

## **SCOPE DOCUMENTS AND CORRESPONDENCE**

REVISED STATEMENT OF ARCHITECT-ENGINEER  
SERVICES FOR SPECIAL PROJECT PRL 98-9 REPAIR  
TANK 19, RED HILL, FLEET AND INDUSTRIAL  
SUPPLY CENTER, PEARL HARBOR, HAWAII

N62742-98-C-0002  
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- Ref: (a) PACNAVFACENGCOM P-74, A-E Guide for Architect-Engineer Firms Performing Services for the Department of the Navy, Pacific Division, Naval Facilities Engineering Command, Nov 96  
(b) MIL-HDBK-1190, Facility Planning and Design Guide  
(c) Applicable NAVFAC Design Manuals/Military Handbooks  
(d) PACNAVFACENGCOM Metric Guide for Contract Document Preparation, Feb 96  
(e) DD Form 1391 for Project R29-86 dated 1/1/97

1. BACKGROUND: This tank as well as others in the Red Hill Fuel Facility Complex has required numerous repairs to welds and patching of holes in the tank shell plates. Locating fuel leaks is extremely difficult, expensive and time consuming. Some of the tanks have shown evidence of backside corrosion by holes thru the shell plates whereby fuel or water has backseeped into the tank. Due to increasing concerns for fuel leakage to the environment, a good solution for the repair of the tank must be effected that can resolve the problem of existing fuel leaks, minimize the occurrence of future leaks and facilitate the detection/location of future leaks.

2. PROJECT DESCRIPTION. Architect-engineer services shall be provided for project R29-86 Repair Tank 19 in accordance with references (a) through (e). In general, the project includes, but is not limited to, the following:

(1) Construction of a new fuel storage tank within the existing storage tank or another alternative(s) that has the objective of resolving existing fuel leaks, eliminating future leaks and facilitating the capability to detect/locate leaks. The work scope shall include the necessary tank design, coatings, tank structural supports, tank vents, fuel/drain piping modifications, fuel level monitoring system, tank leak detection/leak containment and other appurtenances as required or recommended. Determine the feasibility of installing a pipe tell-tale or equivalent system using helium or other leak detection mediums as a means for detecting leaks. The fuel and drain piping under the tank up to the first isolation valve must also be evaluated for modification or replacement as it is part of the fuel containment boundary of the tank.

(2) The project shall take into consideration maximum fuel storage capability, activity fuel transfer operations or procedures, tank constructibility, complying with current environmental regulations and preventive maintenance capability.

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(3) All preparatory or support work such as tank cleaning, temporary lighting, temporary electrical power, temporary ventilation, testing existing crane booms or providing new crane booms to support construction, disposal of hazardous/non-hazardous waste, etc. shall be included.

(4) The funds available for construction are \$1,940,000. This figure is for construction exclusive of design, contingency, and supervision, inspection and overhead (SIOH).

3. SCOPE OF A-E SERVICES. The A-E shall prepare drawings, basis of design and a cost estimate of the subject project. The A-E shall provide all design and engineering services required for the preparation of those documents in accordance with references (a) through (e). In the event of conflict between this document and any other document referenced herein, the requirements of this document shall govern.

4. SPECIAL REQUIREMENTS. In addition to the services required in accordance with reference (a), the A-E shall also be responsible for the following:

a. Conferences

(1) Attend the following conferences at the designated locations:

CONFERENCE	LOCATION
Pre-Design	FISC Pearl Harbor
10% Concept Review	FISC Pearl Harbor

NOTE: The pre-design conference involves an initial kick-off meeting, site investigation of the tank and complex, brainstorming sessions for discussion of different repair alternatives, time for development of different alternatives with concept sketches/cost estimates, follow on meetings with the users and presentation of a preliminary recommended concept(s).

b. Hazardous Waste. The existence of hazardous materials is a possibility. Per field investigation and record search, survey/identify the existence of such hazardous waste which may impact project scope and cost. Take paint samples and analyze to determine chromium, lead, etc. content.

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(1) If hazardous material is encountered, prepare removal plans for the hazardous material in accordance with reference (a) and applicable codes, rules and regulations. Prior to any investigative work or formulation of a removal plan for hazardous material, the A-E shall meet with PACNAVFACENGCOM Environmental Division representatives to obtain the latest guidance/requirements on Government environmental regulations.

(2) The initial survey shall be conducted under the basic services of this contract during the design stage. The preparation of a removal plan, if required, may be accomplished under a change order to the basic contract.

(3) Hazardous Substance (HS): If contamination by hazardous substances such as PCB, tetrachloroethylene (perchloroethylene), asbestos, lead paint, silica sand, etc. is discovered during project design/construction, specific legal/DOD requirements apply. Refer to reference (a).

c. Design for Maintainability. The design shall consider the maintainability of the facility. See reference (a). A summarization of maintainability considerations must be included in the Basis of Design.

d. Metric Design. Design shall be accomplished in metric (on a case by case basis), based upon the System of International Units (SI) version, in accordance with reference (d). Hard metrics shall be utilized in design drawings and specifications to the greatest extent practicable. Where less than three U.S. manufacturers produce a particular building material in hard metric units, specify same materials of inch-pound measurements in soft metrics.

e. Confined Space Entry. The A-E shall provide their own means of verifying the atmosphere in the tank is safe for entry and to perform their field work.

## 5. SUBMITTALS

a. Drawings submitted for review shall be half-size prints. The Basis of Design/engineering calculations and detailed cost estimates shall be bound separately. Ten (10) copies of the drawings, basis of design and cost estimate shall be submitted. The Basis of Design shall include documentation of different alternatives considered, rationale for selecting the proposed

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concept design and a completed DD Form 1391 of the recommended concept.

b. Sixty (60) calendar days will be allowed for completion of the 10% concept design submittal.

6. NEGOTIATION, INITIAL AWARD AND OPTIONS FOR DESIGN. The initial obligation shall include the 10% Concept Design. The Government may have the A-E provide the following as a subsequent phase(s) of work. The fees for this work will be negotiated at a later date.

a. 10% thru Final Design

a. Review the construction contractor's submittals.

b. Participate in pre-construction conference/designer ROICC conference.

c. Provide consultation on critical items.

d. Provide other miscellaneous consultation.

e. Provide field support of design.

f. Provide courier delivery service for return of contractor's submittals.

g. Provide construction surveillance and inspection services.

h. Prepare as-built drawings.

i. Prepare Operation and Maintenance (O&M) manuals.

7. PROJECT MANAGEMENT

a. Project Design Engineer (PDE)/Navy Technical Representative (NTR). The PDE/NTR, who serves as the technical representative in the administration of this project, is Mr. Ronald Tanaka, telephone (808)474-5327. Keep the PDE/NTR informed of progress and problems encountered. The A-E shall designate an individual who is directly responsible for, and is the contact on all matters pertaining to this contract.

b. Project Contract Specialist. The Contract Specialist assigned to this project is Ms. Donna Matsuura, telephone (808) 474-6321

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c. See Section 2 of reference (a) for other project management requirements.

**ATTACHMENT A - ENGINEERING SCOPE OF SERVICES****REPAIR TANK 19, RED HILL  
FISC PEARL HARBOR, HI****A/E CONTRACT NO.: N62742-98-C-0002****EEI Project No.: P98-0752****INTRODUCTION**

The Naval Facilities Engineering Command, Pacific Division, is scheduling a modified FACD (Functional Analysis Concept Design), which will involve our Customers/Users and Designers by a team approach to better define the scope and minimize concept design changes. The team will build and coordinate functional and design ideas into a package, which will improve the project quality, and reflect reasonable project costs very early in the design process. Standard procedures for the project estimated construction costs will be applicable during this FACD.

**PROJECT GOAL**

The goal of this Functional Analysis is to provide better definition of Customer requirements by the team approach. The Customer and Users will become involved in the design process with the Designers and Cost Estimator to ensure the functional design requirements all fall within the project restraints and cost limits.

The final workshop report with a cost estimate will become the design criteria for the A/E to advance to the Design stage with a minimum of changes.

The overall goal of the project is to determine a cost effective and appropriate solution to repair Tank 19 that can resolve the problem of existing fuel leaks, minimize the occurrence of future leaks, and facilitate the detection/location of future leaks.

**TANK INFORMATION**

Tank 19, as well as the additional 19 bulk storage tanks at Red Hill, is a 55 year old underground storage tank constructed inside a rock excavation. The tank is a cylinder, 257 feet tall x 100 feet in diameter with a dome bottom and top. Each dome is a hemisphere with a 50 foot radius. The barrel and domes are constructed of 1/4 inch thick steel plate with concrete fill on the exterior, between the rock face and steel plate.

## SCOPE OF SERVICES

To accomplish the project goal, this modified FACD approach is proposed instead of a traditional 10% conceptual design study. Utilizing a FACD approach, the A/E Team will bring considerable enthusiasm, specialized talent, and an open mind for a lively discussion and brainstorming session with Government stakeholders to identify a wide variety of possible solutions to meet the overall project objectives and mission requirements.

Attachment B to this document summarizes the individuals and roles of the A/E Team on this project.

The following scope of services is proposed:

1. Prior to arrival on-site, the A/E Team will:
  - a. Obtain available construction and repair documents for previous work completed on Tank 19.
  - b. Obtain raw cost data for materials that may be utilized in various aspects of the project.
2. Perform an on-site FACD with FISC and PACDIV project stakeholders to identify alternatives for repairing Tank 19. The on-site FACD will consist of:

Day	Agenda
1	Kick-off meeting/tour of Tank 19 (limited Government staff)
2 & 3	FACD with All Government Stakeholders
4, 5, 6	A/E Team evaluation/cost estimating of alternatives identified in initial FACD
7	Final FACD with Stakeholders to refine alternatives
8	Outbrief with Stakeholders and Government management.

The goal of the FACD is to identify alternatives for repairing Tank 19 or constructing a new tank inside Tank 19.

3. While on-site for the FACD, the A/E team will:
  - a. Attend an initial Government orientation/briefing on the construction and history of the Red Hill complex.



- b. Perform a visit to Tank 19 to obtain information about tank accessibility, tank conditions, and conditions affecting tank repairs/construction of a new tank inside of the existing tank, including limited sampling of coatings for testing.
  - c. Gather cost data for alternatives identified in the FACD.
  - d. Prepare meeting minutes for each day.
  - e. Obtain information about tank history of leaks and repairs.
  - f. Perform engineering evaluation and cost estimating of the alternatives identified during the FACD.
  - g. Prepare an outbrief summary of the FACD and decisions reached for formal presentation to Government managers.
4. Provide a post FACD report (10% schematic design) that summarizes the alternatives to repair the existing tank/construct a new tank and decisions reached. The report will include engineering calculations, drawings, and cost estimate of the final alternatives reached during the FACD.
5. Provide a DD 1391 for the final alternatives selected. It is possible that DD 1391 documentation may be warranted for two divergent solutions.
6. Following the Government review of the FACD submission, a formal project review meeting will be held to discuss findings and obtain Government direction. An amendment to the FACD will be prepared, including updated project DD 1391 forms.
7. Miscellaneous Provisions:
- a. We propose to provide our FACD cost estimate utilizing the NAVFAC preferred "Success" cost estimating program, which allows rigorous treatment of overall project costs. Prior to the FACD, EEI will obtain appropriate PACDIV "Success" templates and cost databases for use on this project.
  - b. EEI maintains and follows a formal confined space entry program in accordance with OSHA requirements. Our plan will be followed, as well as Government safety procedures, for access to Tank 19 as follows:
    - Access to tank through the upper Adit and platform.
    - If possible, access to lower barrel in floor for limited individuals, depending upon establishment of Government safety provisions, gas clearing, and suitable ability to reach the floor.

## **PROJECT DESCRIPTION**

Tank 19 and other tanks at Red Hill has required numerous repairs to welds and patching of holes in shell plates.

The project involves providing engineering services for a 10% concept design (during the FACD) to construct a new fuel storage tank within the existing storage Tank 19 or other alternative(s) that maintains the objective of resolving existing leaks, reducing the potential for future leaks, and facilitates the capability to detect leaks in the tank.

The project includes:

1. Providing a schematic design of the following as required:
  - a. New storage tank within the existing tank, or other alternative(s)
  - b. Tank Coatings/Linings
  - c. Applicable repairs to existing tank
  - d. Tank structural supports
  - e. Tank vents
  - f. Fuel/drain piping modifications
  - g. Fuel level monitoring systems
  - h. Tank leak detection/leak containment
2. Determining the feasibility of installing a pipe tell-tale or equivalent system using helium or other leak detection mediums as a means for detecting a leak in Tank 19.
3. Evaluating modification or replacement of the fuel and drain piping under the tank to the first isolation valve, as applicable to leak prevention/detection.
4. Providing calculations, drawings, basis of design, and cost estimate.

The project shall consider:

- a. Maximum fuel storage capability
- b. Fuel transfer operations
- c. Tank constructibility
- d. Complying with current environmental regulations
- e. Preventative maintenance capability