that are appropriate to your activity.

III. TAILORING THE GPWS. The GPWS for WPS services is not intended to fit the requirements of a specific activity, but rather, is to serve as a model to be tailored by activities in preparing their specific PWS. The first step in tailoring a GPWS to a specific case is for the User to become intimately familiar with the GPWS and its User's Guide. The User must know what is, and is not, included in the GPWS and what was intended before he/she can assess modifications required. The PWS is the instrument that lays out the functional and technical requirements and ultimately becomes part of a contract. The User's Guide provides the User with information concerning the GPWS and provides instructions on tailoring it to his/her use. Users should not assume that the GPWS can be "plugged" into their application with little or no effort. A detailed analysis of the activity's requirements will be required.

#### A. Getting Started

1. The first step in tailoring this GPWS to a specific user activity must be to determine one of the following:

a. Requirements are currently contracted and this will be a continuation of the contracted services or consolidation several contracts. If this is the case, the GPWS may be tailored to accomplish any desired scope of work and level of performance.

b. Requirements to be included are subject to a Commercial Activities (CA) cost comparison study under OMB Circular A-76. If this is the case, it is mandatory that the scope of work and level of performance specified be

equivalent to the current in-house effort or to the level of effort that can be achieved by the Most Efficient Organization (MEO) if the function is retained in-house. Additional information on tailoring of the GPWS for a CA program study is included in paragraph IV of this User's Guide.

2. The next step should be a thorough review of Chapters 3 and 4 of the MO-327. These two chapters outline in detail how to perform a functional analysis to determine just how the specification should be written and how Contractor performance is to be monitored. As the functional analysis is being performed, the user should compare his/her unique activity requirements with GPWS requirements to determine if any major changes are required, or if some of the questions being identified in the functional analysis have already been answered in the GPWS. If major changes are required, the User will need to rewrite the affected GPWS section. A thorough functional analysis will make the actual tailoring of the GPWS and rewriting of paragraphs relatively easy since all required data will be readily available and the functions to be contracted will be well defined.

B. Contract Line Item (Section B) Requirements. A combination fixed-price and indefinite quantity contract is used in this GPWS. The contract line items shown in Section B are intended to encompass all of the services to be provided in the technical specifications. Of course they must be tailored to account for work items added or deleted during the functional analysis process and the projected start date of contract performance. The line items are made up of two types of work items: fixed-price items and fixed unit price (indefinite quantity) items. All new work items added by the user must fall into one of these two categories.

1. Fixed-Price Requirements. Fixed-price items are bid and payment is made for the total performance of a given work item over a given period of time (usually one month). These work items are either fixed in scope (time, location, frequency, quantity, etc. are known) or adequate historical data is available to make a biddable estimate. Because the scope of work is known, the Contractor agrees to perform a given function for a total price, and in essence there is one work order. The Contractor performs the work as scheduled and invoices are submitted for the services provided.

a. Examples of fixed-price items in this GPWS are: operations, service work, and preventive maintenance inspections. Some of these work items, such as service work, are limited in scope to specified labor and/or dollar amounts. Work beyond these limits will either not be required by the contract, or will be included in the indefinite quantity portion of the contract. The higher the labor/dollar limits specified, the more historical data that must be provided.

b. Fixed-price work items added by the user must either have clearly defined scopes, or additional historical data will also have to be added as an attachment to Section C of the PWS.

2. Indefinite Quantity Work Items. All items not included in the fixed-price portion are considered indefinite quantity work items. That is, the Contractor agrees to perform this work on an "as ordered" basis, and a fixed unit price to perform one occurrence or a given quantity of each type of work is bid. Payment for this type of work is based on the unit price bid per unit times the number of units performed. Because each Government order for indefinite quantity work is paid for separately, each and every work order must be inspected and accepted as being satisfactorily completed before payment may be made. Indefinite quantity work in this GPWS is divided into two separate categories, each with its own contract line item and set of subline items.

a. Unit Priced Tasks. Bid prices for unit priced tasks include all labor, materials, and equipment for performing a given quantity of work, such as replacing a pump. The unit prices bid are multiplied by an estimated

quantity of units to be ordered during the contract term, but only for purposes of bid evaluation, since work will only be paid for as ordered and completed.

b. EPS Hour Labor. This type of indefinite quantity work, which is also referred to as "level of effort work", should be used only in connection with maintenance and repairs to facilities and/or equipment, and then only when such work cannot be identified in advance in sufficient detail to be included in the fixed-price or indefinite quantity - unit priced portions of the contract. The unit prices bid for labor include all costs to provide one EPS estimated hour of labor. The Contractor is reimbursed directly for the cost of materials, less pre-expended bin materials. NOTE: Level of effort provisions used in a CA program PWS are considerably different than those in non CA studies. Refer to paragraph IV.B of this User's Guide for further guidance.

c. As many indefinite quantity work requirements as possible should be included as unit priced tasks vice as level of effort work since unit priced tasks are easier to understand, easier for Contractors to bid on, the work is easier to order and administer, and materials and equipment costs are included in the unit prices bid. Regardless of which of the two types of indefinite quantity work are used, the estimated quantities provided in the solicitation for bid for bid evaluation must be realistic estimates of the anticipated quantities to be ordered during the contract term.

### 3. Partial First Year Of Performance

a. Because of funding restrictions, only four types of facilities support contracts may be awarded for a 12-month period to begin at any time during the fiscal year. All other contracts, including those for WPS services, must be funded using funds from the fiscal year in which the work will be performed. This means only contracts with terms beginning on 1 October may be awarded for a full 12-month period. Contract terms beginning on any other date must be awarded for something less than 12 months, and must end on or before 30 September. Normally, such contracts will not be awarded for less than three months. For example, a contract which begins on 1 April would have a six-month initial term (BASE PERIOD), and then options to extend for up to 54 additional months. However, no single option period could be more than 12 months long, and the total term of contract could not exceed 60 months.

b. Section B of this GPWS assumes that the initial contract period will be less than 12 months. The user must consider each of the following items in this situation:

(1) As illustrated in this GPWS, at least two sets of contract line items will be required in Section B. One set for the base period for performance of work from the specified contract start date through 30 September. The other set will be for performance during the first 12 month option period, if the Government exercises its option to extend the contract. Additional pre-priced option periods may be added if desired, and are required if the specification is being written for a CA program study.

(2) Section C, the technical specifications, must clearly outline the scope of work for both of the two contract periods since the workload can vary significantly from month to month. For example, the specification must state whether or not annual preventive maintenance inspections will be performed during the base period.

(3) Two Schedules of Deductions, one for the base period and one for the first option period, must be included. Of course the items of work and number of units in the Schedules of Deductions must agree with the fixed-price contract line items in Section B and the scopes of work defined in Section C. Paragraph III.D of this User's Guide provides more in depth information on the development of Schedules of Deductions.

(4) The "TERM OF THE CONTRACT" clause in Section F should read as follows:

"TERM OF CONTRACT. The initial contract term shall be for a !INSERT NUMBER! month period commencing on !INSERT DATE! and ending on !INSERT DATE!. The Government has the option to extend the term of the contract in accordance with the "OPTION TO EXTEND THE TERM OF THE CONTRACT-SERVICES" clause in Section I by giving written notice to the Contractor fifteen (15) calendar days prior to expiration of the contract. In the option periods the Government will adjust the prices, as required, based on new Department of Labor Wage Rate Determinations."

(5) "The BASIS FOR AWARD" clause should read as follows:

"BASIS FOR AWARD. The low bidder for purposes of award shall be the conforming, responsive, responsible bidder offering the lowest total price for Contract Line Items 0001, 0002, 0003, 0004, 0005, and 0006. However, the initial award will include only contract line items 0001, 0002, and 0003. Bids are solicited on an "all or none" basis and provision 52.214-10, "CONTRACT AWARD - SEALED BIDDING (Apr 1985)" in Section L is hereby modified. FAILURE TO SUBMIT BIDS FOR ALL ITEMS AND QUANTITIES LISTED SHALL BE CAUSE FOR REJECTION OF THE BID."

c. If the initial contract term will be projected to begin on 1 October, make the following changes to the GPWS contract line items, Section B:

(1) The dates shown in contract line items 0001, 0002, and 0003 should read "(1 October !INSERT YEAR! through 30 September !INSERT YEAR!)".

(2) Delete contract line items 0004, 0005, and 0006 in their entirety, **unless** the PWS is being written under the CA program (see paragraph IV.C of this User's Guide).

C. Technical Specifications (Section C). The following describes procedures for specifying outputs which meet the activity's specific needs:

1. Output #1 - Water Quantity. To determine the water flow capacity to be provided by the Contractor, the activity should consider average and maximum daily water demand as well as plant design capacity. Water demand can be estimated from residential, administrative and commercial populations; irrigation needs; industrial use records; and previous water influent and supply records. The specified output should be sufficient to cover demand, including peak seasonal use, but should not be in excess of design plant capacity.

a. Quantity can be expressed in unit volume (most typical, Kgal) per unit period of time. The unit period of time can be a day, a week, a month or a year. The longer the time unit used, the more leeway the Contractor has to operate on a schedule of his/her own choosing. A shorter time unit gives the Government more control and the Contractor less flexibility. The activity should review past production records to determine whether a relatively steady demand exists on a day-to-day, week-to-week, or month-to-month basis, and select an appropriate time unit accordingly.

b. Another critical requirement is the system recovery rate following a fire or other high volume demand on the storage capacity. These requirements can be obtained from the Fire Protection Officer at the activity. The contract must require the Contractor to be able to resupply the storage tanks at the specified minimum rate at all times.

c. The points of quantity measurement should be specified in the contract. Ideally, flow will be monitored automatically on a continuous basis, and the Government can rely on such records for output evaluation.

2. Output #2 - Water Quality. To determine water quality outputs, the activity should review past treated and raw water quality records and applicable water quality regulations. The National Interim Primary Drinking Water Regulations (NIPDWR) pursuant to the Federal Clean Water Act are included as the basic specification in Section C. More or less stringent state and local regulations may apply to a specific activity. Other nonregulatory requirements such as chlorination, fluoridation, and taste and odor control should also be considered. Prior to establishing a given standard as a contract mandated output, the activity should ensure that the plant is physically capable of producing water meeting that standard. The Contractor should not be tasked with meeting quality standards which can only be met through plant alterations or major process changes. The sampling locations and analytical processes to be used for Contractor performance evaluation should be specified in Section C of the PWS. The reports to be produced by the Contractor (Output #9 in the User's Guide) can be used to evaluate Contractor performance. Independent quality checks should be performed by the Government to verify reporting accuracy (see Quality Assurance Guide).

3. Output #3 - Treatment Plant Operating Record. NAVFAC 11340/2 (Rev 7-81) or an equivalent form is used to record operations at water treatment plants. Daily, weekly, and monthly entries are required for various parameters including temperature, pH, quantity, turbidity, chemical usage, etc. The activity should specify the frequency required for each individual entry.

4. Output #4 - Minimum Water Pressure at Specified System End Points. System end points are points within or on the boundary of the water distribution system where water pressure measurements can be made and recorded for Contractor performance evaluations. Each residential water outlet or service connection could be considered an end point. However, it is not practical nor necessary to check each of them because the pressure at those outlets is usually controlled by the pressure at a central distribution reservoir, booster pump or pressure regulator. Therefore, the activity should attempt to identify central pressure control points within the system and specify minimum continuous pressure requirements at those points. The specified pressure at each point should be sufficient to maintain adequate pressure throughout the system. Pressure drops could result from a break or blockage in the line between the central control point and service connections. Any such failure would come to the attention of the Contractor through inspection or customer complaints and would be repaired by the Contractor under the maintenance and repair provisions of the contract.

5. Output #5 - Water Supply Purchased, Well, Surface & Distribution Operating Records. The form used for documentation of the operating criteria is NAVFAC 11330/6 (1-76). The specification writer must indicate that it will be completed by the Contractor, who will record the amount and date of water obtained from each source.

6. Output #6 - Maintenance. Maintenance of the treatment and distribution system is difficult to define in terms of measurable outputs. The output of maintenance is the continued satisfactory performance of the system over its entire design life. The design life of the system, however, normally exceeds the contract period. Thus, a Contractor may choose to neglect maintenance expecting that the system will not fail until after his/her contractual obligations have been fulfilled. This may require that certain maintenance schedules and procedures be made mandatory by inclusion in the specifications. It should be recognized, however, that these requirements may be difficult to enforce when the task is not verifiable. For example, it may be impossible to determine whether a certain pump has been lubricated on schedule. On the other hand, the QAE can verify that a gauge has been recently calibrated by repeating the calibration procedure.

7. Output #7 - Maintenance Records. The Contractor should maintain a record of all preventive and corrective maintenance performed. The activity should provide a preferred record keeping format based on current practice. Records should include a description of maintenance performed (i.e., replacement of corroded valves in #2 chlorinator) date of performance, parts and materials costs, and labor costs.

8. Output #8 - Custodial Services. Measurable outputs are not so readily identified. The following details must be considered:

- a. Items to be cleaned (complete inventory is required.)
  - (1) Description (office, restroom, lab)
  - (2) Number
  - (3) Size (square footage)
- b. Frequency of cleaning (daily, weekly)
- c. Class of Service\*
- d. Indefinite Quantity (IQ) Work Items

\* The NAVFAC GPWS for Custodial Services can be used as a guide.

9. Output #9 - Water Quality Sampling Analysis and Reports. The Contractor will perform turbidity, temperature, pH, hardness, chlorine, etc. analysis on a regular basis in order to control the treatment process and produce the required outputs. In addition, a monthly report will be prepared to satisfy regulatory requirements. The activity should specify which parameters are to be included in the report and the monitoring frequency for each parameter. The activity should also specify the date of submittal (i.e. the 10th of each month), the recipient of the report, and the number of copies.

D. Schedule of Deductions. The Schedule of Deductions is one of the most important items that the specification writer must consider in tailoring of this GPWS since it directly affects the degree of difficulty required to make payment deductions for unsatisfactory performance or non-performance of work. The schedule, which is used in conjunction with the "CONSEQUENCES OF CONTRACTOR'S FAILURE TO PERFORM", Section E, requires the successful bidder to break the fixed-price portion of the bid down for each of the fixed-price work items in the PWS. The completed schedule must be provided by the Contractor within 15 days after award of the contract. The "SCHEDULE OF DEDUCTIONS" clause and sample schedule formats for the base and first option periods follow.

"SCHEDULE OF DEDUCTIONS"

a. Within 15 days after contract award, the successful Contractor shall provide an acceptable Schedule of Deductions for the base period of the contract. No work may commence until such Schedule of Deductions is approved by the ACO. The total of the Schedule of Deductions must equal the amount entered for Contract Line Item 0001. Schedules of Deductions for the option years which include any labor adjustment granted shall be revised within 15 days of notice to extend the contract. If this contract is modified, the Contractor shall revise the Schedule of Deductions within 15 days of the agreement to modify the contract. Prices shown in the Schedule of Deductions will be utilized in conjunction with the "CONSEQUENCES OF CONTRACTOR'S FAILURE TO PERFORM REQUIRED SERVICES" clause, Section E, in making payment deductions for non-performance or unsatisfactory performance. Unbalancing in the Schedule of Deductions submitted shall be cause for withholding approval and requiring resubmittal of a balanced schedule, and may be grounds for TERMINATION FOR DEFAULT. The Government reserves the right to unilaterally establish a

Schedule of Deductions in the event the successful Contractor presents a Schedule of Deductions which is unbalanced or materially deficient. The approved Schedule of Deductions shall be a part of the contract. DO NOT SUBMIT THE SCHEDULE OF DEDUCTIONS WITH BID.

b. The Government's estimate of the value of work will be based on the Schedule of Deductions for the fixed-price portion of the contract and the Schedule of Indefinite Quantity Work for the indefinite quantity portion of the contract in all instances except the following: for partially performed fixed-price work items, the Engineered Performance Standards (EPS) manuals or, if not applicable, other estimating sources will be utilized to estimate the workhour value of the unperformed portion of the work. For deductions of partially performed work, the Government may estimate the Contractor's cost based on wage rates extracted from attached wage determination, locally determined rate for Contractor's overhead and profit, and employees fringe benefits times the estimated manhours, plus material costs if applicable."

**SCHEDULE OF DEDUCTIONS**  
**BASE PERIOD: !DATE! TO 30 SEPTEMBER !INSERT YEAR!**  
**(DO NOT SUBMIT SCHEDULE OF DEDUCTIONS WITH BID)**

Item of Work	<u>Contract Requirement</u>	<u>Unit of Measure</u>	* # of Units	<u>Unit Price</u>	<u>Total Price</u>
1.	Quantity of Water	Day	\$_____	\$_____	\$_____
2.	Quality of Water				
	a. Inorganic Chemicals	Day	\$_____	\$_____	\$_____
	b. Organic Chemicals	Day	\$_____	\$_____	\$_____
	c. Turbidity	Day	\$_____	\$_____	\$_____
	d. Microbiological	Day	\$_____	\$_____	\$_____
	e. Radioactivity	Day	\$_____	\$_____	\$_____
	f. Chlorine Residual	Day	\$_____	\$_____	\$_____
	g. Fluoridation	Day	\$_____	\$_____	\$_____
	h. Hardness	Day	\$_____	\$_____	\$_____
3.	Treatment Plant Operating Record NAVFAC 11340/2				
	a. Daily	Record	\$_____	\$_____	\$_____
	b. Weekly	Record	\$_____	\$_____	\$_____
	c. Monthly	Record	\$_____	\$_____	\$_____
4.	Minimum Water Pressure	Day per End Point	\$_____	\$_____	\$_____

<u>Item of Work</u>	<u>Contract Requirement</u>	<u>Unit of Measure</u>	<u>* # of Units</u>	<u>Unit Price</u>	<u>Total Price</u>
5.	Water Supply & Distribution Operating Record NAVFAC 11330/6				
	a. Daily	Record	\$_____	\$_____	\$_____
	b. Monthly	Record	\$_____	\$_____	\$_____
6.	Maintenance				
	a. Corrective Maintenance				
	(1) System #1	Month	\$_____	\$_____	\$_____
	(2) System #2	Month	\$_____	\$_____	\$_____
	b. Preventive Maintenance				
	(1) System #1	Each	\$_____	\$_____	\$_____
	(2) System #2	Each	\$_____	\$_____	\$_____
7.	Maintenance Records	Record	\$_____	\$_____	\$_____
8.	Custodial Services				
	a. Service #1	Month	\$_____	\$_____	\$_____
	b. Service #2	Month	\$_____	\$_____	\$_____
9.	Water Quality Analysis				
	a. Timeliness	Analysis	\$_____	\$_____	\$_____
	b. Completeness	Analysis	\$_____	\$_____	\$_____
	c. Accuracy	Analysis	\$_____	\$_____	\$_____
	TOTAL PRICE FOR CONTRACT LINE ITEM 0001				\$_____

\* Insert the number of units that will occur during the Base Period.

**SCHEDULE OF DEDUCTIONS  
FIRST OPTION PERIOD  
(DO NOT SUBMIT SCHEDULE OF DEDUCTIONS WITH BID)**

<u>Item of Work</u>	<u>Contract Requirement</u>	<u>Unit of Measure</u>	<u># of Units</u>	<u>Unit Price</u>	<u>Total Price</u>
1.	Quantity of Water	Day	365	\$_____	\$_____
2.	Quality of Water				

Item of Work	Contract Requirement	Unit of Measure	# of Units	Unit Price	Total Price
	a. Inorganic Chemicals	Day	365	\$_____	\$_____
	b. Organic Chemicals	Day	365	\$_____	\$_____
	c. Turbidity	Day	365	\$_____	\$_____
	d. Microbiological	Day	365	\$_____	\$_____
	e. Radioactivity	Day	365	\$_____	\$_____
	f. Chlorine Residual	Day	365	\$_____	\$_____
	g. Fluoridation	Day	365	\$_____	\$_____
	h. Hardness	Day	365	\$_____	\$_____
3.	Treatment Plant Operating Record NAVFAC 11340/2				
	a. Daily	Record	365	\$_____	\$_____
	b. Weekly	Record	52	\$_____	\$_____
	c. Monthly	Record	12	\$_____	\$_____
4.	Minimum Water Pressure	Day per End Point	*	\$_____	\$_____
5.	Water Supply & Distribution Operating Record NAVFAC 11330/6				
	a. Daily	Record	365	\$_____	\$_____
	b. Monthly	Record	12	\$_____	\$_____
6.	Maintenance				
	a. Corrective Maintenance				
	(1) System #1	Month	12	\$_____	\$_____
	(2) System #2	Month	12	\$_____	\$_____
	b. Preventive Maintenance				
	(1) System #1	Each	**	\$_____	\$_____
	(2) System #2	Each	**	\$_____	\$_____
7.	Maintenance Records	Record	**	\$_____	\$_____
8.	Custodial Services				

Item of Work	Contract Requirement	Unit of Measure	# of Units	Unit Price	Total Price
a.	Service #1	Month	12	\$_____	\$_____
b.	Service #2	Month	12	\$_____	\$_____
9.	Water Quality Analysis				
a.	Timeliness	Analysis	**	\$_____	\$_____
b.	Completeness	Analysis	**	\$_____	\$_____
c.	Accuracy	Analysis	**	\$_____	\$_____
TOTAL PRICE FOR CONTRACT LINE ITEM 0004					\$_____

\* Computed by multiplying the number of end points times 365.

\*\* Insert appropriate number of units.

E. Davis-Bacon Considerations

1. A Contractor providing maintenance, repair and/or alteration services to Government facilities must pay his/her employees not less than the minimum wages and fringe benefits specified in the applicable Davis-Bacon wage determination, if the total cost (labor and materials) of the one-time work effort exceeds \$2,000. While any facilities support contract may contain Davis-Bacon wage provisions, only CA program contracts may contain options to extend the Davis-Bacon portion of the work. Therefore, Davis-Bacon wage provisions will not normally be included in non CA program contracts.

2. In the case of the GPWS for WPS, the \$2,000 Davis-Bacon limit applies to any individual order for maintenance or repair of the water plant or distribution system. Because most non CA program WPS contracts do not contain Davis-Bacon provisions, no single work order may exceed \$2,000 in total cost. Work requirements greater than \$2,000 would be considered out of the scope of a non CA contract and would have to be procured by a separate contract or performed by in-house forces.

F. Performance Requirements Summary. Once the GPWS has been tailored, a Performance Requirements Summary (PRS) Table should be prepared. This table will be used primarily in the preparation of QA Plans (as discussed in the QA Guide to this GPWS), but it will also be of use to the Administrative Contracting Officer (ACO), FSCM, and customers to provide a convenient overview of services to be provided, standards of performance for those services, intended method of evaluation, and AQLs. A sample PRS Table which reflects the work standards of this GPWS is provided in Table I at the end of this User's Guide. The user should modify this table to reflect the tailored PWS's requirements. The MO-327 provides guidance on the development of PRS tables.

IV. COMMERCIAL ACTIVITIES (CA) PROGRAM CONSIDERATIONS. This section of the User's Guide discusses some of the special items which must be considered when using this GPWS to prepare a PWS as part of a CA program study. Included are a number of provisions and changes which must be considered by the user.

A. Scope of Work. The user must remember that the scope of work and standards of performance specified in the PWS must be equivalent to the projected capabilities of the MEO. This GPWS has been written with a somewhat limited scope in that single instances of maintenance and repair are limited to a total cost to the Contractor of \$2,000 or less. In CA program solicitations repairs costing more than \$2,000 (Davis-Bacon type work) will normally be included, and will result in some modifications to the technical specifications.

B. Level of Effort (LOE). When LOE work is used in a CA program PWS, labor bids in Section B must be based on EPS **craft hours** vice full EPS hours. This results in additional changes being required to the "DEFINITIONS - TECHNICAL" and "ESTIMATES" clauses of Section C. Since it is important that the user fully understands the concept of **craft hours**, the geographical EFD should be contacted for guidance.

C. Pre-priced options to extend. OMB Circular A-76 requires in-house and Contractor bids to be evaluated on at least a three year basis, unless contract funding limitations prevent the initial term from being a full 12 months in length. In this situation pre-priced options must be included to cover at least two fiscal years after the initial term. This means that Section B must contain contract line items for the base period and at least two, one year, pre-priced option periods. For example:

1. If the contract term is projected to begin on 1 October, Section B would include contract line items for the base year (12 months) of performance (items 0001, 0002, and 0003) and at least two, one-year, pre-priced option periods (items 0004, 0005, and 0006; and 0007, 0008, and 0009).

2. If the contract term is projected to begin on 1 April, Section B would include contract line items for the initial six-month base period of performance through 30 September (items 0001, 0002, and 0003) and two, one-year, pre-priced option periods (items 0004, 0005, and 0006; and 0007, 0008, and 0009).

3. In no case may the total contract term exceed 60 months.

D. Continuity of Services. The PWS should address certain issues and requirements relative to the change-over from in-house to contracted performance of services. Therefore, delete the "CONTINUITY OF SERVICES" clause, Section C, and replace with the following:

"CONTINUITY OF SERVICES. To insure continuity of essential services, the successful bidder shall be prepared to fully commence work on the start date of this contract. The phase-in of Contractor forces will occur in conjunction with a major reduction-in-force of in-house Government employees. The Contractor should not assume that Government employees will be available to guide, direct, or specifically orient each Contractor employee."

E. Multi-function CA contracts. In many instances, CA program studies involve contracts containing more than one functional area or service. For example, the user may want to study WPS services in conjunction with other utilities services, and issue a single solicitation. Since most NAVFAC GPWSs are written in the same format, the technical requirements of Sections C and J of this guide may be easily combined with other GPWSs to produce a tailored multi-function PWS.

V. SPECIAL CONSIDERATIONS. The following special WPS situations are sometimes encountered at activities. The measurable outputs discussed in paragraph III.C of this User's Guide should be tailored to reflect these requirements, if appropriate, and Section C, the Schedule of Deductions, and quality assurance program must be revised accordingly.

A. Purchased Water

1. Preventive Maintenance
2. Test Backflow Prevention System
3. Quality Analysis
4. Readings/Record Keeping (Cathodic)

5. Repairs

B. Well Source

1. Chlorination, Fluoridization, Stabilization or Treatment for Iron
2. Preventive Maintenance
3. Operating Procedures/Repairs
4. Quality Analysis
5. Readings/Record Keeping

C. Ship to Pier

1. Salt Water Systems (ships in dry dock)
2. Potable Water System
3. Hose Maintenance
4. Water Quality/Sanitation/Testing
5. Backflow Device Testing
6. Preventive Maintenance
7. Readings/Record Keeping

D. Swimming Pools

1. Daily Operation Checks/Chemical Additions
2. Deactivation during nonswimming season
3. Reactivation in swimming season
4. Define operating season
5. Normal Maintenance e.g., Chlorination, Cleaning, Filter Cleaning
6. Cleanup prior to coating (yearly)
7. Coating or Sealing (yearly)

E. Sludge Disposal. Sludge disposal may be accomplished as part of the water plants and systems or by separate contract.

VI. PRE-AWARD CONSIDERATIONS. Prior to award it is essential that the activity consider the following aspects of the operation and administration of a WPS contract.

A. Quality Assurance Evaluator (QAE) Training. It is vitally important to have an adequate number of qualified QAEs on board prior to the contract start date. In fact NAVFAC EFD contract offices will not allow contracts to be advertised and awarded until the activity provides assurance that such resources will be provided. Ideally, QAE(s) should have attended the QAE training course provided by each of the EFDs. If this training has not been received, the activity should take steps to have the QAE(s) attend the next available course and in the meantime should develop a local training program. EFD Code 10s (Facilities Division) should be contacted for QAE training

scheduling or assistance. The QAE should have a good working knowledge of operation, maintenance and inspection procedures and requirements for WPS and preferably attended a training course on water plant operations and maintenance. Prior to bid opening it is essential that the QAE become familiar with the WPS specification.

B. Government Estimate. The Government and each bidder must estimate the cost of accomplishing the outputs specified by the contract. Some of the tasks involve more than one output (e.g., sampling for operational purposes - Output #2, and for reporting purposes - Output #9). Also, Contractors may choose to perform different tasks than those envisioned by the Government to deliver the same output (e.g., the Contractor may choose to reduce the coagulant dosage by adjusting alkalinity). Therefore, the Government estimate should be itemized in terms of outputs rather than tasks. The activity should prepare the Government estimate by analyzing available operation, maintenance, labor, and material consumption records from previous years. The total cost of performance should be distributed over the nine separate outputs in proportion to the relative expenditure of labor and materials required to accomplish each output. The following is a description of the recommended procedure:

1. Determine total cost of plant and distribution system operation for previous years. Include escalation, general and administrative overhead rates, and contingencies to determine the total current Government estimate.

2. Select outputs which correspond directly to a particular task and estimate the cost of performing those tasks. For example, costs can be easily calculated for the following outputs:

Output #3 - Operating Records, Treatment Plant:

The task involves making daily readings and entries on a form. This is estimated at !INSERT! hours per day for an annual labor cost of \$!INSERT!. Material cost is NEGLIGIBLE.

Output #5 - Operating Records, Water Supply & Distribution:

Same as Output #3, but the task also involves going out to the field. This is estimated at !INSERT! hours per day for an annual labor cost of \$!INSERT!. Material cost is NEGLIGIBLE.

Output #6 - Maintenance:

This is estimated from maintenance records from previous years. Preventive maintenance requirements are estimated at !INSERT! hours per day for an annual labor cost of \$!INSERT!. Parts and materials are estimated at \$!INSERT! per year. Corrective maintenance, including service and emergency calls, are estimated at !INSERT! hours per day in labor. Material cost is estimated at \$!INSERT! per year. Note that the estimate for maintenance is the sum of preventive and corrective maintenance costs. The two cannot be separated because presumably as preventive maintenance increases, corrective maintenance decreases.

Output #7 - Maintenance Records:

Maintenance records will consist of written entries as needed. This is estimated at \$!INSERT! per day in labor. Materials cost is NEGLIGIBLE.

Output #8 - Custodial Services:

Custodial services will be performed on a predetermined schedule or frequency. Estimates should be based on the prior year's records (historical data) and an analysis of requirements. Analysis utilizing Engineered Performance Standards (EPS) can also be undertaken. (Ref. NAVFAC P-700 Series of Manuals.)

Output #9 - Water Quality Sampling, Analysis and Reports:

The cost of sampling, analysis and reports can be estimated based on the estimated sampling labor requirements plus standard laboratory fees for each analysis times the quantity of analyses required.

3. Add the costs computed in paragraph B.2 adjusted for escalation, overhead, contingencies, etc., and subtract the total from the total Government estimate from paragraph B.1. The remainder can be distributed equally among the major outputs of water quantity (Output #1), quality (Output #2) and distribution (Output #4). An equal distribution is recommended because it would be futile and counterproductive to try to differentiate and isolate tasks which produce quantity from those which produce quality or distribution. Basically, the operator monitors all three functions simultaneously and makes adjustments as necessary, and no adjustment can be made in any one function without affecting the other two.

4. Check the resulting breakdown for balance. A typical breakdown may look like this:

<u>Output</u>	<u>% of Total Bid</u>
1	20
2	20
3	5
4	20
5	5
6	10
7	5
8	10
9	<u>5</u>
Total	100%

The percentages will inevitably vary. It is important to make sure that the "minor" secondary outputs (i.e., outputs 3, 5, 7 or 9) do not end up with a disproportionate share of the total or vice versa. The breakdown shown in the Schedule of Deductions submitted by the Contractor (See paragraph III.D) will be checked against the Government estimate for balance. If an unbalanced Schedule of Deductions is accepted, the Contractor could be insufficiently deducted for major infractions (e.g., Contractor fails to produce any water but maintains accurate records and receives 90% of his/her pay) or excessively deducted for minor infractions.

C. Site Visits. The QAE or other Government representative should be prepared to conduct site visits with potential bidders after inviting bids. The purpose of these visits is to familiarize the Contractor with the location of contract requirements, not to provide additional information which should have been included in the PWS. QAEs must be briefed by the ACO or the Contract Specialist as to what can be said to potential bidders during site visits. Customers must be briefed by the ACO, or his/her representative, on precautions to be taken so as not to reveal sensitive information to potential bidders during these visits.

D. Questions to Ask

1. Is Government Furnished Property, if any, ready for turnover?
2. Are adequate QA Plans prepared and ready for use?

E. Additional Items. Additionally, Chapter 7 of the NAVFAC MO-327 discusses a number of items which must be considered by the activity prior to the award of a contract, including a review of the Contractor's submitted quality control program and a pre-award survey of the apparent low, responsive, responsible bidder.

**TABLE I  
WATER PLANTS AND SYSTEMS OPERATION AND MAINTENANCE  
PERFORMANCE REQUIREMENTS SUMMARY**

<u>WORK REQUIREMENTS</u>	<u>STANDARDS OF PERFORMANCE</u>	<u>SURVEILLANCE METHOD</u>	<u>AQL</u>
1. Water Quantity	!INSERT! Gallons/Minute	100% Inspection	!INSERT!%

<u>WORK REQUIREMENTS</u>	<u>STANDARDS OF PERFORMANCE</u>	<u>SURVEILLANCE METHOD</u>	<u>AQL</u>
2. Water Quality	In compliance with requirements of Clause C.!INSERT!	100% Inspection, Random Sampling or Planned Sampling	!INSERT!%
3. Water Treatment Operating Records	All records completed	Planned Sampling	!INSERT!%
4. Water Pressure	Minimum pressure of !INSERT! at each endpoint	Random Sampling, Planned Sampling, 100% Inspection, or Validated Customer Complaints	!INSERT!%
5. Water Pressure Operating Records	All records completed	Planned Sampling	!INSERT!%
6. Maintenance	All corrective and mandatory preventive maintenance tasks completed on schedule	100% Inspection, Planned Sampling	!INSERT!%
7. Maintenance Records	Required Maintenance records completed	Random Sampling, Planned Sampling	!INSERT!%
8. Custodial Service	All required tasks completed on schedule or Unscheduled Inspection	Random Sampling, Planned Sampling,	!INSERT!%
9. Sample Analysis & Reports			
(a) Timeliness	Reports completed on Schedule	100% Inspection	!INSERT!%
(b) Completeness	All entries recorded	100% Inspection	!INSERT!%
(c) Accuracy	Contractor's analyses verified by independent lab data	Random Sampling, or Planned Sampling	!INSERT!%

END OF USER'S GUIDE



GUIDE PERFORMANCE WORK STATEMENT  
FOR  
WATER PLANTS AND SYSTEMS  
OPERATION AND MAINTENANCE



PART I - THE SCHEDULE

SECTION B: SUPPLIES OR SERVICES AND PRICES/COSTS

!  
 \*\*\*\*\*  
 NOTE TO SPECIFICATION WRITER: Some NAVFAC Engineering Field Divisions (EFDs) require additional clauses to be added to Section B. Be sure to contact your EFD to identify any additional clauses which may be required.  
 \*\*\*\*\*!

SCHEDULE

Item No.	Supplies/Services	Quantity	* Unit	Unit Price	Amount
0001	FIRM FIXED-PRICE WORK: Price for labor and material for the BASE PERIOD for all work specified in Section C except for work specifically identified as being included in the Indefinite Quantity portion of the contract.	!INSERT!	MONTH	\$_____	\$_____
	TOTAL PRICE FOR CONTRACT LINE ITEM 0001				\$_____
0002	INDEFINITE QUANTITY WORK - UNIT PRICED TASKS: Price for labor and material in the BASE PERIOD to perform the Unit Priced Tasks listed in the Schedule of Indefinite Quantity Work below. The quantities listed below are realistic estimates provided solely for the purpose of bid evaluation and for establishing penal sums of bonds (if required). The price for this bid item is the total of the subline items listed in the Schedule of Indefinite Quantity Work Unit Priced Tasks.				
<b>SCHEDULE OF INDEFINITE QUANTITY WORK - UNIT PRICED TASKS</b>					
0002AA	Replace Pump (2-inch, 3HP) per paragraph C.!INSERT!	!INSERT!	EA	\$_____	\$_____
0002AB	Replace Pump (3-inch, 5HP) per paragraph C.!INSERT!	!INSERT!	EA	\$_____	\$_____
	TOTAL PRICE FOR CONTRACT LINE ITEM 0002				\$_____

SCHEDULE

Item No.	Supplies/Services	Quantity	* Unit	Unit Price	Amount
----------	-------------------	----------	--------	------------	--------

0003 INDEFINITE QUANTITY WORK-EPS HOUR LABOR: Price for labor in the BASE PERIOD to perform maintenance and repair work requirements that cannot be identified in sufficient detail to be included in Contract Line Items 0001 and 0002. This work is described in clauses C.12 and C.13 of Section C. The quantities listed below are realistic estimates provided solely for the purpose of bid evaluation and for establishing penal sums of bonds (if required). The price for this bid item is the total of the subline items listed in the Schedule of Indefinite Quantity Work-EPS Hour Labor.

**SCHEDULE OF INDEFINITE QUANTITY WORK - EPS HOUR LABOR**

0003AA	Electrical	!INSERT!	HR	\$_____	\$_____
0003AB	Plumbing/Pipefitting	!INSERT!	HR	\$_____	\$_____
TOTAL PRICE FOR CONTRACT LINE ITEM 0003					\$_____

0004	FIRM FIXED-PRICE WORK: Price for labor and material for the FIRST OPTION PERIOD for all work specified in Section C except for work specifically identified as being included in the Indefinite Quantity portion of the contract.	12	MONTH	\$_____	\$_____
TOTAL PRICE FOR CONTRACT LINE ITEM 0004					\$_____

**SCHEDULE OF INDEFINITE QUANTITY WORK - UNIT PRICED TASKS**

0005AA	Replace Pump (2-inch, 3HP) per paragraph C.!INSERT!	!INSERT!	EA	\$_____	\$_____
0005AB	Replace Pump (3-inch, 5HP) per paragraph C.!INSERT!	!INSERT!	EA	\$_____	\$_____
TOTAL PRICE FOR CONTRACT LINE ITEM 0005					\$_____

SCHEDULE

Item No.	Supplies/Services	Quantity	* Unit	Unit Price	Amount
-------------	-------------------	----------	-----------	---------------	--------

0006 INDEFINITE QUANTITY WORK-EPS HOUR  
 LABOR: Price for labor in the  
 FIRST OPTION PERIOD to perform  
 maintenance and repair work  
 requirements that cannot be  
 identified in sufficient detail  
 to be included in Contract Line  
 Items 0004 and 0005. This work  
 is described in clauses C.12 and  
 C.13 of Section C. The  
 quantities listed below are  
 realistic estimates provided  
 solely for the purpose of bid  
 evaluation and for establishing  
 penal sums of bonds (if  
 required). The price for this  
 bid item is the total of the  
 subline items listed in the  
 Schedule of Indefinite Quantity  
 Work-EPS Hour Labor.

SCHEDULE OF INDEFINITE QUANTITY WORK - EPS HOUR LABOR

0006AA	Electrical	!INSERT!	HR	\$_____	\$_____
0006AB	Plumbing/Pipefitting	!INSERT!	HR	\$_____	\$_____
TOTAL PRICE FOR CONTRACT LINE ITEM 0006					\$_____

\* HR - EPS Estimated Labor Hour. See "DEFINITIONS", Section C  
 EA - EACH

END OF SECTION B



PART I - THE SCHEDULE

SECTION C: DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

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PART I - THE SCHEDULE

SECTION C: DESCRIPTION/SPECIFICATION/WORK STATEMENT

C.1 GENERAL INTENTION. It is the intention of this solicitation to obtain services for the operation, maintenance and repair of the water plants and systems at !INSERT NAME OF ACTIVITY! by means of a combination fixed-price and indefinite quantity contract.

\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: The Technical Specification can be used to embrace swimming pools, wells, purchased water, potable water for fire protection, salt water (delete the word "potable" as needed when tailoring) for ships in dry dock, or various combinations with the assistance of paragraph V of the User's Guide. The clause regarding "work excluded" is optional, and may be used to clarify the scope in complicated multi-function contracts. It is generally not needed in simple, single function contracts.  
\*\*\*\*\*!

C.2 GENERAL REQUIREMENTS

a. The Contractor shall furnish all labor, supervision, tools, materials, incidental engineering, and transportation necessary for the operation, maintenance and repair of the water plants and systems, herein described. The work shall include the pumping, treatment, storage and distribution of potable water; corrective and preventive maintenance and repair of the plants and systems; water testing; and completing records and reports in order to provide potable water 24 hours per day, 7 days per week throughout the term of the contract. Attachment J-C1 describes the facilities to be operated and maintained.

b. Work Excluded. Services excluded from this contract are: !LIST COMPONENTS, SERVICES, OR FUNCTIONS SUCH AS STRUCTURAL REPAIR TO BUILDINGS HOUSING WATER PLANT EQUIPMENT, A SPECIAL PROJECT TO REPAIR A RESERVOIR, ETC., WHICH COULD BE CONSIDERED TO BE WITHIN THE SCOPE OF THE CONTRACT, BUT WHICH ARE SPECIFICALLY EXCLUDED. ALSO LIST ANY FUNCTIONS PERFORMED BY GOVERNMENT EMPLOYEES OR BY SEPARATE CONTRACT.!

C.3 APPLICABLE PUBLICATIONS AND REFERENCES. The publications and references included in Attachment J-C2 form a part of this specification to the extent indicated within the referencing paragraphs of this specification. Such referenced documents, or their subparts, are designated as either mandatory or advisory. Those publications and documents not directly referenced within this specification shall also form a part of this specification with the same designated mandatory and advisory action codings. The Contractor shall follow and abide by all references designated as mandatory. Those designated as advisory are provided for information and guidance purposes only and their usage is not obligatory. All publications will be furnished by the Government at the start of the contract. Any supplements or amendments to mandatory publications which may be issued throughout the life of the contract and shall be considered effective immediately upon Contractor receipt. The Contractor shall insure that all mandatory references are current. In the event of conflict between the contents of this specification and applicable federal, state, or local requirements, the Contractor shall abide by those federal, state, or local requirements.

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: Unique functional terms should be added to the following list of definitions. Definitions not required should be deleted.  
\*\*\*\*\*!

C.4 DEFINITIONS - TECHNICAL. As used throughout this contract, the following terms shall have the meaning set forth below. Additional definitions are in the "DEFINITIONS" clause in Section I.

a. Where "as shown", "as indicated", "as detailed" or words of similar import are used, it shall be understood that reference is made to this specification and the drawings accompanying this specification unless stated otherwise.

b. Where "as directed", "as required", "as permitted", "approval", "acceptance" or words of similar import are used, it shall be understood that direction, requirement, permission, approval, or acceptance of the ACO is intended unless stated otherwise.

c. Additional Material Handling. Time expended for loading materials from storage to truck; unloading materials to work area; moving materials to work area, moving materials from storage to job site; removing debris; and handling of materials during the job that is not included in the craft time standard. The above definition is a summary of the definition of "Additional Material Handling" as used in development of Engineered Performance Standards.

d. Administrative Contracting Officer (ACO). The individual designated by the Contracting Officer to administer the contract. Throughout this contract, the term ACO will be used to refer to the individual designated to administer the contract or his/her designated representative. See the "DEFINITIONS" clause, Section I.

e. Corrective Maintenance. Corrective maintenance is maintenance and repair work that is required to return a system or component to proper operating condition. Corrective maintenance shall be required on a routine basis (operator maintenance), as a result of preventive maintenance inspections, or as a result of service calls. Corrective maintenance is limited in scope; requires not more than !INSERT! estimated total labor hours for accomplishment; requires not more than \$!INSERT! in total direct material costs, to include parts or entire unit replacement; and does not reasonably require detailed job planning.

f. Contractor. The term Contractor as used herein refers to both the prime Contractor and any subcontractors. The Contractor shall be responsible for insuring that his/her subcontractors comply with the provisions of this contract.

g. Contractor Representative. A foreman or superintendent assigned in accordance with the "CONTRACTOR EMPLOYEES" clause, Section H.

h. Craft Phase. The numbered chronological sequence in which a specific craft performs a job phase.

<u>Job Phase</u>	<u>Craft Phase</u>	<u>Craft</u>	<u>Description</u>
1	1	Carpenter	Fabricate and install frame for new wall
2	1	Electrician	Rough in electrical
3	2	Carpenter	Install sheet rock
4	2	Electrician	Trim out electrical
5	1	Painter	Paint new wall

i. Delay Allowances. Time expended for planning the work in the shop and at the job site; personal needs; balancing delay waiting for other craftsmen;

unavoidable delays; partial day influence; waiting for tools or material that should have been at the job site. The above definition is a summary of the definition of "Delay Allowances" as used in development of Engineered Performance Standards.

j. Direct Material Costs. The actual vendor invoice charges for materials used for performance of work under this contract. Direct material costs shall include transportation charges when such charges are included on the invoice by the vendor, as well as any discounts allowed for prompt payment.

k. Engineered Performance Standards (EPS). A job estimating system developed for the Department of Defense. EPS is the average time necessary for a qualified craftsman working at a normal pace, following acceptable trade methods, receiving capable supervision, and experiencing normal delays to perform defined amounts of work of a specified quality. EPS manuals are published under the following numbers by each military branch:

Navy:	NAVFAC P 700 Series
Army:	TB 420 Series
Air Force:	AFM 85 series

l. Facility. An establishment, structure, or assembly of units of equipment designated for a specific function.

m. Frequency of Service

(1) Annual (A) - Services performed once during each 12 month period of the contract.

(2) Semi-Annual (SA) - Services performed twice during each 12 month period of the contract at intervals of 160 to 200 calendar days.

(3) Quarterly (Q) - Services performed 4 times during each 12 month period of the contract at intervals of 80 to 100 calendar days.

(4) Monthly (M) - Services performed 12 times during each 12 month period of the contract at intervals of 28 to 31 calendar days.

(5) Semi-Monthly (SM) - Services performed 24 times during each 12 month period of the contract at intervals of 14 to 16 calendar days.

(6) Weekly (W) - Services performed 52 times during each 12 month period of the contract at intervals of 6 to 8 calendar days.

(7) Daily (D5) - Services performed once each day, Monday through Friday, including holidays unless otherwise noted.

(8) Daily (D7) - Services performed once each day, seven days per week, including weekends and holidays.

n. Government Representative. The person(s) whom the ACO shall designate by name and/or position title to conduct liaison between the Contractor and the ACO on matters pertinent to this contract and be his/her authorized representative.

o. Job Phase. The numbered chronological sequence in which work is accomplished regardless of the craft(s) involved (see Craft Phase above).

p. Job Preparation. All work and costs associated with receiving and considering a job assignment and instructions; planning equipment and material requirements; obtaining proper tools; laying out tools, material, and equipment; setting up ready to begin work; cleaning and storing tools and equipment; and cleanup of job site.

q. Labor Hour Unit Price. A labor hour unit price is the unit price bid by the Contractor to provide one EPS hour of work-in-place. The unit price bid includes all direct and indirect costs associated with performing an EPS hour of work. The unit price would typically include the Contractor's hourly craft wage, adjusted to allow for the bidder's workforce productivity (i.e. the Contractor's estimate of how its workforce will perform in relation to Engineered Performance Standards); and all costs for travel, pre-expended bin materials and supplies, ordering and stockpiling job material, profit, tools, equipment, field and home office overhead, clerical support, supervision, inspection, fees, taxes, licenses, permits, insurance, etc. In short, all costs associated with providing a specific EPS hour of effort.

r. Latent Defects. Latent defects are defects that are present in a hidden or undeveloped state and are not visible or apparent at the time of inspection, but which become obvious or come into being at some future time.

s. Minor Maintenance and Repair. Minor maintenance and repair is work that is beyond the scope of corrective maintenance, but is less than \$2,000 in total cost of labor and material.

t. Pre-expended bin materials and supplies. The minor materials and supplies, including those that are incidental to the job, for which the total adjusted cost of any one material line item shown on the material estimate is \$10.00 or less. Examples of pre-expended bin materials and supplies include, but are not limited to, solder, lead, flux, electrical connectors, electrical tape, fuses, nails, screws, bolts, nuts, washers, spacers, masking tape, sand paper, solvent, cleaners, lubricants, grease, oil, rags, mops, glue, epoxy, spackling compound, joint tape, gases, refrigerants, refrigeration fittings, plumbers tape and compound, clips, welding rods, heat sinks, electrical outlet, switches, cover plates, plumbing fixtures and fittings, touch up paint, and any other item for which the total line item adjusted cost is \$10.00 or less.

u. Preventive Maintenance. Preventive (PM) is scheduled maintenance that consists primarily of inspection, cleaning, lubrication, adjustment, calibration, and minor part and component replacement (e.g. filters, belts, hoses, fluids, oil and grease) as required to minimize malfunctions, breakdown and deterioration of equipment.

v. Quality Assurance (QA). A method used by the Government, to provide some measure of control over the quality of purchased goods and services received.

w. Quality Assurance Evaluator (QAE). The QAE is that Government employee responsible for the daily monitoring of Contractor performance.

x. Quality Control (QC). A method used by the Contractor, to control the quality of goods and services produced.

y. Regular Working Hours. The Governments regular working hours are from ! STARTING HOUR! to !ENDING HOUR!, Mondays through Fridays except (a) Federal Holidays and (b) other days specifically designated by the ACO.

z. Repair. Repair is the restoration of a piece of equipment, a system, or a facility to such condition that it may be effectively utilized for its designated purposes. Repair may be overhaul, reprocessing, or replacement of constituent parts or materials that have deteriorated by action of the elements or usage and have not been corrected through maintenance.

aa. Response Time. Response time is defined as the time allowed the Contractor after initial notification of a work requirement to be physically on the premises at the work site with appropriate tools, equipment, and materials,

ready to perform the work required. Response times are designated in the appropriate technical clauses in Section C.

ab. Service Call Work. Service call work is corrective maintenance and repair work requirements resulting from calls to the Contractor from the Government operated work reception center.

ac. Task Time Standards. The number of craft work hours required by all of the workers of a single craft to accomplish a specific task. Task time standards may be combined to estimate complicated jobs involving various tasks and many crafts. Task time standards are composed of many operations to complete a specific task.

ad. Travel Time. Time expended between shop and the job site; waiting for vehicle; getting in and out of vehicle; loading and carrying a tool box; vehicle travel; unloading, walking from vehicle to job site; opening and closing door; walking up and down stairs; using elevators; and access to secure or controlled areas.

ae. Work Content Comparison. Work content comparison is a method of comparing a task that is not specifically defined in EPS Task Time Standards to a very similar task that is defined in the EPS Task Time Standards. This definition is a summary of a more detailed definition which appears on page 37 of EPS Planner and Estimator in Workbook # NAVFAC P-700.2.

C.5 GOVERNMENT FURNISHED PROPERTY AND SERVICES

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NOTE TO SPECIFICATION WRITER: Government furnished property may include real property or personal property. The specification writer must clearly identify Government Furnished Facilities, Government Furnished Equipment (GFE), and Government Furnished Material (GFM). The following clauses should be modified as needed to fit the activity's specific situation and needs. If no facilities will be provided, the "OPTIONAL" clause should be used.  
\*\*\*\*\*!

a. Government Furnished Facilities

!SELECT EITHER (1) OR (2)!

(1) The Government shall furnish or make available to the Contractor, the facilities described in Attachment J-C3. The Contractor shall assume responsibility and accountability of such facilities provided for his/her use and shall take adequate precautions to prevent fire hazards, odors and vermin. Janitorial services for Government furnished facilities shall be the responsibility of the Contractor. The Contractor shall obtain written approval from the ACO prior to making any modifications or alterations to the facilities. Any such modifications or alterations approved by the Government will be made at the expense of the Contractor. At the completion of the contract, all facilities shall be returned to the Government in the same condition as received, except for reasonable wear and tear. The Contractor shall be held responsible for the cost of any repairs caused by negligence or abuse on his/her part, or on the part of his/her employees.

(2) The Government will not provide office space and operational facilities to the Contractor. The Contractor is responsible, at his/her expense, to secure and maintain the necessary office space and other facilities required for the performance of this contract.

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: The specification writer must determine what equipment and material will be provided to the Contractor and select from the

following paragraphs as appropriate. Extensive equipment listings should be placed in Attachment J-C4, including identification number, age, location, size or capacity, etc. If equipment is located at other than job site or Government furnished facilities, specify location and responsibility for transportation. If no equipment or material will be provided to the Contractor, the "OPTIONAL" clause should be used.

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b. Government Furnished Equipment

!SELECT EITHER (1) OR (2)!

(1) The Government will provide the Contractor the use of existing and available Government owned tools and equipment in the performance of the contract.

(a) Such Government furnished tools and equipment are listed in Attachment J-C4. The Contractor shall be responsible for the periodic servicing, maintenance and repair of the equipment listed at no cost to the Government, and the total or partial breakdown or failure of the Government furnished equipment shall not relieve the Contractor of the requirement to fully perform the work of the contract. Upon completion or termination of the contract, all Government owned equipment shall be returned to the Government in the same condition as received, except for normal wear and tear. Equipment which becomes worn out due to normal wear and tear shall be returned to the Government and its replacement shall be the responsibility of the Contractor at no cost to the Government. Equipment so acquired shall remain the property of the Contractor. The Contractor shall be responsible for the cost of any repairs or replacement caused by negligence or abuse by the Contractor or his/her employees.

(b) The Contractor and the Government Representative shall conduct a joint inventory before commencing work under this contract to determine the exact number and serviceability of Government furnished equipment. The Contractor shall then certify the findings of this inventory, assume accounting responsibility, and subsequently report inventory discrepancies to the Government Representative. Government furnished equipment shall not be removed from the military base unless approved by the ACO in writing.

(2) The Contractor shall furnish all tools and equipment required for the performance of this contract. The Government will not provide tools or equipment to the Contractor.

c. Government Furnished Material

!SELECT EITHER (1), (2), OR (3)!

(1) The Government shall furnish the material described in Attachment J-C5 to the Contractor on a one time basis for use only in connection with this contract. The use of Government furnished material for any other purpose is prohibited. The Contractor and the Government Representative shall conduct a joint inventory before commencing work under this contract to determine the exact number and serviceability of Government furnished materials. The Contractor shall then certify the findings of this inventory, assume accounting responsibility for all materials supplied, and shall provide documentation supporting issue/use of such material. Upon depletion of material provided to the Contractor by the Government, the Contractor shall furnish all material to perform the work of the contract, except as otherwise specified herein. Upon completion or termination of this contract a second joint inventory shall be conducted, if necessary, of all unused Government furnished materials. The Contractor shall be held liable for all materials which cannot be accounted for by issue/use documentation.

(2) The Government will not provide any materials to the Contractor.

(3) The Government shall furnish the material described in Attachment J-C5 to the Contractor on a one time basis for use only in connection with this contract. The use of Government furnished material for any other purpose is prohibited. The Contractor and the Government Representative shall conduct a joint inventory before commencing work under this contract to determine the exact number and serviceability of Government furnished materials. The Contractor shall then certify the findings of this inventory, assume accounting responsibility for all materials supplied, and shall provide documentation supporting issue/use of such material.

(a) Upon depletion of material provided to the Contractor by the Government, as listed in Part A of Attachment J-C5, the Contractor shall furnish all material to perform the work of the contract, except as otherwise specified herein. Upon completion or termination of this contract a second joint inventory shall be conducted, if necessary, of all unused Government furnished materials, as listed in Part A of Attachment J-C5. The Contractor shall be held liable for all materials missing which cannot be accounted for by issue/use documentation.

(b) Experience has shown that selected items of long lead time parts and materials must be stocked to insure repair of critical equipment in the event of failure. A list of these insurance items and minimum stocking levels are contained in Part B of Attachment J-C5. The Government shall provide the Contractor all items in at least the minimum quantities listed in Part B of Attachment J-C5. The Contractor shall maintain at least the minimum quantity of all the items specified. These items will be used by the Contractor in the maintenance and repair of the facilities/systems only as follows:

(1) insurance items shall be used on the systems, facilities, or GFE with which they are associated.

(2) A replacement insurance item shall be ordered within 3 working days after the use of any insurance item which causes the total quantity on hand to fall below the minimum specified level. The Contractor shall bear the cost of replacement of all insurance items.

(3) Upon completion or termination of the contract, all insurance items shall be returned to the Government in the minimum specified quantities.

d. Availability of Utilities. The Government will furnish the following utility services at existing outlets, for use in those facilities provided by the Government and as may be required for the work to be performed under the contract: electricity, steam, natural gas, fresh water, sewage service, and refuse collection. Information concerning the location of existing outlets may be obtained from the Government Representative. The Contractor shall provide and maintain, at his/her expense, the necessary service lines from existing Government outlets to the site of work.

!SELECT EITHER (1) OR (2)!

(1) Utilities specified above will be furnished at no cost to the Contractor.

(2) The Contractor shall be required to pay for utilities consumed and shall, at his/her expense, install meters as required by the ACO to measure consumption of utilities provided by the Government. The rate for reimbursement to the Government of metered utilities will be: !LIST THE RATES OF REIMBURSEMENT PER TYPE OF SERVICE PROVIDED!

A restricted telephone line (USOC Class RS4) for on base calls will be provided by the Government at no cost to the Contractor. The Contractor shall install

commercial telephone service, and all service and toll charges shall be paid for by the Contractor.

C.6 CONTRACTOR FURNISHED ITEMS. Except for items listed in clause C.5, the Contractor shall provide all equipment, materials, and services to perform the requirements of this contract. The Contractor shall provide new or factory reconditioned parts and components when providing maintenance and repair services as described herein. All replacement units, parts, components and materials to be used in the maintenance, repair, and alteration of facilities and equipment shall be compatible with that existing equipment on which it is to be used; shall be of equal or better quality as original equipment specifications; shall conform to the applicable specifications listed in Attachment J-C6 and the technical specifications, Section C; and used in accordance with original design and manufacturer intent. Items not listed in Attachment J-C6 or technical specifications shall be of acceptable industrial grade and quality. If the original manufacturer has updated the quality of parts for current production, parts supplied under this contract shall equal or exceed the updated quality. The Contractor shall retain the parts replaced for at least 10 days after completion of the job and make these parts readily available for inspection by the Government Representative upon request. When disputes arise concerning material, equipment, and components selected for work items already accomplished, the Contractor shall, at no cost to the Government, remove, replace, and/or rework material, equipment, and components so that compliance with the Government's requirements are satisfied. The resolution of formal disputes is addressed in the "DISPUTES" clause, Section I.

C.7 WORK OUTSIDE REGULAR HOURS. Except as may otherwise be specified, all work shall be performed during regular hours. If the Contractor desires to carry on work on Saturday, Sunday, holidays, or outside regular business hours, he/she may submit application to the ACO for approval.

C.8 MANAGEMENT. The Contractor shall manage the total work effort associated with the operation, maintenance, repair, and all other services required herein to assure fully adequate and timely completion of these services. Included in this function will be a full range of management duties including, but not limited to, planning, scheduling, cost accounting, report preparation, establishing and maintaining records and inventories, and quality control. The Contractor shall provide an adequate staff of personnel with the necessary management expertise to assure the performance of the work in accordance with sound and efficient management practices.

a. Work Control. The Contractor shall implement all necessary work control procedures to ensure timely accomplishment of work requirements, as well as to permit tracking of work in progress. The Contractor is responsible for planning and scheduling work to assure material, labor, and equipment are available to complete work requirements within the specified time limits and in conformance with the quality standards established herein. Verbal scheduling and status reports shall be provided when requested by the Government Representative. The status of any item of work must be provided within !INSERT NUMBER OF HOURS! hours of the inquiry during normal working hours, and within ! INSERT NUMBER OF HOURS! hours after normal working hours.

b. The Contractor shall schedule and arrange work so as to cause the least interference with the normal occurrence of Government business and mission. In those cases where some interference may be essentially unavoidable, the Contractor shall make every effort to minimize the impact of the interference, inconvenience, equipment downtime, interrupted service, customer discomfort, etc.

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: Reports and information which the Government periodically needs from the Contractor should be listed in Attachment J-C7. Report formats, required information, etc. should be discussed in detail in

this attachment. Generally, facility history files should be maintained by the Government, not the Contractor. Should that be the case, the writer should delete subparagraph (2) below.

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c. Records and Reports

(1) The Contractor shall maintain management, operation and maintenance records and prepare management, operation and maintenance reports as set forth in Attachment J-C7. This Attachment delineates which records and reports are the Contractor's responsibility and those for which the Contractor must provide data to be used by the Government representative in preparation of Government reports. All records and copies of reports shall be turned over to the Government Representative within five days after contract completion.

(2) A completed work file for each structure (identified by structure number) shall be maintained by the Contractor. Each file shall contain a listing of all equipment in the structure by nomenclature and manufacturer's model number, as well as all manufacturer's literature, brochures, and pamphlets; maintenance, operator's, and parts list manuals; warranty information; and a copy of all completed Emergency/Service Authorization Forms, preventive maintenance inspection reports, and other information pertaining to the facility and/or installed equipment and systems. The Government will have access to these files upon request. All documents shall be filed within 10 days of the completed transaction. The entire file shall be turned over to the Government upon completion of the contract.

(3) Records shall be maintained on each item of equipment and system listed in Attachment J-C1 on which preventive maintenance (PM) is required and equipment which may be installed by the Contractor. The PM records shall reflect all periodic maintenance performed, including scheduled and accomplished dates, and any repairs made.

d. The Contractor shall maintain and provide cost accounting information in compliance with the specific requirements set forth in Attachment J-G1. This report shall be submitted with, and is considered part of the monthly payment invoice.

e. Staffing. The Contractor shall continuously maintain an adequate staff with management expertise to assure work is scheduled and completed in accordance with these specifications. The Contractor shall maintain an adequate craft workforce to complete work in accordance with the time and quality standards specified.

C.9 CONTINUITY OF SERVICES. To ensure continuity of essential services, the successful bidder shall be prepared to fully commence work on the start date of this contract, and should not assume that Government or previous Contractor employees will be available to guide, direct, or specifically orient each Contractor employee.

C.10 PERFORMANCE REQUIREMENTS. The Contractor shall operate, test on a scheduled basis, maintain and repair, and keep records on the Government furnished potable water system including pumping, treatment, storage, and distribution systems. Operating procedures and maintenance schedules shall be established by the Contractor in accordance with advisory specifications except where mandatory specific procedures or schedules are established by incorporation in this specification.

C.11 MAJOR WORK FUNCTIONS. The Contractor shall perform the five major work functions described in the following paragraphs a through e.

a. Water Supply/Treatment. The Contractor shall operate the water system in accordance with the references listed in Attachment J-C2. The Contractor

shall produce sufficient potable water to meet demand up to a maximum of !  
 INSERT NUMBER OF GALLONS! gallons per !INSERT TIMEFRAME!. The Contractor shall  
 maintain the system so that in the event of a draw down below the system's  
 minimum storage limit, storage volumes can be replaced at the rate of INSERT  
 NUMBER OF GALLONS! gallons per !INSERT TIMEFRAME!. The Contractor shall  
 produce and store treated water free of taste and/or odor, and that meets the  
 minimum water quality standards described below:

<b>MEASURABLE OUTPUT</b>	<b>UNIT OF MEASURE</b>	<b>PERFORMANCE LEVEL (# OF UNITS)</b>
<b>INORGANIC CHEMICALS</b>		
		<b>MAX. ALLOWABLE</b>
Arsenic	mg/l	0.05
Barium	mg/l	1.0
Cadmium	mg/l	0.010
Chromium	mg/l	0.05
Lead	mg/l	0.05
Mercury	mg/l	0.002
Nitrate (as N)	mg/l	10.0
Selenium	mg/l	0.01
Silver	mg/l	0.05
<b>ORGANIC CHEMICALS</b>		
		<b>MAX. ALLOWABLE</b>
Endrin	mg/l	0.0002
Lindane	mg/l	0.004
Methoxychlor	mg/l	0.10
Toxaphene	mg/l	0.005
2, 4-D	mg/l	0.10
2, 4, 5-TP Silvex	mg/l	0.01
TTHM	mg/l	0.10
<b>TURBIDITY</b>	<b>NTU</b>	<b>1.0</b>
<b>MICROBIOLOGICAL</b> (coliform)	<b>NOTE (1)</b>	<b>NOTE (1)</b>
(a) Membrane filter technique or (b) Fermentation tubes with 10 ml. standard portions; 5 - tube MPN.		
<b>RADIOACTIVITY</b>		
Radium 226 + Radium 228	p Ci/l	5.0
Gross Alpha (NOTE 3)	p Ci/l	15.0
Beta particle/photon	mrem/yr	4.0
<b>CHLORINE RESIDUAL</b>		
Sample point (a)	mg/l	0.2(min. allowable)
Sample point (b)	mg/l	0.2
Sample point (c)	mg/l	0.2
Sample point (d)	mg/l	0.2
Sample point (etc.)	mg/l	0.2
<b>FLUORIDE</b>	<b>mg/l</b> <b>NOTE (2)</b>	<b>0.7-1.2</b>
<b>HARDNESS</b>	<b>mg/l as CaCO<sub>3</sub></b>	<b>180</b>

NOTE (1): Obtain values from 40 CFR 141.14 and 141.21 for: (a) membrane filter technique and (b) fermentation tubes with 10 ml standard portions; 5-tube MPN.

NOTE (2): Optimum concentrations depending upon maximum average daily temperature as recommended in NAVMED P-5010, Chapter 5, Section 5-34.

NOTE (3): Including radium 226, but excluding radon and uranium.

(1) Flow gauging methods and sample collection points for performance measurements are described in Attachment J-C8 to this specification. The Contractor shall furnish a level !INSERT LEVEL! certified water treatment plant operator who shall act as the person responsible for plant operation and who shall be available for consultation with the Government Representative or with pertinent regulatory agencies as needed. Plant operation records including the following data are in Attachment J-C9 to this specification for !INSERT YEAR! through !INSERT YEAR!.

- (a) Water Quantity
- (b) Influent Water Quality
- (c) Effluent Water Quality
- (d) Material Consumption
- (e) Power and Fuel Consumption
- (f) Corrective Maintenance and Replacement

(2) Water treatment records [NAVFAC 11340/2 (Rev 7-81)] shall be made available by the Contractor for Government review as requested. Back up records shall be permanently maintained in a bound log book with pages numbered by the Contractor, and must be made available for inspection.

b. Water Storage/Distribution. The Contractor shall operate the water storage/distribution system and make all necessary repair and adjustments to maintain minimum pressure and chlorine residual at all system end points as specified below.

<u>System End Point</u>	<u>Unit of Measure</u>	<u>Minimum Water Pressure</u>
Point 1	psi or ft. head	!INSERT
Point 2	psi or ft. head	!INSERT!
Point 3	psi or ft. head	!INSERT!

(1) Water distribution system operation shall be in accordance with NAVFAC MO-210. Schematics and as-built drawings of the water distribution system (includes all pumps, reservoirs, meters, cleanouts, pressure regulators, etc.) are shown in Attachment J-C1. System boundaries delineating the area of the Contractor's responsibilities are also shown in Attachment J-C1. Contractor shall maintain a minimum of !INSERT NUMBER OF DAYS! days (!INSERT NUMBER OF GALLONS! gallons) of potable water storage in the supply reservoir(s) at all times unless otherwise authorized by the Government Representative. The Government Representative shall be promptly notified in the event that water storage levels fall below or are projected to fall below !INSERT NUMBER OF GALLONS! gallons.

(2) Operating records including the following for !INSERT YEAR! through !INSERT YEAR! are in Attachment J-C9.

- (a) End Point Quality

- (b) Corrective Maintenance Replacement
- (c) Energy Consumption
- (d) Material Consumption

(3) Water storage and distribution records (NAVFAC 11330/6 [1-76]) shall be made available by the Contractor for Government review as needed. Back up records shall be permanently maintained in a bound log book with pages numbered by the Contractor at the facilities and must be made available for inspection.

c. Maintenance. The Contractor shall perform all preventive and corrective maintenance, within limits specified herein, needed to keep all equipment in operational condition detailed in this specification. All equipment required for proper water systems operation is listed in Attachment J-C1. Attachment J-C10 lists all equipment subject to mandatory preventive maintenance.

(1) Work Control. The Contractor shall establish a work control and maintenance record system to manage and document the accomplishment of preventive and corrective maintenance work performed under this contract. This plan must be submitted to the ACO within !INSERT NUMBER OF CALENDAR DAYS! calendar days !PRIOR TO/AFTER! the start of the contract for approval.

!\*\*\*\*\*  
 NOTE TO SPECIFICATION WRITER: The dollar limit for material costs for preventive maintenance should be the same as that for corrective maintenance.  
 \*\*\*\*\*!

(2) Preventive Maintenance. The Contractor shall prepare for those items identified in Attachment J-C10, an Annual Preventive Maintenance Plan (APMP) based on the requirements of Attachment J-C10. The APMP shall describe the type of maintenance to be performed and the date for which performance is scheduled. The Contractor shall submit a draft APMP to the ACO no later than ! INSERT NUMBER OF CALENDAR DAYS! calendar days after award of the contract. Upon ACO approval, the APMP shall become part of this specification and the Contractor shall perform preventive maintenance in accordance therewith. The submitted plan shall include components to be inspected and maintained, inspection and maintenance procedures and frequencies, and reporting methodology. The Contractor may, at his/her discretion, perform preventive maintenance on equipment not included in the APMP in order to avoid potential corrective maintenance costs. Cathodic protection devices shall be monitored and maintained by the Contractor, Reference MO-306/307, where applicable. When the results of PM indicate that defective parts or components need to be repaired or replaced, the Contractor shall be responsible for such repairs, if within the scope of corrective maintenance.

!\*\*\*\*\*  
 NOTE TO SPECIFICATION WRITER: The intent of paragraph (3) is to set the maximum limit per instance of maintenance and repair under the fixed-price scope of work. As it is impossible to predict the frequency and extent of major repairs that may be required during the contract period, it is unreasonable to place complete financial responsibilities and risk on the Contractor. Additionally, individual repairs in excess of \$2,000 require the Contractor to pay Davis Bacon wage rates, which are normally not included in a facilities support contract. Insert the material and labor limits of Contractor's liability.  
 \*\*\*\*\*!

(3) Corrective Maintenance. The Contractor shall perform all corrective maintenance and repair work, including service call work, that is

brief in scope; requires not more than !INSERT! estimated total labor hours for accomplishment; requires not more than \$!INSERT! in total direct material costs, to include parts or entire replacement; and does not reasonably require detailed job planning. This work is included in the fixed-price portion of the contract. When questions arise concerning the labor hours required for a particular job labor hour requirements will be based on Engineered Performance Standards (EPS) manuals (NAVFAC P-700 Series). When questions arise concerning the cost of materials, material costs will be based on the lowest of quotes provided by the Contractor from at least three different commercial vendors for actual direct cost of material. The Government retains the right to obtain additional quotes in questionable situations. The lowest price will be used. For maintenance and repair above the limits specified above, see the "MINOR MAINTENANCE AND REPAIR" and "ESTIMATES" clauses.

d. Custodial Services. The Contractor shall maintain all facilities, equipment, buildings and grounds identified in Attachments J-C1 and J-C3 clean and free of clutter, debris or unsightly matter. Custodial services shall be performed in accordance with the schedule in Attachment J-C11.

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: The report discussed in the following paragraph is due to the State or EPA normally within 10 calendar days of the beginning of the month. The ACO may choose to have Contractor submit report directly.  
\*\*\*\*\*!

e. Sampling, Analysis and Documentation. The Contractor shall furnish laboratory services by a U.S. Environmental Protection Agency (EPA) or State certified laboratory fully equipped to conduct water quality analysis in accordance with the applicable references in Attachment J-C2. The Contractor shall analyze said samples using the procedures in Attachment J-C8. The Contractor shall consolidate the results of all sample analyses in a report which shall be submitted to the Government Representative no later than ! INSERT! working days following the first day of each month.

C.12 MINOR MAINTENANCE AND REPAIR. Minor work is defined as maintenance and repair work requirements which are beyond the scope of corrective maintenance and repair work (as defined in paragraph C.11.c). The cost of any single instance of minor maintenance or repair is limited to a total cost of \$2,000. All minor work is included in the indefinite quantity portion of the contract. The Contractor will be paid a negotiated fixed-price for each delivery order for minor work as specified in the following procedures. Labor, material and equipment required for the unit priced tasks listed in the Schedule of Indefinite Quantity Work-Unit Priced Tasks is included in the bid prices. Material and equipment required for work based on the Schedule of Indefinite Quantity Work-EPS Hour Labor will be reimbursed in accordance with the "ESTIMATES" clause below.

a. Urgent Minor Work. The Government will classify up to !INSERT PERCENTAGE!% of the delivery orders for minor work as urgent. The Contractor shall complete all urgent minor delivery orders within !INSERT! calendar days of receipt. Urgent minor work shall normally be performed only during normal working hours except that after hours and/or weekend work may be authorized by the ACO if required to complete work within the time requirement specified above.

b. Routine Minor Work. All non urgent minor work will be classified as routine minor work. Routine minor work will be further classified by the Government as one of two different "Types". Delivery orders for Type I routine minor work shall be completed within !INSERT! calendar days of receipt and Type II delivery orders within !INSERT! calendar days of receipt. No more than ! INSERT PERCENTAGE! of the delivery orders for routine minor work will be classified as Type I.

c. Establishing Final Cost for Minor Maintenance and Repair Work. On receipt of a proposed delivery order from the ACO, the Contractor shall prepare an estimate following the procedures outlined in the "ESTIMATES" clause elsewhere in this Section. The Contractor's estimate will be evaluated to determine if: (1) the scope has been clearly and accurately identified, (2) the EPS standards (including work content comparison) have been accurately applied, (3) work which is not covered by EPS has been properly estimated with supporting data presented, (4) equipment and material estimates are reasonable and properly documented, and (5) unit price work has been estimated using the unit prices that were bid. After the estimate has been reviewed and there are no mathematical, typographical, scope or estimating errors, the ACO will approve the estimate. The approved estimate then shall be a fixed-price for the work described in the delivery order.

d. Ordering Minor Maintenance and Repair Work. The ACO will order minor maintenance and repair work by issuing to the Contractor a copy of the approved estimate and a Delivery Order (DD Form 1155) for the work covered by the approved estimate in accordance with the "ORDERING OF WORK" clause in Section G.

e. Changes to Scope of Work in Delivery Orders. If during the course of work the Contractor encounters unforeseen conditions which impact the work and which could not be evaluated during the initial estimating procedures, the Contractor shall not proceed without ACO authorization. The ACO will direct the Contractor to (1) estimate the change of scope for the unforeseen condition only, or (2) prepare a new estimate for the total job as revised. The ACO will, after review and approval of the estimate, (1) issue a delivery order for the change of scope only, or (2) cancel the original delivery order and issue a new deliver order for the total job as revised.

C.13 ESTIMATES. Detailed estimates for proposed minor maintenance and repair work shall be prepared when requested in writing by the ACO. Completed detailed estimates must be provided to the ACO within !INSERT! calendar days after receipt of the proposed delivery order for urgent minor work, and within !INSERT! calendar days after receipt for routine minor work. After approval by the ACO, the detailed estimate will form the basis of payment for the work. The cost of preparation of estimates is included in the fixed-price portion of the contract.

a. EPS Manuals. EPS manuals will be made available for examination at ! INSERT LOCATION AT THE ACTIVITY WHERE THE WORK WILL BE PERFORMED AND THE CONTRACTS OFFICE AT WHICH THE BIDS WILL BE RECEIVED! and at Naval Facilities Engineering Command Engineering Field Divisions during the bidding period of this contract. !INSERT NUMBER OF COPIES! copies of the EPS manuals will be provided to the successful bidder upon award.

b. Travel Zone Maps. The Travel Zone map for !ACTIVITY! is provided as Attachment J-C!INSERT! and is to be used in conjunction with historical data to evaluate travel time impact.

c. Preparation of Estimates. The Government will provide the Contractor a detailed scope of work for which the Contractor shall prepare an independent estimate of the labor, equipment, and material required to complete the work ordered under the "MINOR MAINTENANCE AND REPAIR" clause. The detailed scope of work will be provided by the Government on the DD Form 2167, Job Phase Calculation Sheet, and will identify the overall work scope for each craft phase and the specific task descriptions. The Contractor shall complete the total estimate by entering the EPS craft time for each task description and applying the EPS nomograph to arrive at the total EPS time for each job phase. If required, the Contractor shall identify on the DD Form 2167 additional task descriptions that are necessary to satisfactorily accomplish the overall work scope for the particular craft phases and provide appropriate EPS task references and estimated EPS hours. Any portions of delivery orders that have been bid as unit priced tasks shall be priced using the unit prices bid instead

of EPS. EPS does not cover every task that might be accomplished by specific crafts. For tasks not exactly identified in EPS manuals, work content comparison shall be performed prior to a determination that EPS does not apply to a job. Estimates and all supporting information, documentation, and calculations shall be submitted to the ACO.

(1) Labor Estimates. Labor estimates shall be expressed in EPS hours. Craft time shall be taken from the EPS task time standards or the craft spread sheets either directly or by work content comparison, applicable additional task times (additional material handling, additional travel, and additional preparation) shall be added, and total craft time applied to the EPS nomograph to add standard allowances for job preparation, craft delays, and partial day influence. The standard allowance for travel time will not be added, and travel zone 0 (shop) will be used when applying total craft time to the EPS nomograph. No other allowances, mark-ups, or add-ons for work time associated with union agreements, overhead, profit, material markups, supervision, or clerical support shall be added to the labor hour estimate. The estimate shall include job phasing and craft phasing, and the task time standard(s) or spread sheet used in the estimate shall be identified. For multiple craft jobs, a phasing summary sheet shall be prepared. DD Form 2167 (1 Nov 78) shall be completed as required.

(a) Estimating Work Not Covered by EPS. The Contractor shall clearly identify work that cannot be estimated either directly from EPS or using EPS work content comparison procedures. Such conventional labor hour estimates shall be based on the total labor hours required for the specific task(s). The Contractor shall submit all back up sheets with the estimate including a listing of all operations and supporting data for all estimates based on historical information. Estimates shall be for labor hours only and shall not include any mark-ups, allowances, or add-ons for work time associated with union agreements, overhead, profit, material markups, supervision, or clerical support.

(b) Total Labor Cost Estimates. The total labor cost estimate will be determined by totaling the number of EPS estimated labor hours for each craft (trade) and then multiplying by the appropriate hourly unit price from the Schedule of Indefinite Quantity-EPS Hour Labor. This procedure shall be followed for each craft required to perform the job. The total for all crafts is the total labor cost estimate.

(2) Material Estimates. Material estimates shall include a detailed bill of materials establishing the size, quality, number of units, and unit prices. Material prices shall be the lowest price available considering the availability of materials and the time constraints of the job. The direct material price shall be reduced by all discounts and rebates for core value or salvage value that accrue to the Contractor. Pre-expended bin supplies and materials shall not be included in the material estimate unless the total cost of the pre-expended bin items exceeds \$!INSERT DOLLAR VALUE! per delivery order. Contractor administrative and handling costs for acquiring material, and any Contractor material markups should be included in the prices bid for an EPS estimated labor hour.

(3) Construction and Weight Handling Equipment Estimates. Estimates for construction and weight handling equipment may be added for an individual job if not included in other portions of the contract or not provided by the Government. Estimates shall include a detailed price list stating size, capacities, quality, number of units, and unit prices.

(a) Rental equipment shall be based on the lowest price available considering the availability and time constraints of the job.

(b) When the equipment to be used is owned by the Contractor, the cost shall be based on the U.S. Army Corps of Engineers Construction Equipment Ownership and Operating Expense Schedule EP 1110-1-8.

(c) Cost for equipment operators, when separate operators are required, shall be estimated on a EPS unit hour basis, unless operator cost is included in equipment rental price or operator has been provided by the Government. Any overhead expense associated with equipment usage shall be included in the Contractor's bid for the applicable EPS labor hour unit price.

END OF SECTION C

PART III - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

SECTION J: LIST OF ATTACHMENTS

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\* To be added by the activity, if appropriate.



ATTACHMENT J-1

WAGE DETERMINATION !INSERT NUMBER!

Attached is Wage Determination !INSERT NUMBER! which specifies the minimum wages and fringe benefits to be paid under this contract.



ATTACHMENT J-C1

GENERAL DESCRIPTIONS OF FACILITIES TO BE OPERATED AND MAINTAINED

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: List and describe the water plants and  
distribution systems in detail. Attach or make available facility drawings.  
\*\*\*\*\*!

<u>Facility Number 1</u>	<u>Square Feet</u>	<u>Description</u>
		Water Treatment Plant
		Water Storage: 100,000 Gallon Elevated Storage Tank
		Water Distribution: Pumps Water Lines Valves Fire Hydrants Pressure Regulators
		Drawings: Treatment Plant Storage Tank Distribution System



ATTACHMENT J-C2

APPLICABLE PUBLICATIONS AND REFERENCES

Publications and references listed here are classified either as advisory or mandatory. Those publications/references classified as advisory are identified to the Contractor to provide guidance concerning the standards of performance that the Government will use in evaluating the Contractor's overall work performance. Those publications and references classified as mandatory must be complied with by the Contractor during the duration of this contract.

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: Use the following as a check list. Add and delete as applicable. List applicable sections and indicate if mandatory or advisory in every case. Some systems, or parts thereof, may have manufacturer's or designer's operation and maintenance specifications. These should be provided in addition, or better yet, in lieu of Maintenance and Operations of Water Supply Systems NAVFAC MO-210.  
\*\*\*\*\*!

**NAVY REGULATIONS, MANUALS, INSTRUCTIONS, NOTICES**

Mandatory      Advisory

- 1. NAVFAC MO-321, Maintenance Management of Shore Facilities
- 2. NAVFAC MO-322, Inspection of Shore Facilities
- 3. NAVFAC MO-210, Water Supply Systems
- 4. NAVFAC INSTRUCTION 5450.19B, Responsibilities for Naval Shore Facilities, Sanitary/Environmental Engineering
- 5. NAVFAC INSTRUCTION 11330/15, Water Treatment
- 6. Environmental Protection Manual, OPNAV 6240.3E
- 7. Manual of Naval Preventative Medicine, BUMED, NAVMED P-5010 Chapter 5, Water Supply Ashore
- 8. Naval Environmental Protection Support Service, S.O.P. 1.08B
- 9. Bureau of Medicine and Surgery, Navy Department Instruction 5711.2B, Quality Standards for Potable Water
- 10. BUMEDINST 6240.3C, Standards for Potable Water
- 11. NAVFAC MO-306, 307; Corrosion Prevention, Control Cathodic Protection

**FEDERAL REGULATIONS AND GUIDES, PERMITS**

Mandatory      Advisory

1. Environmental Protection Agency Permit No. (to be obtained)
2. National Interim Primary Drinking Water Regulations, 40 CFR Part 141
3. National Secondary Drinking Water Regulations; 40 CFR Part 143, Vol 44, #140
4. Manual for Evaluating Public Water Supplies, US EPA, Office of Water Programs, Water Supply Programs Division

ATTACHMENTS J-C3

GOVERNMENT FURNISHED PROPERTY AND SERVICES

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: List all facilities that are to be provided for the Contractor's use. Provide descriptive characteristics and drawings for each facility showing Contractor areas, areas retained for use by the Government, etc.  
\*\*\*\*\*!

Government owned facilities and drawings provided to the Contractor for performance of the contract are listed below:

<u>Facility</u>	<u>Square Feet</u>	<u>Description</u>
-----------------	--------------------	--------------------

Major Facility #1:

- a. Building #1
- b. Building #2

Major Facility #2:

- a. Building #3
- b. Building #4

Drawings:

- a. Schematics
  - 1. Building #1
  - 2. Building #2
- b. As-builts
  - 1. Building #1
  - 2. Building #2



ATTACHMENT J-C4

GOVERNMENT FURNISHED EQUIPMENT

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: List all equipment (e.g., pumps, motors,  
chlorinators, fans, and valves) to be provided to the Contractor.  
\*\*\*\*\*!

This attachment provides a listing of equipment that will be provided by the Government to the Contractor for the performance of work under this contract, as specified in clause C.5.

<u>Description</u>	<u>Qty</u>	<u>Model</u>	<u>No.</u>	<u>Manufacturer</u>	<u>P/A No.</u>	<u>Location</u>
--------------------	------------	--------------	------------	---------------------	----------------	-----------------



ATTACHMENT J-C5

GOVERNMENT FURNISHED MATERIAL

!\*\*\*\*\*!  
NOTE TO SPECIFICATION WRITER: List all material to be furnished to the Contractor. Provide descriptive characteristics including generic name, federal or commercial specification number, and quantity of issue.  
\*\*\*\*\*!

This attachment provides a listing of material that will be turned over to the Contractor for the performance of work under this contract, as specified in clause C.5.

**PART A**

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
a. Alum		
b. Chlorine		
c. Lube Grease		
	!ETC.!	

**PART B**

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
a. Pump Motor		
	!ETC.!	



ATTACHMENT J-C6

CONTRACTOR FURNISHED ITEMS

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: Include only materials which must conform to  
federal or commercial specifications. Cite specification. Materials not  
specifically included in this attachment will be of acceptable grade and  
quality, as specified in clause C.6.  
\*\*\*\*\*!



ATTACHMENT J-C7

LIST OF REQUIRED RECORDS, REPORTS AND FORMS

!

\*\*\*\*\*

NOTE TO SPECIFICATION WRITER: The format, frequency and specific data to be reported and/or logged should be tailored by each activity to obtain the information it considers pertinent for its facilities, to enable the activity to periodically monitor that the Contractor's operations are within acceptable limits, and to ensure required reports (such as the Utilities Cost Analysis Report) are prepared. Keep in mind numerous reports and/or high frequency requirements cost more money. Reports should be minimized and formats designed to consolidate and provide the necessary information with minimal effort. Attach sample records, reports, and forms so the Contractor can acquire an accurate picture of the effort required.

\*\*\*\*\*!

1. RECORDS (CONTRACTOR RESPONSIBILITY)

<u>Specification Reference</u>	<u>Record Title</u>	<u>When Submitted</u>
a.		
b.		
c.		
d.		

2. REPORTS (CONTRACTOR RESPONSIBILITY)

<u>Specification Reference</u>	<u>Record Title</u>	<u>When Submitted</u>
a.		
b.		
c.		
d.		

3. REPORTS (GOVERNMENT RESPONSIBILITY, INPUT PROVIDED BY CONTRACTOR)

<u>Specification Reference</u>	<u>Record Title</u>	<u>When Submitted</u>
a.		
b.		
c.		
d.		



ATTACHMENT J-C8

SAMPLING LOCATIONS, ANALYTICAL STANDARDS AND PROCEDURES

!\*\*\*\*\*

NOTE TO SPECIFICATION WRITER: The information shown below should be provided by the activity to specifically define sampling requirements and procedures. NAVFACINST 11330.14 should be used for guidance. See Safe Drinking Water Act and applicable state regulations.

\*\*\*\*\*!

a. As-Built Drawing Sampling Locations

1. Raw Water Inlet
2. In Plant Locations
3. Treated Water Outlet
4. In Distribution Lines(s)

b. Frequency of Sampling

!As required for each contaminant and depending on size of system!

c. Analytical Procedures

- |                            |                      |
|----------------------------|----------------------|
| 1. Bacteriological Quality | 5. Turbidity         |
| 2. Inorganic Chemicals     | 6. Radioactivity     |
| 3. Organic Chemicals       | 7. Corrosivity       |
| 4. Fluoride                | 8. Chlorine Residual |

!ETC!



ATTACHMENT J-C9

HISTORICAL MAINTENANCE AND OPERATIONS RECORDS

!\*\*\*\*\*  
 NOTE TO SPECIFICATION WRITER: The information shown below should be obtained from the activity's historical data. Water quality is described in terms of the contaminants listed in the appropriate specification.  
 \*\*\*\*\*!

- a. Raw Water Quality
- b. Treated Water Quality
- c. Input Water Quality (at all points per Attachment J-C8.)
- d. Water Quality in Distribution Line (At all points as per Attachment J-C8.)
- e. Maintenance Records
  - 1. Corrective Repairs and Replacements
  - 2. Preventive Maintenance Schedule

!\*\*\*\*\*  
 NOTE TO SPECIFICATION WRITER: For each of the past three years provide the information in the table below for corrective repair orders. Provide breakdown by labor craft. Information on actual hours and material costs should be deleted if the PWS is being written for a CA program study.  
 \*\*\*\*\*!

<u>Craft</u>	<u>TOTAL HOURS (ACTUAL)</u>			<u>NUMBER OF JOBS</u>		
	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>
Plumbing						
Pipe Fitting						
Machining						
Electrical						
Total						
<u>Material Cost</u>		<u>1994</u>	<u>1995</u>	<u>1996</u>		
Total		!DOLLARS!	!DOLLARS!	!DOLLARS!		

f. Energy Consumption

1. Vehicles
2. Equipment
3. Electricity
4. Natural Gas

g. Materials Consumption

- |                  |                       |
|------------------|-----------------------|
| 1. Alum          | 5. Anthracite         |
| 2. Ferric Salts  | 6. Sand/Gravel/Garnet |
| 3. Electrolytes  | 7. Chlorine           |
| 4. Lab Chemicals |                       |

h. Quantity of Water Produced

<u>Month</u>	<u>1994</u>	<b>NUMBER OF GALLONS</b> <u>1995</u>	<u>1996</u>
Jan			
Feb			
Mar			
Apr			
May			
Jun			
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			

ATTACHMENT J-C10

PREVENTIVE MAINTENANCE AND PERIODIC INSPECTIONS

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: Include all items the Contractor is to maintain on a mandatory schedule. Other tasks to be considered would relate to backflow preventers, chlorinators, and pumps. If cathodic protection is to be included as a requirement, Section C must be tailored.  
\*\*\*\*\*!

The Contractor's preventive maintenance and periodic inspections under this contract shall include as a minimum, but are not limited to, the following. Frequency codes are included in the "DEFINITIONS-TECHNICAL" clause, Section C.

<u>Description</u>	<u>Frequency</u>
1. Piping/Valves	
a. Inspect for damage, leakage, corrosion, loose connections and defective joints. Repair any defects noted.	M
b. Inspect for damaged operating nuts, bent stems. Lubricate stem threads, replace packing, operate through complete cycle.	W
2. Distribution System	
Functional testing of distribution system valves in accordance with !INSERT REQUIREMENTS!	A
3. Valve Boxes	
Remove debris, check alignment, and adjust.	A
4. Fire Hydrants	
a. Remove corrosion, paint, and color-code/identify.	A
b. Flush out end-of-line hydrants (3 each).	SA
c. Flush Hydrants (123 each).	SA



ATTACHMENT J-C11

CUSTODIAL SERVICES SCHEDULE

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: Follow the GPWS for Custodial Services for the  
method of handling class of service, cleaning frequencies, etc.  
\*\*\*\*\*!

<u>Space to be Cleaned</u>	<u>Class Service</u>	<u>Square Feet of Flooring<sup>1</sup></u>	<u>Number of Rooms</u>	<u>Number of Rest Room Fixtures</u>
--------------------------------	--------------------------	--	----------------------------	---

<sup>1</sup> Carpet, Wood, etc.



ATTACHMENT J-G1

INVOICING INSTRUCTIONS

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: This attachment should include the information below.

1. Name and address of person who is to receive the monthly invoice.
2. Date invoice should be submitted.
3. Number of copies required.
4. Back-up form showing work that is:
  - performed on a regular basis and is to be paid 1/12 per month and
  - performed on an as ordered basis (must be accompanied by delivery orders in accordance with "ORDERING OF WORK" Clause, Section G) and is paid as performed.
  - 
  - 5. Contractor monthly submittal requirements:
  - 
  - work schedules
  - 
  - !ETC!

\*\*\*\*\*!

!\*\*\*\*\*  
NOTE TO SPECIFICATION WRITER: Include the information needed from the Contractor to support the Public Works Management System or other cost accounting system. Develop and include examples of the forms the Contractor will be required to fill out that can serve as source documents for the necessary data entry.

\*\*\*\*\*!

**COST ACCOUNTING INFORMATION**

Instructions

The Contractor shall attach the following data to the monthly invoice:

END OF SECTION J



QUALITY ASSURANCE GUIDE  
GUIDE PERFORMANCE WORK STATEMENT FOR  
WATER PLANTS AND SYSTEMS  
OPERATION AND MAINTENANCE

QUALITY ASSURANCE GUIDE  
GUIDE PERFORMANCE WORK STATEMENT FOR  
WATER PLANTS AND SYSTEMS OPERATION AND MAINTENANCE

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QUALITY ASSURANCE GUIDE  
GUIDE PERFORMANCE WORK STATEMENT FOR  
WATER PLANTS AND SYSTEMS OPERATION AND MAINTENANCE

I. INTRODUCTION. This quality assurance (QA) Guide is intended to be used in conjunction with the GPWS for WPS. It is intended to help the user to design and implement a WPS QA program specific to his/her activity's needs. Additional background information can be found in NAVFAC manual MO-327, *Service Contracts: Specifications and Surveillance*.

II. FUNCTIONAL CONSIDERATION AND PERFORMANCE REQUIREMENTS SUMMARY

A. There are many items of work included in the WPS GPWS. Some items require 100% inspection while other items require only limited surveillance. Some items require detailed analyses of Contractor performance and others, only a positive indication of Contractor performance. It is up to the Facilities Support Contract Manager (FSCM), based on activity needs and past Contractor performance to establish the level of evaluation required for each contract requirement. Identification of contract requirements, performance indicators, and associated standards of performance is accomplished while tailoring the GPWS. As the activity makes decisions about Contractor requirements and standards of performance, this information is recorded on the Performance Requirements Summary Table.

B. A guide Performance Requirement Summary Table has been provided as Table I in the User's Guide as an overview of the contract requirements recommended for evaluation. This table also provides recommended methods of evaluation.

III. QUALITY ASSURANCE PLANS. The following paragraphs describe recommended sampling methods that may be employed by the Quality Assurance Evaluator (QAE) in evaluating Contractor performance. Contractor performance is defined in terms of measurable outputs described and quantified in Section C. The outputs delivered by the Contractor will be sampled and measured by the QAE using the methods described in this section. Where more than one method is described for a given output, the FSCM and QAE are to select the method or combination of methods most suitable to the activity. Example QA plans are included as attachments to this QA Guide.

**A. Output #1, Water Quantity**

1. Standard: !INSERT! Kgal/hr from Section C.
2. Sampling Method: 100 percent review of weekly or monthly automatically recorded flow records or of NAVFAC 11340/2 (Output #3) daily flow entries.

**B. Output #2, Water Quality**

1. Standard: Shown for each parameter in Section C, paragraph C.11.a
2. Sampling Methods
  - a. Sampling Method #1: 100 percent inspection of Contractor's monthly summary report on water quality analysis results (Output #9).
  - b. Sampling Method #2: Random or planned sampling of water quality by independent Government analysis to assure quality of Contractor's analysis (see Output #9, this section). If there are significant discrepancies between Contractor and Government analysis results, the frequency of sampling should be increased.

**C. Output #3, Treatment Plant Operating Record**

1. Standard: All daily, weekly, and monthly entries as required.

2. Sampling Methods: Planned sampling through !CHOOSE ONE OF THE FOLLOWING: DAILY/WEEKLY/MONTHLY! review of Treatment Plant Operating Record Form [NAVFAC 11340/2 (Rev 7-81) or equivalent] and source documents. Both records must be complete and identical.

**D. Output #4, Water Pressure at Specified System End Points**

1. Standard: !INSERT! lbs pressure per square inch (psi) or !INSERT! feet of hydraulic head (ft). Numerical value of standard may vary from end point to end point.

2. Sampling Methods

a. Sampling Method #1: Random or planned sampling of a representative segment of the total population of service end points (namely all taps, hydrants, faucets, sprinkler heads, etc.). Pressure can be checked with a manual device inserted or screwed into the end point. Note that major trunk lines and their major branches each have many service outlets (end points). By checking only a few of these end points, it can be extrapolated that the entire branch or trunk line is operational.

b. Sampling Method #2: 100 percent inspection (automatic monitoring) of specified system control points. System control points include reservoirs, booster pumps, pressure regulators, or any point on the line where a pressure meter is located or can be inserted. Pressure at a central point can be continuously monitored and recorded. Reservoir elevation can also be monitored and easily converted into pressure readings. Line breaks or blockages between a control point and the end points downstream could result in reduced end point pressure not detected by this sampling method. This situation would be detected through application of quality assurance methods under paragraph F (Output #6, Maintenance) or the following:

c. Sampling Method #3: Validated customer complaints. The QAE may rely on customers to report pressure levels below a desirable level. Complaint validation can be accomplished through pressure measurements. A sample customer complaint record is shown in Figure 1.

**E. Output #5, Water Supply and Distribution Operating Record**

1. Standard: All daily entries as required.

2. Sampling Method: Planned sampling through !CHOOSE ONE OF THE FOLLOWING: DAILY/WEEKLY/MONTHLY! review of Water Supply and Distribution Operating Record (NAVFAC 11330/6 [1-76] or equivalent) and source documents. Both documents must be complete and identical.

**F. Output #6, Maintenance**

1. Standard: All mandatory PMI work accomplished on schedule. Corrective maintenance accomplished and in accordance with the specification.

2. Sampling Method: Random sampling, planned sampling, or unscheduled inspection of a representative segment of the total population of equipment units maintained under the Annual Preventive Maintenance Plan (APMP). Determining the actual accomplishment of preventive maintenance for a given unit is highly dependent on the QAE's experience. Verification of accomplishment of PMI frequently involves the QAE determining that records are complete and that some observable task(s) in the PMI were performed i.e. that certain measurable adjustments are in tolerance or filters changed, etc. The QAE may point out deficiencies in equipment units not included in the APMP;

however, the Contractor is obligated to perform corrective maintenance only to the extent necessary to maintain other outputs. Non-APMP units are not to be included in the computation of the Observed Defect Rate (ODR).

#### **G. Output #7, Maintenance Records**

1. Standard: All entries as required for preventive and corrective maintenance performed.

2. Sampling Method: Random or planned sampling through review of maintenance records and checking condition of equipment as determined through QA inspections for Output #6 against maintenance record entries (e.g., if a light bulb has been changed since last inspection and no appropriate entry has been made in the record, a defect can be recorded. Conversely, if the record shows maintenance has been performed but the equipment shows otherwise, a defect can be recorded as part of the inspection in Output #6).

#### **H. Output #8, Custodial Services**

1. Standard: All scheduled custodial tasks completed on schedule.

2. Sampling Methods: Random sampling, planned sampling, or unscheduled inspection of a representative segment of the total population of custodial service items listed in Attachment J-C11. Satisfactory performance of custodial services is generally subjective and dependent on QAE's judgment.

#### **I. Output #9, Water Quality Analysis**

##### 1. Standards

a. Timeliness - report to ACO within !INSERT NUMBER OF DAYS! days following first day of each month.

b. Completeness - all parameters included.

c. Accuracy - analytical accuracy for all parameters within  $\pm$  !INSERT PERCENTAGE!% of independent certified analysis.

##### 2. Sampling Methods

a. Sampling Method #1: For Standards I.1.a and I.1.b, 100 percent inspection of monthly certification reports for timely submittal and completeness.

b. Sampling Method #2: For Standard I.1.c, random or planned sampling through independent Government analysis of water samples. The QAE can collect samples as needed and have them analyzed by one or more certified labs for comparison with Contractor furnished analysis results.

#### **IV. SURVEILLANCE SCHEDULES**

A. General. In order to implement QA surveillance of a facilities support contract (FSC), each QAE must establish a work schedule. QAE schedules will be based on evaluation requirements, other assigned duties, and QAE availability. The development of schedules is a repetitive process. Once established it should be closely followed so as to provide an auditable record of contract surveillance.

B. Development. Evaluation requirements are generated for each QA Plan and aggregated. The aggregated requirements are projected over the coming month along with other known duties. This process will usually result in identifying more work than the QAE could possibly perform. At this point, the FSCM and QAE

must review the workload and sets priorities. If there is still an excess workload, contract evaluation requirements should be reevaluated.

C. Use. QAE Schedules serve three functions:

1. QAE. The QAE will use the schedule to plan his/her work. By making maximum use of a schedule, the QAE will optimize use of the time available.

2. FSCM. The FSCM will be provided a copy of each QAE Schedule. The FSCM has the responsibility to see that QA of FSCs is properly conducted. The QAE schedule will provide the FSCM information necessary to monitor the QA program.

3. Audits. The QAE schedule, along with completed evaluation reports, will provide an audit trail of contract surveillance. The established schedule should reflect what was actually accomplished.

D. Staffing. QAE staffing should be based on QAE scheduled work load, not on available staffing.

**FIGURE 1**

**SAMPLE CUSTOMER COMPLAINT RECORD**

---

Date and Time of Complaint:

---

Source of Complaint

    Organization:

    Individual:

---

Nature of Complaint:

---

Contract Reference:

---

Validation:

---

Date and Time Contractor Informed of Complaint:

---

Action Taken by Contractor:

---

Received and Validated by:

---

**FIGURE 2**

**SAMPLE CONTRACT DISCREPANCY REPORT**

---

1. Contract Number:

---

2. To: (Contractor & Manager's Name)

3. From: (Name of FSCM)

---

Prepared Oral Notification

Date Returned by Contractor:

Date Action Complete:

---

7. Discrepancy/Problem (describe in detail, include reference to PWS, attach continuation sheet if necessary):

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8. Signature of FSCM:

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9. To: (Contracting Officer)

From: (Contractor)

---

10. Contractor Response as to Cause, Corrective Action, and Actions to Prevent Recurrence (cite applicable QC program procedures or new QC procedures, attach continuation sheet if necessary):

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11. Signature of Contractor Representative/Date:

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12. Government Evaluation (acceptance, partial acceptance, rejection):

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13. Government Actions (payment deduction, cure notice, show cause, other):

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**CLOSE OUT**

Contractor Name/Title/Signature/Date: \_\_\_\_\_

QAE Signature/Date: \_\_\_\_\_

FSCM Signature/Date: \_\_\_\_\_

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QUALITY ASSURANCE PLAN #1  
MANAGEMENT

1. Contract Requirement

<u>Performance Indicators</u>	<u>Standards of Performance</u>
a. Work Schedule and Records	Section C, Paragraph C.8.b
b. Complete and Accurate	Section C, Paragraph C.8.c
c. Timeliness	Section C, Paragraph C.8.c
d. Custodial Services	Section C, Paragraph C.8.d

2. Primary Method of Surveillance. Planned sampling supported by unscheduled inspections.

3. Acceptable Quality Level (AQL). If over 5% of the total service is defective, the overall performance is unsatisfactory.

4. Quantity of Work. All reports required on a daily, monthly, quarterly, semi-annual basis as listed in Attachment J-C7.

5. Level of Surveillance

a. Normal Surveillance (Level II). The normal level of surveillance will be used at the beginning of the contract and continue until such time as the Observed Defect Rate (ODR) indicates that a different level is necessary.

b. Reduced Surveillance (Level I). The surveillance level will be reduced to Level I if the ODR stays below the AQL for two months.

c. Increased Surveillance (Level III). - The surveillance level will be increased to Level III if the ODR is above the AQL.

6. Sample Size

a. Level I - 15% of all reports, plus ensure all reports are received.

b. Level II - 25% of all reports, plus ensure all reports are received.

c. Level III - 50% of all reports, plus ensure all reports are received.

7. Sampling Procedure. Each month the QAE will choose the appropriate number of samples based on the level of surveillance being used. The same reports will not be reviewed each month. All reports, under Level II, will be reviewed every four months. Proper receipt of required reports will be ascertained monthly. For reports under review, examine the previous months' data accumulated for each report.

8. Evaluation Procedure

a. Check each report for accuracy and completeness according to individual requirements. Compare reports for agreement on similar items.

b. Record all defects found in each report on the evaluation worksheet. Note the date, time of evaluation, report name, and defect in sufficient detail to support verification.

9. Analysis of Results

a. Any defects will be cause for total report rejection. Report data must be corrected to be acceptable. Total defects separately for each report, although, all defects count against this contract item. REPORTS ARE REQUIRED

WITH THE CONTRACTORS' INVOICE FOR PAYMENT. FAILURE TO RECEIVE ANY REPORT IS GROUNDS FOR NON-ACCEPTANCE OF INVOICE.

b. At the end of the month, the QAE will summarize all the evaluations on the inspection reports. An Observed Defect Rate (ODR) is then calculated based on the following formula:

$$\text{ODR} = \frac{\text{Number of Defects ("F" Grades)}}{\text{Total number of observed checkpoints ("P" + "F" grades)}} \times 100$$

Example:

$$\begin{aligned} \text{"F" Grades} &= 22 \text{ Defects} \\ \text{"P" Grades} &= 512 \text{ Satisfactory Checkpoints} \\ \text{ODR} &= [22 \div (22 + 512)] \times 100 \\ \text{ODR} &= 4.12\% \end{aligned}$$

NOTE: The ODR is calculated using only those observations which used planned sampling as the method of surveillance.

#### 10. Performance Criteria and Conclusions

a. If the ODR is equal to or less than the AQL, the evaluation indicates that the service may be satisfactory.

b. If the ODR is greater than the AQL the evaluation indicates that the service may be unsatisfactory. When this condition exists the level of surveillance should be increased for the next evaluation period.

c. Acceptable reports are a prerequisite for accepting the Contractor's invoice for payment. Non receipt of acceptable reports must be reported immediately to the Facilities Support Contract Manager (FSCM).

RECORDS AND REPORTS EVALUATION WORKSHEET

REPORT TYPE: \_\_\_\_\_

DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ DEFECT: \_\_\_\_\_ SUPPORT DATA: \_\_\_\_\_

TOTAL DEFECTS: \_\_\_\_\_

QAE'S SIGNATURE/DATE: \_\_\_\_\_

COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

QUALITY ASSURANCE PLAN #2  
OPERATIONS - QUANTITY AND QUALITY

1. Contract Requirement

Performance Indicators

Standards of Performance

- |                                  |                             |
|----------------------------------|-----------------------------|
| a. Water Quantity                | Section C, paragraph C.11.a |
| b. Water Quality                 | Section C, paragraph C.11.a |
| c. Sampling Analysis and Reports | Section C, paragraph C.11.e |
| d. Attachment J-C8               |                             |

2. Primary Method of Surveillance. One hundred percent inspection of water analysis reports, planned sampling result comparison.

3. Acceptable Quality Level (AQL)

a. Minimum and maximum values for the elements that measure water quality must be maintained. One value outside the acceptable range is acceptable but must be corrected immediately and water quality retested.

b. Two or more values outside the acceptable range is unsatisfactory and, again, steps must be taken toward immediate correction.

4. Quantity of Work

a. Sampling of water for quality standards testing by the Contractor is taken daily at !INSERT NUMBER OF LOCATIONS! sample point locations.

b. Monthly samples are taken from locations and sent to the !INSERT STATE! Department of Health for analysis. Results of these tests are reviewed monthly.

5. Level Of Surveillance. The QAE will review all (100% inspection) the reports. The following applies to the Government's planned sampling of potable water:

a. Normal Surveillance (Level II). The normal level of surveillance will be used during the first 30 days of the contract.

b. Reduced Surveillance (Level I). If no incidences of consecutive unsatisfactory potable water analysis occurs in 30 consecutive days, the surveillance level will be reduced to Level I.

c. Increased Surveillance (Level III). If any incidences of consecutive unsatisfactory potable water analysis occur, the surveillance level will be increased to Level III.

6. Sample Size

a. Level I - 3 analyses/week

b. Level II - 5 analyses/week

c. Level III - 7 analyses/week

7. Sampling Procedure. Each day the QAE will compare incoming water analysis reports with the contract requirements. Comparison results will be posted on the form provided.

8. Evaluation Procedure. The QAE will post the results of this potable water report review daily. If two consecutive F's are posted, the QAE will contact the FSCM.

9. Analysis of Results. In each case of consecutive discrepancies as described above, the FSCM will take the appropriate measures as stated in the "CONSEQUENCES OF CONTRACTOR'S FAILURE TO PERFORM" clause to correct the discrepancies. The Contractor will receive a deduction from his monthly payment as described in the "Consequences of Contractor's Failure to Perform" and a CDR will be forwarded, as needed.

DAILY WATER ANALYSIS REVIEW

DATE: \_\_\_\_\_

SAMPLE POINT: \_\_\_\_\_

<u>Water Treatment Component</u>	<u>Concentration</u>	<u>Acceptable Concentration</u>	<u>Reported Acceptable</u>	<u>Unacceptable</u>
Microbiological (MPN/100 Mil)	0.0 - 2.0			
Chlorine Residual (mg/l)	0.2 - 3.0			



QUALITY ASSURANCE PLAN #3  
OPERATIONS: STORAGE AND DISTRIBUTION

1. Contract Requirement

Performance Indicators

Standards of Performance

- a. Quantity (!INSERT!)
- b. Pressure (!INSERT!)

Section C, paragraph C.11.b  
Section C, paragraph C.11.b

2. Primary Method Of Surveillance. Planned sampling supported by validated customer complaints.

3. Acceptable Quality Level (AQL). 5%

4. Quantity of Work. The quantity of work is the measurement of water distribution pressure at !INSERT NUMBER OF LOCATIONS! locations.

5. Level of Surveillance

a. Normal Surveillance (Level II). The normal level of surveillance will be used at the beginning of the contract and continue until such time as the Observed Defect Rate (ODR) indicates that a different level is necessary.

b. Reduced Surveillance (Level I). The reduced level of surveillance will be used when the ODR has been less than half the AQL for two months. The surveillance will remain at the level as long as the ODR is less than half the AQL during the evaluation period.

c. Increased Surveillance (Level III). If at Level II the ODR is greater than the AQL, the level of surveillance will be increased to Level III. If at Level III the ODR is equal to or less than the AQL for one evaluating period return to Level II.

6. Sample Size

a. Level I - Pressure readings at !INSERT NUMBER! locations/week plus review of records for quantity.

b. Level II - Pressure readings at !INSERT NUMBER! locations/week plus review of records for quantity.

c. Level III - Pressure readings at !INSERT NUMBER! locations/week plus review of records for quantity.

7. Sampling Procedure. Each week, the QAE will choose the appropriate number of samples based on the level of surveillance being used. Pressure readings will be taken at !INSERT LOCATIONS!. Records will be reviewed for the period since the last inspection to determine the quantity of water that has been maintained.

8. Evaluation Procedure. The QAE will compare the readings taken with the performance standards. If two consecutive F's are posted, the QAE will contact the FSCM.

9. Analysis of Results

a. At the end of the evaluation period, the QAE will summarize all the evaluations on the inspection reports. An Observed Defect Rate (ODR) will be calculated. If the ODR indicates unsatisfactory performance, the QAE should recommend to the FSCM that a Contract Discrepancy Report (CDR) be issued to the Contractor.

b. For all observed defects, the QAE will calculate the appropriate deductions and liquidated damages and provide an itemized report to the FSCM.

QUALITY ASSURANCE PLAN #4  
MAINTENANCE

1. Contract Requirement

Performance Indicators

Standards of Performance

- |                           |                             |
|---------------------------|-----------------------------|
| a. PM Work                | Section C, paragraph C.11.c |
| b. PM Records             | Section C, paragraph C.11.c |
| c. Corrective Maintenance | Section C, paragraph C.11   |

2. Primary Method of Surveillance

a. Contractor Reports/PM Schedule Comparison. One hundred percent inspection.

b. On Site Verification. One hundred percent inspection.

c. Corrective Maintenance. Planned sampling.

3. Acceptable Quality Level (AQL). 5%

4. Quantity of Work. The actual quantity of work will be determined by the Contractor's plan/schedule and necessary corrective maintenance.

5. Level of Surveillance. The QAE will review and verify all PM inspections. The following applies to corrective maintenance:

a. Normal Surveillance (Level II). The normal level of surveillance will be used at the beginning of the contract and continue until such time as the Observed Defect Rate;(ODR) indicates that a different level is necessary.

b. Reduced Surveillance (Level I). The reduced level of surveillance will be used when the ODR has been less than half the AQL for two months. The surveillance will remain at the level as long as the ODR is less than half the AQL during the evaluation period.

c. Increased Surveillance (Level III). If at Level II the ODR is greater than the AQL, the level of surveillance will be increased to Level III. If at Level III the ODR is equal to or less than the AQL for one evaluating period return to Level II.

6. Sample Size. The sample size for PMs is the number of PMs on the Contractor's PM plan/schedule. The sample size for corrective maintenance is as follows:

a. Level I - 10%

b. Level II - 25%

c. Level III - 50%

7. Sampling Procedure

a. PM. The QAE will compare the incoming PM reports to the PM plan/schedule work listed on the PM plan/schedule and not reported as performed will be documented on a PM Deficiency Report as attached. The Contractor will be forwarded a copy of each PM Deficiency Report (PMDR) generated. The QAE will inspect components on which the Contractor has reported the performance of PM. The QAE must be familiar enough with the systems and the reference manuals MO-210 and MO-322 to make a judgment as to whether PM is being properly performed. The QAE will develop an inspection schedule once the Contractor has

established an acceptable PM Plan/Schedule. PM which is not adequate will be listed on the PMDR.

b. Corrective Maintenance. For Normal surveillance the QAE will select every fourth completed corrective maintenance and repair order for the previous month. The QAE may substitute critical service locations for those chosen under the planned method.

#### 8. Evaluation Procedure

a. PM. The QAE will prepare an inspection report in advance of the on site visit to the location. On the report the QAE will record the following information: date, locations, type of inspection, QAE's signature, and all checkpoints which will be used to grade the contractor's performance. The Contractor will be notified that a deficiency exists using the PMDR. The Contractor will be given the following intervals of time to correct PM deficiencies:

<u>PM Frequency</u>	<u>Allowed Correction Time in Days</u>
Daily	1
Weekly	3
Monthly	5
Quarterly	5
Annually	20

If the Contractor does not correct the deficiency in the allowed time, it is considered a defect and a deduction will be made.

b. Corrective Maintenance. The QAE will prepare an inspection report in advance of the on site visit. The QAE will inspect the corrective maintenance and repair work to assure that the work has been done in accordance with the specification. The Contractor will be notified of any defects.

#### 9. Analysis of Results

a. An Observed Defect Rate (ODR) will be calculated for each type of defect listed below at the end of the evaluation period:

- PM Work
- 
- PM Reports
- 
- Corrective Maintenance

The ODR will be calculated based on the following formula:

$$\text{ODR} = \frac{\text{Number of Defects ("F" Grades)}}{\text{Total number of observed checkpoints ("P" + "F" grades)}} \times 100$$

Example:

$$\begin{aligned} \text{"F" Grades} &= 2 \text{ Defects} \\ \text{"P" Grades} &= 32 \text{ Satisfactory Checkpoints} \\ \text{ODR} &= [2 \div (2 + 32)] \times 100 \\ \text{ODR} &= 5.9\% \end{aligned}$$

NOTE: The ODR is calculated using only those observations which used planned sampling as the method of surveillance.

10. Performance Criteria and Conclusions

a. If the ODR is equal to or less than the AQL, the evaluation indicates that the work is satisfactory.

b. If the ODR is greater than the AQL, the evaluation indicates that work is unsatisfactory. At this point the QAE should recommend to the FSCM that a Contract Discrepancy Report (CDR) is issued to the Contractor.

c. The ODR can only be calculated on those defects noted during the sampling process. At the end of the invoice period, the QAE will summarize all defects that have been observed and calculate the appropriate deduction and the liquidated damages. The QAE will review the contractor's invoice, and recommend to the FSCM that any billing for unsatisfactory or non-performed work not be paid.

**PM DEFICIENCY REPORT (PMDR)**

1. Date:
2. Description and location of PM deficiency:
  
3. QAE Recommendations:
  
  
  
4. Time and date Contractor notified:
  
  
5. Date Contractor completed corrective action:

**!OR!**

5. Date Contractor notified PM deficiency will be corrected by other means in accordance with the "CONSEQUENCES OF CONTRACTOR'S FAILURE TO PERFORM" clause, Section E.

QUALITY ASSURANCE PLAN #5  
MINOR MAINTENANCE AND REPAIR WORK

1. Contract Requirement

Performance Indicators

Standards of Performance

Minor Maintenance and Repair

Section C, Clauses C.12 and C.13

2. Primary Method of Surveillance. Since this work is ordered on a DD Form 1155, 100% inspection of the final product is required.

3. Acceptable Quality Level (AQL). 5%

4. Quantity of Work. The total number of completed delivery orders for the month.

5. Level of Surveillance. Not applicable.

6. Sample Size. Not applicable.

7. Sampling Procedure. Not applicable.

8. Evaluation Procedure.

a. During the month, the QAE will visit the various job sites while the work is in progress. The visits will be coordinated with the Contractor to insure that each key phase of the project is inspected before it is covered over, thus making inspection at a later time impossible. An evaluation worksheet will be prepared for each phase of the project and the QAE will grade the performance on a list of checkpoints which cover the standards set forth in the technical section of the specifications. The following information will also be included on the inspection report: date, location, type of inspection, QAE's signature and a brief description of any observed defects. If a defect is noted, the QAE will inform the Contractor's on-site representative of the problem and record the following information on the evaluation worksheet: time and date contractor on site representative informed of defect, action Contractor took to correct the defect, and the date the work was finally accepted.

b. If samples or field tests are performed, a diagram of the project, with the location of the inspection points, will be attached to the inspection report.

9. Analysis of Reports

a. At the end of the month, the QAE will summarize all the evaluations on the inspection reports. An Observed Defect Rate (ODR) is then calculated based on the following formula:

$$\text{ODR} = \frac{\text{Number of Defects ("F" Grades)}}{\text{Total number of observed checkpoints ("P" + "F" grades)}} \times 100$$

Example:

"F" Grades = 12 Defects  
"P" Grades = 245 Satisfactory Checkpoints  
ODR = [12 ÷ (12 + 245)] x 100  
ODR = 4.67%

10. Performance Criteria and Conclusions

a. If the ODR is equal to or less than the AQL, the service is satisfactory.

b. If the ODR is greater than the AQL, the service is unsatisfactory. When this condition exists, the level of surveillance should be increased for the next evaluation period. If the work continues to be unsatisfactory, the QAE should recommend to the FSCM that a CDR be issued.

c. At the end of the invoice period the QAE will summarize all defects that have been observed and calculate the appropriate deductions and liquidated damages. The QAE will review the contractor's invoice, and recommend to the FSCM any billing for unsatisfactory on non-performed work not be paid. This will require an amendment to the DD Form 1155.

END OF QA GUIDE