SOLICITATION, OFFER, AND AWARD *(Construction, Alteration, or Repair)*	1. SOLICITATION NO. N62583-08-R-0091-0008	2. TYPE OF SOLICITATION [ ] SEALED BID (IFB) [X] NEGOTIATED *(RFP)*	3. DATE ISSUED 23-Jul-2009	PAGE OF PAGES 1 OF 51

IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.

4. CONTRACT NO. N62583-09-D-0132	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO.

7. ISSUED BY CODE N62583	8. ADDRESS OFFER TO *(If Other Than Item 7)* CODE
NAVAL FACILITIES ENGINEERING COMMAND SPECIALTY CENTER ACQUISITIONS NAVFAC CODE RAQN0/NAVAL BASE VENTURA COUNTY 1205 MILL RD BLDG 850 PORT HUENEME CA 93043-4347 TEL: FAX:	**See Item 7** TEL: FAX:

9. FOR INFORMATION CALL:	A. NAME [redacted]	B. TELEPHONE NO. *(Include area code)* *(NO COLLECT CALLS)* 805-982-2479

SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS *(Title, identifying no., date):*

INDEFINITE DELIVERY INDEFINITE QUANTITY (IDIQ) MULTIPLE AWARD CONSTRUCTION CONTRACT (MACC) FOR PETROLEUM, OILS, AND LUBRICANTS (POL) FUEL SYSTEMS AT VARIOUS LOCATIONS, WORLDWIDE.

The work to be acquired under this solicitation is for engineering, inspection and construction services in support of the Naval Facilities Engineering Services Center (NFESC) POL Branch in the execution of Sustainment, Restoration, and Modernization (SRM) and related projects at Department of Defense facilities.

The work to be performed includes services for the design, engineering, inspection, testing, and construction of POL fuel systems and its various components. These services will include all aspects of project execution from inception through final closeout.

The cut-off date for receipt of questions regarding this solicitation is five calendar days prior to the date for receipt of proposals.

Maximum contract value, cumulative, is $350,000,000.00
Task Order range is $50,000.00 to $4,000,000.00
Minimum guarantee is $15,000.00

This is a construction contract - Net 14 days for payment (FAR 52.232-27)

Current Master Format, found at http://www.csinet.org apply and is incorporated by reference. Specific applicable sections will be specified on an individual task order basis.

11. The Contractor shall begin performance within 1 calendar days and complete it within 365 calendar days after receiving [X] award, [ ] notice to proceed. This performance period is [X] mandatory, [ ] negotiable. *(See* Task Order *.)*

12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? *(If "YES," indicate within how many calendar days after award in Item 12B.)* [ ] YES [X] NO	12B. CALENDAR DAYS

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and 0 copies to perform the work required are due at the place specified in Item 8 by 04:00 PM *(hour)* local time 05 Jan 2009 *(date).* If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee [ ] is, [X] is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 150 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

SOLICITATION, OFFER, AND AWARD (Continued)

(Construction, Alteration, or Repair)

OFFER ***(Must be fully completed by offeror)***

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*	15. TELEPHONE NO. *(Include area code)*
WILLBROS GOVERNMENT SERVICES (U.S.), LLC ONZIE JONES 2087 E 71ST ST STE 101 TULSA OK 74136-5462	713-403-8021
	16. REMITTANCE ADDRESS *(Include only if different than Item 14)* **See Item 14**
CODE 1KPK4 / FACILITY CODE	

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirements stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS	SEE SCHEDULE OF PRICES

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS

(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)

AMENDMENT NO.										
DATE										

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*	20B. SIGNATURE	20C. OFFER DATE

AWARD ***(To be completed by Government)***

21. ITEMS ACCEPTED:

SEE SCHEDULE

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA
$70,000,000.00	

24. SUBMIT INVOICES TO ADDRESS SHOWN IN *(4 copies unless otherwise specified)*	ITEM	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C. 2304(c) ☐ 41 U.S.C. 253(c)

26. ADMINISTERED BY	CODE	27. PAYMENT WILL BE MADE BY:	CODE S33150
See Item 7		DFAS CO STOCK FUND D RECTORATE ATTN: DFAS CO BVDFB P. O. BOX 182317 COLUMBUS OH 43218-6254	

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

☐ 28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return _ copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.

☒ 29. AWARD *(Contractor is not required to sign this document.)* Your offer on this solicitation, is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

REF:

30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*	31A. NAME OF CONTRACTING OFFICER *(Type or print)* JANET L. HAROUCH / SUPV CONTRACT SPECIALIST
	TEL: 805-982-5079 EMAIL: janet.harouch@navy.mil
30B. SIGNATURE / 30C. DATE	31B. UNITED STATES OF AMERICA BY [redacted] / 31C. AWARD DATE 23-Jul-2009

Section 00010 - Solicitation Contract Form

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001		(b) (4)	Dollars, U.S.	(b)	$70,000,000.00

Base Year
FFP
Provide services as identified in individual Task Orders

The nominal maximum contract value set forth in each contract to be awarded under this solicitation is phrased to meet the requirement of the information technology used by the contracting officer. The maximum contract value listed in the schedule is the cumulative amount for all contracts awarded under this solicitation, and not the maximum value of an individual contract. The total value of all orders placed under contracts awarded under this solicitation will not exceed $350,000,000.00 notwithstanding any language in the solicitation or contract to the contrary. Refer to Section 00801 for the minimum and maximum value for task orders.

Willbros Proposal dated January 05, 2009 is incorporated by reference. Willbros approved Subcontracting Plan is provided as an attachment to this award.

FOB: Destination

MAX NET AMT	$70,000,000.00

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0002		(b) (4)	Dollars, U.S.	$(b)	$70,000,000.00

OPTION

Option Year I
FFP
Provide services as identified in individual Task Orders

The nominal maximum contract value set forth in each contract to be awarded under this solicitation is phrased to meet the requirement of the information technology used by the contracting officer. The maximum contract value listed in the schedule is the cumulative amount for all contracts awarded under this solicitation, and not the maximum value of an individual contract. The total value of all orders placed under contracts awarded under this solicitation will not exceed $350,000,000.00 notwithstanding any language in the solicitation or contract to the contrary. Refer to Section 00801 for the minimum and maximum value for task orders.

FOB: Destination

MAX NET AMT	$70,000,000.00

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0003		(b) (4)	Dollars, U.S.	$	$70,000,000.00

OPTION

Option Year II
FFP
Provide services as identified in individual Task Orders

The nominal maximum contract value set forth in each contract to be awarded under this solicitation is phrased to meet the requirement of the information technology used by the contracting officer. The maximum contract value listed in the schedule is the cumulative amount for all contracts awarded under this solicitation, and not the maximum value of an individual contract. The total value of all orders placed under contracts awarded under this solicitation will not exceed $350,000,000.00 notwithstanding any language in the solicitation or contract to the contrary. Refer to Section 00801 for the minimum and maximum value for task orders.

FOB: Destination

MAX NET AMT	$70,000,000.00

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0004		[redacted]	Dollars, U.S.	$(b)	$70,000,000.00

OPTION

Option Year III
FFP
Provide services as identified in individual Task Orders

The nominal maximum contract value set forth in each contract to be awarded under this solicitation is phrased to meet the requirement of the information technology used by the contracting officer. The maximum contract value listed in the schedule is the cumulative amount for all contracts awarded under this solicitation, and not the maximum value of an individual contract. The total value of all orders placed under contracts awarded under this solicitation will not exceed $350,000,000.00 notwithstanding any language in the solicitation or contract to the contrary. Refer to Section 00801 for the minimum and maximum value for task orders.

FOB: Destination

MAX NET AMT	$70,000,000.00

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0005		(b) (4)	Dollars, U.S.	$	$70,000,000.00

OPTION

Option Year IV
FFP
Provide services as identified in individual Task Orders

The nominal maximum contract value set forth in each contract to be awarded under this solicitation is phrased to meet the requirement of the information technology used by the contracting officer. The maximum contract value listed in the schedule is the cumulative amount for all contracts awarded under this solicitation, and not the maximum value of an individual contract. The total value of all orders placed under contracts awarded under this solicitation will not exceed $350,000,000.00 notwithstanding any language in the solicitation or contract to the contrary. Refer to Section 00801 for the minimum and maximum value for task orders.

FOB: Destination

MAX NET AMT	$70,000,000.00

CONTRACT MINIMUM/MAXIMUM QUANTITY AND CONTRACT VALUE

The minimum quantity and contract value for all orders issued against this contract shall not be less than the minimum quantity and contract value stated in the following table. The maximum quantity and contract value for all orders issued against this contract shall not exceed the maximum quantity and contract value stated in the following table.

MINIMUM QUANTITY	MINIMUM AMOUNT	MAXIMUM QUANTITY	MAXIMUM AMOUNT
25,000.00		350,000,000.00	

DELIVERY/TASK ORDER MINIMUM/MAXIMUM QUANTITY AND ORDER VALUE

The minimum quantity and order value for each Delivery/Task Order issued shall not be less than the minimum quantity and order value stated in the following table. The maximum quantity and order value for each Delivery/Task Order issued shall not exceed the maximum quantity and order value stated in the following table.

MINIMUM QUANTITY	MINIMUM AMOUNT	MAXIMUM QUANTITY	MAXIMUM AMOUNT
50,000.00	$50,000.00	4,000,000.00	$4,000,000.00

CLIN DELIVERY/TASK ORDER MINIMUM/MAXIMUM QUANTITY AND CLIN ORDER VALUE

The minimum quantity and order value for the given Delivery/Task Order issued for this CLIN shall not be less than the minimum quantity and order value stated in the following table. The maximum quantity and order value for the given Delivery/Task Order issued for this CLIN shall not exceed the maximum quantity and order value stated in the following table.

CLIN	MINIMUM QUANTITY	MINIMUM AMOUNT	MAXIMUM QUANTITY	MAXIMUM AMOUNT
0001		$		$
0002		$		$
0003		$		$
0004		$		$
0005		$		$

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	Destination	Government	Destination	Government
0002	Destination	Government	Destination	Government
0003	Destination	Government	Destination	Government
0004	Destination	Government	Destination	Government
0005	Destination	Government	Destination	Government

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC

0001	POP 23-JUL-2009 TO 22-JUL-2010	N/A	N/A FOB: Destination
0002	POP 23-JUL-2010 TO 22-JUL-2011	N/A	N/A FOB: Destination
0003	POP 23-JUL-2011 TO 22-JUL-2012	N/A	N/A FOB: Destination
0004	POP 23-JUL-2012 TO 22-JUL-2013	N/A	N/A FOB: Destination
0005	POP 23-JUL-2013 TO 22-JUL-2014	N/A	N/A FOB: Destination

Section 00100 - Bidding Schedule/Instructions to Bidders

STATEMENT OF WORK

Services Required:

The work to be acquired under this contract is to access and repair various Petroleum, Oil and Lubricant (POL) facilities and systems at various locations world wide. The work will be in support of the Naval Facilities Engineering Services Center (NFESC) POL Branch in the execution of Sustainment, Restoration and Modernization (SRM) and related projects at Department of Defense Facilities.

In addition to tasking from NAVFAC ESC, all 10 NAVFAC Field Engineering Commands (FEC) may be given ordering authority under this contract. The majority of the tasking, ceiling management and COR responsibilities will be under the control of the ESC.

In support of access and repair strategies, each offeror shall possess in-house capabilities or exclusively employ the services of Lead Architect-Engineering (A-E) Design Firm (s) (LDF) experienced in the development and coordination of projects within the scope of this contract. Offerors will be required to submit an agreement for each Lead Design Firm (LDF) proposed. The agreement shall state that the LDF will exclusively partner with the offeror on this procurement and will not participate with any other Offeror in competing for or performing on a contract to be awarded under this solicitation. All offerors proposing the same LDF(s) may be rejected as unacceptable. The offeror and the proposed LDF for the basic contract(s) will be evaluated as a team. Lead A-E Design firm(s), their subsidiaries and affiliates, that are involved at the RFP or design stage of a particular project will not be allowed to propose or be used on a task order for that project.

Key Personnel:

Key personnel is defined by two categories Core positions and Areas of Expertise. The offeror is required to provide personnel meeting the requirements defined in each section. Approved key personnel will be listed in the proposal to this RFP, additions or substitutions after award of the basic contract are subject to approval by the contracting officer and the COR.

Core Positions:

Each core position will be filled by a full-time, permanent employee. Waivers to use temporary employees may be acceptable based on the nature of the task order, but are subject to approval by the government. Request for waivers must be submitted at the time of the proposal for the task order it applies.

In most cases, it is preferable to the government that each core position be a different person, but each task order will be considered individually. Multiple people can be listed for these positions when the task warrants it, but the preference is for one person per position.

Program Manager:

The Program Manager is the primary point of contact for global issues associated with the basic contract. Their involvement in the day-to-day execution of each task order is not expected, but will be requested in the event that problems cannot be resolved via other core positions. The Program Manager shall be responsible for the content of all proposals and compliance with the requirements of the basic contract as well as quality control for all task orders.

The Program Manger must be a full time permanent employee of the prime contractor. No exceptions will be considered. The required credentials for Program Manager are:

- Minimum of an earned Bachelors of Science degree in Civil, Chemical or Mechanical Engineering.
- Minimum ten years experience in POL facilities engineering including at least five years experience in the management of engineering design, inspection, testing, and construction of POL facilities.
- Demonstrated capability to organize, plan, direct, supervise, and control all technical and management programs, which include multidisciplinary tasks and requirements, and perform fiscal and administrative functions.
- Experience in the operation of POL Systems
- Professional Engineering License is Preferred
- API 570 / 653 certification is preferred.

Deviations from these credentials will be considered on a case by case basis depending on the qualifications of the individual and task requirements.

Project Engineer:

This individual will be responsible for all technical content of the task order assigned to them. The Project Engineer is expected to engage when technical expertise beyond the skill of the site manger or project manager is required or at the request of the government for engineering evaluation of a technical issue. The Project Engineer will be expected to be on-site during project execution often enough to diagnose, investigate, and analyze any and all technical issues requested by the government. The project engineer's specific experience must match the technical content of the task order.

The required credentials for Project Engineer are:

- Minimum of an earned Bachelors of Science degree in Civil, Chemical or Mechanical Engineering
- Minimum seven years experience in POL facilities engineering, including design, inspection, testing, and construction
- Professional Engineering Registration may be required for some tasks orders
- Experience in the operation of POL Systems
- Current Knowledge of POL Specifications
- API 570 / 653 certification is preferred.
- Professional Engineering License is Preferred

Project Manager:

The project manager is responsible for status reporting, financial tracking, scheduling and all project correspondence and documentation. The project manager is expected to be the Government's primary Point of Contact for the task order assigned to them. This position and the project engineer or site manger may be filled by one person upon approval from the Government on a case by case basis.

The project manager should be a full time permanent employee of the prime contractor, exceptions will be considered on a case by case basis. The required credentials for the Project Manager are:

- Minimum five years experience in the POL Facilities industry, five years experience in managing POL construction projects
- Demonstrated ability to collect and organize project documentation and correspondence
- Knowledge of POL systems sufficient to communicate and understand technical issues
- Current Knowledge of POL Specifications
- Knowledge of Quality Control and Quality Assurance methods
- API 570 / 653 certification is preferred.

Site Manager:

The site manager is responsible for quality assurance and scope compliance for the task order they are assigned to. They will be expected to be on-site during project execution and oversee all sub-contractor and/or trades work. The site manager will be responsible for compliance with all applicable Health, Safety and Environmental regulations specific to the geographic site.

The site manager should be a full time permanent employee of the prime contractor, exceptions will be considered on a case by case basis. The required credentials for the site manager are:

- Training in engineering, construction management, or a related field
- Academic training in construction Health & Safety
- Training in construction quality control
- Sufficient practical, technical, and managerial experience
- NDE/NDT knowledge relevant to the project
- Experience in the operation of POL System
- API 570 / 653 certification is preferred.

Areas of Expertise:

Each contractor is required to provide personnel capable of providing expertise and support in all Areas of Expertise (AOE). Multiple individuals may populate any given AOE and individuals may represent in more than one area but adequate depth for the volume of work is required in each area. These positions may also be filled by individuals assigned to a core position.

Expertise is required in these areas, familiarity with the subject will not be considered adequate coverage. Individuals listed in these areas are expected to possess sufficient skill in these topics to provide technical consultation, develop solutions to problems in their area of expertise and solve complex problems in the field.

Fuel Tanks:

Fuel Tank Expertise will consist of knowledge and expertise in the following areas

- Shop and Field Fabricated Tank Construction
- AST and UST Construction
- Structural Design and Analysis of all types of Fuel Tanks
- AST and UST Operation and Maintenance
- API 650 and 653
- In and Out of Service Inspection Methods
- STI Standards
- Repair Methods for all types of Fuel Tanks
- NDT/NDE methods and technologies applicable to Fuel Tank inspection and repair
- Corrosion and Metallurgy associated with Fuel Tanks
- Design, Theory of Operation and Installation of Leak Detection and Leak Monitoring Systems

- Tank Gauging Systems
- NATO Requirements and Regulations

Piping Systems:

Piping System Expertise will consist of knowledge and expertise in the following areas

- Design and construction of fuel piping systems
- Integrity Assessment of Fuel Piping Systems
- Extensive Knowledge of the Content and Applicability of :
    - API 570
    - API 574
    - API 579
    - API 1160
    - API 1110
    - API 1130
    - ASME B31.4
    - ASME 31.3
    - ASME 31G
    - ASME Section IX
    - ASME Section V
- Hydraulic Analysis of piping systems
- In and Out of Service Piping Repair Methods
- In and Out of Service Piping Inspection Methods
- NDT/NDE methods and technologies applicable to Fuel Piping inspection and repair
- Pumping Systems
- Stress Analysis of Piping Systems
- Corrosion and Metallurgy associated with Piping Systems
- Piping Leak Detection and Leak Monitoring Systems
- ECDA
- Pigging
- Pipeline Pressure Testing
- NATO Requirements and Regulations
- International Testing and Inspection Requirements
- Marine Loading Arm Design, Installation and Maintenance

Civil Engineering:

Civil Engineering Expertise within the scope of this contract will consist of knowledge and expertise in the following areas

- Concrete Design and Construction
- Traffic, Non-traffic and Aircraft Rated Pavement Design and Construction
- Structural Design and Analysis of POL Support Facilities
- POL Containment Systems
- Stormwater Collection and Control
- Construction Site Work
- Geotechnical Analysis and Design
- Foundation Design and Construction
- Erosion Control
- Seismic Analysis

Coating:

Coating Expertise within the scope of this contract will consist of knowledge and expertise in the following areas

- SSPC (Society for Protective Coatings) certified Quality Control Supervisor (QCS)
- Applicable SSPC Documents, Standard Practices and Recommended Practices
- Applicable NACE International Documents, Standard Practices and Recommended Practices
- Applicable UFGS's
- Applicable requirements in the Code of Federal Regulations (CFR)
- Applicable requirements in the Unified Facilities Criteria (UFC 3-190-06, Protective Coatings and Paints)
- Preparation and Application Methodologies
- Material Selection and Testing
- SSPC certified Protective Coatings Specialist (PCS)
- SSPC certified Protective Coatings Inspector (PCI) or NACE International certified Level III Coatings Inspector
- Maintenance of advanced, industrial coatings systems

Cathodic Protection:

Cathodic Protection Expertise within the scope of this contract will consist of knowledge and expertise in the following areas

- NACE International certification for cathodic protection at NACE Level 4 (CP Specialist) or NACE International certification as a Corrosion Specialist
- Applicable NACE International Documents, Standard Practices and Recommended Practices
- Applicable UFGS's
- Applicable requirements in the Code of Federal Regulations (CFR)
- Applicable requirements in the Unified Facilities Criteria (UFC 3-570)
- Design of Cathodic Protection Systems
- Installation of Cathodic Protection Systems
- Inspection of Cathodic Protection Systems
- Maintenance and Repair of Cathodic Protection systems

Marine Receiving and Dispensing Fuel Facilities:

- Fuel Pier Design, Inspection and Maintenance
- Fuel Pier Structural Design and Inspection
- Fuel Pier Repair Project Engineering and Execution
- MOTEMS Requirements

Environmental Engineering:

Environmental Engineering Expertise within the scope of this contract will consist of knowledge and expertise in the following area

- Remediation Technology and Methodologies
- Clean Water Act
- Toxic Substances Control Act (TSCA)
- Resource Conservation and Recovery Act (RCRA)
- Federal, State and local permitting Policies
- Federal, State, County and Municipal Compliance Requirements at DoD Facilities

- International Environmental Guidelines

Electrical Engineering:

Environmental Engineering Expertise within the scope of this contract will consist of knowledge and expertise in the following area

- NEC Class 1 Div 1 Requirements and Applicability
- API 610 Applicability
- POL System Power Design and Operation

Fuel System Design and Operation:

The scope of this contract will require specific knowledge in the design and operation of typical Fuel systems. This knowledge and experience can be represented by multiple engineering disciplines and technical areas. It should include the following areas:

- All DoD Standard Designs and Specifications associated with POL Facilities
- Operation and design of
    - Truck Offload Facilities
    - Truck Loading Facilities
    - Aircraft Direct Fueling Systems
    - Aircraft Direct Refueling Procedures
    - Oil Water Separators
    - Filtration
    - Pumping Systems
    - Multi-Product Piping Systems
    - Fuel Quality Requirements and Monitoring Procedures and Equipment

TYPES OF PROJECTS

POL System Components:

Typical projects covered under this scope of work will include construction, repair, modification and upgrade of all components of POL Systems, including receipt, storage and issue facilities, equipment, and associated structures in a POL System. These may consist of the following:

Piping Systems
Storage Tanks
Secondary Containment
Surge Tanks
Pumps
Meters
Hydrant Systems
Vessels
Control and Monitoring Systems
Electrical Systems
Fire Protection Systems
Infrastructure utilities
Support Structures
Ancillary Buildings, structures, and grounds associated with fuel operations
Marine Facilities and Equipment
    Piers
    Wharves

Fendering Systems
Loading Arms
Hoses
Moorings
Truck load and Off Load Stations
Cathodic Protection systems and components

Typical Projects:

The Offerors shall provide all labor, equipment and facilities as required to perform the work as described in the individual task orders. Expected requirements of this contract shall include, but shall not be limited to, the following typical project requirements:

American Petroleum Institute 653 type Tank Inspections with Follow-On Repairs
Inspections involving POL tanks, including inspecting field and shop fabricated tanks above and below ground. Inspections will include, gathering data, identifying significant issues or efficiencies, developing the appropriate methods for their internal and external inspection, identifying required retrofits, and preparing procedures for the installation of requisite tank components such as valves, flanges, access ways, high level shut offs, fire protection systems and other retrofits. Steel Tank Institute Inspections (STI) may also be required.

Integrity Assessments including American Petroleum Institute 510 and 570 Inspections with Follow-On Repairs/Modifications
Integrity Assessments involving pipeline systems, including inspecting on-land and underwater POL pipelines and fuel piers, gathering data, identifying significant issues, developing the appropriate methods for their internal and external inspection, identifying required retrofits, and preparing procedures for the installation of requisite pipeline components such as valves, pumps, flanges, tow access, spools, valve pits, loading arms.. Preparation of Site Specific API inspection reports is required with follow on maintenance plans and development of new as-built drawings. Follow –On Repairs or Modification include; performance of pressure tests, pigging operations, leak detection and other non-destructive testing and repairs or upgrades to piping as identified in the assessments/inspections.

POL Facility Upgrade, Repair, or Modification Projects
Execution of repairs, upgrades, retrofits, and modifications to all POL facilities and supporting structures and equipment listed in section 5.3.1 as per code requirements or revised mission capabilities. Primary execution method will be design-build.

Coating of interior and exterior POL Facility components
Inspection ,assessment and installation of appropriate coating systems per standards applicable in coating UFGS.

POL Marine Structures Inspection and Follow-On Repairs/Modifications
Inspection and engineering assessments of fuel piers and associated structures and execution of repairs to fuel piers and associated structures.

Cathodic Protection Systems Surveys/Inspections and Follow-On Repairs/Modifications
Inspection, engineering assessments and installation of cathodic protection systems. Engineering assessments involve selecting appropriate materials for the environment, including consideration of corrosion, fatigue, and geotechnical phenomenon.

The above listings are not inclusive of all services required but are intended to show the range of contract requirement. Specific services shall be delineated within individual task orders.

REQUIREMENTS

Offeror Requirements

The Offeror(s) Shall:

Provide specified services of the type described in the RFP, which meet the requirements of this contract and the individual task orders issued hereunder. The offeror(s) may be required to respond within 24 hours to an RFP or awarded task order requiring service personnel (i.e. craftsmen, technicians) or within seven (7) days to an RFP or awarded task order involving facilities and equipment.

Travel to various government activities and other locations as required by individual task orders to perform project planning, design, analysis, fabrication, inspection, installation, construction, maintenance and repair of POL systems. Travel will include selected project sites worldwide. Travel to project sites may be required as part of several tasks anticipated during the period of this contract. Travel requirements may include travel and work aboard.

Provide progress reports, financial reports, technical reports, drawings, and other plans, manuals, or documentation of a nature and frequency as specified by the contract and individual delivery orders. The Offeror(s) shall have the capability to prepare or modify documents and drawings using software that is compatible with the following: Most recent and all previous versions of AUTOCAD, ICROSOFT WORD, MICROSOFT EXCEL, MICROSOFT ACCESS, MICROSOFT POWERPOINT, MICROSOFT PROJECT, and Database, CAD, and Word processing documents related to INTERGRAPH stations.

Government Requirements

Provide definitive requirements for work as specified by individual task orders.

Provide technical clarification of task order requirements.

Provide access to Government facilities, personnel, documents, and publications considered essential to the Offerors' effort under the contract.

Conduct in-progress reviews either at the Offerors' facility or at Government facilities as necessary to monitor the Offerors' performance and provide comments and recommendations for the Offerors' use in finalizing services and deliverables.

PLACE OF PERFORMANCE

Offeror(s) shall travel to various worldwide Government activities and other locations as required by individual task orders to perform project planning, design, analysis, fabrication, inspection, construction, maintenance, testing and repair of POL facility infrastructure projects. Travel to project sites may be required as part of several tasks anticipated during the period of this contract. Program reviews may be held in Washington, DC; Alexandria, Virginia; Port Hueneme, California, or at other locations in the United States. The Offeror(s) may be required to attend program reviews as stipulated in individual task orders

SCHEDULE

Delivery schedules will be defined under individual task orders, issued hereunder

CLAUSES INCORPORATED BY FULL TEXT

52.204-7 CENTRAL CONTRACTOR REGISTRATION (APR 2008)

(a) Definitions. As used in this clause--

Central Contractor Registration (CCR) database means the primary Government repository for Contractor information required for the conduct of business with the Government.

Data Universal Numbering System (DUNS) number means the 9-digit number assigned by Dun and Bradstreet, Inc. (D&B) to identify unique business entities.

Data Universal Numbering System +4 (DUNS+4) number means the DUNS number assigned by D&B plus a 4-character suffix that may be assigned by a business concern. (D&B has no affiliation with this 4-character suffix.) This 4-character suffix may be assigned at the discretion of the business concern to establish additional CCR records for identifying alternative Electronic Funds Transfer (EFT) accounts (see the FAR at Subpart 32.11) for the same parent concern.

Registered in the CCR database means that--

(1) The Contractor has entered all mandatory information, including the DUNS number or the DUNS+4 number, into the CCR database; and

(2) The Government has validated all mandatory data fields, to include validation of the Taxpayer Identification Number (TIN) with the Internal Revenue Service (IRS), and has marked the record ``Active''. The Contractor will be required to provide consent for TIN validation to the Government as a part of the CCR registration process.

(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee shall be registered in the CCR database prior to award, during performance, and through final payment of any contract, basic agreement, basic ordering agreement, or blanket purchasing agreement resulting from this solicitation.

(2) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation “DUNS” or “DUNS +4” followed by the DUNS or DUNS +4 number that identifies the offeror's name and address exactly as stated in the offer. The DUNS number will be used by the Contracting Officer to verify that the offeror is registered in the CCR database.

(c) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one.

(1) An offeror may obtain a DUNS number--

(i) Via the Internet at http://fedgov.dnb.com/webform or if the offeror does not have internet access, it may call Dun and Bradstreet at 1-866-705-5711 if located within the United States; or

(ii) If located outside the United States, by contacting the local Dun and Bradstreet office. The offeror should indicate that it is an offeror for a U.S. Government contract when contacting the local Dun and Bradstreet office.

(2) The offeror should be prepared to provide the following information:

(i) Company legal business.

(ii) Tradestyle, doing business, or other name by which your entity is commonly recognized.

(iii) Company Physical Street Address, City, State, and Zip Code.

(iv) Company Mailing Address, City, State and Zip Code (if separate from physical).

(v) Company Telephone Number.

(vi) Date the company was started.

(vii) Number of employees at your location.

(viii) Chief executive officer/key manager.

(ix) Line of business (industry).

(x) Company Headquarters name and address (reporting relationship within your entity).

(d) If the Offeror does not become registered in the CCR database in the time prescribed by the Contracting Officer, the Contracting Officer will proceed to award to the next otherwise successful registered Offeror.

(e) Processing time, which normally takes 48 hours, should be taken into consideration when registering. Offerors who are not registered should consider applying for registration immediately upon receipt of this solicitation.

(f) The Contractor is responsible for the accuracy and completeness of the data within the CCR database, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the CCR database after the initial registration, the Contractor is required to review and update on an annual basis from the date of initial registration or subsequent updates its information in the CCR database to ensure it is current, accurate and complete. Updating information in the CCR does not alter the terms and conditions of this contract and is not a substitute for a properly executed contractual document.

(g)(1)(i) If a Contractor has legally changed its business name, “doing business as” name, or division name (whichever is shown on the contract), or has transferred the assets used in performing the contract, but has not completed the necessary requirements regarding novation and change-of-name agreements in Subpart 42.12, the Contractor shall provide the responsible Contracting Officer a minimum of one business day's written notification of its intention to (A) change the name in the CCR database; (B) comply with the requirements of Subpart 42.12 of the FAR; and (C) agree in writing to the timeline and procedures specified by the responsible Contracting Officer. The Contractor must provide with the notification sufficient documentation to support the legally changed name.

(ii) If the Contractor fails to comply with the requirements of paragraph (g)(1)(i) of this clause, or fails to perform the agreement at paragraph (g)(1)(i)(C) of this clause, and, in the absence of a properly executed novation or change-of-name agreement, the CCR information that shows the Contractor to be other than the Contractor indicated in the contract will be considered to be incorrect information within the meaning of the “Suspension of Payment” paragraph of the electronic funds transfer (EFT) clause of this contract.

(2) The Contractor shall not change the name or address for EFT payments or manual payments, as appropriate, in the CCR record to reflect an assignee for the purpose of assignment of claims (see FAR Subpart 32.8, Assignment of Claims). Assignees shall be separately registered in the CCR database. Information provided to the Contractor's CCR record that indicates payments, including those made by EFT, to an ultimate recipient other than that Contractor will be considered to be incorrect information within the meaning of the “Suspension of payment” paragraph of the EFT clause of this contract.

(h) Offerors and Contractors may obtain information on registration and annual confirmation requirements via the internet at http://www.ccr.gov or by calling 1-888-227-2423, or 269-961-5757.

(End of clause)

252.204-7004 CENTRAL CONTRACTOR REGISTRATION (52.204-7) ALTERNATE A (SEP 2007)

(a) Definitions. As used in this clause--

“Central Contractor Registration (CCR) database” means the primary Government repository for contractor information required for the conduct of business with the Government.

“Commercial and Government Entity (CAGE) code” means--

(1) A code assigned by the Defense Logistics Information Service (DLIS) to identify a commercial or Government entity; or

(2) A code assigned by a member of the North Atlantic Treaty Organization that DLIS records and maintains in the CAGE master file. This type of code is known as an “NCAGE code.”

“Data Universal Numbering System (DUNS) number” means the 9-digit number assigned by Dun and Bradstreet, Inc. (D&B) to identify unique business entities.

“Data Universal Numbering System +4 (DUNS+4) number” means the DUNS number assigned by D&B plus a 4-character suffix that may be assigned by a business concern. (D&B has no affiliation with this 4-character suffix.) This 4-character suffix may be assigned at the discretion of the business concern to establish additional CCR records for identifying alternative Electronic Funds Transfer (EFT) accounts (see Subpart 32.11 of the Federal Acquisition Regulation) for the same parent concern.

“Registered in the CCR database” means that--

(1) The Contractor has entered all mandatory information, including the DUNS number or the DUNS+4 number, into the CCR database;

(2) The Contractor's CAGE code is in the CCR database; and

(3) The Government has validated all mandatory data fields, to include validation of the Taxpayer Identification Number (TIN) with the Internal Revenue Service, and has marked the records ``Active.'' The Contractor will be required to provide consent for TIN validation to the Government as part of the CCR registration process.

(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee shall be registered in the CCR database prior to award, during performance, and through final payment of any contract, basic agreement, basic ordering agreement, or blanket purchasing agreement resulting from this solicitation.

(2) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "DUNS" or "DUNS +4" followed by the DUNS or DUNS +4 number that identifies the offeror's name and address exactly as stated in the offer. The DUNS number will be used by the Contracting Officer to verify that the offeror is registered in the CCR database.

(c) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one.

(1) An offeror may obtain a DUNS number-

(i) If located within the United States, by calling Dun and Bradstreet at 1-866-705-5711 or via the Internet at http://www.dnb.com; or

(ii) If located outside the United States, by contacting the local Dun and Bradstreet office.

(2) The offeror should be prepared to provide the following information:

(i) Company legal business.

(ii) Tradestyle, doing business, or other name by which your entity is commonly recognized.

(iii) Company Physical Street Address, City, State, and Zip Code.

(iv) Company Mailing Address, City, State and Zip Code (if separate from physical).

(v) Company Telephone Number.

(vi) Date the company was started.

(vii) Number of employees at your location.

(viii) Chief executive officer/key manager.

(ix) Line of business (industry).

(x) Company Headquarters name and address (reporting relationship within your entity).

(d) If the Offeror does not become registered in the CCR database in the time prescribed by the Contracting Officer, the Contracting Officer will proceed to award to the next otherwise successful registered Offeror.

(e) Processing time, which normally takes 48 hours, should be taken into consideration when registering. Offerors who are not registered should consider applying for registration immediately upon receipt of this solicitation.

(f) The Contractor is responsible for the accuracy and completeness of the data within the CCR database, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the CCR database after the initial registration, the Contractor is required to review and update on an annual basis from the date of initial registration or subsequent updates its information in the CCR database to ensure it is current, accurate and complete. Updating information in the CCR does not alter the terms and conditions of this contract and is not a substitute for a properly executed contractual document.

(g)
(1)
(i) If a Contractor has legally changed its business name, "doing business as" name, or division name (whichever is shown on the contract), or has transferred the assets used in performing the contract, but has not completed the necessary requirements regarding novation and change-of-name agreements in Subpart 42.12, the Contractor shall provide the responsible Contracting Officer a minimum of one business day's written notification of its intention to (A) change the name in the CCR database; (B) comply with the requirements of Subpart 42.12 of the FAR; and (C) agree in writing to the timeline and procedures specified by the responsible Contracting Officer. The Contractor must provide with the notification sufficient documentation to support the legally changed name.

(ii) If the Contractor fails to comply with the requirements of paragraph (g)(1)(i) of this clause, or fails to perform the agreement at paragraph (g)(1)(i)(C) of this clause, and, in the absence of a properly executed novation or change-of-name agreement, the CCR information that shows the Contractor to be other than the Contractor indicated in the contract will be considered to be incorrect information within the meaning of the "Suspension of Payment" paragraph of the electronic funds transfer (EFT) clause of this contract.

(2) The Contractor shall not change the name or address for EFT payments or manual payments, as appropriate, in the CCR record to reflect an assignee for the purpose of assignment of claims (see FAR Subpart 32.8, Assignment of Claims). Assignees shall be separately registered in the CCR database. Information provided to the Contractor's CCR record that indicates payments, including those made by EFT, to an ultimate recipient other than that Contractor will be considered to be incorrect information within the meaning of the "Suspension of payment" paragraph of the EFT clause of this contract.

(h) Offerors and Contractors may obtain information on registration and annual confirmation requirements via the internet at http://www.ccr.gov or by calling 1-888-227-2423, or 269-961-5757.

(End of clause)

5252.209-9300 ORGANIZATIONAL CONFLICTS OF INTEREST (JUN 1994)

(a) The restrictions described herein shall apply to the Contractor and its affiliates, consultants and subcontracts under this contract. If the Contractor under this contract prepares or assists in preparing a statement of work, specifications and plans, the Contractor and its affiliates shall be ineligible to bid or participate, in any capacity, in any contractual effort which is based on such statement of work or specifications and plans as a prime contractor, subcontractor, consultant or in any similar capacity. The Contractor shall not incorporate its products or services in such statement of work or specification unless so directed in writing by the Contracting Officer, in which case the restriction shall not apply. This contract shall include this clause in its subcontractor's or consultants' agreements concerning the performance of this contract.

(End of clause)

Section 00700 - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	JUL 2004
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions On Subcontractor Sales To The Government	SEP 2006
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	SEP 2007
52.203-13	Contractor Code of Business Ethics and Conduct	DEC 2007
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	APR 2008
52.204-9	Personal Identity Verification of Contractor Personnel	SEP 2007
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	SEP 2006
52.211-13	Time Extensions	SEP 2000
52.215-2	Audit and Records--Negotiation	JUN 1999
52.215-2	Audit and Records--Negotiation	JUN 1999
52.217-9	Option To Extend The Term Of The Contract	MAR 2000
52.219-8	Utilization of Small Business Concerns	MAY 2004
52.219-9	Small Business Subcontracting Plan	APR 2008
52.219-16	Liquidated Damages-Subcontracting Plan	JAN 1999
52.219-25	Small Disadvantaged Business Participation Program--Disadvantaged Status and Reporting	APR 2008
52.222-3	Convict Labor	JUN 2003
52.222-4	Contract Work Hours and Safety Standards Act - Overtime Compensation	JUL 2005
52.222-6	Davis Bacon Act	JUL 2005
52.222-7	Withholding of Funds	FEB 1988
52.222-8	Payrolls and Basic Records	FEB 1988
52.222-9	Apprentices and Trainees	JUL 2005
52.222-10	Compliance with Copeland Act Requirements	FEB 1988
52.222-11	Subcontracts (Labor Standards)	JUL 2005
52.222-12	Contract Termination-Debarment	FEB 1988
52.222-13	Compliance with Davis-Bacon and Related Act Regulations.	FEB 1988
52.222-14	Disputes Concerning Labor Standards	FEB 1988
52.222-15	Certification of Eligibility	FEB 1988
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	MAR 2007
52.222-27	Affirmative Action Compliance Requirements for Construction	FEB 1999
52.222-29	Notification Of Visa Denial	JUN 2003
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	SEP 2006
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, and Other Eligible Veterans	SEP 2006

52.222-50	Combating Trafficking in Persons	AUG 2007
52.223-2	Affirmative Procurement of Biobased Products Under Service and Construction Contracts	DEC 2007
52.223-3	Hazardous Material Identification And Material Safety Data	JAN 1997
52.223-5	Pollution Prevention and Right-to-Know Information	AUG 2003
52.223-6	Drug-Free Workplace	MAY 2001
52.223-14	Toxic Chemical Release Reporting	AUG 2003
52.225-13	Restrictions on Certain Foreign Purchases	FEB 2006
52.227-1	Authorization and Consent	DEC 2007
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	DEC 2007
52.227-4	Patent Indemnity-Construction Contracts	DEC 2007
52.228-2	Additional Bond Security	OCT 1997
52.228-3	Worker's Compensation Insurance (Defense Base Act)	APR 1984
52.228-5	Insurance - Work On A Government Installation	JAN 1997
52.228-11	Pledges Of Assets	FEB 1992
52.228-12	Prospective Subcontractor Requests for Bonds	OCT 1995
52.228-14	Irrevocable Letter of Credit	DEC 1999
52.228-15	Performance and Payment Bonds--Construction	NOV 2006
52.229-3	Federal, State And Local Taxes	APR 2003
52.229-6	Taxes--Foreign Fixed-Price Contracts	JUN 2003
52.232-5	Payments under Fixed-Price Construction Contracts	SEP 2002
52.232-17	Interest	JUN 1996
52.232-23	Assignment Of Claims	JAN 1986
52.232-24	Prohibition of Assignment of Claims	JAN 1986
52.232-25	Prompt Payment	OCT 2003
52.232-27	Prompt Payment for Construction Contracts	SEP 2005
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	OCT 2003
52.233-1	Disputes	JUL 2002
52.233-3	Protest After Award	AUG 1996
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004
52.236-2	Differing Site Conditions	APR 1984
52.236-3	Site Investigation and Conditions Affecting the Work	APR 1984
52.236-4	Physical Data	APR 1984
52.236-5	Material and Workmanship	APR 1984
52.236-6	Superintendence by the Contractor	APR 1984
52.236-7	Permits and Responsibilities	NOV 1991
52.236-8	Other Contracts	APR 1984
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	APR 1984
52.236-10	Operations and Storage Areas	APR 1984
52.236-11	Use and Possession Prior to Completion	APR 1984
52.236-12	Cleaning Up	APR 1984
52.236-13	Accident Prevention	NOV 1991
52.236-14	Availability and Use of Utility Services	APR 1984
52.236-15	Schedules for Construction Contracts	APR 1984
52.236-17	Layout of Work	APR 1984
52.236-21	Specifications and Drawings for Construction	FEB 1997
52.236-26	Preconstruction Conference	FEB 1995
52.242-13	Bankruptcy	JUL 1995
52.242-14	Suspension of Work	APR 1984
52.243-4	Changes	JUN 2007
52.244-6	Subcontracts for Commercial Items	MAR 2007

52.246-12	Inspection of Construction	AUG 1996
52.246-21	Warranty of Construction	MAR 1994
52.247-17	Charges	APR 1984
52.248-3	Value Engineering-Construction	SEP 2006
52.249-2 Alt I	Termination for Convenience of the Government (Fixed-Price) (May 2004) - Alternate I	SEP 1996
52.249-10	Default (Fixed-Price Construction)	APR 1984
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2004
252.203-7002	Display Of DOD Hotline Poster	DEC 1991
252.204-7000	Disclosure Of Information	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.205-7000	Provision Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	DEC 2006
252.219-7003	Small Business Subcontracting Plan (DOD Contracts)	APR 2007
252.223-7004	Drug Free Work Force	SEP 1988
252.223-7006	Prohibition On Storage And Disposal Of Toxic And Hazardous Materials	APR 1993
252.225-7012	Preference For Certain Domestic Commodities	MAR 2008
252.226-7001	Utilization of Indian Organizations and Indian-Owned Economic Enterprises, and Native Hawaiian Small Business Concerns	SEP 2004
252.227-7000	Non-estoppel	OCT 1966
252.227-7013	Rights in Technical Data--Noncommercial Items	NOV 1995
252.227-7015	Technical Data--Commercial Items	NOV 1995
252.227-7016	Rights in Bid or Proposal Information	JUN 1995
252.227-7022	Government Rights (Unlimited)	MAR 1979
252.227-7025	Limitations on the Use or Disclosure of Government-Furnished Information Marked with Restrictive Legends	JUN 1995
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7037	Validation of Restrictive Markings on Technical Data	SEP 1999
252.232-7003	Electronic Submission of Payment Requests and Receiving Reports	MAR 2008
252.232-7010	Levies on Contract Payments	DEC 2006
252.236-7000	Modification Proposals-Price Breakdown	DEC 1991
252.236-7002	Obstruction of Navigable Waterways	DEC 1991
252.236-7005	Airfield Safety Precautions	DEC 1991
252.242-7004	Material Management And Accounting System	NOV 2005
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	JAN 2007
252.247-7023	Transportation of Supplies by Sea	MAY 2002

CLAUSES INCORPORATED BY FULL TEXT

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within ten (10) calendar days after the date the Contractor receives the notice to proceed (unless otherwise specified in individual task orders), (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than (time specified in individual task orders). The time stated for completion shall include final cleanup of the premises.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount to be specified on awarded task orders for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.216-22 INDEFINITE QUANTITY. (OCT 1995)

(a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum". The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum".

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after six months following the final option period.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.225-9 BUY AMERICAN ACT—CONSTRUCTION MATERIALS (JAN 2005)

(a) Definitions. As used in this clause--

Component means an article, material, or supply incorporated directly into a construction material.

Construction material means an article, material, or supply brought to the construction site by the Contractor or a subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means--

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the construction material.

Domestic construction material means--

(1) An unmanufactured construction material mined or produced in the United States; or

(2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

Foreign construction material means a construction material other than a domestic construction material.

United States means the 50 States, the District of Columbia, and outlying areas.

(b) Domestic preference. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) by providing a preference for domestic construction material. The Contractor shall use only domestic construction material in performing this contract, except as provided in paragraphs (b)(2) and (b)(3) of this clause.

(2) This requirement does not apply to the construction material or components listed by the Government as follows: None

(3) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(2) of this clause if the Government determines that

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the requirements of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent;

(ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act. (1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(3) of this clause shall include adequate information for Government evaluation of the request, including--

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(3)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act applies, use of foreign construction material is noncompliant with the Buy American Act.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) \1\

Item 1
Foreign construction material.... ....
Domestic construction material... ....
Item 2
Foreign construction material.... ....
Domestic construction material... ....

Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).
List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.
Include other applicable supporting information.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.225-11 BUY AMERICAN ACT--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (AUG 2007)

(a) Definitions. As used in this clause--

Caribbean Basin country construction material means a construction material that--

(1) Is wholly the growth, product, or manufacture of a Caribbean Basin country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a Caribbean Basin country into a new and different construction material distinct from the materials from which it was transformed.

Component means an article, material, or supply incorporated directly into a construction material.

Construction material means an article, material, or supply brought to the construction site by the Contractor or subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means--

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the construction material.

Designated country means any of the following countries:

(1) A World Trade Organization Government Procurement Agreement country (Aruba, Austria, Belgium, Bulgaria, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea (Republic of), Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, or United Kingdom);

(2) Free Trade Agreement country (Australia, Bahrain, Canada, Chile, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Morocco, Nicaragua, or Singapore);

(3) A least developed country (Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Cape Verde, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Djibouti, East Timor, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Kiribati, Laos, Lesotho, Madagascar, Malawi, Maldives, Mali, Mauritania, Mozambique, Nepal, Niger, Rwanda, Samoa, Sao Tome and Principe, Senegal, Sierra Leone, Solomon Islands, Somalia, Tanzania, Togo, Tuvalu, Uganda, Vanuatu, Yemen, or Zambia); or

(4) A Caribbean Basin country (Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Costa Rica, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Netherlands Antilles, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, or Trinidad and Tobago).

Designated country construction material means a construction material that is a WTO GPA country construction material, an FTA country construction material, a least developed country construction material, or a Caribbean Basin country construction material.

Domestic construction material means--

(1) An unmanufactured construction material mined or produced in the United States; or

(2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

Foreign construction material means a construction material other than a domestic construction material.

Least developed country construction material means a construction material that--

(1) Is wholly the growth, product, or manufacture of a least developed country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a least developed country into a new and different construction material distinct from the materials from which it was transformed.

United States means the 50 States, the District of Columbia, and outlying areas.

WTO GPA country construction material means a construction material that--

(1) Is wholly the growth, product, or manufacture of a WTO GPA country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a WTO GPA country into a new and different construction material distinct from the materials from which it was transformed.

(b) Construction materials. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) by providing a preference for domestic construction material. In addition, the Contracting Officer has determined that the WTO GPA and Free Trade Agreements (FTAs) apply to this acquisition. Therefore, the Buy American Act restrictions are waived for designated country construction materials.

(2) The Contractor shall use only domestic or designated country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.

(3) The requirement in paragraph (b)(2) of this clause does not apply to the construction materials or components listed by the Government as follows: None

(4) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(3) of this clause if the Government determines that--

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the restrictions of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent;

(ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act.

(1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(4) of this clause shall include adequate information for Government evaluation of the request, including--

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before

contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(4)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act applies, use of foreign construction material is noncompliant with the Buy American Act.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) \1\
Item 1:			
Foreign construction material....	.....	.....	.....
Domestic construction material...	.....	.....	.....
Item 2:			
Foreign construction material....	.....	.....	.....
Domestic construction material...	.....	.....	.....

\1\ Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).
List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.
Include other applicable supporting information.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.236-1 PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least Sixty (60) percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

(End of clause)

52.244-2 SUBCONTRACTS (JUN 2007)

(a) Definitions. As used in this clause--

Approved purchasing system means a Contractor's purchasing system that has been reviewed and approved in accordance with Part 44 of the Federal Acquisition Regulation (FAR).

Consent to subcontract means the Contracting Officer's written consent for the Contractor to enter into a particular subcontract.

Subcontract means any contract, as defined in FAR Subpart 2.1, entered into by a subcontractor to furnish supplies or services for performance of the prime contract or a subcontract. It includes, but is not limited to, purchase orders, and changes and modifications to purchase orders.
purchase orders.

(b) When this clause is included in a fixed-price type contract, consent to subcontract is required only on unpriced contract actions (including unpriced modifications or unpriced delivery orders), and only if required in accordance with paragraph (c) or (d) of this clause.

(c) If the Contractor does not have an approved purchasing system, consent to subcontract is required for any subcontract that—

(1) Is of the cost-reimbursement, time-and-materials, or labor-hour type; or

(2) Is fixed-price and exceeds—

(i) For a contract awarded by the Department of Defense, the Coast Guard, or the National Aeronautics and Space Administration, the greater of the simplified acquisition threshold or 5 percent of the total estimated cost of the contract; or

(ii) For a contract awarded by a civilian agency other than the Coast Guard and the National Aeronautics and Space Administration, either the simplified acquisition threshold or 5 percent of the total estimated cost of the contract.

(d) If the Contractor has an approved purchasing system, the Contractor nevertheless shall obtain the Contracting Officer’s written consent before placing the following subcontracts:

Any inspection or design work

(e)(1) The Contractor shall notify the Contracting Officer reasonably in advance of placing any subcontract or modification thereof for which consent is required under paragraph (b), (c), or (d) of this clause, including the following information:

(i) A description of the supplies or services to be subcontracted.

(ii) Identification of the type of subcontract to be used.

(iii) Identification of the proposed subcontractor.

(iv) The proposed subcontract price.

(v) The subcontractor’s current, complete, and accurate cost or pricing data and Certificate of Current Cost or Pricing Data, if required by other contract provisions.

(vi) The subcontractor’s Disclosure Statement or Certificate relating to Cost Accounting Standards when such data are required by other provisions of this contract.

(vii) A negotiation memorandum reflecting—

(A) The principal elements of the subcontract price negotiations;

(B) The most significant considerations controlling establishment of initial or revised prices;

(C) The reason cost or pricing data were or were not required;

(D) The extent, if any, to which the Contractor did not rely on the subcontractor's cost or pricing data in determining the price objective and in negotiating the final price;

(E) The extent to which it was recognized in the negotiation that the subcontractor's cost or pricing data were not accurate, complete, or current; the action taken by the Contractor and the subcontractor; and the effect of any such defective data on the total price negotiated;

(F) The reasons for any significant difference between the Contractor's price objective and the price negotiated; and

(G) A complete explanation of the incentive fee or profit plan when incentives are used. The explanation shall identify each critical performance element, management decisions used to quantify each incentive element, reasons for the incentives, and a summary of all trade-off possibilities considered.

(2) The Contractor is not required to notify the Contracting Officer in advance of entering into any subcontract for which consent is not required under paragraph (c), (d), or (e) of this clause.

(f) Unless the consent or approval specifically provides otherwise, neither consent by the Contracting Officer to any subcontract nor approval of the Contractor's purchasing system shall constitute a determination—

(1) Of the acceptability of any subcontract terms or conditions;

(2) Of the allowability of any cost under this contract; or

(3) To relieve the Contractor of any responsibility for performing this contract.

(g) No subcontract or modification thereof placed under this contract shall provide for payment on a cost-plus-a-percentage-of-cost basis, and any fee payable under cost-reimbursement type subcontracts shall not exceed the fee limitations in FAR 15.404-4(c)(4)(i).

(h) The Contractor shall give the Contracting Officer immediate written notice of any action or suit filed and prompt notice of any claim made against the Contractor by any subcontractor or vendor that, in the opinion of the Contractor, may result in litigation related in any way to this contract, with respect to which the Contractor may be entitled to reimbursement from the Government.

(i) The Government reserves the right to review the Contractor's purchasing system as set forth in FAR Subpart 44.3.

(j) Paragraphs (c) and (e) of this clause do not apply to subcontracts, which were evaluated and approved during negotiations.

(End of clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

FAR – http://www.arnet.gov/far
DFAR – http://www.acq.osd.mil/dpap/dars/dfars/index.htm

(End of clause)

252.225-7043 ANTITERRORISM/FORCE PROTECTION POLICY FOR DEFENSE CONTRACTORS OUTSIDE THE UNITED STATES (MAR 2006)

(a) Definition. United States, as used in this clause, means, the 50 States, the District of Columbia, and outlying areas.

(b) Except as provided in paragraph (c) of this clause, the Contractor and its subcontractors, if performing or traveling outside the United States under this contract, shall--

(1) Affiliate with the Overseas Security Advisory Council, if the Contractor or subcontractor is a U.S. entity;

(2) Ensure that Contractor and subcontractor personnel who are U.S. nationals and are in-country on a non-transitory basis, register with the U.S. Embassy, and that Contractor and subcontractor personnel who are third country nationals comply with any security related requirements of the Embassy of their nationality;

(3) Provide, to Contractor and subcontractor personnel, antiterrorism/force protection awareness information commensurate with that which the Department of Defense (DoD) provides to its military and civilian personnel and their families, to the extent such information can be made available prior to travel outside the United States; and

(4) Obtain and comply with the most current antiterrorism/force protection guidance for Contractor and subcontractor personnel.

(c) The requirements of this clause do not apply to any subcontractor that is--

(1) A foreign government;

(2) A representative of a foreign government; or

(3) A foreign corporation wholly owned by a foreign government.

(d) Information and guidance pertaining to DoD antiterrorism/force protection can be obtained from the Naval Criminal Investigative Service(NCIS), Code 21; Telephone, DSN 288-9077 or commercial (202) 433-9077.

(End of clause)

252.236-7001 CONTRACT DRAWINGS AND SPECIFICATIONS (AUG 2000)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall--

(1) Check all drawings furnished immediately upon receipt;

(2) Compare all drawings and verify the figures before laying out the work;

(3) Promptly notify the Contracting Officer of any discrepancies;

(4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and

(5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

(1) Large-scale drawings shall govern small-scale drawings; and

(2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the index of drawings specified in individual task orders.

(End of clause)

5252.201-9300 CONTRACTING OFFICER AUTHORITY (JUN 1994)

In no event shall any understanding or agreement between the Contractor and any Government employee other than the Contracting Officer on any contract, modification, change order, letter or verbal direction to the Contractor be effective or binding upon the Government. All such actions must be formalized by a proper contractual document executed by an appointed Contracting Officer. The Contractor is hereby put on notice that in the event a Government employee other than the Contracting Officer directs a change in the work to be performed or increases the scope of the work to be performed, it is the Contractor's responsibility to make inquiry of the Contracting Officer before making the deviation. Payments will not be made without being authorized by an appointed Contracting Officer with the legal authority to bind the Government.

(End of Clause)

5252.216-9312 MINIMUM AND MAXIMUM QUANTITIES (JUN 1994)

As referred to in paragraph (b) of FAR 52.216- 22, INDEFINITE QUANTITY clause, the contract minimum quantity is $10,000.00. Should the Government fail to place orders totaling the amount of the contract minimum quantity, the provisions of Clause 52.249-2 entitled, Termination for Convenience of the Government (Fixed Price) shall apply to the unordered amount of the contract minimum quantity. The maximum quantity shall not be exceeded except as may be provided for formal modification to the contract.

(End of clause)

5252.228-9305 NOTICE OF BONDING REQUIREMENTS (JAN 1996)

Within __10___ days after receipt of a task order, the offeror to whom the award is made shall furnish the following bond(s) each with satisfactory security;

_X___ A Performance Bond (Standard Form 25). The performance bond shall be in a penal sum equal to 100% percent of the task order price.

__X__ A Payment Bond (Standard Form 25A). The payment bond shall be in a penal sum equal to 100% percent of the task order price.

Any surety company holding a certificate of authority from the Secretary of Treasury as an acceptable Surety on Federal bonds will be accepted. Individual sureties will be permitted as prescribed in FAR 28.203 and FAC 5252.228-9300. Alternative types of security in lieu of furnishing sureties on performance and/or payment bonds will be permitted as prescribed in FAR 28.204, and will be held for at least one year after the completion of the contract. Additional bond security may be required as prescribed in FAR 52.228-2. Bonds shall be accompanied by a document authenticating the agent's authority to sigh bonds for the surety company.

The contract time for purposes of fixing the completion date, default, and liquidated damages shall begin to run 10 days from the date of task order award, regardless of when performance and payment bonds or deposits in lieu of surety are executed.

(End of clause)

5252.232-9513 INVOICING AND PAYMENT (WAWF) INSTRUCTIONS (NOV 2006)

(a) Invoices for goods received or services rendered under this contract shall be submitted electronically through Wide Area Work Flow -- Receipt and Acceptance (WAWF):

(1) The vendor shall have their CAGE code activated by calling 866-618-5988. Once activated, the vendor shall self-register at the web site https://wawf.eb.mil. Vendor training is available on the Internet at http://www.wawftraining.com. Additional support can be obtained by calling the NAVY WAWF Assistance Line: 1-800-559-WAWF (9293).

(2) WAWF Vendor "Quick Reference" Guides are located at the following web site: http://www.acquisition navy mil/navyaos/content/view/full/3521.

(3) Select the invoice type within WAWF as specified below. Back up documentation (such as timesheets, etc.) can be included and attached to the invoice in WAWF. Attachments created in any Microsoft Office product are attachable to the invoice in WAWF. Total limit for the size of files per invoice is 5 megabytes.

(b) The following information, regarding invoice routing DODAACs, must be entered for completion of the invoice in WAWF:

WAWF Invoice Type:	**Combo**
Issuing Office DODAAC	Specified on individual task orders
Admin Office DODAAC:	Specified on individual task orders
Inspector DODAAC:	Specified on individual task orders
Ship To DODAAC (for Combo), Service Acceptor DODAAC (for 2 in 1), Service Approver DODAAC (Cost Voucher)	Specified on individual task orders
Local Processing Office (applicable if DFAS DODAAC begins with an "N"):	Specified on individual task orders
DCAA Office DODAAC (Used on Cost Voucher's only):	Specified on individual task orders
Paying Office DODAAC:	Specified on individual task orders

(c) Contractors approved by DCAA for direct billing will not process vouchers through DCAA, but may submit directly to DFAS. Final voucher submission will be approved by the ACO.

(d) For each invoice / cost voucher submitted for payment, the contractor shall also email the WAWF automated invoice notice directly to the following points of contact:

Name	eMail	Telephone	Role
TBD	TBD	TBD	Inspector
			Acceptor
			LPO

5252.236-9301 SPECIAL WORKING CONDITIONS AND ENTRY TO WORK AREA (JUN 1994)

Denial of entry to the work areas under this contract may be required by the Government under certain circumstances where the Contractor's work or presence would constitute a safety or security hazard to ordnance storage or handling operations. Restrictions covering entry to and availability of the work areas are as follows:

(a) Entry. Entry to work areas located within the special Security Limited areas, defined as those work areas located within the existing security fence, can be granted subject to special personnel requirements as specified herein and to other normal security and safety requirements. Complete denial of entry to the Limited Area may be required during brief periods of one to two hours (normally) and on rare occasions of two to four hours. For bidding purposes, the Contractor shall assume denial of entry to the work areas in the Limited Area of six 2-hour denials and one 4-hour denial per month.

(b) Vehicle Delay. The Contractor shall also assume for bidding purposes that, in addition to site denial, each vehicle and/or unit of construction equipment will be delayed during each movement through the security gate, both entering and leaving the limited area. Delays will average an unknown amount of time; differs at each location.

Operational Considerations. To reduce delay time while preserving required security, the following points should be considered in operational planning:

a. Vehicle Search. Security regulations in 36.5100(b), required that all vehicles, when authorized to enter the Limited Area be thoroughly searched by guard force personnel. Such a search will be required for all vehicle/ construction equipment. Accordingly, once a vehicle or unit of construction equipment has been cleared, it may be left in the Limited Area after initial entry has been made. For the period of time authorized the

vehicle/equipment left in the Limited Area will be assigned parking areas by the Contracting Officer. The vehicle/equipment must be secured as specified in paragraph entitled "SECURITY REQUIREMENTS." The intent is to reduce the Contractor loss of time at the security gate. No private vehicles will be allowed to enter the Limited Area.

b. Delivery Vehicles. Vehicles delivering force personnel while the driver is being processed for entry into the Limited Area. The driver and vehicle will then be escorted in the Limited Area by a Security Escort. To provide this service, delivery schedules should be promulgated in advance and vendors made aware that a reasonable delay can be expected if delivery is other than the time specified. Deliveries after 1600 hours will not be allowed entry into the Limited Area without prior approval of the Physical Security Officer.

(End of clause)

5252.236-9303 ACCIDENT PREVENTION (JUN 1994)

(a) In order to provide safety controls for protection to the life and health of employees and other persons; for prevention of damage to property, materials, supplies, and equipment; and for avoidance of work interruptions in the performance of this contract, the Contractor shall comply with all pertinent provisions of Corps of Engineers Manual, EM 385-1-1, entitled "Safety and Health Requirements Manual" as amended, and will also take or cause to be taken such additional measures as the Contracting Officer may determine to be reasonably necessary for the purpose.

(b) The Contractor will maintain an accurate record of, and will report to the Contracting Officer in the manner and on the forms prescribed by the Contracting Officer, all accidents resulting in death, traumatic injury, occupational disease, and damage to property, materials, supplies and equipment incident to work performed under this contract.

(c) The Contracting Officer will notify the Contractor of any noncompliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

(d) Compliance with the provisions of this article by subcontractors will be the responsibility of the Contractor.

(e) Prior to commencement of the work, the Contractor may be required to:

(1) submit in writing his proposals for effectuating provision for accident prevention;

(2) meet in conference with representatives of the Contracting Officer to discuss and develop mutual understandings relative to administration of the overall safety program.

(End of clause)

5252.242-9300 GOVERNMENT REPRESENTATIVES (OCT 1996)

(a) The contract will be administered by an authorized representative of the Contracting Officer. In no event, however, will any understanding or agreement, modification, change order, or other matter deviating from the terms of the contract between the Contractor and any person other than the Contracting Officer be effective or binding upon the Government, unless formalized by proper contractual documents executed by the Contracting Officer prior to completion of this contract. The authorized representative as indicated hereinafter:

_X__ (1) The Contracting Officer's Representative (COR) will be designated by the Contracting Officer as the authorized representative of the Contracting Officer. The COR is responsible for monitoring performance and the technical management of the effort required hereunder, and should be contacted regarding questions or problems of a technical nature.

__X___ (2) The designated Contract Specialist will be the Administrative Contracting Officer's representative on all other contract administrative matters. The Contract Specialist should be contacted regarding all matters pertaining to the contract or task/delivery orders.

_____ (3) The designated Property Administrator is the Administrative Contracting Officer's representative on property matters. The Property Administrator should be contacted regarding all matters pertaining to property administration.

(End of clause)

5252.242-9305 PRE-PERFORMANCE CONFERENCE (JUL 1995)

Within 30 days of contract award, prior to commencement of the work, the Contractor will meet in conference with representatives of the Contracting Officer, at a time to be determined by the Contracting Officer, to discuss and develop mutual understanding relative to scheduling and administering work.

(End of clause)

CONTRACT REQUIREMENTS

SECTION 00801

Contract Type/Performance
Special Contract Requirements

1. GENERAL OVERVIEW OF MULTIPLE AWARD CONSTRUCTION CONTRACT (MACC)

A Multiple Award Construction (MAC) Contract is a contract awarded from a single solicitation, and may result in award to multiple contractors. This procurement consists of one solicitation with the intent to award at least three (3) and a maximum of five (5) Indefinite Delivery Indefinite Quantity (IDIQ) construction contracts to those offerors whose proposals, conforming to the RFP, are determined to be the Best Value, price and other factors considered. The Government reserves the right not to award the sample task order at the time of contract award and fund only the minimum guarantee as specified in the solicitation.

2. CONTRACT TYPE

This is a firm-fixed price, MAC IDIQ contract. The work to be performed and associated terms of performance will be defined by the Ordering Officer by means of written task orders issued to the contractor in accordance with the procedures defined herein. This contract is not for advisory and assistance services, and is not a requirements contract.

3. SET ASIDE – The Competitive Demonstration Program applies to the industry group assigned to this solicitation. This solicitation is unrestricted.

4. NAICS CODE: This is a specialty trade contract. NAICS 237120 applies with a $31M size standard.

5. DESCRIPTION OF WORK:

The work to be acquired under this contract is for assessment and repair for various Petroleum, Oil and Lubricant (POL) facilities and system projects worldwide. The work will primarily be in support of the Naval Facilities Engineering Services Center (NFESC) POL Branch in the execution of Sustainment, Restoration and Modernization (SRM) and related projects at Department of Defense Facilities.

Work includes 1) Services including, but not limited to: problem definition, cost estimating/life cycle cost analysis, project management and quality assurance.

2) Construction services including, but not limited to: cost estimating, project management, and quality assurance.

In addition to tasking from NAVFAC ESC, all 10 NAVFAC Field Engineering Commands (FEC) may be given ordering authority under this contract. The majority of the tasking, ceiling management and COR responsibilities will be under the control of the ESC.

In support of assessment and repair strategies, each offeror shall possess in-house capabilities or exclusively employ the services of one or more lead architect-engineering (A-E) design firms (LDF) experienced in the design, development, and coordination of projects within the scope of the proposed contract. Offerors will be required to submit a written exclusivity agreement for each LDF proposed which states that the LDF will exclusively partner with the offeror on this procurement, and will not participate with any other offeror in competing for or performing

on a project to be awarded under the proposed contract. Offerors proposing the same LDFs will be rejected as unacceptable. The offeror and the proposed LDF(s) for the basic contract award will be evaluated as a team.

6. CONTRACT DURATION, LIMITS AND AMOUNTS:

a. Term of Contract: Each of the resulting MAC contracts will be for a base year of 12 months (or less, as determined by the Contracting Officer if the maximum contract amount is ordered by the Government).

b. Options: Each MAC contract will contain four (4), 12 month options for a total maximum duration of 60 months or estimated maximum dollar value (see para. C. below), whichever occurs first. The Government may extend the term of the contract in accordance with the contract clause entitled "Option to Extend the Term of the Contract, FAR 52.217-9" for a term of one (1) to forty-eight (48) months, by written notice to the Contractor within the performance period specific in the Schedule, provided a preliminary written notice of its intent is provided before the contract expires. The preliminary notice does not commit the Government to an extension.

c. Amounts: The cumulative value of the MAC contracts, combined, will not exceed $350,000.00 over the base and all four option periods.

d. Task Order Limitations: Task Orders will range between $50,000.00 and $4,000,000.00. Task Orders may fall below or above this limit; however, contractors are not obligated to accept such task orders under the general terms of the contract.

e. Minimum Guarantee: The Government makes no representation as to the number of task orders or actual amount of work to be ordered, however, during the term of the contract, a minimum of $10,000.00 is guaranteed to each awardee, which applies to the base year only. Contractors are not guaranteed work in excess of the minimum guarantee specified herein.

7. SUBCONTRACTING PLAN:

Large business required to submit a Subcontracting Plan in accordance with FAR 19.7 shall register and comply with eSRS reporting requirements in accordance with the FAR Clauses FAR 52.219-9, and FAR 52.219-25. Please note that the subcontracting plan shall be submitted with the proposal and is a separate requirement from the proposal submission requirements for Factor – 4 which apply to all offerors.

8. CENTRAL CONTRACTOR REGISTRATION (CCR):

Contractors must be registered in the Central Contractor Register (CCR) prior to award of a DoD contract. For more information, see the CCR website at http:///www.ccr.gov. **A contract cannot be awarded to a contractor not registered in CCR.** Remember to review the NAICS codes listed in your CCR record and make sure that you have listed the NAICS code for this procurement (NAICS 237120 – Oil and Gas Pipelines and Related Structures).

9. ONLINE REPRESENTATIONS AND CERTIFICATIONS APPLICATIONS (ORCA):

In order to participate on this solicitation, contractors shall complete electronic representations and certifications. To complete the ORCA, see the ORCA website at http://orca.bpn.gov. Two items are needed prior to ORCA registration: (1) an active record in CCR and (2) an MPIN from that active CCR record. Once logged into the ORCA website using a valid DUNS number and MPIN, **MAKE SURE TO COMPLETE THE ORCA REGISTRATION PROCESS BY CLICKING THE "CREATE ORCA RECORD" BUTTON AT THE BOTTOM OF THE PAGE.** Contractors must then complete the questionnaire and click the "Submit Certification" button when finished.

For step-by-step instructions on how to enter your ORCA application, go to the following website: https://orca.bpn.gov/help/help.aspx and click on "ORCA Handbook".

10. FEDERAL CONTRACTOR PROGRAM:

In accordance with Federal Acquisition Regulations (FAR) 22.1303, any contractor or subcontractor with a contract of $25,000.00 or more with the Federal Government must take affirmative action to hire and promote qualified targeted verterans which inlcudes, special disabled veterans, veterans of the Vietnam-era, recently separated veterans, and any other veterans who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized.

Companies must file an annual VETS-100 report, which shows the number of targeted veterans in their work force by job category, hiring location, and number of new hires, including targeted veterans hired during the reporting period and the maximum number and minimum number of employees of such contractor during the period covered by the report. Instructions, informaton, and follow-up assistance is provided at VETS-100 Internet site at http://vets.dol.gov/vets100/ or employees may contact the VETS-100 Processing Center at (301) 306-6752 or e-mail at helpdesk@vets100.com. **A contract cannot be awarded to a contractor that has not submitted a required annual form VETS-100, Federal Contractor's Veterans' Employment Report (VETS-100 Report) if subject to the reporting requirements of 38 U.S.C. 4212(d) for that fiscal year.**

11. WORK BY THE GOVERNMENT:

The Government reserves the right to undertake performance by Government forces, for the same type or similar work as contracted herein, as the Government deems necessary or desirable, and to do so will not breach or otherwise violate this contract.

12. COMMENCEMENT OF WORK:

No work under this contract will commence until such time as the Contracting officer issues a task order, either in writing or orally. Oral task orders will be confirmed by the issuance of a written Task Order within five working days.

13. PLACE OF PERFORMANCE:

The place of performance will be designated on each individual task order.

14. PROPOSAL PREPARATION COSTS:

The costs for preparation of task order proposals, or participation in the site visits, shall be the responsibility of the contractor and are not directly reimbursable. Each task order will include, at a minimum, all labor wages, management, supervision, mobilization, material and equipment costs. The contractor shall provide all project management, planning, estimating, labor, transportation, materials, equipment, tools, supervision, and all other elements necessary to fulfill the requirements of the task order.

15. DEFINITIONS:

Where "as shown,", "as indicated,", "as detailed,"/or similar words are used, it shall be understood that reference to the drawings accompanying this specification is made unless stated otherwise. Where "as indicated,", "as required,", "as permitted," "approved," "acceptance," or similar words are used, it shall be understood that the direction, requirements, permission, approval, or acceptance of the Contracting Officer is intended unless stated otherwise. As used herein, "provided," shall be understood to mean "provided complete in place," that is "furnished and installed."

16. BUY AMERICAN PROVISIONS:

If the task order is valued at less than $6,481,000.00 then FAR Clause 52.225-9, Buy American Act-Construction Materials and FAR Clause 52.225-10, Notice to Buy American Act Requirements-Construction Materials, apply.

If the task order is valued at more than $6,481,000.00 then FAR Clause 52.225-11, Buy American Act-Construction Materials under Trade Agreements and FAR Clause 52.225-12, Notice of Buy American Act Requirement-Construction Materials under Trade Agreements applies. Alternate I applies to task orders valued at $6,481,000.00 or more, but less than $7,304,733.00. Alternate II applies to task orders valued at $6,481,000.00 or more, but less than $7,304,733.00.

17. BONDABILITY/BID BOND:

For every task order placed on the MAC contract, a letter of "bondability" on the Surety's letterhead stating the offeror has the bonding capacity available is required of each proposer responding to the Request for Proposal (RFP). The purpose of this letter is to put the bonding company on notice that their client is proposing on a project. This letter does not require the proposer to incur cost. The bonding company will provide it upon a client's request. A bid bond in the amount of 20% for each task order may be required in lieu of a bondability letter.

18. PERFORMANCE AND PAYMENT BONDS:

Performance and Payment bonds in the amount of 100% (unless otherwise stipulated on the individual task order) will be required for each task order within CONUS and shall be submitted for approval to the Contracting Officer within 15 days (unless otherwise stipulated on the individual task order) of award of a task order. Commencement of construction is contingent upon approval of the required bonds.

19. REQUIRED INSURANCE:

a. Within fifteen days after award of this contract, the contractor(s) shall furnish the Contracting Officer a Certificate of Insurance as evidence of the existence of the following insurance coverage amounts not less than the amount specified below in accordance with FAR Clause 52.228-5, Insurance Work on a Government Installation.

COVERAGE:

Comprehensive General Liability: $500,000 per occurrence
Automobile Liability: $200,000 per person, $500,000 per occurrence for bodily injury; $20,000 per occurrence for property damage
Workmen's Compensation: As required by Federal and State Worker's compensation and occupational disease laws
Employer's Liability Coverage: $100,000, except in states where worker's compensation may not be written by private carriers
Others as required by state law

b. Above insurance coverages are to extend to contractor personnel operating Government owned equipment and vehicles.

c. The Certificate of Insurance shall provide for thirty (30) days written notice to the Contracting Officer by the insurance company prior to cancellation or material change in policy coverage. Other requirements and information are contained in the aforementioned "Insurance" clause.

20. DAVIS BACON WAGE DETERMINATION:

Applicable Davis Bacon Wage Determination(s) will be required for task orders awarded under this contract, and will be incorporated into the task orders. Each task order will specify the applicable wage determination; however, the contractor shall be responsible for obtaining them. The applicable Davis Bacon Wage Determination can be obtained from the website at http://www.dol.gov/.

21. DRAWINGS:

All drawings, if applicable, accompanying task orders will be considered to be a part of the scope of work.

22. TASK ORDER PERFORMANCE PERIOD:

FAR Clause 52.211-10, Commencement, Prosecution and Completion of Work will be incorporated into each task order identifying the construction schedule. The Government reserves the right to negotiate a Task Order's performance period if determined to be in the best interest of the Government.

23. LIQUIDATED DAMAGES:

FAR Clause 52.211-12, Liquidated Damages – Construction, may be incorporated into the resultant task order identifying the liquidated damages rate applicable to that task order. If the contractor fails to complete the work within the time fixed in the task order or any extension thereof, the Contractor shall pay to the Government as liquidated damages for each task order, the rate cited in the task order.

24. PREAWARD SITE INSPECTIONS:

Upon receipt of the scope of work, including any applicable drawings, and following a brief time period for reviewing the documents, the Contractor shall inspect the job site, if applicable. The prospective superintendent shall attend the site visit. Any deficiencies, conflicts, or other areas of concern existing in the scope of work and applicable drawings should be brought to the attention of the Contracting Officer, in writing. The contractor shall also notify the Contracting Officer, in writing, upon observing any features in the design that appear to be ambiguous, confusing, conflicting, or erroneous.

25. SUPERVISION:

The contractor shall provide supervision in accordance with FAR Clause 52.236-6, Superintendence by the Contractor, for each task order.

26. SUBCONTRACTING RESPONSIBILITIES:

The contractor shall be responsible for the management and performance of all subcontractors. The contractor shall ensure subcontractors are competent and capable of handling all assigned work. The contractor shall ensure task orders are completed within the stated requirements.

The contractor is responsible for ensuring subcontracting opportunities are made available to all small business, veteran owned small business, service disabled veteran owned small business, HUZone small business, small disadvantaged business, and women owned small business.

27. NOTICE OF CONSTRUCTIVE CHANGES:

No order, statement or direction of the Contracting Officer, an authorized representative of the Contracting Officer whether or not acting within the limits of his authority, or any other representative of the Government, shall constitute a change order under the "Changes" clause of this contract or entitle the contractor(s) to an equitable adjustment of the price of delivery schedule, unless such a change is issued in writing and signed by the Contracting Officer.

28. PAYMENTS:

Designated paying office will be determined upon award of individual task orders under this contract. Wide Area Workflow Procedures for invoicing may apply and will be specified in resultant task orders.

29. PROJECT KICKOFF MEETING:

Prior to commencing work under a task order, the Contractor shall meet with the designated technical personnel at a mutually agreeable time to discuss and develop mutual understandings concerning schedule and administering work.

30. PARTNERING:

Partnering is a structured process, as well as philosophy of doing business with contractors and customers that recognizes common goals through communication and teamwork. It helps create an environment where trust and teamwork prevent disputes, foster good working relationships to everyone's benefit, and facilitate the completion of a successful contract. In support of the command's goals of teamwork and customer satisfaction, our policy is to practice the philosophy of partnering on every contract we administer. The contractor's key personnel may be required to attend formal partnering for the basic contract. In addition, formal partnering may be required prior to and/or during performance of an individual Task Order, if determined necessary by the Government. Key personnel are defined as the Project Manager, Superintendent, CQC representative, major subcontractors and specialized supplementary personnel. The contractor shall pay all costs associated with the partnering effort. The participants shall bear their own costs for meals, lodging and transportation associated with the partnering.

31. PERFORMANCE EVALUATIONS:

The Adminstrative Contracting Office will complete a contractor's performance evaluation for input into CCASS/ACASS database. The evaluation will take into account all aspects of the contractor's performance. Interim performance evaluations may be completed at any time the contractor's performance is considered less than satisfactory or to provide feedback on the design portion of a design-build task order. Contractors will be provided a copy of the performance evaluation and an opportunity to discuss the evaluation. The negative performance evaluations will have an impact on the award of future task orders. The Contractor shall request a performance evaluation prior to final invoice and closeout to keep for future proposal submissions.

32. OVERSEAS REQUIREMENTS:

SOFA: During performance of subject contract service, there may be a need for contractors to provide services in overseas locations. As such, Status of Force Agreement (SOFA) privileges and other logistical support privileges will be provided to the full extent possible for employees and their authorized dependents dependent on the applicable SOFA for the host country. Pursuant to DFARS 225.802-70, this includes the following: the applicability of any international agreements; security requirements applicable to the area; standards of conduct required to be observed by prospective contractors and their employees and any action that may be taken in the events required standards are not maintained; requirements for use of foreign currencies, including applicability of U.S. holding of excess foreign currencies; availability of logistics support for contractor employees; and information on taxes and duties from which the Government may be exempt. Privileges extended to Contractor employees and authorized dependents may include subject to availability at the specific performance location(s): (1) commissary (includes rationed items); (2) Navy Exchange facilities (includes military exchange, theater, food, concessions, etc.); (3) Class Six (alcoholic beverages, includes rationed items); (4) customs exemption and duty-free importation of household goods in accordance with United States custom clearance regulations covering personal property of U. S. Contractor Personnel; (5) local government transportation for official government business (non-tactical vehicle); (6) local services (Morale, Welfare, and Recreation (MWR)); (7) military banking services, accounting, and finance services, credit unions; (8) Military Postal Service; (9) mortuary service on a cost-reimbursement basis; (10) Officer and Non-Commissioned Officer clubs; (11) privately owned vehicle (POV) license and POV registration; (12) purchase of petroleum and oil products; (13) transient billets on a space available basis after all other eligible personnel have been billeted; (14) mess facilities at remote sites on a cost reimbursable basis; (15) continuing education services; (16) chapel services; (17) dependent schools on a space available, tuition-paying basis; travel orders for attendance at U.S. Government schools; (18) emergency medical and dental services on a cost reimbursable basis; (19) PET/firearm registration and control; (20) law enforcement (limited to accident investigation and on scene interpreters, if required); (21) loaner furniture and appliances on an availability basis; and (22) on base vehicle inspections.

Applicable SOFA agreements and related services and tax exemption procedures will be specified in individual task orders as appropriate. SOFA agreements do not apply to temporary or intermittent travel.

33. SECURITY REQUIREMENTS:

Some locations will require SF85F or I-9 processing prior to allowing contractor's on site. Contractor's can expect that each location will have different security requirements which may affect the time it will take for access to work locations.

SECTION 00802

Contract Administrative Data

1. Identification of Procuring Contracting Officer/Ordering Officer

The Procuring Contracting Officer (PCO) is located at the Specialty Center Acquisitions NAVFAC (SCAN), Naval Base Ventura County, 1205 Mill Road, Bldg. 850, Port Hueneme, CA 93043-4347. Overall administration of the basic contract will be the responsibility of the PCO, including complete authority to modify the terms of the basic contract. NAVFAC Facilities Engineering Activity Divisions (FEAD) and authorized ordering officers/individuals designated in writing will be responsible for ordering and administration of the individual task orders. The terms "Contracting Officer" and "Ordering Officer" may be used interchangeably when referring to individual task orders. All correspondence regarding the basic contract shall be addressed to the PCO and shall include the contract number assigned.

2. Administrative Contracting Officers

Administrative Contracting Officers (ACO) will be designated, in writing, upon award of individual task orders. These individuals may include the ROICC, located where the work is to be accomplished.

These individuals will be responsible and possess the authority to act on behalf of the Government with respect to the specific task order.

All post award/administrative correspondence, i.e., insurance, California Preliminary Notices, etc., shall be addressed to the ACO for the specific Task Order to which it relates. Additionally, all correspondence and task orders/Modifications, etc., shall include both the task order number and the Request for Task order Proposal (RFTOP) Number, as applicable.

3. Ombudsman

The agency's designated task order Ombudsman is the Director of Acquisition, NAVFAC Headquarters. The Director of Acquisition is located at the Washington Navy Yard and is responsible for reviewing complaints from contractors and ensuring that all contractors are afforded a fair opportunity to be considered for award of task orders, in accordance with the requirements of the contract.

SECTION 00803

Task Order Issuance Procedures

1. General

   a. When the Government requires work under the contract, a Request for Task Order Proposal (RFTOP) will be issued as appropriate. RFTOPs will normally be issued electronically by email but may be sent via mail, telephone, facsimile or other electronic means.

   b. Task orders will be awarded on a DD Form 1155 (Order for Supplies or Services). Task orders will be awarded using a sequential numbering system, which relates back to the basic contract number and the assigned RFTOP number.

   c. The Government will not be obligated to reimburse the contractor for work performed, items delivered, or any costs incurred, nor shall the contractor be obligated to perform, deliver, or otherwise incur costs except as authorized by duly executed task orders.

   d. Each task order shall include as a minimum:

      (i) Date of Order
      (ii) Contract Number and Order Number
      (iii) Contract item number and description, quantity, and unit price or estimated cost
      (iv) Delivery or performance schedule and method of inspection/acceptance
      (v) Place of performance
      (vi) Any packaging, packing, and shipping instructions
      (vii) Accounting and appropriation data
      (viii) Method of payment and payment office including WAWF applicability

   e. Modifications to task orders will be issued on Standard Form (SF) 30

   f. Each contractor is required to submit a proposal for all RFTOP issued by authorized Ordering Officers. Failure to participate may impact future consideration for task order work or exercise of an option.

   g. Opportunity exists for a post-award debriefing on the placement of task orders in excess of $5 million. Orders in excess of $10 million may be protested to the Government Accountability Office (GAO) exclusively on the grounds that the order increases the scope, period, or maximum value under the contract which the order is issued.

2. Competition

   a. Competition for issuance of task orders is limited to MAC contract holders resulting from this solicitation. All awardees will be given a fair opportunity to compete for each task order unless the Contracting Officer determines that one of the exceptions noted below applies. Upon determining the need to issue a task order, all awardees will be considered equally against the stated criteria.

   b. Unless one of the exceptions noted below applies, each task order will be awarded, as a result of competition, to the contractor whose offer is the most advantageous to the Government considering the criteria specified.

c. The Contracting Officer reserves the right to make award of a task order without competition based upon:

(1) One of the circumstances described below:

(i) The agency need for the supplies or services are so urgent that providing a fair opportunity would result in unacceptable delays;
(ii) Only one awardee is capable of providing the supplies or services required at the level of quality required because the supplies or services ordered are unique or highly specialized;
(iii) The order must be issued on a sole source basis in the interest of economy and efficiency as a logical follow-on to an order already issued under the contract, provided that all awardees were given a fair opportunity to be considered for the original order; or
(iv) It is necessary to place an order to satisfy a minimum guarantee; or

(2) A status expressly authorizes or requires that the purchase be made from a specific source.

3. Requirement for Proposals

a. Task orders will be firm fixed price with a specific completion date or performance period and clearly define the specific services to be performed or the performance desired. When options are included in the schedule, the task order will specify the number of days after award for exercising the options. Each task order will contain applicable clauses and provisions if different than the basic contract. All task orders are subject to the terms and conditions of this contract. In the event of a conflict between a task order and the contract, the latter will control, except as otherwise noted in the contract documents. The Government reserves the right to incorporate additional clauses, as appropriate, into individual task order solicitations and awards.

b. Task orders will be awarded using best value source selection process only. Whenever practical, award will be made without discussions. If discussions are required, each contractor will be requested to provide a final proposal revision, unless eliminated from discussions through the establishment of a competitive range. If the ordering officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the number of proposals included in the competitive range may be limited to the greatest number that will permit an efficient competition among the most highly rated proposals.

c. Task order projects may be non-complex performance oriented tasks requiring minimum design, may be complex construction requiring design development for design-build construction, or a combination thereof. Projects will be varying in size and complexity. The task orders may be written based on a Government/Contractor Team cooperative scoping of the work in order to develop a mutually agreed upon SOW. The task order may or may not have traditional plans and specifications, but may include sketches, and requests for catalog cuts, and other submittals.

d. Price: Each RFTOP will indicate the level of supporting pricing detail to be provided. More likely than not, a detailed cost breakdown of labor, materials, equipments, overhead and profit will be required. In case of discrepancy between a unit price and an extended price, the unit price will be presumed to be correct, subject, however, to correction to the same extent and in the same manner as any other mistake.

e. Technical Proposals may address one or more of the following factors:

(i) Design
(ii) The contractor's technical understanding of the work
(iii) The most efficient and effective plan to accomplish the work
(iv) Rationale for proposed materials; type and quantities
(v) Key Personnel/Major Subcontractors

f. Oral presentations may be used to substitute for, or augment, written information as indicated in individual RFTOP instructions.

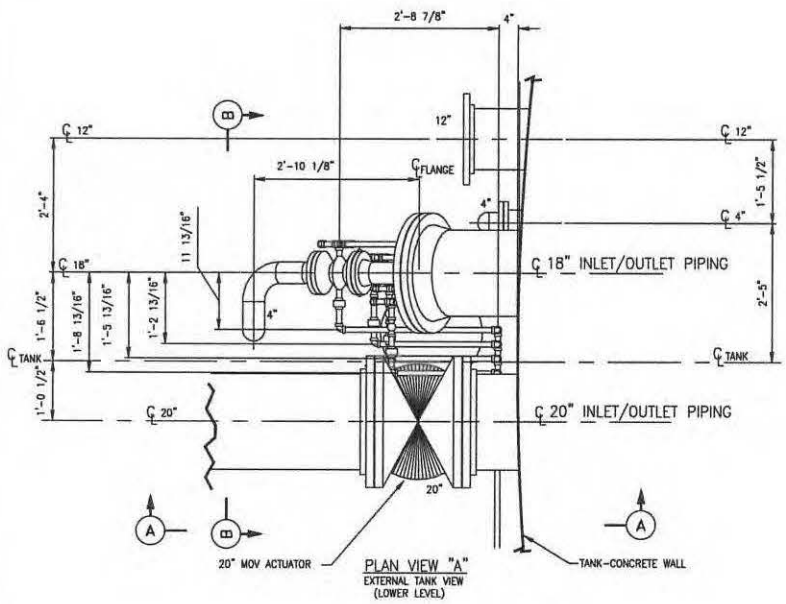
g. Design Build Task Order. An RFTOP may be issued with the amount of funds available for design and construction along with, but not limited to, a SOW, design criteria and/or concept design. The contractors may be requested to submit a concept design with a price proposal. A task order will be issued with a firm fixed price for design and construction. It is the contactor's responsibility to design the project so that it can be constructed within the fixed price contract value. Failure to do so is at the contractor's risk.

4. Selection Criteria

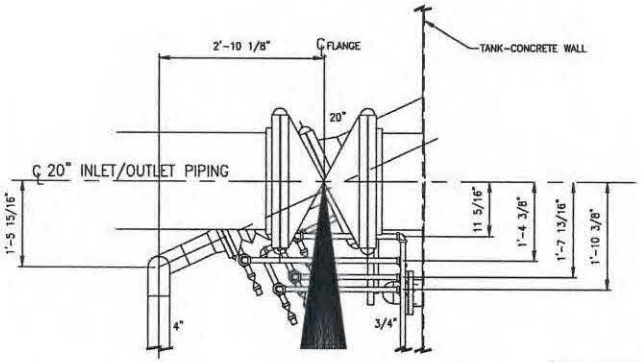
One or more of the following criteria in addition to price may be considered when contractors compete for award of a Task Order:

a. Past performance on earlier orders under the contract, including quality, timeliness and cost control
b. Special expertise/experience
c. Potential impact on other orders placed with the contract
d. Bonding capacity

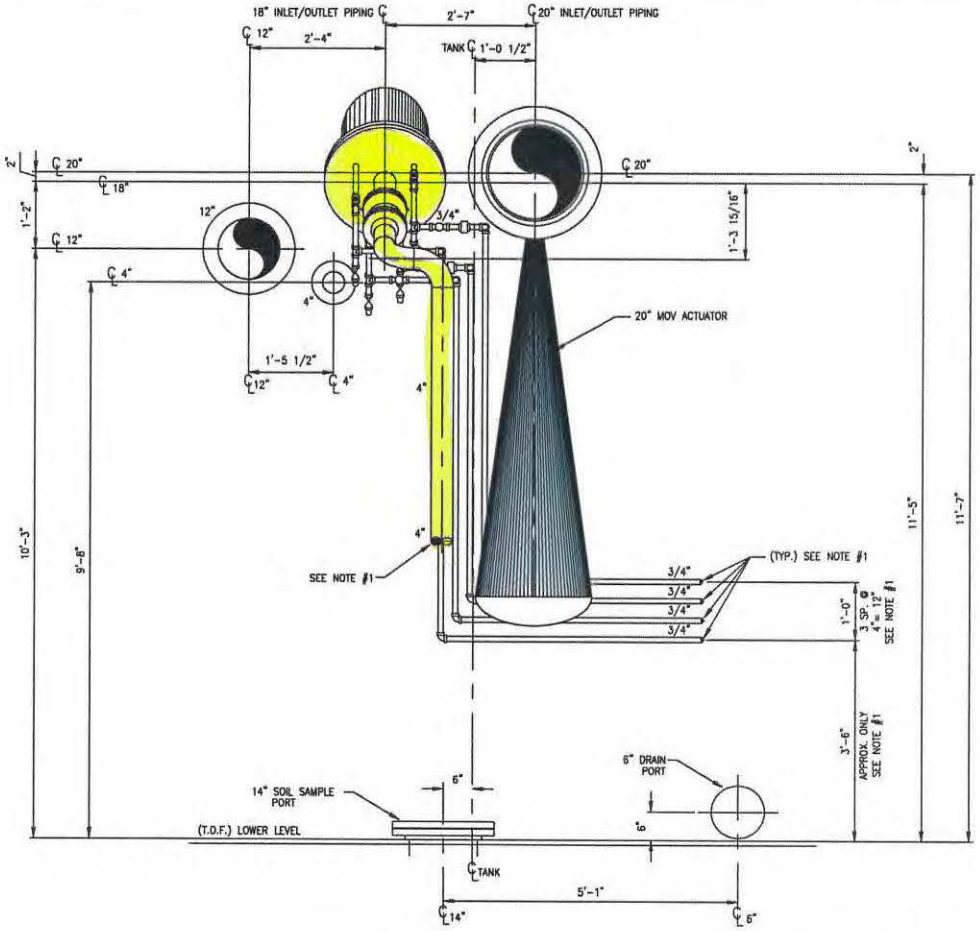
Past performance, quality, timeliness, special expertise or other factors the Contracting Officer determines are relevant to award of a particular task order may be considered. Timely performance by a contractor is very important. Failure to prosecute the work diligently on a currently awarded task order will be cause for the Contracting Officer not to include the contractor in the competitive fair opportunity pool for future task orders. When the contractor's delinquency has been corrected, they will be considered for competition in future task orders.



PLAN VIEW "A"
EXTERNAL TANK VIEW
(LOWER LEVEL)



ELEVATION VIEW "A"
EXTERNAL TANK VIEW
(LOWER LEVEL)



ELEVATION VIEW "B"
EXTERNAL TANK VIEW
(LOWER LEVEL)

NOT FOR CONSTRUCTION

ISSUED FOR APPROVAL
26-FEB-13

NOTES:

1. FIELD VERIFY TO REQUIRED ELEVATIONS.
2. FIELD VERIFY TO REQUIRED CENTERLINES.

REFERENCE	NUMBER	NO.	DATE	REVISION	BY	CHK	APPR	APPR	APPR
		B	2/26/13	REVISED PER FIELD COMMENTS	LJM	TDA			
		A	8/9/12	ISSUED FOR APPROVAL	LJM	TDA			

DRAWING STATUS: CONSTRUCTION, BIDS, APPROVAL, INFORMATION

DRAWING APPROVALS

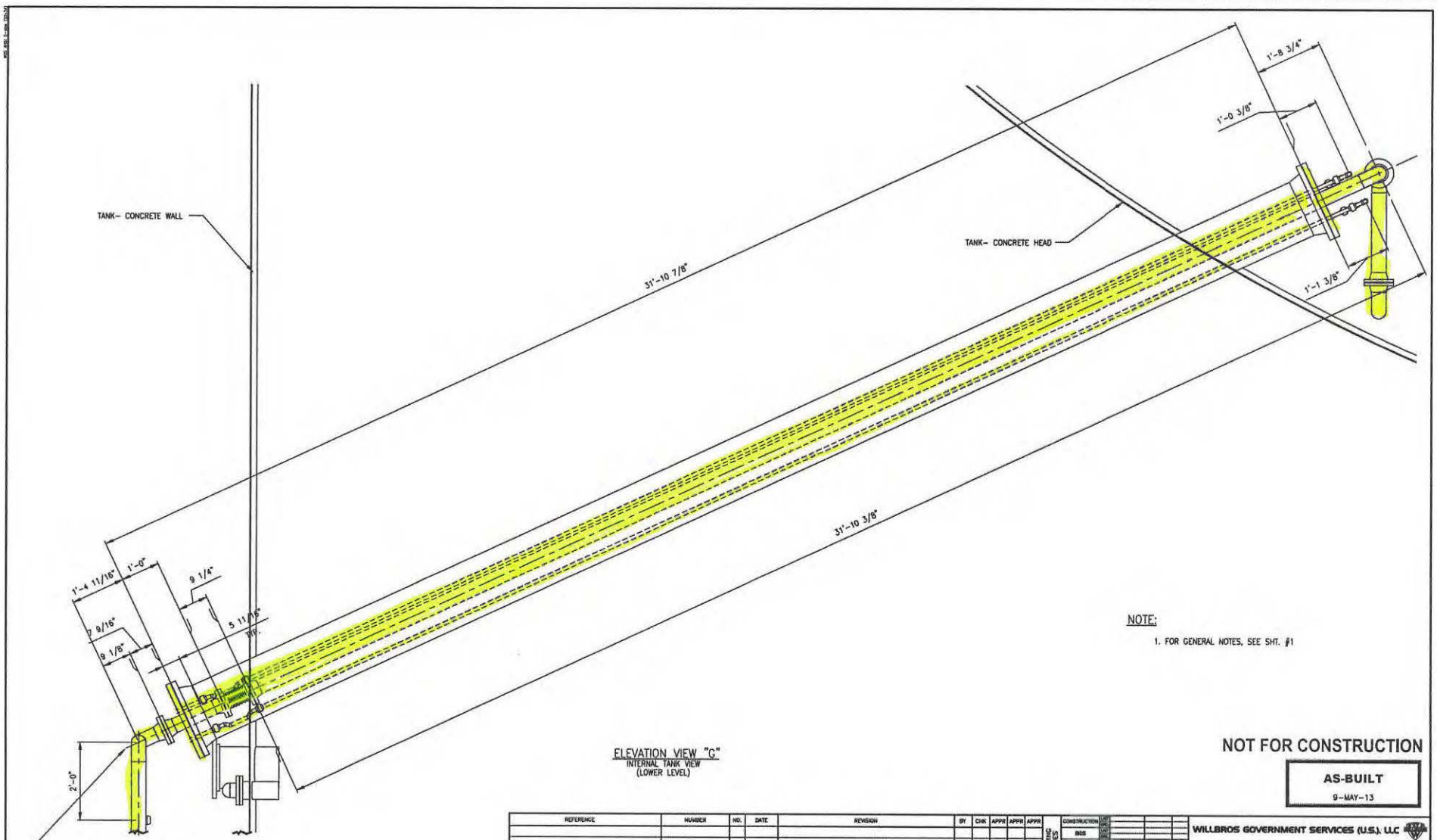
RELEASE FOR:	SIGNATURE	DATE	REV.
DRAWN: LJM	DATE: 8/8/12		
CHECKED: TDA	DATE:		
ENGINEER: TDA	DATE:		
W.E.I.:	DATE:		
CLIENT:	DATE:		
CLIENT:	DATE:		

WILLBROS GOVERNMENT SERVICES (U.S.), LLC

PEARL NAVAL BASE-REDHILL COMPLEX
TK #5 SAMPLE & DRAIN PIPING
PEARL HARBOR, HI

SCALE	PROJECT NO.	DRAWING NO.	SHEET	REV.
NOTED	54118-003	07-400	1 OF 3	B

DRAWING - FORT RICHARD CANTRA DRAWINGS\54118 NAVAL REDHILL PROJECT



ELEVATION VIEW "G"
INTERNAL TANK VIEW
(LOWER LEVEL)

NOTE:

1. FOR GENERAL NOTES, SEE SHT. #1

NOT FOR CONSTRUCTION

AS-BUILT
9-MAY-13

REFERENCE	NUMBER	NO.	DATE	REVISION	BY	CHK	APPR	APPR	APPR
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		B	2/26/13	REVISED PER FIELD COMMENTS	LJM	TDA			
		A	8/8/12	ISSUED FOR APPROVAL	LJM	TDA			

DRAWING ISSUES

CONSTRUCTION			
BIDS			
APPROVAL			
INFORMATION			

DRAWING APPROVALS

ISSUED FOR:	SIGNATURE	DATE	REV.
DRAWN:	LJM	DATE:	8/8/12
CHECKED:	TDA	DATE:	8/9/13
ENGINEER:	TDA	DATE:	8/9/13
W.E.I.:		DATE:	
CLIENT:		DATE:	
CLIENT:		DATE:	

WILLBROS GOVERNMENT SERVICES (U.S.), LLC

PEARL NAVAL BASE–REDHILL COMPLEX
TK #5 SAMPLE & DRAIN PIPING
PEARL HARBOR, HI

SCALE	PROJECT NO.	DRAWING NO.	SHEET	REV.
NOTED	54118–003	07–400	7 OF 7	C

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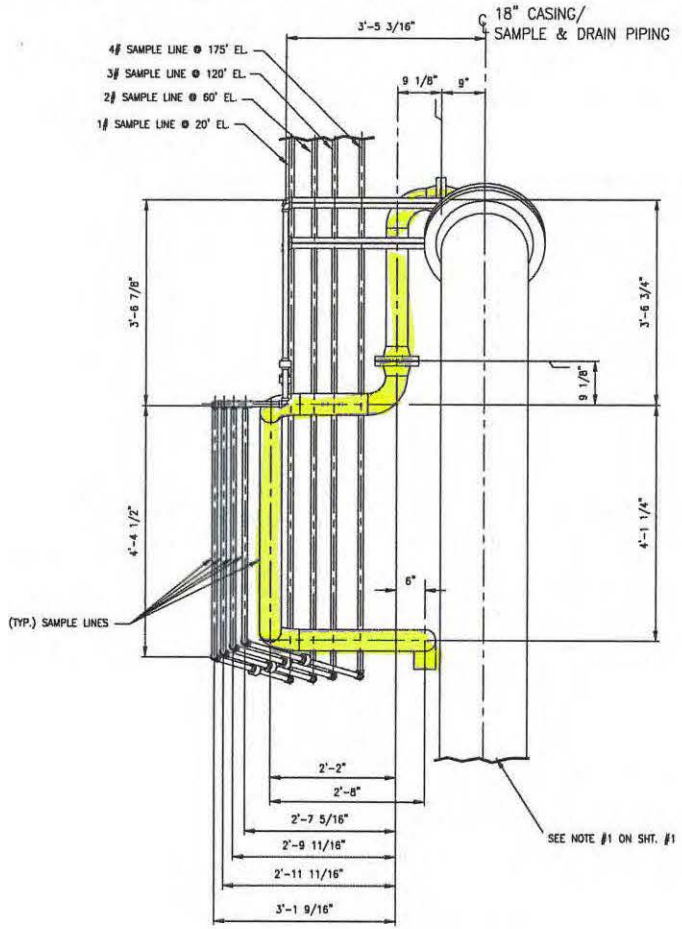

ELEVATION VIEW "F"
INTERNAL TANK VIEW
(LOWER LEVEL)

NOTE:

1. FOR GENERAL NOTES, SEE SHT. #1

NOT FOR CONSTRUCTION

AS-BUILT
9-MAY-13

REFERENCE	NUMBER	NO.	DATE	REVISION	BY	CHK	APPR	APPR	APPR
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DRAWING ISSUES

CONSTRUCTION			
BIDS			
APPROVAL			
INFORMATION			

DRAWING APPROVALS

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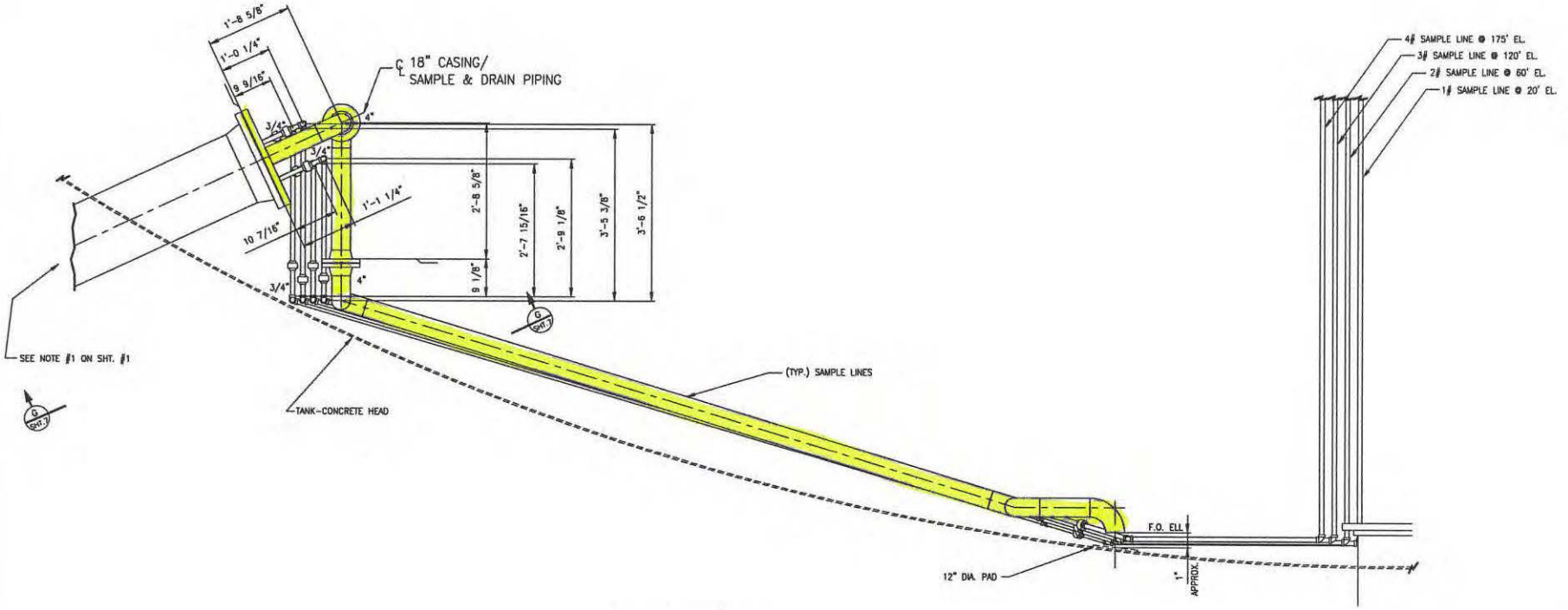
CHECKED:	TDA	DATE:	8/9/13
ENGINEER:	TDA	DATE:	8/9/13
W.E.C.I.		DATE:	
CLIENT:		DATE:	
CLIENT:		DATE:	

WILLBROS GOVERNMENT SERVICES (U.S.), LLC

PEARL NAVAL BASE-REDHILL COMPLEX
TK #5 SAMPLE & DRAIN PIPING
PEARL HARBOR, HI

SCALE	PROJECT NO.	DRAWING NO.	SHEET	REV.
NOTED	54118-003	07-400	6 OF 7	B



ELEVATION VIEW "E"
INTERNAL TANK VIEW
(LOWER LEVEL)

NOT FOR CONSTRUCTION

AS-BUILT
9-MAY-13

NOTE:

1. FOR GENERAL NOTES, SEE SHT. #1

REFERENCE	NUMBER	NO.	DATE	REVISION	BY	CHK	APPR	APPR	APPR
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		A	8/9/12	ISSUED FOR APPROVAL	LJM	TDA			

DRAWING ISSUES

ISSUED FOR:	SIGNATURE	DATE	REV.
CONSTRUCTION			
BIDS			
APPROVAL			
INFORMATION			

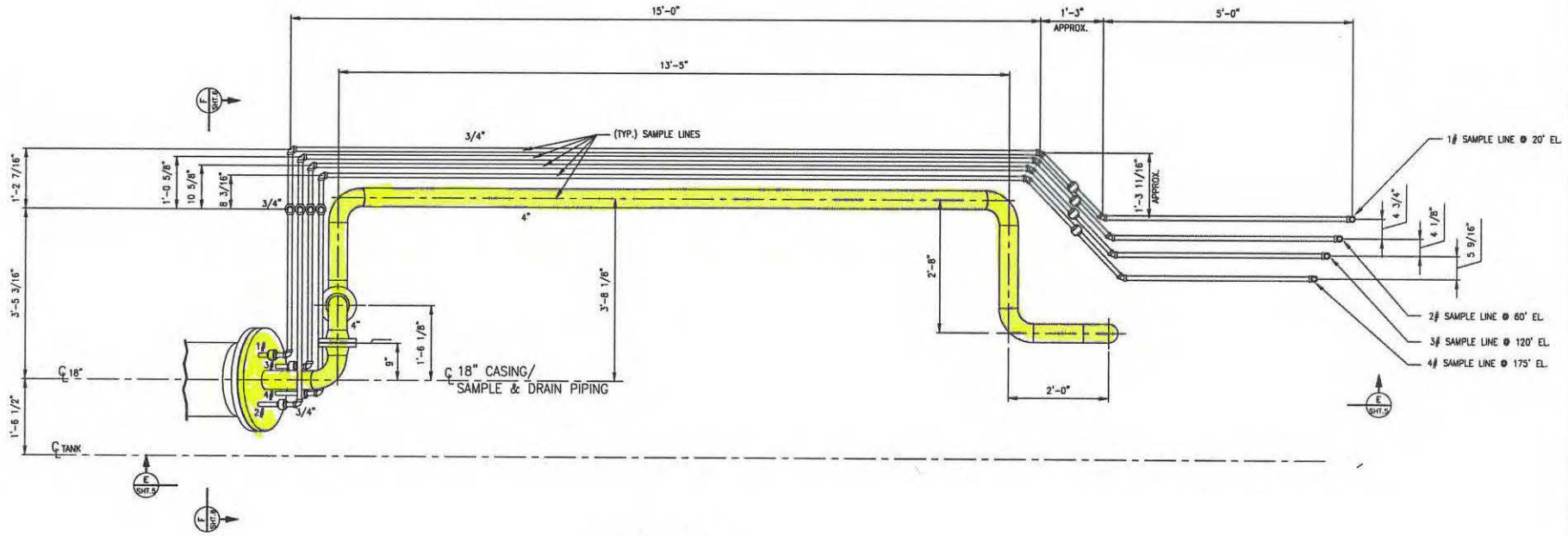
DRAWING APPROVALS

DRAWN:	LJM	DATE: 8/8/12
CHECKED:	TDA	DATE: 8/9/13
ENGINEER:	TDA	DATE: 8/9/13
W.E.Li:		DATE:
CLIENT:		DATE:
CLIENT:		DATE:

WILBROS GOVERNMENT SERVICES (U.S.), LLC

PEARL NAVAL BASE-REDHILL COMPLEX
TK #5 SAMPLE & DRAIN PIPING
PEARL HARBOR, HI

SCALE	PROJECT NO.	DRAWING NO.	SHEET	REV.
NOTED	54118-003	07-400	5 OF 7	B



PLAN VIEW "A"
INTERNAL TANK VIEW
(LOWER LEVEL)

NOTE:

1. FOR GENERAL NOTES, SEE SHT. #1

NOT FOR CONSTRUCTION

AS-BUILT
9-MAY-13

REFERENCE	NUMBER	NO.	DATE	REVISION	BY	CHK	APPR	APPR	APPR
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DRAWING ISSUES

	DATE
CONSTRUCTION	
BIDS	
APPROVAL	
INFORMATION	

ISSUED FOR:	SIGNATURE:	DATE:	REV:
DRAWN: LJM	DATE:	8/8/12	
CHECKED: TJA	DATE:	8/9/13	
ENGINEER: TJA	DATE:	8/9/13	
P.E.:	DATE:		
CLIENT:	DATE:		
CLIENT:	DATE:		

DRAWING APPROVALS

WILLBROS GOVERNMENT SERVICES (U.S.), LLC

PEARL NAVAL BASE-REDHILL COMPLEX
TK #5 SAMPLE & DRAIN PIPING
PEARL HARBOR, HI

SCALE	PROJECT NO.	DRAWING NO.	SHEET	REV.
NOTED	54118-003	07-400	4 OF 7	C

DNAVFAC - PORT HUENEME CONTRACT ORDER/54108 NAVFAC REDHILL PROJECT T:\54108\DR_DRAWING\07_PIPING\54118-003-07-400\54118-003-07-400.dgn

WILLBROS GOVERNMENT SERVICES, LLC

N62583-09-D-132 TASK ORDER 003

RED HILL TANKS 5 AND 17 - CLEAN, INSPECT AND REPAIR

TANK 5 REPAIRS - REPAIR/NDE/QA/QC DATA

						REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS										QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS								
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WP001	27	6	(P)27-6-1	L	Pit Repair- 0.060" 3/16" W x 3/4" L		1										DO	PC	1/26/2012	RC	2/3/2012	DO	4/26/2012							DO	4/26/2012	DC	5/7/2012					DC	5/7/2012	1
WP002	25	8	(P)25-8-2	S	Pit Repair- 0.070" x 3/16" dia.			1									DO	PC	1/26/2012	RC	2/6/2012	DO	4/28/2012							RC	5/18/2012	DC	5/10/2012	JK	5/16/2012	RC	5/18/2012	RC	5/18/2012	1
WP003	21	8	#217A #217B	S S	Pit Repair- 0.110" depth Pit Repair- 0.100" depth Pit			1									DO	PC	1/26/2012	RC	2/6/2012	DO	4/25/2012	DC	4/26/2012					RC	5/18/2012	DC	5/10/2012	JK	5/14/2012	RC	5/18/2012	RC	5/18/2012	1
WP004	20	8	(P)20-8-1	L	Gouge Repair- 0.060 depth (3)		1										DO	PC	1/26/2012	RC	2/8/2012	PC	4/27/2012							RC	5/18/2012	DC	5/10/2012	JK	5/14/2012	RC	5/18/2012	RC	5/18/2012	1
WP005	19	8	(P)19-8-1	S	Pit Repair- 0.070" x 1/4" dia.		1										DO	PC	1/26/2012	RC	2/8/2012	PC	4/27/2012							PC	4/27/2012	DC	5/9/2012					DC	5/9/2012	1
WP006	18	6	#175 (P)18-6-1	S	Gouge Repair- 0.095" 3/8" W x 3/4" L		1										DO	PC	1/26/2012	DC	4/12/2012	DO	4/25/2012							DO	4/25/2012	DC	5/9/2012					DC	5/9/2012	1
					r		1										DO	PC	1/26/2012	RC	2/3/2012	DO	4/28/2012							RC	5/18/2012	DC	5/10/2012	JK	5/14/2012	RC	5/18/2012	RC	5/18/2012	1
WP008	15	6	(P)15-6-3	S	Pit Repair- 0.070" x 1/4" dia.		1										DO	PC	1/26/2012	RC	2/3/2012	DO	4/28/2012							DO	4/28/2012	DC	5/9/2012					DC	5/9/2012	1
WP009	11	6	(P)11-6-2	S	Pit Repair- 0.070" x 1/2" dia (4)			1									DO	PC	1/26/2012	RC	2/9/2012	PC	4/27/2012							RC	5/18/2012	DC	5/10/2012	JK	5/14/2012	RC	5/18/2012	RC	5/18/2012	1
WP010	3	5	(P)3-5-1	S	Gouge Repair- 0.075" x 1/2" dia.										1	butts up to GN back pla	PC	PC	1/26/2012	RC	2/10/2012	PC	4/27/2012							RC	5/18/2012	JK	5/16/2012	JK	5/16/2012	RC	5/18/2012	RC	5/18/2012	1
WP011	1	1	(P)1-1-2	S	Gouge Repair- 0.085" 3/16" W x 1 1/4" L		1										DO	PC	1/26/2012	DC	2/28/2012	PC	4/27/2012							PC	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP012	1	1	(P)1-1-1	S	Gouge Repair- 0.110" 3/8" W x 1" L		1										DO	PC	1/26/2012	DC	2/28/2012	PC	4/27/2012							PC	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP013	1	1	(P)1-1-3	S	Pit Repair- 0.080" x 1/2" dia		1										DO	PC	1/26/2012	RC	2/10/2012	PC	4/27/2012							PC	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP014	1	2	(P)1-2-1	S	Gouge Repair- 0.125" 3/8" W x 1 3/4" L						1					On St ffner ring	DO	PC	1/26/2012	DC	2/28/2012	PC	4/27/2012							PC	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP015	A	10	(P)A-10-2	M	Dent Repair- 1" dia.		1										PC	PC	1/26/2012	DC	3/13/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP016	A	10	#297 (P)A-10-1	M M	Dent Repair- 1 1/2" dia. Dent Repair- 2" dia.			1									PC	PC	1/26/2012	DC	3/13/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/8/2012					DC	5/8/2012	1
WP017	A	21	(P)A-21-1	L	Pit Repair- 0.050" x 3/8" dia.		1										PC	PC	1/26/2012	DC	2/17/2012	RC	4/18/2012							RC	4/18/2012	DC	5/8/2012					DC	5/8/2012	1
WP018	A	21	(P)A-21-1	L	Pit Repair- 0.050" x 3/8" dia.		1										PC	PC	1/26/2012	DC	2/17/2012	RC	4/18/2012							RC	4/18/2012	DC	5/8/2012					DC	5/8/2012	1
WP019	A	21	(P)A-21-1	L	Pit Repair- 0.065" 1/2" W x 5" L (2)		1										PC	PC	1/26/2012	RC	2/14/2012	RC	4/19/2012	DC	4/25/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP020	A	25	(P)A-25-1	M	Pit Repair- 0.150" x 1" dia.		1										PC	PC	1/26/2012	JK	2/16/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP021	A	20	(P)A-20-1	L	Pit Repair- 0.065" x 1/2" dia.		1										PC	PC	1/26/2012	DC	3/2/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/8/2012					DC	5/8/2012	1
WP021A	A	27	(P)A-27-2	S	Pit Repair- 0.080" 1/2" W x 1/2"						1					Along weld seam	PC	PC	1/26/2012	DC	3/2/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/8/2012					DC	5/8/2012	1
WP023	A	27	(P)A-27-2	S	Pit Repair- 0.090" 1/2" W x 1/2" L (2)			1									PC	PC	1/26/2012	JK	2/16/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/8/2012					DC	5/8/2012	1
WP024	A	30	(P)A-30-2	S	Pit Repair- 0.070" x 3/4" dia.		1										PC	PC	1/26/2012	JK	2/16/2012	DO	4/23/2012	JK	4/26/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP025	A	30	(P)A-30-1	S	Gouge Repair- 0.085" 1/2" W x 1" L		1										PC	PC	1/26/2012	JK	2/16/2012	DO	4/23/2012	JK	4/26/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP026	A	34	(P)A-34-1	S	Gouge Repair- 0.070" x 3/4" dia.						1					Along weld seam	PC	PC	1/26/2012	DC	3/2/2012	DO	4/23/2012	JK	4/26/2012					DO	4/26/2012	JK	5/16/2012					JK	5/16/2012	1
WP027	A	35	(P)A-35-1	S	Gouge Repair- 0.075" 1/4" W x 1" L						1					Along weld seam	PC	PC	1/26/2012	DC	3/2/2012	DO	4/23/2012	JK	4/25/2012					DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP028	A	35	(P)A-35-1	S	Pit Repair- 0.090" 1/2" W x 2" L (2)						1					Along weld seam	PC	PC	1/26/2012	DC	3/2/2012	DO	4/23/2012	JK	4/25/2012					DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP029	B	33	(P)B-33-1	M	Dent Repair- 1" dia.		1										PC	PC	1/26/2012	DC	2/20/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WP030	B	10	(P)B-10-1	S	Gouge Repair- 0.080" 1/4" W x 1" L		1										DO	PC	1/26/2012	DC	2/15/2012	DC	4/24/2012							DC	4/24/2012	DC	5/8/2012					DC	5/8/2012	1
WP031	C	16	(P)C-16-1	L	Pit Repair- 0.065" x 1 1/2" dia.		1										PC	PC	1/26/2012	DC	2/18/2012	DO	4/28/2012							DO	4/28/2012	JK	5/7/2012					JK	5/7/2012	1
WP032	C	16	#362B	S	Pit Repair- 0.115" x 1/2" dia.		1										PC	PC	1/26/2012	DC	2/18/2012	DO	4/28/2012							DO	4/28/2012	JK	5/7/2012					JK	5/7/2012	1
WP033	C	19	#364	S	Gouge Repair- 0.090" x 1/2" dia.		1										PC	PC	1/26/2012	DC	2/18/2012	RC	4/23/2012	DR	4/25/2012					DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP034	C	19	#365A	S	Gouge Repair- 0.090" x 1/2" dia.		1										PC	PC	1/26/2012	DC	2/18/2012	RC	4/23/2012	DR	4/25/2012					DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP035	C	19	#365B	L	Gouge Repair- 0.060" depth		1										PC	PC	1/26/2012	DC	2/18/2012	RC	4/23/2012	DR	4/25/2012					DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP036	C	19	(P)C-19-2	S	Gouge Repair- 0.105" 1/4" W x 1 1/8" L		1										PC	PC	1/26/2012	DC	2/18/2012	RC	4/23/2012							DC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP037	C	20	#369	S	Gouge Repair- 0.105" x 1/2" dia.		1										PC	PC	1/26/2012	DC	2/20/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP038	C	22	(P)C-22-1	S	Gouge Repair- 0.090" 3/8" W x 1 3/4" L		1										PC	PC	1/26/2012	DC	2/20/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP039	D	21	(P)D-21-1 (P)D-21-2	S	Gouge Repair- 0.095" x 3/8" dia.		1										DO	PC	1/26/2012	JK	2/23/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP040	D	21	#393	S S	Gouge Repair- 0.075" x 3/8" dia. Gouge Repair- 0.095" x 3/8" dia.		1										DO	PC	1/26/2012	JK	2/23/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP041	D	20	(P)D-20-4	S	Gouge Repair- 0.130" x 3/4" dia.		1										DO	PC	1/26/2012	JK	2/23/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP042	D	20	(P)D-20-3	S	Gouge Repair- 0.115" x 1/2" dia.		1										DO	PC	1/26/2012	JK	2/23/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP043	D	20	(P)D-20-2	S	Gouge Repair- 0.075" 3/16" W x 1 1/4" L		1										DO	PC	1/26/2012	JK	2/23/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP044	D	20	(P)D-20-1	S	Gouge Repair- 0.110" x 3/4" dia.		1										DO	PC	1/26/2012	JK	2/23/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP045	D	18	(P)D-18-2	S	Gouge Repair- 0.100" 3/16" W x 1 1/2" L		1										PC	PC	1/26/2012	JK	2/23/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP047	D	15	#385 (P)D-15-1	M	Dent Repair- 1 1/2" dia.		1										PC	PC	1/26/2012	JK	2/22/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP048	D	14	(P)D-14-2	S	Gouge Repair- 0.080" 3/16" W x 3/4" L		1										DO	PC	1/26/2012	JK	2/22/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP049	D	14	(P)D-14-1	L	Gouge Repair- 0.065" 1/4" W x 2 1/2" L		1										DO	PC	1/26/2012	JK	2/22/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1

						REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS								QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS							
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WP050	D	13	(P)D-13-2	S L	Gouge Repair- 0.070" x 3/8" dia. Gouge Repair- 0.065" x 3/8" dia.			1									DO	PC	1/26/2012	JK	2/22/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP051	D	13	(P)D-13-1	S	Gouge Repair- 0.090" x 1/2" dia.		1										DO	PC	1/26/2012	JK	2/22/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP052	D	10	#386B	S	Gouge Repair- 0.110" x 3/16" dia.		1										PC	PC	1/26/2012	DC	2/21/2012	RC	4/23/2012	JK	4/26/2012					DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP053	D	9	(P)D-9-1	S	Gouge Repair- 0.090" 3/16" W x 1" L		1										DO	PC	1/26/2012	JK	2/22/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP054	D	7	(P)D-7-1	S	Gouge Repair- 0.070" x 1/2" dia. (2)		1										PC	PC	1/27/2012	JK	2/22/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP055	D	7	(P)D-7-1	L	Gouge Repair- 0.055" x 3/16" W x 1 1/4" L		1										PC	PC	1/27/2012	DC	2/21/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP056	D	4	(P)D-4-2	S	Gouge Repair- 0.075" x 3/8" dia.		1										PC	PC	1/27/2012	DC	2/21/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP057	D	3	(P)D-3-1	S	Gouge Repair- 0.090" x 3/8" dia.		1										DO	PC	1/27/2012	JK	2/21/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP058	D	3	(P)D-3-2	S	Gouge Repair- 0.090" x 3/8" dia.		1										PC	PC	1/27/2012	JK	2/22/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP059	C2	15	#17	M	Dent Repair- 1 3/4" W x 2 1/2" L						1					2" from weld seem	DO	PC	1/27/2012	DC	3/20/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WP060	C2	16	#19	M	Dent Repair- 3" dia.						1					3" from weld seem	DO	PC	1/27/2012	DC	4/13/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WP061	C3	22	#41A (ר)C3-22-1	S	Gouge Repair- 0.080" 3/16" x 1 3/4" L		1																																
WP062	C3	21	#41B	S	Gouge Repair- 0.080" 3/16" x 2"L		1										DO	PC	1/27/2012	DC	2/28/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WP063	C3	19	#43	S	Gouge Repair- 0.080" 3/16" x 1 1/2" L						1					1" from weld seem	DO	PC	1/27/2012	DC	3/9/2012	PC	4/21/2012							PC	4/21/2012	JK	5/15/2012					JK	5/15/2012	1
WP063A	E4	16	#272	L	Plate Repair- 12"W x 4" L							1				corner	DO	JA	1/28/2012	DC	4/2/2012	PC	4/17/2012							DO	4/28/2012	RC	5/8/2012					RC	5/8/2012	1
WP064	C3	19	(P)C3-19-1	L	Gouge Repair- 0.060" x 1/2" dia						1						DO	PC	1/27/2012	DC	3/9/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WP065	C3	19	#43A	S	Gouge Repair- 0.095" x 1/2" dia						1					1" from weld seem	DO	PC	1/27/2012	DC	3/7/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WP066	C4	20	#42A	L	Pit Repair- 0.060" x 1/4"		1										PC	PC	1/27/2012	DC	2/28/2012	PC	4/27/2012							PC	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WP067	5	12	(P)5-12-1	S	Pit Repair- 0.075" 3/16"W x 1/2" L		1										JA	JA	1/28/2012	DC	2/4/2012	PC	4/25/2012							PC	4/25/2012	RC	5/15/2012					RC	5/15/2012	1
WP068	12	12	(P)12-12-1	S	Pit Repair- 0.075" 1/4"W x 1 1/4" L		1										JA	JA	1/28/2012	DC	2/4/2012	DO	4/19/2012							RC	5/21/2012	RC	5/17/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WP069	15	10	(P)15-10-1	M M	Plate Repair- Lead Arc Out / Copper Contamination 1/8" & 1/4" Dia (2)		1										JA	JA	1/28/2012	DC	2/14/2012	PC	4/26/2012	DC	4/26/2012					PC	4/27/2012	RC	5/14/2012					RC	5/14/2012	1
WP070	21	12	(P)21-12-1	L	Gouge Repair- 0.063" 3/16"x 1"						1					Along GN plate	JA	JA	1/28/2012	RC	3/20/2012	DO	4/20/2012							JK	5/18/2012	RC	5/14/2012	JK	5/18/2012	JK	5/18/2012	JK	5/18/2012	1
WP070A	24	14	(P)24-14-3	S	Plate Repair- 0.139" Plate Thk		1										JA	JA	1/28/2012	DC	2/3/2012	DO	4/20/2012	DC	4/26/2012	PC	4/30/2012	JK	5/1/2012	DO	5/1/2012	RC	5/16/2012					RC	5/16/2012	1
WP071	E4	16	(P)E4-16-5	S	Pit Repair- 0.085" 1/4"W x 3/4" L		1										DO	JA	1/28/2012	JK	2/15/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP071A	27	13	(P)27-13-1 (P)27-13-2	L	Pit Repair- 0.060" 1/4" W x 1 1/2" L		1										JA	JA	1/28/2012	DC	2/3/2012	PC	4/17/2012							PC	4/17/2012	RC	5/10/2012					RC	5/10/2012	1
WP072	E4	16	(P)E4-16-4	S	Pit Repair- 0.090" 3/8"W x 1/2" L										1	On St ffner ring	DO	JA	1/28/2012	DC	4/2/2012	PC	4/21/2012							RC	5/21/2012	RC	5/8/2012	JK	5/11/2012	DC	5/21/2012	RC	5/21/2012	1
WP073	E4	16	(P)E4-16-3	S	Pit Repair- 0.090" 3/8"W x 1 1/4" L		1										DO	JA	1/28/2012	DC	1/31/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP074	E4	16	(P)E4-16-2	S	Pit Repair- 0.085" 1/8"W x 1 1/4 L		1										DO	JA	1/28/2012	DC	1/31/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP075	E4	13	(P)E4-13-1	M	Hole Repair in Shell- 1/4" Dia						1						DO	JA	1/28/2012	RC	2/28/2012	PC	4/17/2012							PC	4/17/2012	RC	5/8/2012					RC	5/8/2012	1
WP076	E3	15	#274 (P)E3-15-1	M	Plate Repair- 12" W x 25" L x 0.141" Thk										1	corner	DO	JA	1/28/2012	DC	4/2/2012	PC	4/21/2012							RC	5/21/2012	RC	5/8/2012	JK	5/11/2012	DC	5/21/2012	RC	5/21/2012	1
WP077	E2	16	#275	M	Plate Repair- 12" W x 13" L x 0.150" Thk										1	Around a circle	DO	JA	1/28/2012	DC	4/5/2012	PC	4/21/2012							RC	5/21/2012	RC	5/8/2012	JK	5/11/2012	DC	5/21/2012	RC	5/21/2012	1
WP078	E2	16	#276	M	Dent Repair- 4" W x 2" L		1										DO	JA	1/28/2012	DC	1/31/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP079	E2	16	#277	M	Plate Repair- 10" W x 10" L x 0.171" Thk							1					DO	JA	1/28/2012	DC	2/3/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP080	E2	12	(P)E2-12-1	M	Dent Repair- 1 1/2" W x 3" L		1										DO	JA	1/28/2012	DC	2/3/2012	PC	4/17/2012							PC	4/17/2012	RC	5/8/2012					RC	5/8/2012	1
WP081	E2	11	(P)E2-11-1	S	Pit Repairs- 0.070" 3/8" W x 1/2" L										1	2" x 8" on Stiffner Ring	DO	JA	1/28/2012	JK	4/21/2012	PC	4/26/2012							PC	4/26/2012	RC	5/8/2012					RC	5/8/2012	1
WP082	E2	10	#273 (P)E2-10-1	S	Gouge Repair- 0.160" Deep		1										DO	JA	1/28/2012	DC	2/3/2012	PC	4/26/2012							PC	4/26/2012	RC	5/9/2012					RC	5/9/2012	1
WP083	A	70	(P)A-70-1	S	Gouge Repair- 0.085" 3/16" W x 1 1/2" L										1	Under I beam	DO	JA	1/28/2012	DC	4/2/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP084	A	70	(P)A-70-1	S	Gouge Repair- 0.090" x 1/2" dia. (3)		1										JA	JA	1/28/2012	DC	1/31/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP085	A	70	(P)A-70-1	S	Gouge Repair- 0.125" 1/2"W x 1 1/2" L		1										JA	JA	1/28/2012	DC	2/1/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP086	A	68		L	Gouge Repair- 0.060" 3/8" W x 1" L		1										JA	JA	1/28/2012	DC	1/31/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP087	A	67	(P)A-67-1	M	Dent Repair- 0.170" deep		1										JA	JA	1/28/2012	DC	2/1/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP088	A	64	(P)A-64-2	S	Gouge Repair- 0.070" x 3/8" dia.		1										JA	JA	1/28/2012	DC	2/1/2012	PC	4/18/2012							PC	4/18/2012	RC	5/8/2012					RC	5/8/2012	1
WP089	A	61	(P)A-61-2	S	Gouge Repair- 0.110" x 3/8" dia.		1										JA	JA	1/28/2012	DC	2/1/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP090	A	59	(P)A-59-1	L	Gouge Repair- 0.060" 3/8" W x 1" L		1										JA	JA	1/28/2012	DC	2/1/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP091	A	58	(P)A-58-2	M	Gouge Repair- 0.190" 1 1/4" W x 1 1/2" L		1										JA	JA	1/28/2012	DC	2/2/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP092	A	52	(P)A-52-1	M	Pit Repair- 0.155" 1/2" W x 3/4" L										1	2" x 6" Rectangle	JA	JA	1/28/2012	DC	4/11/2012	DO	4/24/2012	DC	4/26/2012	PC	4/30/2012	JK	5/1/2012	DO	5/1/2012	RC	5/8/2012					RC	5/8/2012	1
WP093	A	49	(P)A-49-2	S S	Pit Repair- 0.070" 1/2" W x 3/4" L Gouge Repair- 0.075" 1/4" W x 1 1/2" L		1										JA	JA	1/28/2012	DC	2/2/2012	RC	4/19/2012							RC	4/19/2012	RC	5/8/2012					RC	5/8/2012	1
WP094	A	49	(P)A-49-2	S	Gouge Repair- 0.140" x 3/8" dia		1										DO	JA	1/28/2012	DC	2/2/2012	RC	4/19/2012							RC	4/19/2012	RC	5/8/2012					RC	5/8/2012	1
WP095	A	49	(P)A-49-2	S	Gouge Repair- 0.090" 3/8" W x 3/4" L		1										DO	JA	1/28/2012	JK	4/21/2012	DO	4/24/2012							DO	4/24/2012	RC	5/8/2012					RC	5/8/2012	1
WP096	A	47	(P)A-47-2	S	Gouge Repair- 0.075" 3/16" W x 3/4" L		1										DO	JA	1/28/2012	DC	2/2/2012	PC	4/18/2012							PC	4/18/2012	RC	5/8/2012					RC	5/8/2012	1
WP097	A	46	(P)A-46-2	S	Gouge Repair- 0.115" 5/16" W x 1 3/4" L		1										DO	JA	1/28/2012	DC	2/2/2012	PC	4/18/2012							PC	4/18/2012	RC	5/8/2012					RC	5/8/2012	1
WP098	A	46	(P)A-46-1	S	Gouge Repair- 0.095" x 1/2" dia (2)		1										DO	JA	1/28/2012	DC	2/2/2012	PC	4/18/2012							PC	4/18/2012	RC	5/8/2012					RC	5/8/2012	1
WP099	A	43	(P)A-43-1	S	Gouge Repair- 0.070" 1/4" W x 1" L						1					Along weld seam	DO	JA	1/28/2012	DC	2/2/2012	RC	4/19/2012							RC	4/19/2012	RC	5/9/2012					RC	5/9/2012	1

						REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS										QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS									
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WP100	A	43	(P)A-43-3	S	Gouge Repair- 0.090" x 1 1/2" dia.		1										DO	JA	1/28/2012	DC	2/2/2012	RC	4/19/2012							RC	4/19/2012	RC	5/9/2012					RC	5/9/2012	1
WP101	B	38	(P)B-38-1	S	Gouge Repair- 0.080" 1/8" W x 6 1/2" L			1									JA	JA	1/28/2012	RC	2/13/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP102	B	38	(P)B-38-3	S	Gouge Repair- 0.070" x 3/8" dia.		1										JA	JA	1/28/2012	RC	2/13/2012	DO	4/27/2012							DO	4/27/2012	RC	5/9/2012					RC	5/9/2012	1
WP103	B	38	(P)B-38-2	M	Gouge Repair- 0.150" x 1/2" dia.		1										JA	JA	1/28/2012	RC	2/21/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP104	B	38	(P)B-38-3	S	Gouge Repair- 0.070" x 3/8" dia.		1										JA	JA	1/28/2012	RC	2/21/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP105	B	41	(P)B-41-1	S	Gouge Repair- 0.090" 3/8" W x 1" L		1										JA	JA	1/28/2012	RC	3/2/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP106	B	43	(P)B-43-2	M	Dent Repair- 1" dia.		1										JA	JA	1/28/2012	DC	2/8/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP107	B	44	(P)B-44-1	S	Pit Repair- 0.095" x 1/2" dia.		1										JA	JA	1/28/2012	DC	2/8/2012	PC	4/18/2012							PC	4/18/2012	RC	5/9/2012					RC	5/9/2012	1
WP108	B	44	(P)B-44-2	M	Dent Repair- 1 1/2" dia.		1										JA	JA	1/28/2012	DC	2/8/2012	PC	4/20/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP109	B	46	(P)B-46-2	S	Gouge Repair- 0.085" 1/2" W x 1" L		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/23/2012							RC	5/23/2012	RC	5/9/2012	JK	5/11/2012	RC	5/23/2012	RC	5/23/2012	1
WP110	B	47	(P)B-47-1	S	Gouge Repair- 0.075" 1/8" W x 1" L						1					Along weld seam	JA	JA	1/28/2012	RC	2/28/2012	PC	4/23/2012							RC	5/23/2012	RC	5/9/2012	JK	5/11/2012	RC	5/23/2012	RC	5/23/2012	1
WP111	B	52	(P)B-52-1	S	Gouge Repair- 0.075" x 1/2" dia.		1																																
WP112	B	52	(P)B-52-2	S	Gouge Repair- 0.085" x 3/8" dia.		1										JA	JA	1/28/2012	DC	2/7/2012	RC	4/19/2012							RC	4/19/2012	RC	5/9/2012					RC	5/9/2012	1
WP113	B	52	(P)B-52-3	L	Gouge Repair- 0.065" 1/4" W x 7/8" L		1										JA	JA	1/28/2012	DC	2/7/2012	RC	4/19/2012							RC	4/19/2012	RC	5/9/2012					RC	5/9/2012	1
WP114	B	55	(P)B-55-2	S	Gouge Repair- 0.090" x 3/16" dia.		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/17/2012							PC	4/17/2012	RC	5/9/2012					RC	5/9/2012	1
WP115	B	55	(P)B-55-1	L	Gouge Repair- 0.065" x 1/4" dia.		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/17/2012							PC	4/17/2012	RC	5/9/2012					RC	5/9/2012	1
WP116	B	56	(P)B-56-1	S	Gouge Repair- 0.070" 3/16" W x 3/8" L		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/17/2012							PC	4/17/2012	RC	5/9/2012					RC	5/9/2012	1
WP117	B	56	(P)B-56-1	S	Gouge Repair- 0.090" x 3/16" dia		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/17/2012							PC	4/17/2012	RC	5/9/2012					RC	5/9/2012	1
WP118	B	56	(P)B-56-1	S	Gouge Repair- 0.090" x 3/16" dia		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/17/2012							PC	4/17/2012	RC	5/9/2012					RC	5/9/2012	1
WP119	B	57	(P)B-57-3	S	Gouge Repair- 0.080" x 1/2" dia.		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP120	B	59	(P)B-59-4	L	Gouge Repair- 0.065" x 1/4" dia.		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP121	B	59	(P)B-59-2	S	Gouge Repair- 0.070" 3/16" W x 1 1/4" L		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/17/2012							PC	4/17/2012	RC	5/9/2012					RC	5/9/2012	1
WP122	B	59	(P)B-59-3	S	Gouge Repair- 0.080" 3/16" W x 1 1/4" L		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP123	B	61	(P)B-61-1	S	Gouge Repair- 0.070" x 1/4" dia.		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/21/2012							PC	4/21/2012	RC	5/9/2012					RC	5/9/2012	1
WP124	B	61	(P)B-61-1	S	Gouge Repair- 0.075" x 3/8" dia.		1										JA	JA	1/28/2012	DC	2/7/2012	PC	4/21/2012							PC	4/21/2012	RC	5/9/2012					RC	5/9/2012	1
WP125	B	62	(P)B-62-1	L	Gouge Repair- 0.065" x 1/4" dia.		1										JA	JA	1/28/2012	DC	2/7/2012	DO	4/21/2012							DO	4/21/2012	RC	5/9/2012					RC	5/9/2012	1
WP126	B	62	(P)B-62-1	L	Gouge Repair- 0.065" x 1/4" dia.		1										DO	JA	1/28/2012	DC	2/6/2012	DO	4/21/2012							DO	4/21/2012	RC	5/9/2012					RC	5/9/2012	1
WP127	B	63	(P)B-63-2	L	Gouge Repair- 0.070" x 1/4" dia.		1										JA	JA	1/28/2012	DC	2/6/2012	DO	4/21/2012							DO	4/21/2012	RC	5/9/2012					RC	5/9/2012	1
WP128	B	63	(P)B-63-1	L	Gouge Repair- 0.065" x 1/4" dia.		1										JA	JA	1/28/2012	DC	2/6/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP129	B	65	(P)B-65-1 (P)B-65-2	S L	Gouge Repair- 0.080" 3/16" W x 1 1/2" L Gouge Repair- 0.060" x 1/2" dia.			1									JA	JA	1/28/2012	DC	2/6/2012	PC	4/21/2012							RC	5/23/2012	RC	5/9/2012	JK	5/11/2012	RC	5/23/2012	RC	5/23/2012	1
WP130	B	66	(P)B-66-3	S	Gouge Repair- 0.070" 3/16" W x 2 1/2" L		1										JA	JA	1/28/2012	RC	3/9/2012	PC	4/23/2012	DC	4/23/2012	PC	4/30/2012	JK	5/1/2012	DO	5/1/2012	RC	5/10/2012					RC	5/10/2012	1
WP131	B	66	(P)B-66-2	S	Gouge Repair- 0.090" 3/16" W x 1/4" L		1										JA	JA	1/28/2012	DC	2/6/2012	PC	4/23/2012							PC	4/23/2012	RC	5/10/2012					RC	5/10/2012	1
WP132	B	66	(P)B-66-1	S	Gouge Repair- 0.080" 3/16" W x 2 1/2" L		1										JA	JA	1/28/2012	DC	2/6/2012	PC	4/21/2012							PC	4/21/2012	RC	5/10/2012					RC	5/10/2012	1
WP133	B	67	(P)B-67-3	S	Gouge Repair- 0.085" x 1/4" dia.		1										JA	JA	1/28/2012	DC	2/6/2012	PC	4/21/2012							PC	4/21/2012	RC	5/10/2012					RC	5/10/2012	1
WP134	B	67	(P)B-67-1	L	Gouge Repair- 0.065" x 1/4" dia.		1										JA	JA	1/28/2012	DC	2/6/2012	PC	4/23/2012							PC	4/23/2012	RC	5/10/2012					RC	5/10/2012	1
WP135	B	67	(P)B-67-2	S	Gouge Repair- 0.070" x 1/4" dia.						1					Along weld seam	JA	JA	1/28/2012	RC	2/28/2012	PC	4/23/2012							PC	4/23/2012	RC	5/10/2012					RC	5/10/2012	1
WP136	B	68	(P)B-68-1	S	Gouge Repair- 0.075" x 3/8" dia.		1										JA	JA	1/28/2012	DC	2/6/2012	DO	4/21/2012							DO	4/21/2012	RC	5/10/2012					RC	5/10/2012	1
WP137	B	68	(P)B-68-1	S	Gouge Repair- 0.075" x 3/8" dia.		1										JA	JA	1/28/2012	DC	2/6/2012	PC	4/21/2012							PC	4/21/2012	RC	5/10/2012					RC	5/10/2012	1
WP138	B	70	(P)B-70-4	L	Gouge Repair- 0.065" x 1/2" dia.		1										JA	JA	1/28/2012	DC	2/6/2012	DO	4/21/2012							DO	4/21/2012	RC	5/10/2012					RC	5/10/2012	1
WP139	B	70	(P)B-70-3	S	Gouge Repair- 0.095" x 1/2" dia.		1										JA	JA	1/28/2012	DC	2/6/2012	DO	4/21/2012							DO	4/21/2012	RC	5/10/2012					RC	5/10/2012	1
WP140	B	70	(P)B-70-2	S	Gouge Repair- 0.085" 3/16" W x 1/2" L		1										JA	JA	1/28/2012	DC	2/6/2012	DO	4/21/2012							DO	4/21/2012	RC	5/16/2012					RC	5/16/2012	1
WP141	C	45	(P)C-45-1 (P)C-45-3 (P)B-71-2	S	Gouge Repair- 0.110" x 1/2" dia.		1										JA	JA	1/28/2012	DC	2/6/2012	DO	4/21/2012							DO	4/21/2012	RC	5/10/2012					RC	5/10/2012	1
WP141A	B	71	(P)B-71-2	S M	Gouge Repair- 0.085" 3/16" W x 1/4" L Gouge Repair- 0.150" x 3/16" dia.		1										JA	JA	1/28/2012	DC	2/9/2012	PC	4/20/2012							PC	4/23/2012	RC	5/10/2012					RC	5/10/2012	1
WP142	C	45	(P)C-45-1 (P)C-45-3 (P)B-71-1	S	Gouge Repair- 0.110" x 1/2" dia.		1										JA	JA	1/28/2012	DC	2/6/2012	DO	4/21/2012							DO	4/21/2012	RC	5/16/2012					RC	5/16/2012	1
WP142A	B	71	(P)B-71-1	S	Gouge Repair- 0.070" 3/16" W x 1/2" L		1										JA	JA	1/28/2012	DC	2/9/2012	PC	4/20/2012							PC	4/23/2012	RC	5/10/2012					RC	5/10/2012	1
WP143	C	45	(P)C-45-1 (P)C-45-3	S	Gouge Repair- 0.075" x 3/8" dia. (3)		1										JA	JA	1/28/2012	DC	2/9/2012	PC	4/20/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP144	C	45	(P)C-45-1 (P)C-45-3	S	Gouge Repair- 0.095" x 1/2" dia.		1										JA	JA	1/28/2012	DC	2/9/2012	PC	4/18/2012							PC	4/18/2012	RC	5/16/2012					RC	5/16/2012	1
WP145	C	2	#374	M	Dent Repair- 0.200" depth		1										JA	JA	1/28/2012	DC	4/16/2012	PC	4/18/2012							PC	4/18/2012	JK	5/15/2012					JK	5/15/2012	1
WP145A	C	45	(P)C-45-1 (P)C-45-3	L	Gouge Repair- 0.060" 1/4" W x 3/4" L		1										JA	JA	1/28/2012	DC	2/9/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP146	C	45	(P)C-45-1 (P)C-45-3	L	Gouge Repair- 0.060" 1/4" W x 3/4" L		1										JA	JA	1/28/2012	DC	2/9/2012	PC	4/20/2012	JK	4/27/2012					PC	4/30/2012	RC	5/16/2012					RC	5/16/2012	1
WP147	C	45	(P)C-45-1 (P)C-45-3	L	Gouge Repair- 0.060" 1/4" W x 3/4" L						1					Along weld seam	JA	JA	1/28/2012	RC	3/9/2012	PC	4/20/2012							DC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP148	C	42	(P)C-42-1 (P)C-42-2	S L	Gouge Repair- 0.085" 1/4" W x 3/4" L Gouge Repair- 0.065" x 3/8" dia.		1										JA	JA	1/28/2012	DC	2/9/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP149	C	40	(P)C-40-2	S	Gouge Repair- 0.075" x 3/16" dia.		1										JA	JA	1/28/2012	DC	2/10/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1

						REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS										QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS								
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WP150	C	40	(P)C-40-1	L	Gouge Repair- 0.060" 1/4" W x 3/4" L		1										JA	JA	1/28/2012	RC	2/22/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP151	C	38	(P)C-38-1	S	Gouge Repair- 0.075" 3/16" W x 3/4" L				1								JA	JA	1/28/2012	RC	3/12/2012	PC	4/17/2012							PC	4/17/2012	RC	5/16/2012					RC	5/16/2012	1
WP152	C	38	(P)C-38-2	L	Gouge Repair- 0.060" x 3/8" dia.		1										JA	JA	1/28/2012	RC	2/22/2012	PC	4/17/2012							PC	4/17/2012	RC	5/16/2012					RC	5/16/2012	1
WP153	C	38	(P)C-38-2	L	Gouge Repair- 0.065" x 3/16" dia.						1						JA	JA	1/28/2012	RC	2/22/2012	PC	4/17/2012							PC	4/17/2012	RC	5/16/2012					RC	5/16/2012	1
WP154	C	35	(P)C-35-1	S	Gouge Repair- 0.070" 1/4" W x 1/2" L		1									Along weld seam	JA	JA	1/28/2012	RC	2/18/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP155	C	35	(P)C-35-2	S	Gouge Repair- 0.090" x 3/8" dia.		1										JA	JA	1/28/2012	RC	2/18/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP156	C	35	(P)C-35-3	S	Gouge Repair- 0.070" x 3/8" dia.		1										JA	JA	1/28/2012	RC	2/18/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP157	C	34	(P)C-34-3	S	Gouge Repair- 0.070" x 3/8" dia.		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP158	C	34	(P)C-34-2	S S	Gouge Repair- 0.105" 1/2" W x 1" L Gouge Repair- 0.095" x 3/8" dia.		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP159	C	34	(P)C-34-1	S	Gouge Repair- 0.075" 3/16" W x 3/8" L		1										DO	JA	1/28/2012	RC	2/18/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP160	C	33	(P)C-33-2	S	Gouge Repair- 0.085" x 1/2" dia.		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP161	C	33	(P)C-33-1	S	Gouge Repair- 0.120" x 3/8" dia.		1																																
WP162	C	32	(P)C-32-1	S	Gouge Repair- 0.095" 3/16" W x 2" L		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP163	C	32	(P)C-32-3	L	Gouge Repair- 0.065" 3/16" W x 1 1/2" L		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP164	C	32	(P)C-32-2	S	Gouge Repair- 0.088" 3/16" W x 2 1/2" L		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP165	C	32	(P)C-32-5	S	Gouge Repair- 0.090" x 1/4" dia.		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP166	C	32	#380	M	Gouge Repair- 0.175" 1/4" W x 1 1/2" L		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP167	C	31	(P)C-31-2	S	Gouge Repair- 0.110" x 3/8" dia.		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP168	C	31	(P)C-31-2	L	Gouge Repair- 0.060" 3/16" W x 3/8" L		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP169	C	31	(P)C-31-1	S	Gouge Repair- 0.070" 3/16" W x 3/8" L		1										DO	JA	1/28/2012	RC	2/20/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP170	C	29	(P)C-29-1	S	Gouge Repair- 0.110" 3/16" W x 1/2" L		1										DO	JA	1/28/2012	RC	2/21/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP171	C	28	(P)C-28-1	S	Gouge Repair- 0.090" 1/8" W x 2" L		1										DO	JA	1/28/2012	RC	2/21/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP172	D	31	(P)D-31-3	L	Gouge Repair- 0.060" 1/4" W x 1" L		1										DO	JA	1/28/2012	RC	2/27/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP173	D	31	(P)D-31-2	L	Gouge Repair- 0.065" x 3/8" dia. (2)		1										DO	JA	1/28/2012	RC	2/27/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP174	D	31	(P)D-31-1	S	Gouge Repair- 0.080" x 3/8" dia.		1										DO	JA	1/28/2012	RC	2/27/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP175	D	31	(P)D-31-4	S	Gouge Repair- 0.070" 5/8" W x 1 1/8" L		1										DO	JA	1/28/2012	RC	2/27/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP176	D	33	(P)D-33-1	L	Gouge Repair- 0.065" 3/16" W x 1 1/4" L		1										DO	JA	1/28/2012	RC	2/24/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP177	D	34	(P)D-34-2	L	Gouge Repair- 0.060" x 1/2" dia.		1										DO	JA	1/28/2012	RC	2/24/2012	DO	4/24/2012							RC	5/23/2012	RC	5/7/2012	JK	5/11/2012	RC	5/23/2012	RC	5/23/2012	1
WP178	D	34	(P)D-34-1	S	Gouge Repair- 0.070" 3/16" W x 1 1/2" L		1										DO	JA	1/28/2012	RC	2/24/2012	DO	4/24/2012							RC	5/21/2012	RC	5/7/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WP179	D	35	(P)D-35-2	L	Gouge Repair- 0.060 " x 1/2" dia. (2)		1										DO	JA	1/28/2012	RC	2/23/2012	DO	4/24/2012							DO	4/24/2012	RC	5/17/2012					RC	5/17/2012	1
WP180	D	35	(P)D-35-1	S	Gouge Repair- 0.095 " x 3/8" dia. (4)						1					Along Weld Seam	DO	JA	1/28/2012	RC	2/23/2012	DO	4/24/2012							DO	4/24/2012	RC	5/16/2012					RC	5/16/2012	1
WP181	D	35	#398	S	Gouge Repair- 0.095" 1/4" W x 2 1/4" L		1										DO	JA	1/28/2012	RC	2/24/2012	DO	4/24/2012							DO	4/24/2012	RC	5/17/2012					RC	5/17/2012	1
WP182	D	36	(P)D-36-1	S	Gouge Repair- 0.100" x 1/2" dia.		1										DO	JA	1/28/2012	RC	2/23/2012	DO	4/24/2012							DO	4/24/2012	RC	5/17/2012					RC	5/17/2012	1
WP183	D	36	(P)D-36-2	S	Gouge Repair- 0.105" x 5/8" dia.		1										DO	JA	1/28/2012	RC	2/23/2012	DO	4/24/2012							DO	4/24/2012	RC	5/17/2012					RC	5/17/2012	1
WP184	D	37	(P)D-37-2	S	Gouge Repair- 0.075" 3/8" W x 2 1/4" L		1										DO	JA	1/28/2012	RC	2/23/2012	DO	4/24/2012							DO	4/24/2012	RC	5/17/2012					RC	5/17/2012	1
WP185	D	37	(P)D-37-3	S	Gouge Repair- 0.085" 3/16" W x 2 1/8" L		1										DO	JA	1/28/2012	RC	2/23/2012	DO	4/24/2012							DO	4/24/2012	RC	5/17/2012					RC	5/17/2012	1
WP186	D	37	(P)D-37-1	S	Gouge Repair- 0.095" x 1/2" dia.		1										DO	JA	1/28/2012	RC	2/22/2012	PC	4/17/2012							PC	4/17/2012	RC	5/17/2012					RC	5/17/2012	1
WP186A	D	37	#400	L	Gouge Repair- 0.050" 3/16" W x 2" L		1										DO	JA	1/28/2012	RC	2/22/2012	PC	4/17/2012							PC	4/17/2012	RC	5/17/2012					RC	5/17/2012	1
WP187	D	45	(P)D-45-1	L	Gouge Repair- 0.065" 1/4" W x 3/4" L		1										DO	JA	1/28/2012	RC	2/23/2012	PC	4/17/2012							PC	4/17/2012	RC	5/17/2012					RC	5/17/2012	1
WP188	D	47	(P)D-47-3	S	Gouge Repair- 0.125" x 3/4" dia.		1										DO	JA	1/28/2012	RC	2/21/2012	PC	4/17/2012							PC	4/17/2012	RC	5/17/2012					RC	5/17/2012	1
WP189	D	47	(P)D-47-1	S	Gouge Repair- 0.110" x 1/2" dia.		1										DO	JA	1/28/2012	RC	2/21/2012	PC	4/17/2012							PC	4/17/2012	RC	5/17/2012					RC	5/17/2012	1
WP190	D	47	(P)D-47-4	L	Pit Repair- 0.050" depth		1										DO	JA	1/28/2012	RC	2/22/2012	DO	4/24/2012							DO	4/24/2012	RC	5/17/2012					RC	5/17/2012	1
WP190A	E2	3	#264	M	Dent Repair- 0.200" deep		1										DO	JA	1/28/2012	RC	1/31/2012	RC	4/18/2012	JK	4/25/2012					DO	4/26/2012	DC	5/7/2012					DC	5/7/2012	1
WP191	D	47	#382A	M	Dent Repair- 0.225" depth		1										DO	JA	1/28/2012	RC	2/23/2012	DO	4/24/2012							DO	4/24/2012	RC	5/17/2012					RC	5/17/2012	1
WP191A	E2	3	#265	M	Dent Repair- 0.200" deep		1										DO	JA	1/28/2012	RC	1/31/2012	RC	4/18/2012	JK	4/25/2012					DO	4/26/2012	DC	5/7/2012					DC	5/7/2012	1
WP192	D	48	(P)D-48-1	S S	Gouge Repairs- 0.100" x 1/2" dia. Gouge Repairs- 0.085" 3/16" W x 1/2" L			1									DO	JA	1/28/2012	RC	2/23/2012	DO	4/24/2012							DO	4/24/2012	RC	5/17/2012					RC	5/17/2012	1
WP192A	E2	3	#266	M	Dent Repair- 0.240" deep		1										DO	JA	1/28/2012	RC	1/31/2012	RC	4/18/2012	JK	4/25/2012					DO	4/26/2012	DC	5/7/2012					DC	5/7/2012	1
WP193	E3	7	(P)E3-7-1	S	Pit Repair- 0.075" x 1" dia.		1										DO	PC	1/27/2012	RC	2/2/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/9/2012					DC	5/9/2012	1
WP194	E3	6	#282	M	Dent Repair- 0.150" Deep		1										DO	PC	1/27/2012	RC	2/2/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/9/2012					DC	5/9/2012	1
WP195	E3	5	(P)E3-5-1	L	Gouge Repair- 0.045" 1/2" W x 1 1/2" L		1										DO	PC	1/27/2012	RC	2/2/2012	DO	4/26/2012							DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP197	E4	2	(P)E4-2-2	S	Gouge Repair- 0.080" x 3/8" dia.		1										DO	PC	1/27/2012	RC	1/31/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP198	E4	2	(P)E4-2-2	M	Dent Repair- 1 1/2" dia.		1										DO	PC	1/27/2012	RC	1/31/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP199	C3	34	(P)C3-34-2	S	Gouge Repair- 0.070" 1/4" W x 1/2" L		1										DO	PC	1/27/2012	RC	2/18/2012	PC	4/25/2012							PC	4/25/2012	RC	5/17/2012					RC	5/17/2012	1

						REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS										QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS										
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WP200	C3	34	(P)C3-34-2	S	Gouge Repair- 0.070" 1/4" W x 1/2" L		1										DO	PC	1/27/2012	RC	2/18/2012	PC	4/25/2012							PC	4/25/2012	JK	5/17/2012					JK	5/17/2012	1
WP201	C3	32	(P)C3-32-2	S	Gouge Repair- 0.070" x 3/16" dia.		1										DO	PC	1/27/2012	DC	3/7/2012	PC	4/27/2012							PC	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WP202	C3	32	(P)C3-32-3	S	Gouge Repair- 0.070" x 3/16" dia.		1										DO	PC	1/27/2012	DC	3/7/2012	PC	4/27/2012							PC	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WP203	E2	9	(P)E2-9-1	S	Pit Repair- 0.100" x 1/4" dia		1										DO	PC	1/27/2012	RC	2/2/2012	DO	4/26/2012							DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP204	E2	9	(P)E2-9-1	S	Pit Repairs- 0.090" x 1/4" dia (2)		1										DO	PC	1/27/2012	RC	2/2/2012	DO	4/26/2012							DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP205	E2	9	(P)E2-9-1	M	Dent Repair- 1" W x 2" L		1										DO	PC	1/27/2012	RC	2/2/2012	DO	4/26/2012							DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP206	E4	9	(P)E4-9-2	L	Pit Repair- 0.050" x 3/8" dia.			1									DO	PC	1/27/2012	DC	4/17/2012	DO	4/24/2012	JK	4/25/2012					DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP207	A	36	(P)A-36-1	L	Gouge Repair- 0.050" x 1/4" dia.		1										JA	PC	1/27/2012	DC	2/17/2012	DO	4/23/2012	JK	4/25/2012					DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP208	C	26	(P)C-26-1	L	Gouge Repair- 0.060" 1/4" W x 2" L		1										JA	JA	1/26/2012	RC	2/21/2012	PC	4/23/2012							PC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WP209	D	27	(P)D-27-2	S	Gouge Repair- 0.090" x 1/2" dia.		1										JA	JA	1/26/2012	RC	3/13/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP210	D	25	(P)D-25-1	S	Gouge Repair- 0.100" 3/16" W x 2 3/4" L		1										DO	JA	1/28/2012	JK	4/19/2012	DO	4/27/2012							DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP211	D	27	(P)D-27-1	S	Gouge Repair- 0.080" x 3/4" dia.				1							corner																							
WP212	D	28	(P)D-28-1	L	Gouge Repair- 0.065" x 1/2" dia.		1										DO	JA	1/26/2012	RC	3/12/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP213	D	28	(P)D-28-2	S	Gouge Repair- 0.105" 3/16" W x 2 1/2" L						1					Along Weld Seam	DO	JA	1/26/2012	RC	3/12/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP214	D	1	(P)D-1-1	S	Gouge Repair- 0.080" x 3/4" dia. (3)			1									DO	JK	4/20/2012	JK	4/20/2012	DO	5/1/2012							DO	5/1/2012	RC	5/17/2012					RC	5/17/2012	1
WP215	D	1	(P)D-1-2	S	Gouge Repair- 0.070" x 3/16" dia.		1										DO	JK	4/20/2012	JK	4/20/2012	DO	5/1/2012							DO	5/1/2012	RC	5/17/2012					RC	5/17/2012	1
WP216	D	2	(P)D-2-1	S	Gouge Repair- 0.080" 3/8" W x 1/2" L		1										DO	JK	4/20/2012	JK	4/20/2012	RC	5/1/2012	RC	5/1/2012					RC	5/1/2012	JK	5/15/2012					JK	5/15/2012	1
WP217	D	21	(P)D-21-1 (P)D-21-2	L	Gouge Repair- 0.050" x 3/8" dia.		1										DO	PC	1/27/2012	JK	2/23/2012	DO	4/21/2012							DO	4/21/2012	JK	5/7/2012					JK	5/7/2012	1
WP217A	B	1	(P)B-1-1	L	Gouge Repair- 0.060" 3/8" W x 3/16" L		1										JA	RC	3/5/2012	RC	3/5/2012	RC	4/20/2012							RC	4/20/2012	RC	5/8/2012					RC	5/8/2012	1
WP218	D	21	(P)D-21-1 (P)D-21-2	L	Gouge Repair- 0.045" x 1/8" dia.		1										DO	PC	1/27/2012	JK	2/23/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP219	D	19	(P)D-19-2	L	Gouge Repair- 0.045" x 1/2" dia.		1										PC	PC	1/27/2012	JK	2/23/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP220	D	19	(P)D-19-1	L	Pit Repair- 0.050" x 3/8" dia.		1										DO	PC	1/27/2012	JK	2/23/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP221	D	17	(P)D-17-1	L	Gouge Repair- 0.045" x 1/4" dia.		1										DO	PC	1/27/2012	JK	2/22/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP222	D	16	(P)D-16-1	L	Pit Repair- 0.050" x 1/4" dia.		1										DO	PC	1/27/2012	JK	2/22/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP223	D	16	(P)D-16-2	L	Gouge Repair- 0.050" x 1/2" dia.		1										PC	PC	1/27/2012	JK	2/22/2012	RC	4/20/2012							RC	4/20/2012	JK	5/7/2012					JK	5/7/2012	1
WP224	D	11	(P)D-11-1	L	Gouge Repair- 0.050" x 3/8" dia.		1										DO	PC	1/27/2012	JK	2/22/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP225	D	10	#386A	M	Dent Repair- 0.140" depth										1	2" x 5" on Rib	PC	PC	1/27/2012	JK	4/21/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP226	D	9	(P)D-9-1	L	Gouge Repair- 0.045" x 3/16" W x 1/2" L		1										DO	PC	1/27/2012	JK	2/22/2012	PC	4/21/2012							PC	4/21/2012	JK	5/7/2012					JK	5/7/2012	1
WP227	D	5	#387	L	GN Repair- 0.203" Remaining Plate Thk.										1	GN side wall	PC	PC	1/27/2012	DC	4/16/2012	PC	4/21/2012							RC	5/18/2012	JK	5/7/2012	JK	5/7/2012	RC	5/18/2012	RC	5/18/2012	1
WP228	C	8	(P)C-8-1	L	Pit Repair- 0.045" x 3/16" W x 1" L						1					Along weld seam	PC	PC	1/27/2012	DC	3/5/2012	DO	4/28/2012							DO	4/28/2012	JK	5/7/2012					JK	5/7/2012	1
WP229	C	10	(P)C-10-1	S	Gouge Repair- 0.130" x 3/16" dia.						1					Along weld seam	PC	PC	1/27/2012	DC	3/5/2012	PC	4/21/2012							PC	4/21/2012	JK	5/7/2012					JK	5/7/2012	1
WP230	C	11	(P)C-11-1	L	Pit Repair- 0.050" x 1/2" dia.			1									PC	PC	1/27/2012	DC	2/18/2012	DO	4/28/2012							DO	4/28/2012	JK	5/7/2012					JK	5/7/2012	1
WP231	C	16	(P)C-16-2	L L	Pit Repair- 0.045" x 1 1/2" dia. Pit Repair- 0.055" x 3/8" dia. (2)			1									PC	PC	1/27/2012	DC	2/18/2012	DO	4/28/2012							DO	4/28/2012	JK	5/7/2012					JK	5/7/2012	1
WP232	C	16	#363	S	Pit Repair- 0.100" x 1/2" dia.		1										PC	PC	1/27/2012	DC	2/18/2012	DO	4/28/2012							DO	4/28/2012	JK	5/7/2012					JK	5/7/2012	1
WP233	C	21	#371 (P)C-21-1	L	Gouge Repair- 0.060" depth		1										PC	PC	1/27/2012	DC	2/20/2012	RC	4/23/2012	JK	4/26/2012					DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP234	C	22	(P)C-22-1	L	Pit Repair- 0.045" x 3/4" dia.		1										PC	PC	1/27/2012	DC	2/20/2012	RC	4/23/2012	JK	4/26/2012					DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP235	C	23	#372	L	GN Repair- 0.204" Remaining Plate Thk.									1		GN end and GN side w	PC	PC	1/27/2012	DC	4/16/2012	RC	4/23/2012	JK	4/26/2012					DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP236	C	24	#367 (P)C-24-1	S	Pit Repair- 0.100" depth		1										DO	PC	1/27/2012	DC	2/20/2012	RC	4/23/2012							RC	4/23/2012	JK	5/15/2012					JK	5/15/2012	1
WP237	C	24	#366	S	Pit Repair- 0.090" depth		1										PC	PC	1/27/2012	DC	2/20/2012	RC	4/23/2012	JK	4/26/2012					DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP238	B	36	(P)B-36-1	L	Pit Repair- 0.045" x 1/2" dia.		1										PC	PC	1/27/2012	DC	2/17/2012	DO	4/26/2012							DO	4/26/2012	JK	5/15/2012					JK	5/15/2012	1
WP239	B	30	(P)B-30-1	L	Pit Repair- 0.050" x 3/16" W x 1/2" L		1										PC	PC	1/27/2012	DC	2/17/2012	DO	4/23/2012							DO	4/23/2012	DC	5/8/2012					DC	5/8/2012	1
WP240	B	27	(P)B-27-1 (P)B-27-2	L	Pit Repair- 0.050" x 3/8" dia.		1										PC	PC	1/27/2012	DC	2/17/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP241	B	27	(P)B-27-1 (P)B-27-2	L	Pit Repair- 0.050" x 3/8" dia.		1										PC	PC	1/27/2012	DC	2/17/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP242	B	24	#342 (P)B-24-1	S	Pit Repair- 0.100" x 3/8" dia. (5)		1										PC	PC	1/27/2012	DC	2/17/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/8/2012					DC	5/8/2012	1
WP243	B	22	#343 (P)B 22-1	M	Dent Repair- 1 1/2" dia.		1										PC	PC	1/27/2012	DC	2/17/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/8/2012					DC	5/8/2012	1
WP244	B	21	(P)B-21-1	L	Pit Repair- 0.050" x 1/2" dia.		1										PC	PC	1/27/2012	DC	2/17/2012	DC	4/24/2012							DC	4/24/2012	DC	5/8/2012					DC	5/8/2012	1
WP245	B	21	#340	M	Dent Repair- 2 1/2" dia.		1										PC	PC	1/27/2012	DC	2/17/2012	DC	4/24/2012							DC	4/24/2012	DC	5/8/2012					DC	5/8/2012	1
WP246	B	19	#339 (P)B-19-1	S	Dent Repair- 2" W x 2" L						1						PC	PC	1/27/2012	DC	3/2/2012	DC	4/24/2012	DR	4/25/2012					DO	4/27/2012	DC	5/8/2012					DC	5/8/2012	1
WP247	B	18	#337 (P)B-18-1	S	Gouge Repair- 0.750" x 1/2" dia.		1										DO	PC	1/27/2012	DC	2/17/2012	DC	4/24/2012							DC	4/24/2012	DC	5/8/2012					DC	5/8/2012	1
WP248	B	10	#335 (P)B-10-1	M	Dent Repair- 2" dia.		1										DO	PC	1/27/2012	RC	2/15/2012	DC	4/24/2012							DC	4/24/2012	DC	5/8/2012					DC	5/8/2012	1
WP249	B	8	(P)B-8-1 #333	S	Dent Repair- 0.125" x 1 1/8" dia.		1										PC	PC	1/27/2012	DC	2/18/2012	DC	4/24/2012	DR	4/25/2012					DO	4/27/2012	DC	5/8/2012					DC	5/8/2012	1
WP250	A	4	#317	L	Plate Repair- 4" W x 4" L x 0.181" Thk.				1							corner	PC	PC	1/27/2012	DC	3/1/2012	DO	4/26/2012	JK	4/28/2012					DO	4/30/2012	DC	5/8/2012					DC	5/8/2012	1
WP251	A	4	#320	S	Gouge Repair- 0.070" depth		1										PC	PC	1/27/2012	RC	2/1/2012	RC	4/17/2012	DC	4/25/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1

						REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS								QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS								
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WP252	A	4	#318	S	Pit Repairs- 0.100" 5" W x 6" L		1										PC	PC	1/27/2012	RC	2/1/2012	RC	4/17/2012	DC	4/25/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP253	A	4	#323	S	Gouge Repair- 0.070" depth										1	Along weld seam	PC	PC	1/27/2012	RC	2/1/2012	JK	4/26/2012	JK	4/26/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP254	A	4	#322	S	Gouge Repair- 0.070" depth										1	Along weld seam	PC	PC	1/27/2012	RC	2/1/2012	JK	4/26/2012	JK	4/26/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP255	A	5	(P)A-5-1	L	Pit Repair- 0.045" x 1/4" dia.						1					Along weld seam	PC	PC	1/27/2012	DC	3/1/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/8/2012					DC	5/8/2012	1
WP256	A	7	#324A	M	Dent Repair- 1" dia.		1										PC	PC	1/27/2012	RC	2/14/2012	JK	4/26/2012	JK	4/26/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP257	A	7	#324B	M	Dent Repair- 1" W x 2" L		1										PC	PC	1/27/2012	RC	2/14/2012	JK	4/26/2012	JK	4/26/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP258	A	10	#298	L	Plate Repair- 4" W x 4" L x 0.198" Thk.				1							corner	PC	PC	1/27/2012	DC	3/1/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP259	A	35	(P)A-35-2	L	Pit Repair- 0.065" x 1/2" dia.						1					Along weld seam	PC	PC	1/27/2012	RC	3/2/2012	DO	4/26/2012							DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP259A	A	10	#294	S	Gouge Repair- 0.080" depth		1										PC	PC	1/27/2012	DC	2/1/2012	DO	4/23/2012	JK	4/26/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP260	A	16	(P)A-16-1	S M x 3	Pit Repair- 0.110" 3/8" W x 1" L Pit Repair- 0.155" 1/2" W x 1 1/4" L (3)			1									PC	PC	1/27/2012	DC	3/1/2012	RC	4/19/2012							RC	4/19/2012	DC	5/8/2012					DC	5/8/2012	1
WP261	A	20	(P)A-20-1	S	Gouge Repair- 0.140" 1 1/2" W x 3/4" L		1										PC	PC	1/27/2012	DC	3/2/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP262	A	20	(P)A-20-1	S	Pit Repair- 0.080" x 1/2" dia.		1																																
WP263	A	21	#303	S	Plate Repair- 4" W x 30" L x 0.157" Thk.										1	4" tall whole length of sh	PC	PC	1/27/2012	DC	3/21/2012	RC	4/18/2012							RC	4/18/2012	DC	5/8/2012					DC	5/8/2012	1
WP264	A	22	#304 (P)A-22-1	S	Plate Repair- 8" W x 37" L x 0.180" Thk.										1	One edge on edge of sh	PC	PC	1/27/2012	DC	3/23/2012	RC	4/19/2012	DC	4/25/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP265	A	23	(P)A-23-1	S	Pit Repair- 0.070" 1/2" W x 3 1/2" L (2)		1										PC	PC	1/27/2012	JK	2/16/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/8/2012					DC	5/8/2012	1
WP266	A	31	#315	L	GN Repair- 0.200" Remaining Plate Thk.									1			PC	PC	1/27/2012	DC	4/12/2012	DO	4/23/2012	JK	4/26/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP267	A	31	#316	M	Dent Repair- 3 1/8" dia.		1									GN end and GN side w	PC	PC	1/27/2012	DC	2/17/2012	DO	4/23/2012							DO	4/23/2012	DC	5/8/2012					DC	5/8/2012	1
WP268	A	31	#313	S	Pit Repair- 0.100" x 3/8" dia.		1										PC	PC	1/27/2012	DC	2/17/2012	DO	4/23/2012	JK	4/26/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP270	E4	4	#270 (P) E4-4-1	M	Dent Repair- 1/2" dia.		1										DO	PC	1/27/2012	RC	1/31/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP271	E4	5	#285A (P)E4-5-1	M	Dent Repair- 3/4" dia.		1										DO	PC	1/27/2012	RC	1/31/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP272	E2	8	#281	S	GN Repair- Remaining Plate Thk 0.145"									1		GN end and GN side w	DO	PC	1/27/2012	DC	3/22/2012	DO	4/23/2012	JK	4/25/2012					DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP273	E2	7	#284	S	GN Repair- Remaining Plate Thk 0.144"									1		GN end and GN side w	DO	PC	1/27/2012	DC	3/8/2012	RC	4/18/2012							RC	4/18/2012	DC	5/9/2012					DC	5/9/2012	1
WP274	E2	7	#283	L	GN Repair- Remaining Plate Thk 0.181"									1		GN end and GN side w	DO	PC	1/27/2012	JK	4/19/2012	DO	4/26/2012							DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP275	E2	3	#267	S	GN Repair- Remaining Plate Thk 0.153"									1		GN end and GN side w	DO	PC	1/27/2012	DC	3/8/2012	RC	4/18/2012	JK	4/25/2012					DO	4/26/2012	DC	5/7/2012					DC	5/7/2012	1
WP276	E2	3	(P)E2-3-1	L	Pit Repair- 0.050" x 3/8" dia.		1										DO	PC	1/27/2012	RC	1/31/2012	RC	4/18/2012	JK	4/25/2012					DO	4/26/2012	DC	5/7/2012					DC	5/7/2012	1
WP277	E3	3	(P)E3-3-1	S	Gouge Repair- 0.130" 3/8" W x 2" L		1										DO	PC	1/27/2012	RC	1/31/2012	RC	4/19/2012	JK	4/25/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP278	E3	3	(P)E3-3-1	L	Pit Repair- 0.045" x 3/8" dia. (3)		1										DO	PC	1/27/2012	RC	1/31/2012	RC	4/19/2012	JK	4/25/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WP279	E2	2	#262	S	GN Repair- Remaining Plate Thk 0.180"									1		GN end and GN side w	DO	JA	1/26/2012	DC	3/8/2012	DO	4/26/2012							DO	4/26/2012	DC	5/7/2012					DC	5/7/2012	1
WP280	4	4	#109 (P)4-4-1	S	GN Repair- 0.177" Remaining Plate Thk										1	14" x 16" odd shaped	PC	PC	1/27/2012	DC	3/29/2012	PC	4/27/2012							PC	4/27/2012	JK	5/16/2012					JK	5/16/2012	1
WP280A	E2	2	#263	S	GN Repair- Remaining Plate Thk 0.180"									1		GN end and GN side w	DO	JA	1/26/2012	DC	3/8/2012	DO	4/26/2012							DO	4/26/2012	DC	5/7/2012					DC	5/7/2012	1
WP281A	E1	2	#268	L	GN Repair- 0.198" Remaining Plate Thk.									1		GN end and GN side w	DO	JA	1/26/2012	DC	3/8/2012	RC	4/19/2012							RC	4/19/2012	DC	5/9/2012					DC	5/9/2012	1
WP282	E1	4	#289	L	GN Repair- 0.191" Remaining Plate Thk.									1		GN end and GN side w	DO	JA	1/26/2012	DC	3/26/2012	DO	4/26/2012	JK	4/28/2012					PC	4/30/2012	DC	5/9/2012					DC	5/9/2012	1
WP283	E1	6	#278	L	GN Repair- 0.192" Remaining Plate Thk.									1		GN end and GN side w	DO	JA	1/26/2012	DC	3/26/2012	DO	4/26/2012							DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP284	1	6	#189 (S)1-6	L	Pit Repair- 0.050" x 1/2" dia.		1										DO	PC	1/27/2012	RC	2/8/2012	DO	4/28/2012							DO	4/28/2012	JK	5/7/2012					JK	5/7/2012	1
WP285	2	8	(P)2-8-2	L	Pit Repair- 0.050" depth (2)			1									DO	PC	1/27/2012	RC	2/7/2012	DO	4/25/2012							RC	5/18/2012	JK	5/16/2012	JK	5/16/2012	RC	5/18/2012	RC	5/18/2012	1
WP286	2	2	(P)2-2-1	L	Gouge Repair- 0.045" x 3/4" L x 1/4" W		1										DO	PC	1/27/2012	RC	2/10/2012	PC	4/27/2012							JK	5/15/2012	JK	5/7/2012	JK	5/7/2012	JK	5/15/2012	JK	5/15/2012	1
WP287	3	3	#112 (S)3-3	L	Plate Repair- 0.195" Thk.										1	between GN	PC	PC	1/27/2012	DC	4/12/2012	PC	4/27/2012							PC	4/27/2012	JK	5/16/2012					JK	5/16/2012	1
WP288	4	1	# 237 (S)4-1	S	Gouge Repair- 0.120" 1" W x 4" L		1										DO	PC	1/27/2012	RC	3/14/2012	DO	4/27/2012							DO	4/27/2012	JK	5/16/2012					JK	5/16/2012	1
WP290	5	3	#91 (P)5-3-1	S	GN Repair- 0.170" Remaining Plate Thk.								1				PC	PC	1/27/2012	DC	3/28/2012	DO	4/28/2012							DO	4/28/2012	JK	5/16/2012					JK	5/16/2012	1
WP291	5	4	#123 (S)5-4	L	GN Repair- 0.201" Remaining Plate Thk.										1	Side wall of GN	PC	PC	1/27/2012	DC	3/28/2012	PC	4/27/2012							PC	4/27/2012	JK	5/16/2012					JK	5/16/2012	1
WP292	5	6	#190 (S)5-6	L	GN Repair- 0.203" Remaining Plate Thk.								1				PC	PC	1/27/2012	DC	3/28/2012	DO	4/28/2012							DO	4/28/2012	JK	5/16/2012					JK	5/16/2012	1
WP293	5	7	#193 (S)5-7	L	GN Repair- 0.201" Remaining Plate Thk.									1		GN end and GN side w	PC	PC	1/27/2012	DC	3/29/2012	DO	4/28/2012							DO	4/28/2012	JK	5/16/2012					JK	5/16/2012	1
WP294A	6	6	(P)6-6-1	L	Pit Repair- 0.045" x 1/4" dia.		1										PC	JA	1/26/2012	DC	2/28/2012	PC	4/27/2012							PC	4/27/2012	RC	5/15/2012					RC	5/15/2012	1
WP294	5	8	(P)5-8-1 - #153	L	Plate Repair- 6" W x 5" L x 0.186" Thk.			1							1	In between two back pla	JA	PC	1/27/2012	DC	3/16/2012	DO	4/25/2012							DO	4/25/2012	JK	5/16/2012					JK	5/16/2012	1
WP295	8	6	(P)8-6-1	L	Pit Repair- 0.045" x 1/8" W x 2 1/2" L		1										PC	PC	1/27/2012	DC	2/28/2012	PC	4/27/2012							PC	4/27/2012	JK	5/17/2012					JK	5/17/2012	1
WP296	8	5	(P)8-5-1	L	Pit Repair- 0.045" x 1/4" dia.		1										PC	PC	1/27/2012	DC	2/25/2012	PC	4/27/2012							PC	4/27/2012	JK	5/17/2012					JK	5/17/2012	1
WP297	9	5	(P)9-5-1	L	Pit Repair- 0.045" x 1/4" dia.		1										PC	PC	1/27/2012	DC	2/27/2012	DO	4/28/2012							DO	4/28/2012	JK	5/17/2012					JK	5/17/2012	1
WP298	9	8	(P)9-8-2	L S	Pit Repair- 0.060" 3/8"x 1/2" Pit Repair- 0.080" 3/16"x 1/2"		1										DO	PC	1/27/2012	RC	2/8/2012	PC	4/27/2012							RC	5/18/2012	DC	5/10/2012	JK	5/14/2012	RC	5/18/2012	RC	5/18/2012	1
WP299	10	8	(P)10-8-2	S	Gouge Repair- 0.070" x 3/8" dia.		1										DO	PC	1/27/2012	RC	2/4/2012	PC	4/27/2012							PC	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WP300	10	8	(P)10-8-1	L	Pit Repair- 0.050" x 1/2" W x 3/16" L		1										DO	PC	1/27/2012	RC	2/4/2012	DO	4/27/2012							DO	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WP301	11	6	(P)11-6-3	L	Pit Repair- 0.055" x 3/4" L		1										DO	PC	1/27/2012	RC	2/9/2012	PC	4/27/2012							PC	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WP302	13	7	(P)13-7-2	L	Pit Repair- 0.045" x 3/16" dia.		1										DO	PC	1/27/2012	RC	2/4/2012	PC	4/27/2012							RC	5/18/2012	DC	5/10/2012	JK	5/15/2012	RC	5/18/2012	RC	5/18/2012	1
WP303	12	7	#179 (P)12-7-1	L	GN Repair- 0.203" Remaining Plate Thk.									1		GN end and GN side w	DO	PC	1/27/2012	DC	3/28/2012	PC	4/27/2012							PC	4/27/2012	DC	5/9/2012					DC	5/9/2012	1

						REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS									QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS							
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WP304	11	6	#180	L	Gouge Repair- 0.060" depth		1										DO	PC	1/27/2012	RC	2/9/2012	PC	4/27/2012							RC	5/18/2012	DC	5/10/2012	JK	5/14/2012	RC	5/18/2012	RC	5/18/2012	1
WP305	12	6	#155	L	GN Repair- 0.204" Remaining Plate Thk.								1				DO	PC	1/27/2012	DC	3/28/2012	PC	4/27/2012							PC	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WP306	12	6	(P)12-6-2	L	Pit Repair- 0.045" x 3/8" W x 1 1/2" L		1										DO	PC	1/27/2012	RC	2/9/2012	PC	4/27/2012							RC	5/18/2012	DC	5/10/2012	JK	5/14/2012	RC	5/18/2012	RC	5/18/2012	1
WP307	13	4	(P)13-4-3	L	Pit Repair- 0.045" x 1/4" dia.		1										PC	PC	1/27/2012	DC	2/25/2012	DO	4/28/2012							DO	4/28/2012	DC	5/10/2012					DC	5/10/2012	1
WP308	13	4	(P)13-4-4	L	Pit Repair- 0.050" x 3/8" dia.		1										PC	PC	1/27/2012	DC	2/25/2012	DO	4/28/2012							DO	4/28/2012	DC	5/10/2012					DC	5/10/2012	1
WP309	13	2	(P)13-2-2	L	Pit Repair- 0.050" x 1/2" dia.		1										PC	PC	1/27/2012	RC	2/9/2012	DO	4/28/2012							JK	5/17/2012	DC	5/10/2012	JK	5/15/2012	JK	5/17/2012	JK	5/17/2012	1
WP310	15	4	#114 (P)15-4-1	S	Plate Repair- 0.157" Remaining Plate Thk.										1	3" x 3"	DO	PC	1/27/2012	DC	4/12/2012	DO	4/28/2012							DO	4/28/2012	DC	5/10/2012					DC	5/10/2012	1
WP311	17	6	#177 (P)17-6-1	S	Pit Repair- 0.070" x 3/8" dia.		1										DO	PC	1/27/2012	RC	2/3/2012	DO	4/28/2012							DO	4/28/2012	DC	5/9/2012					DC	5/9/2012	1
WP312	17	4	#124 (S)17-4	L	Pit Repair- 0.040" x 1/8" to 3/8" dia. (5)			1									PC	PC	1/27/2012	DC	2/25/2012	DO	4/28/2012							DO	4/28/2012	DC	5/9/2012					DC	5/9/2012	1
WP313	20	8	(P)20-8-3	L	Pit Repair- 0.045" x 3/16" W x 22" L										1	Along GN plate	DO	PC	1/27/2012	DC	3/5/2012	PC	4/27/2012							PC	4/27/2012	DC	5/9/2012					DC	5/9/2012	1
WP314	20	8	(P)20-8-3	L	Pit Repair- 0.045" x 1/2" dia.		1										DO	PC	1/27/2012	DC	3/5/2012	PC	4/27/2012							PC	4/27/2012	DC	5/9/2012					DC	5/9/2012	1
WP315	19	6	(P)19-6-1	L	Pit Repair- 0.050" x 3/8" dia.		1																																
WP316	19	6	#197	S	GN Repair- 0.154" Remaining Plate Thk.									1		GN end and GN side w	DO	PC	1/27/2012	DC	3/28/2012	DO	4/28/2012							DO	4/28/2012	DC	5/9/2012					DC	5/9/2012	1
WP317	19	4	#122 (P)19-4-1	S	GN Repair- 0.151" Remaining Plate Thk.								1				PC	PC	1/27/2012	DC	3/27/2012	DO	4/28/2012							DO	4/28/2012	DC	5/9/2012					DC	5/9/2012	1
WP318	19	2	#95	S	GN Repair- 0.149" Remaining Plate Thk.								1				PC	PC	1/27/2012	DC	3/27/2012	PC	4/26/2012							PC	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WP319	22	2	(P)22-2-1	L	Pit Repair- 0.045" x 3/16" W x 1 1/2" L		1										PC	PC	1/27/2012	DC	2/25/2012	DO	4/28/2012							DO	4/28/2012	DC	5/7/2012					DC	5/7/2012	1
WP320	23	4	(P)23-4-1	L	Pit Repair- 0.050" x 3/8" dia.						1					Along weld seam	PC	PC	1/27/2012	DC	2/27/2012	RC	4/19/2012							RC	4/19/2012	DC	5/7/2012					DC	5/7/2012	1
WP321	23	5	#143AB	L	Pit Repair- 0.050" x 3/8" dia.		1										PC	PC	1/27/2012	DC	2/27/2012	RC	4/19/2012							RC	4/19/2012	DC	5/7/2012					DC	5/7/2012	1
WP322	24	5	(P)24-5-1	L	Gouge Repair- 0.045" x 3/8" dia. (3)			1									PC	PC	1/27/2012	DC	2/27/2012	RC	4/19/2012							RC	4/19/2012	DC	5/7/2012					DC	5/7/2012	1
WP323	24	5	(P)24-5-2	L	Gouge Repair- 0.045" x 3/8" dia.		1										PC	PC	1/27/2012	DC	2/27/2012	RC	4/19/2012							RC	4/19/2012	DC	5/7/2012					DC	5/7/2012	1
WP324	24	7	(P)24-7-1	L	Pit Repair- 0.050" x 3/8" dia.		1										DO	PC	1/27/2012	RC	2/3/2012	PC	4/26/2012	JK	4/27/2012					PC	4/30/2012	DC	5/7/2012					DC	5/7/2012	1
WP325	24	7	(P)24-7-2	L	Pit Repair- 0.050" x 3/8" dia.		1										DO	PC	1/27/2012	RC	2/3/2012	PC	4/26/2012	JK	4/27/2012					PC	4/30/2012	DC	5/7/2012					DC	5/7/2012	1
WP326	25	7	#194 (P)25-7-1	S	Plate Repair- 5" W x 6" L x 0.178" Thk.			1									DO	PC	1/27/2012	DC	2/27/2012	DO	4/28/2012							DO	4/28/2012	DC	5/7/2012					DC	5/7/2012	1
WP327	26	8	(P)26-8-1	L	Pit Repair- 0.045" x 3/8" dia. (2)		1										DO	PC	1/27/2012	RC	2/2/2012	DO	4/26/2012							DO	4/26/2012	DC	5/7/2012					DC	5/7/2012	1
WP328	27	6	#171 (S)27-6	L	GN Repair- 0.230" Remaining Plate Thk.									1		GN end and GN side w	DO	PC	1/27/2012	DC	3/27/2012	DO	4/26/2012	JK	4/28/2012	PC	4/30/2012	JK	5/1/2012	RC	5/2/2012	DC	5/7/2012					DC	5/7/2012	1
WP329	27	4	#130	L	GN Repair- 0.203" Thk.										1	Side wall of GN	PC	PC	1/27/2012	DC	3/27/2012	RC	4/19/2012							RC	4/19/2012	DC	5/7/2012					DC	5/7/2012	1
WP330	28	3	#84 (P)28-3-1	S	Plate Repair- 3" W x 0.180" Plate Thk.						1					5" x 5" square inside co	PC	PC	1/27/2012	DC	2/27/2012	RC	4/19/2012							RC	4/19/2012	DC	5/7/2012					DC	5/7/2012	1
WP331	C1	13	#4	L	Plate Repair- 4" W x 4" L x 0.193" Thk.						1					2" from weld seem	JA	DC	3/20/2012	DC	3/20/2012	DO	4/28/2012							DO	4/28/2012	JK	5/17/2012					JK	5/17/2012	1
WP332	C2	18	(P)C2-18-1	L	Pit Repair- 0.050" 1/4" W x 1 3/8" L		1										DO	PC	1/27/2012	DC	3/20/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WP333	C3	21	#41	M	Plate Repair- Tack Weld 2" L										1	Tack Weld Light Scaling	DO	DC	2/28/2012	DC	2/28/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WP334	C3	24	(P)C3-24-1	L	Pit Repair- 0.045" x 3/8" dia.		1										DO	DC	2/28/2012	DC	2/28/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WP335	C3	29	(P)C3-25-1	L	Pit Repair- 0.050" x 3/8" dia.		1										DO	PC	1/27/2012	DC	2/28/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WP336	C3	34	(P)C3-34-2	L	Pit Repair- 0.050" x 3/16" dia.		1										DO	PC	1/27/2012	RC	2/18/2012	PC	4/25/2012							PC	4/25/2012	JK	5/17/2012					JK	5/17/2012	1
WP337	C4	34	(P)C4-34-1	L	Gouge Repair- 0.060"		1										DO	PC	1/27/2012	RC	2/16/2012	PC	4/25/2012							PC	4/25/2012	JK	5/15/2012					JK	5/15/2012	1
WP338	C4	34	(P)C4-34-1	L	Gouge Repair- 0.060"		1										JA	PC	1/27/2012	RC	2/16/2012	PC	4/25/2012							PC	4/25/2012	JK	5/15/2012					JK	5/15/2012	1
WP339	C4	32	(S)C4-32	L	Pit Repair- 0.060" x 3/8" dia.				1							corner	DO	PC	1/27/2012	DC	3/5/2012	PC	4/27/2012							PC	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WP340	D	29	(P)D-29-1	L	Gouge Repair- 0.045" 1/8" W x 1" L		1										DO	JA	1/26/2012	RC	3/13/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP341	D	30	#395	L	Plate Repair- 3" W x 3" L x 0.203" Thk.		1										DO	JA	1/26/2012	RC	3/13/2012	DO	4/24/2012							RC	5/23/2012	RC	5/7/2012	RC	5/7/2012	RC	5/23/2012	RC	5/23/2012	1
WP342	D	31	#396	L	Plate Repair- 3" W x 3" L x 0.198" Thk.				1							corner	DO	JA	1/26/2012	RC	3/13/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP343	D	32	(P)D-32-1	L	Gouge Repair- 0.045" 1/8" W x 1" L		1										DO	JA	1/26/2012	RC	2/24/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP344	D	32	(P)D-32-1	L	Pit Repair- 0.050" x 1/8" dia.		1										DO	JA	1/26/2012	RC	2/24/2012	DO	4/24/2012							DO	4/24/2012	RC	5/7/2012					RC	5/7/2012	1
WP345	D	33	#397	L	Plate Repair- 7" W x 7" L x 0.198" Thk.					1						corner	DO	JA	1/26/2012	JK	4/20/2012	DO	4/24/2012	JK	4/27/2012					RC	5/23/2012	RC	5/7/2012	JK	5/18/2012	RC	5/23/2012	RC	5/23/2012	1
WP346	D	38	(P)D-38-1	S	Gouge Repair- 0.075" x 1/2" dia.		1										DO	JA	1/26/2012	RC	2/22/2012	DO	4/24/2012							DO	4/24/2012	RC	5/17/2012					RC	5/17/2012	1
WP347	D	47	(P)D-47-2	S	Gouge Repair- 0.075" x 3/8" dia.		1										DO	JA	1/26/2012	RC	2/21/2012	PC	4/17/2012							PC	4/17/2012	RC	5/17/2012					RC	5/17/2012	1
WP348	C	48	(P)C-48-1	L	Gouge Repair- 0.050" x 1/4" dia.		1										JA	JA	1/26/2012	DC	2/9/2012	PC	4/30/2012							PC	4/30/2012	RC	5/16/2012					RC	5/16/2012	1
WP349	C	42	#356	L	Plate Repair- 2" W x 2" L x 0.189" Thk.				1							corner	JA	JA	1/26/2012	RC	3/9/2012	PC	4/18/2012							PC	4/18/2012	RC	5/16/2012					RC	5/16/2012	1
WP350	C	41	(P)C-41-1	S	Gouge Repair- 0.075" x 3/16" dia.		1										JA	JA	1/26/2012	DC	2/10/2012	PC	4/18/2012							PC	4/18/2012	RC	5/16/2012					RC	5/16/2012	1
WP351	B	37	#325A (P)B-37-1	S	Plate Repair- 2" W x 2" L x 0.176" Thk.				1							corner	JA	JA	1/26/2012	RC	3/15/2012	DO	4/25/2012							DO	4/25/2012	RC	5/9/2012					RC	5/9/2012	1
WP352	B	44	#354	S	Plate Repair- 10" W x 10" L x 0.180" Thk.							1				corner	JA	JA	1/26/2012	DC	4/10/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WP353	B	64	#379 (P)B 64-1	L	Plate Repair- 4" W x 4" L x 0.187" Thk.				1							corner	JA	JA	1/26/2012	RC	3/2/2012	DO	4/21/2012							DO	4/21/2012	RC	5/9/2012					RC	5/9/2012	1
WP354	B	66	#355	L	Plate Repair- 2" W x 2" L x 0.187" Thk.				1							corner	JA	JA	1/26/2012	RC	3/9/2012	PC	4/23/2012	DC	4/23/2012					PC	4/30/2012	RC	5/10/2012					RC	5/10/2012	1
WP355	A	71	(P)A-71-3	S	Gouge Repair- 0.080" x 3/8" dia										1	springline	DO	JA	1/26/2012	DC	4/2/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP356	A	72	(P)A-72-1	S	Gouge Repair- 0.090" 3/16" W x 1 1/4" L						1					Along weld seam	DO	RC	3/8/2012	RC	3/8/2012	PC	4/21/2012							PC	4/21/2012	RC	5/16/2012					RC	5/16/2012	1

						REPAIR TYPE												REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS								QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS								
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WP357	A	72	#292	L	Plate Repair- 6" W x 6" L x 0.197" Thk.					1						corner	DC	DC	4/11/2012	DC	4/11/2012	PC	4/21/2012							PC	4/21/2012	RC	5/16/2012					RC	5/16/2012	1
WP358	A	68		S	Gouge Repair- 0.090" 3/16" W x 1 1/2" L		1										JA	JA	1/26/2012	DC	2/1/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP359	A	68	#328	L	Plate Repair- 3" W x 3" L x 0.194" Thk.				1							corner	JA	JA	1/26/2012	DC	2/1/2012	PC	4/21/2012							RC	5/23/2012	RC	5/8/2012	JK	5/11/2012	RC	5/23/2012	RC	5/23/2012	1
WP360	A	67	#329	L	Plate Repair- 3" W x 3" L x 0.191" Thk.				1							corner	JA	JA	1/26/2012	DC	2/1/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP361	A	67	#330	S	Plate Repair- 3" W x 3" L x 0.174" Thk.				1							corner	JA	JA	1/26/2012	DC	2/1/2012	PC	4/21/2012							RC	5/23/2012	RC	5/8/2012	JK	5/11/2012	RC	5/23/2012	RC	5/23/2012	1
WP362	A	64	#331	S	Plate Repair- 3" W x 3" L x 0.131" Thk.				1							corner	JA	JA	1/26/2012	DC	2/1/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP363	A	61	(P)A-61-2	S	Gouge Repair- 0.080" 3/16" W x 1 1/2" L						1					Along weld seam	JA	JA	1/26/2012	DC	2/1/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP364	A	58	(P)A-58-1	M	Dent Repair- 1 1/4" W x 1 1/2 L		1										JA	JA	1/26/2012	DC	2/2/2012	PC	4/17/2012							PC	4/17/2012	RC	5/8/2012					RC	5/8/2012	1
WP365	A	51	#326 (P)A-51-1	S	Plate Repair- 4" W x 4" L x 0.145" Thk.				1							corner	JA	JA	1/26/2012	RC	3/2/2012	RC	4/18/2012							RC	4/18/2012	RC	5/8/2012					RC	5/8/2012	1
WP366	A	47	#327	S	Plate Repair- 9" x 9" x 0.170" Thk.							1				corner	DO	RC	3/21/2012	RC	3/21/2012	PC	4/17/2012							PC	4/17/2012	RC	5/8/2012					RC	5/8/2012	1
WP367	A	37	(P)A-37-2	S	Gouge Repair- 0.070" x 3/4" dia.		1										JA	JA	1/26/2012	RC	3/2/2012	DO	4/24/2012							DO	4/24/2012	RC	5/9/2012					RC	5/9/2012	1
WP368	E3	14	(P)E3-14-1	L	Pit Repair- 0.065" x 1/4" dia		1																																
WP369	27	8	#227 (P)27-9-1	L	GN Repair- 0.187" Remaining Plate Thk.									1		GN end and GN side w	DO	JA	1/26/2012	DC	3/27/2012	DO	4/25/2012							DO	4/25/2012	DC	5/7/2012					DC	5/7/2012	1
WP370	27	12	#159	S	Plate Repair- 0.170" Plate Thk.										1	9" x 9" around back pla	JA	JA	1/26/2012	DC	4/3/2012	PC	4/17/2012							PC	4/17/2012	RC	5/10/2012					RC	5/10/2012	1
WP371	27	12	#161	S	Plate Repair- 0.164" Plate Thk.										1	9" x 11" around back pl	JA	JA	1/26/2012	DC	4/2/2012	PC	4/17/2012							PC	4/17/2012	RC	5/14/2012					RC	5/14/2012	1
WP372	27	13	#163	S	Plate Repair- 0.172" Plate Thk.										1	Around GN back plate	JA	JA	1/26/2012	DC	4/3/2012	PC	4/17/2012							RC	5/21/2012	RC	5/10/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WP373	28	13	#160	S	Plate Repair- 6" W x 15" L x 0.083" Thk.										1	Butts weld seam	JA	JA	1/26/2012	DC	4/2/2012	PC	4/17/2012							PC	4/17/2012	JK	5/18/2012					JK	5/18/2012	1
WP374	28	14	#101	S	Plate Repair- 20" W x 37" L x 0.167" to 0.174" Thk.										1	20" x 37" square butts s	JA	JA	1/26/2012	DC	4/11/2012	DO	4/25/2012	DC	4/26/2012	PC	4/30/2012	DR	4/30/2012	RC	5/21/2012	RC	5/10/2012	JK	5/11/2012	DC	5/21/2012	RC	5/21/2012	1
WP375	27	14	#73A	S	Plate Repair- 9" W x 9" L x 0.115" Thk.										1	Around GN back plate	JA	DC	3/30/2012	DC	3/30/2012	PC	4/17/2012	DC	4/23/2012					RC	5/21/2012	RC	5/10/2012	JK	5/11/2012	DC	5/21/2012	RC	5/21/2012	1
WP376	27	14	#73	S	Plate Repair- 6" W x 0.157" Plate Thk.										1	Around GN back plate	JA	JA	1/26/2012	DC	4/3/2012	PC	4/17/2012							RC	5/21/2012	RC	5/10/2012	JK	5/11/2012	DC	5/21/2012	RC	5/21/2012	1
WP377	27	15	#74	L	Plate Repair- 6" W x 13" L x 0.186" Thk.										1	Half of plate and down	JA	JA	1/26/2012	DC	4/3/2012	PC	4/17/2012							RC	5/16/2012	RC	5/10/2012	JK	5/11/2012	RC	5/16/2012	RC	5/16/2012	1
WP378	27	15	#54	S	Plate Repair- 8" W x 0.137" Plate Thk.										1	Around GN back plate	JA	JA	1/26/2012	DC	4/3/2012	DO	4/19/2012	DC	4/26/2012					PC	4/30/2012	RC	5/10/2012					RC	5/10/2012	1
WP379	26	15	#70	S	Plate Repair- 6" W x 6" L x 0.177" to 0.186" Thk.										1	Half of GN back plate and down	JA	JA	1/26/2012	DC	4/4/2012	PC	4/17/2012							RC	5/17/2012	RC	5/10/2012	JK	5/11/2012	RC	5/17/2012	RC	5/17/2012	1
WP380	26	15	#71	S	Plate Repair- 6" W x 6" L x 0.177" to 0.186" Thk.										1	Around GN back plate	JA	JA	1/26/2012	DC	4/5/2012	PC	4/19/2012	DC	4/23/2012	PC	4/30/2012	DR	4/30/2012	DO	5/1/2012	RC	5/10/2012					RC	5/10/2012	1
WP381	26	15	#107	L	Plate Repair- 0.203" Remaining Plate Thk.										1	Side of square plate	JA	JA	1/26/2012	DC	3/30/2012	PC	4/17/2012							PC	4/17/2012	RC	5/10/2012					RC	5/10/2012	1
WP382	26	15	#105	S	Plate Repair- 6" W x 6" L x 0.177" to 0.186" Thk.										1	Square pad on top of pl	JA	JA	1/26/2012	DC	4/4/2012	PC	4/17/2012							RC	5/17/2012	RC	5/10/2012	JK	5/11/2012	RC	5/17/2012	RC	5/17/2012	1
WP383	26	11	#203 (P)26-11-1	L	Plate Repair- 2" W x 0.181" Thk.										1	In between two back pla	JA	JA	1/26/2012	DC	4/10/2012	PC	4/26/2012							JK	5/18/2012	RC	5/10/2012	JK	5/18/2012	JK	5/18/2012	JK	5/18/2012	1
WP383A	26	15	#106	L	Plate Repair- 6" W x 6" L x 0.177" to 0.186" Thk.										1	12" x 11" area around back plate	JA	JA	1/26/2012	DC	4/4/2012	PC	4/17/2012							PC	4/17/2012	RC	5/17/2012					RC	5/17/2012	1
WP384	25	13	#164 (P)25-13-2	S	Plate Repair- 5" W x 9" L x 0.175" Thk.										1	Around plate	JA	JA	1/26/2012	DC	4/5/2012	PC	4/25/2012							PC	4/25/2012	RC	5/14/2012					RC	5/14/2012	1
WP385	24	14	#131	S	Plate Repair- 0.172" Plate Thk.										1	12" x 7" around GN back plate	JA	JA	1/26/2012	DC	4/9/2012	DO	4/20/2012	DC	4/26/2012	PC	4/30/2012	JK	5/1/2012	JK	5/18/2012	RC	5/14/2012	JK	5/18/2012	JK	5/18/2012	JK	5/18/2012	1
WP386	24	14	#139B	L	Plate Repair- 0.200" Plate Thk.										1	5" x 5" On square plate	JA	JA	1/26/2012	DC	4/4/2012	DO	4/20/2012	DC	4/26/2012					PC	4/30/2012	RC	5/16/2012					RC	5/16/2012	1
WP387	23	13	#138A (P)23-14-1	L	Plate Repair- 2" W x 5" L x 0.188" Thk.										1	4" x 5" around square pl	JA	JA	1/26/2012	DC	4/9/2012	DO	4/19/2012	DC	4/26/2012	PC	4/30/2012	JK	5/1/2012	JK	5/18/2012	RC	5/14/2012	JK	5/18/2012	JK	5/18/2012	JK	5/18/2012	1
WP388	22	14	#104 (P)22-14-1	S	Plate Repair- 1" W x 2" L x 0.137" Thk.		1										JA	JA	1/26/2012	DC	2/4/2012	DO	4/19/2012	DC	4/26/2012	PC	4/30/2012	JK	5/1/2012	JK	5/18/2012	RC	5/14/2012	JK	5/18/2012	JK	5/18/2012	JK	5/18/2012	1
WP389	22	13	#141 (P)22-13-1	S	Plate Repair- 0.141" Remaining Plate Thk.		1										JA	JA	1/26/2012	DC	4/10/2012	PC	4/26/2012							JK	5/18/2012	RC	5/14/2012	JK	5/18/2012	JK	5/18/2012	JK	5/18/2012	1
WP390	19	9	#214 (P)19-9-1	S	GN Repair- 0.155" Remaining Plate Thk.									1		GN end and GN side w	JA	JA	1/26/2012	DC	4/10/2012	IM	4/28/2012							IM	4/28/2012	RC	5/17/2012					RC	5/17/2012	1
WP391	20	12	#201 (P)20-12-1	L	Plate Repair- 1" W x 2" L x 0.110" Thk.		1										JA	JA	1/26/2012	DC	2/4/2012	DO	4/20/2012							DO	4/20/2012	RC	5/14/2012					RC	5/14/2012	1
WP392	20	15	#78	L	Plate Repair- 1" W x 2" L x 0.198" Thk.		1										JA	JA	1/26/2012	DC	4/10/2012	PC	4/26/2012							PC	4/26/2012	RC	5/16/2012					RC	5/16/2012	1
WP393	18	15	#79 (P)18-15-1	S	Plate Repair- 0.190" Thk.		1										JA	JA	1/26/2012	DC	4/11/2012	PC	4/30/2012	JK	5/1/2012					DO	5/1/2012	RC	5/16/2012					RC	5/16/2012	1
WP394	16	15	#69 (P)16-15-2	L	Plate Repair- 4" x 7" x 0.187" Thk.										1	Square off GN back pla	JA	JA	1/26/2012	DC	4/9/2012	PC	4/30/2012	JK	5/1/2012					RC	5/2/2012	RC	5/16/2012					RC	5/16/2012	1
WP395	16	14	#133 (S)16-14	L	Plate Repair- 5" W x 0.185" Thk.										1	2.5" x 2.5" touches NDT #132	JA	JA	1/26/2012	RC	2/6/2012	DO	4/28/2012							DO	4/28/2012	RC	5/18/2012					RC	5/18/2012	1
WP396	17	15	#132	S	Plate Repair- 0.177" Remaining Plate Thk.										1	3.5" x 3.5" on top of pla	DO	JA	1/26/2012	DC	4/10/2012	PC	4/26/2012							PC	4/26/2012	RC	5/16/2012					RC	5/16/2012	1
WP397	16	13	#142 (P)16-13-1	L	Plate Repair- 3" W x 3" L x 0.189" Thk.		1										JA	JA	1/26/2012	DC	2/4/2012	DO	4/20/2012							DO	4/20/2012	RC	5/16/2012					RC	5/16/2012	1
WP398	15	11	#200A (S)15-11	S	Gouge Repair- 0.070" depth		1										JA	JA	1/26/2012	DC	2/4/2012	DO	4/20/2012							DO	4/20/2012	RC	5/16/2012					RC	5/16/2012	1
WP399	14	11	(P)14-11-1	L	Pit Repair- 0.046" x 3/4" W x 1 1/2" L										1	3" x 3"	JA	JA	1/26/2012	DC	4/10/2012	DO	4/20/2012							DC	4/23/2012	RC	5/14/2012					RC	5/14/2012	1
WP400	12	9	#225	L	GN Repair- 0.202" Remaining Plate Thk.									1		GN end and GN side w	DO	JA	1/26/2012	RC	3/8/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WP401	11	8	(P)11-8-3	L	Gouge Repair- 0.060" x 1/4" dia.		1										DO	PC	1/27/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WP402	9	11	#165 (P)9-11-1	M	Plate Repair- 0.093" Remaining Plate Thk.										1	Approx. 15" x 12" around a circle	DO	JA	1/26/2012	DC	4/9/2012	DO	4/19/2012							DC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP403	8	12	#167 (P)8-12-1	S	Plate Repair- 4" W x 5" L x 0.153" Thk.						1						JA	JA	1/26/2012	RC	3/20/2012	DO	4/18/2012							DC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WP404	7	11	#166 (P)7-11-1	L	Plate Repair- 0.205" x 1 1/2" dia.										1	In between two plates	JA	JA	1/26/2012	DC	4/10/2012	DO	4/18/2012							DC	4/23/2012	RC	5/15/2012					RC	5/15/2012	1
WP405	10	16	#76 (P)10-16-3	S	Plate Repair- 6" W x 9" L x 0.175" Thk.										1	Around GN back plate	DO	DC	4/4/2012	DC	4/4/2012	PC	4/17/2012							PC	4/17/2012	RC	5/16/2012					RC	5/16/2012	1
WP406	10	14	#137A #137B	L L	Plate Repair- 0.196" Thk. Plate Repair- 0.203" Thk. Plate										1	8" x 4" wraps around GN back plate	DO	JA	1/26/2012	DC	4/5/2012	PC	4/26/2012							RC	5/21/2012	RC	5/15/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WP407	5	15	#77 (P)5-15-2	L	Plate Repair- 9" L x 0.060" Thk.			1									JA	JA	1/26/2012	RC	3/20/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WP408	5	13	#136 (S)5-13	L	Plate Repair- 2" W x 0.197" Thk.										1	Butts up to square plate	JA	JA	1/26/2012	DC	4/10/2012	PC	4/25/2012							RC	5/21/2012	RC	5/15/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1

						REPAIR TYPE												REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS										QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS							
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WP409	2	14	#134 (P)2-14-1	S	Plate Repair- 1" W x 2" L x 0.171" Thk										1	Butts up to square plate	JA	JA	1/27/2012	DC	4/5/2012	PC	4/25/2012							PC	4/25/2012	RC	5/17/2012					RC	5/17/2012	1
WP410	1	12	#169 (P)1-12-1	L	Gouge Repair- 0.060" x 1/4" L		1										JA	JA	1/27/2012	DC	4/10/2012	PC	4/17/2012							RC	5/21/2012	RC	5/15/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WP411	2	12	#170	L	Plate Repair- 4" W x 2" L x 0.205" Thk.						1						JA	JA	1/27/2012	DC	4/10/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WP412	2	11	#209A	L	Gouge Repair- 0.045" depth		1										JA	JA	1/27/2012	RC	2/16/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WP413	2	11	#209	M	Weld Repair- (UC) Undercut 0.060" x 1 1/4" L	1											JA	JA	1/27/2012	RC	2/28/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WP414	1	11	#210 (S)1-11	L	Gouge Repair- 0.050" depth		1										JA	JA	1/27/2012	JK	2/15/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WP415	5	9	(P)5-9-1	S	Pit Repair- 0.080" 1/4" W x 3/4" L		1										JA	JA	1/27/2012	RC	2/4/2012	PC	4/18/2012	JK	4/27/2012					PC	4/30/2012	RC	5/15/2012					RC	5/15/2012	1
WP416	11	14	#81 (P)11-14-1	L	Plate Repair- 0.186" Remaining Plate Thk.		1										DO	JA	1/27/2012	DC	2/4/2012	PC	4/19/2012	DC	4/26/2012					PC	4/27/2012	RC	5/16/2012					RC	5/16/2012	1
WP417	C4	52	(P)C4-52-1	L	Pit Repair- 0.050" x 1/4" dia.		1										JA	JA	1/27/2012	RC	2/16/2012	DO	4/20/2012							DO	4/20/2012	RC	5/14/2012					RC	5/14/2012	1
WP418	C3	51	(P)C3-51-1	L	Gouge Repair- 0.050" x 3/8" dia.		1										JA	JA	1/27/2012	RC	2/17/2012	DO	4/20/2012							DO	4/20/2012	RC	5/14/2012					RC	5/14/2012	1
WP419	C3	51	(P)C3-51-1	L	Gouge Repair- 0.060" x 3/8" dia		1										JA	JA	1/27/2012	RC	2/17/2012	DO	4/20/2012							RC	5/21/2012	RC	5/14/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WP420	C3	51	#39A	S	Gouge Repair- 0.070" x 3/16" dia.						1					1" from weld seem																							
WP421	C3	51	#39	S	GN Repair- Remaining Plate Thk 0.146"								1				JA	JA	1/27/2012	DC	4/12/2012	DO	4/20/2012	JK	4/27/2012					DO	5/1/2012	RC	5/14/2012					RC	5/14/2012	1
WP422	C3	49	(P)C3-49-2	S	Gouge Repair- 0.085" depth		1										JA	JA	1/27/2012	RC	2/17/2012	DO	4/20/2012							DO	4/20/2012	RC	5/17/2012					RC	5/17/2012	1
WP423	C3	50	#37A	L	Gouge Repair- 0.045" x 3/8" dia.						1					2" from weld seem	JA	JA	1/27/2012	RC	2/28/2012	DO	4/20/2012							DC	4/23/2012	RC	5/14/2012					RC	5/14/2012	1
WP424	C3	50	#37B	L	Gouge Repair- 0.060" x 3/8" dia.						1					2" from weld seem	JA	JA	1/27/2012	RC	2/28/2012	DO	4/20/2012							DO	4/20/2012	RC	5/14/2012					RC	5/14/2012	1
WP425	C2	35	(P)C2-35-1	L	Pit Repair- 0.050" x 1/4" dia.		1										JA	JA	1/27/2012	RC	2/18/2012	DO	5/1/2012							DO	5/1/2012	RC	5/17/2012					RC	5/17/2012	1
WP426	C2	48	#248A	S	Gouge Repair- 0.120" 1/4"W x 2 1/2 L		1										JA	JA	1/27/2012	RC	2/18/2012	DO	4/20/2012							DO	4/20/2012	RC	5/17/2012					RC	5/17/2012	1
WP427	C3	54	#38A	L	Gouge Repair- 0.060" x 1/2" dia.										1	Around GN	JA	DC	4/11/2012	DC	4/11/2012	DO	4/20/2012							RC	5/21/2012	RC	5/14/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WP428	C2	64	(P)C2-64-1	L	Pit Repair- 0.045" x 1/2" dia.		1										JA	RC	2/17/2012	RC	2/17/2012	PC	4/26/2012							PC	4/26/2012	RC	5/14/2012					RC	5/14/2012	1
WP429	C3	66	(P)C3-66-1	L	Pit Repair- 0.050" x 3/8" dia.		1										RC	RC	3/14/2012	RC	3/14/2012	PC	4/26/2012							PC	4/26/2012	RC	5/16/2012					RC	5/16/2012	1
WP430	C3	1	(P)C3-1-2	L	Gouge Repair- 0.050" 3/16" W x 1" L		1										DO	RC	2/17/2012	RC	2/17/2012	DO	4/27/2012							DO	4/27/2012	RC	5/16/2012					RC	5/16/2012	1
WP431	C3	2	#234	L	GN Repair- Remaining Plate Thk 0.187"									1		GN end and GN side w	JA	JA	1/26/2012	RC	2/6/2012	DO	4/28/2012							DO	4/28/2012	RC	5/18/2012					RC	5/18/2012	1
WP432	C3	2	#235	S	GN Repair- Remaining Plate Thk 0.152"									1		GN end and GN side w	JA	JA	1/26/2012	RC	2/6/2012	DO	4/28/2012							DO	4/28/2012	RC	5/18/2012					RC	5/18/2012	1
WP433	1	16	(P)1-16-1	L	Gouge Repair- 0.050" x 1/4" dia.		1										DO	RC	3/14/2012	RC	3/14/2012	DO	4/27/2012							DO	4/27/2012	RC	5/16/2012					RC	5/16/2012	1
WP434	5	16	#261	S	GN Repair- 0.160" Remaining Plate Thk.									1		GN end and GN side w	JA	JA	1/26/2012	RC	2/6/2012	DO	4/28/2012							DO	4/28/2012	RC	5/18/2012					RC	5/18/2012	1
WP435	8	1	#255	L	Pit Repair- 0.060" depth		1										DO	RC	3/14/2012	RC	3/14/2012	DO	4/27/2012							DO	4/27/2012	RC	5/15/2012					RC	5/15/2012	1
WP436	12	1	#257 (S)12-1	L	GN Repair- 0.196" Remaining Plate Thk.									1		GN end and GN side w	JA	JA	1/26/2012	RC	2/6/2012	DO	4/28/2012							DO	4/28/2012	RC	5/18/2012					RC	5/18/2012	1
WP437	27	16	#240 (P)27-16-1	L	GN Repair- 0.199" Remaining Plate Thk.									1		GN end and GN side w	JA	JA	1/26/2012	RC	2/6/2012	DO	4/28/2012							DO	4/28/2012	RC	5/18/2012					RC	5/18/2012	1
WP438	9	1	(P)9-1-1	L	Pit Repair- 0.055" x 3/16" dia.		1										PC	PC	1/27/2012	RC	2/9/2012	DO	4/28/2012							DO	4/28/2012	JK	5/17/2012					JK	5/17/2012	1
WP439	19	16	#229 (S)19-16	L	GN Repair- 0.197" Remaining Plate Thk.									1		GN end and GN side w	JA	JA	1/26/2012	RC	2/6/2012	DO	4/28/2012							DO	4/28/2012	RC	5/18/2012					RC	5/18/2012	1
WP440	21	1	#239 (S)21-1	L	Gouge Repair- 0.050" depth		1										DC	DC	3/9/2012	DC	3/9/2012	DO	4/27/2012							DO	4/27/2012	JK	5/16/2012					JK	5/16/2012	1
WP441	26	1	#243A #243B	L L	Pit Repair- 0.050" depth Pit Repair- 0.050" depth		1										DC	DC	3/9/2012	DC	3/9/2012	DO	4/27/2012							DO	4/27/2012	JK	5/16/2012					JK	5/16/2012	1
WP442	A	1	(P)A-1-1	S	Pit Repair- 0.070" x 3/16 dia.						1					Along weld seam	RC	RC	3/7/2012	RC	3/7/2012	DO	4/21/2012	JK	4/26/2012					DO	4/27/2012	RC	5/8/2012					RC	5/8/2012	1
WP443	A	1	(P)A-1-1	L	Gouge Repair- 0.060"		1										RC	RC	3/7/2012	RC	3/7/2012	DO	4/21/2012							DO	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP444	A	1	(P)A-1-1	S	Gouge Repair- 0.080" 1" W x 3" L		1										RC	RC	3/8/2012	RC	3/8/2012	DO	4/30/2012							DO	4/30/2012	JK	5/17/2012					JK	5/17/2012	1
WP445	A	1	(P)A-1-2	M	Dent Repair- 2" dia.		1										RC	RC	3/8/2012	RC	3/8/2012	DO	4/30/2012							DO	4/30/2012	JK	5/17/2012					JK	5/17/2012	1
WP446	A	1	(P)A-1-1	L	Gouge Repair- 0.060"						1					Along weld seam	RC	RC	3/7/2012	RC	3/7/2012	DO	4/21/2012							DO	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WP447	A	1	(P)A-1-2	L	Gouge Repair- 0.060" (2)			1									RC	RC	3/7/2012	RC	3/7/2012	DO	4/21/2012	JK	4/26/2012					DO	4/27/2012	RC	5/8/2012					RC	5/8/2012	1
WP448	A	3	(P)A-3-1	S	Gouge Repair- 0.070" 1"W x 3/16" L						1					Along weld seam	DC	DC	3/13/2012	DC	3/13/2012	DO	4/30/2012	JK	5/2/2012					RC	5/2/2012	JK	5/8/2012					JK	5/8/2012	1
WP449	B	1	(P)B-1-1	L	Gouge Repair- 0.050" depth		1										JA	RC	3/9/2012	RC	3/9/2012	DO	5/1/2012							DO	5/1/2012	RC	5/8/2012					RC	5/8/2012	1
WP450	B	1	(P)B-1-1	L	Gouge Repair- 0.050" depth		1										JA	RC	3/5/2012	RC	3/5/2012	DO	5/1/2012							DO	5/1/2012	RC	5/8/2012					RC	5/8/2012	1
WP452	C	1	(P)C-1-1	L	Gouge Repair- 0.050" depth						1					Along weld seam	JA	DC	4/16/2012	DC	4/16/2012	DO	5/1/2012							DO	5/1/2012	RC	5/17/2012					RC	5/17/2012	1
WP453	C	1	(P)C-1-2	L	Gouge Repair- 0.050" depth		1										JA	RC	3/5/2012	RC	3/5/2012	DO	5/1/2012							DO	5/1/2012	RC	5/8/2012					RC	5/8/2012	1
WP454	D	26	(P)D-26-1	L	Gouge Repair- 0.060" x 1/2" dia.										1	Along Weld Seam	RC	RC	3/15/2012	RC	3/15/2012	DO	4/27/2012							DO	4/27/2012	RC	5/7/2012					RC	5/7/2012	1
WP455	D	26	(P)D-26-1	L	Gouge Repair- 0.060" x 1/2" dia.										1	Along Weld Seam	RC	RC	3/15/2012	RC	3/15/2012	DO	4/27/2012							DO	4/27/2012	RC	5/7/2012					RC	5/7/2012	1
WP456	C	25	(P)C-25-1	L	Gouge Repair- 0.050" 3/16" W x 3" L		1										DO	DC	2/20/2012	DC	2/20/2012	RC	4/23/2012	JK	4/26/2012					DO	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WP457	C	25	(P)C-25-1	L	Pit Repair- 0.050" x 1/4" dia.		1										DO	DC	2/20/2012	DC	2/20/2012	RC	4/23/2012	JK	4/26/2012					DO	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WP458	D	24	(P)D-24-1	M	Dent Repair- 0.100" depth		1										DO	PC	1/27/2012	JK	4/21/2012	DO	4/27/2012							DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP459	D	25	(P)D-25-3	S	Pit Repair- 0.075" depth		1										DO	JK	4/19/2012	JK	4/19/2012	DO	4/27/2012							DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WP460	E	13	(P)E-13-3 (P)E-13-4	S S	Gouge Repair- 0.070" x 3/8" dia. Gouge Repair- 0.070" x 1" dia.			1									JA	JA	1/27/2012	JK	4/24/2012	DO	4/27/2012							DO	4/27/2012	DC	5/21/2012					DC	5/21/2012	1
WP460A	E	13			GOUGE		1										JK	JK	4/24/2012	JK	4/24/2012	DO	4/27/2012							DO	4/27/2012	DC	5/21/2012					DC	5/21/2012	1
WP461	E	13	(P)E-13-3 (P)E-13-4	S	Gouge Repair- 0.070" 1/4" W x 1 1/4" L		1										DO	JA	1/27/2012	JK	4/24/2012	DO	4/27/2012							DO	4/27/2012	DC	5/21/2012					DC	5/21/2012	1

						REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS										QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS								
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WP461A	E	13			GOUGE		1										JK	JK	4/24/2012	JK	4/24/2012	DO	4/27/2012							DO	4/27/2012	DC	5/21/2012					DC	5/21/2012	1
WP462	E	13	(P)E-13-3 (P)E-13-4	S	Gouge Repair- 0.070" 1/4" W x 1 1/4" L		1										JA	JA	1/27/2012	JK	4/24/2012	DO	4/27/2012							DO	4/27/2012	DC	5/21/2012					DC	5/21/2012	1
WP462A	E	13			GOUGE			1									JK	JK	4/24/2012	JK	4/24/2012	DO	4/27/2012							DO	4/27/2012	DC	5/21/2012					DC	5/21/2012	1
WP463	E	13	(P)E-13-3 (P)E-13-4	L	Gouge Repair- 0.060" x 1" dia.		1										DO	JA	1/27/2012	JK	4/24/2012	DO	4/27/2012							DO	4/27/2012	DC	5/21/2012					DC	5/21/2012	1
WP464	F	17		L	Gouge Repair- 0.050" 1/8" W x 1 1/8" L		1										JA	JA	1/27/2012	DC	4/19/2012	DO	4/30/2012	JK	5/1/2012					DO	5/1/2012	JK	5/16/2012					JK	5/16/2012	1
WP465	F	18		S	Gouge Repair- 0.125" 3/16" W x 3/8" L		1										JA	JA	1/27/2012	DC	4/19/2012	DO	4/30/2012	JK	5/2/2012					RC	5/2/2012	JK	5/16/2012					JK	5/16/2012	1
WP466	F	19		S	Gouge Repair- 0.125" 1/2" W x 1 1/4" L		1										JA	JA	1/27/2012	DC	4/19/2012	DO	4/30/2012	JK	5/2/2012					RC	5/2/2012	JK	5/16/2012					JK	5/16/2012	1
WP467	F	3		S	Gouge Repair- 0.110" 1/4" W x 3/4" L		1										JA	JA	1/27/2012	DC	4/21/2012	DO	4/30/2012	JK	5/2/2012					RC	5/2/2012	JK	5/16/2012					JK	5/16/2012	1
WP468	F	5		M	Hole Repair- 3/4" dia.		1										JA	JA	1/27/2012	DC	4/20/2012	DO	4/30/2012	JK	5/2/2012					RC	5/2/2012	JK	5/16/2012					JK	5/16/2012	1
WP469	E	8	(P)E-8-1	M	Weld Repair- (P) Porosity 5/32" dia.	1											JA	JA	1/27/2012	JK	4/21/2012	RC	4/23/2012							RC	4/23/2012	JK	5/7/2012					JK	5/7/2012	1
WP470	F	8	(P)E-8-1	S	Plate Repair- Weld Seal Plate, not welded, just tacked 2" W x 8" L PL			1									JA	JA	1/27/2012	DC	4/20/2012	DO	4/28/2012							DO	4/28/2012	JK	5/16/2012					JK	5/16/2012	1
WP471	F	8	(P)E-8-1	L	Pit Repair- 0.050" x 1/2" dia.		1																																
WP472	E	9	(P)E-9-1	M	Gouge Repair- 0.188" 1/4" W x 1 3/4" L		1										JA	JA	1/27/2012	JK	4/21/2012	RC	4/23/2012							RC	4/23/2012	JK	5/16/2012					JK	5/16/2012	1
WP473	E	10		L	Gouge Repair- 0.045" 1/4" W x 1" L		1										JA	JA	1/27/2012	DR	4/23/2012	DO	4/28/2012							DO	4/28/2012	JK	5/16/2012					JK	5/16/2012	1
WP474	E	11		L	Gouge Repair- 0.050" 1/4" W x 1 1/4" L		1										PC	PC	1/27/2012	DR	4/23/2012	DO	4/27/2012							DO	4/27/2012	JK	5/16/2012					JK	5/16/2012	1
WP477	12	5	#113 (S)12-5	L	GN Repair- 0.197" Remaining Plate Thk.								1				PC	PC	1/27/2012	DC	3/28/2012	DO	4/28/2012							DO	4/28/2012	DC	5/10/2012					DC	5/10/2012	1
WP478	27	15		M	Misdrilled Hole		1										JA	DC	2/6/2012	DC	2/6/2012	DO	4/18/2012							RC	5/16/2012	RC	5/10/2012	JK	5/11/2012	RC	5/16/2012	RC	5/16/2012	1
WP479	MW	1			Pit	1											JK	JK	5/21/2012	JK	5/21/2012	DO	4/18/2012							DO	4/18/2012	JK	5/16/2012					JK	5/16/2012	1
WP480	19	5	#158 (S)14-5	L	GN Repair- 0.199" Remaining Plate Thk.								1				PC	PC	1/27/2012	DC	3/27/2012	DO	4/28/2012							DO	4/28/2012	RC	5/21/2012					RC	5/21/2012	1
WP481	22	16		M	Hole Repair in Shell- 1/4" Dia		1										JA	JA	1/27/2012	DC	1/31/2012	DO	4/19/2012	DC	4/26/2012	PC	4/30/2012	JK	5/1/2012	DO	5/1/2012	RC	5/16/2012					RC	5/16/2012	1
WP485	E	12			GOUGE		1										JK	JK	4/24/2012	JK	4/24/2012	DO	5/1/2012							DO	5/1/2012	RC	5/21/2012					RC	5/21/2012	1
WR002	27	3	(P)27-3-2	M	Weld Repair- (UC) Undercut 0.115" x 1/2" dia.	1											PC	PC	1/27/2012	DC	2/27/2012	RC	4/19/2012							RC	4/19/2012	DC	5/7/2012					DC	5/7/2012	1
WR003	27	4	(P)27-4-1	M	Weld Repair- (UC) Undercut 0.075" x 1/2" dia.	1											PC	PC	1/27/2012	DC	2/27/2012	RC	4/19/2012							RC	4/19/2012	DC	5/7/2012					DC	5/7/2012	1
WR004	27	5	(P)27-5-1	M	Weld Repair- (UC) Undercut 0.070" x 2" L	1											PC	PC	1/27/2012	RC	2/9/2012	DO	4/28/2012							DO	4/28/2012	DC	5/7/2012					DC	5/7/2012	1
WR005	25	8	(P)25-8-1	M	Weld Repair- (UC) Undercut 0.100" x 3/8" dia.	1											DO	RC	2/8/2012	RC	2/8/2012	DO	4/26/2012							DO	4/26/2012	DC	5/7/2012					DC	5/7/2012	1
WR006	21	8	(P)21-8-2	M	Weld Repair- (UC) Undercut 0.070" x 1" L	1											DO	RC	2/8/2012	RC	2/8/2012	DO	4/26/2012							RC	5/11/2012	RC	5/14/2012	JK	5/11/2012	RC	5/17/2012	RC	5/17/2012	1
WR007	20	8	(P)20-8-2	M	Weld Repair- (P) Porosity 0.110" x 1/2" Dia	1											DO	RC	2/8/2012	RC	2/8/2012	PC	4/27/2012							PC	4/27/2012	DC	5/9/2012					DC	5/9/2012	1
WR008	18	8	(P)18-8-1	M	Weld Repair- (P) Porosity 0.110" x 1/2 dia.	1											DO	DC	3/16/2012	DC	3/16/2012	PC	4/27/2012							PC	4/27/2012	DC	5/9/2012					DC	5/9/2012	1
WR009	21	6	(P)21-6-1	M	Weld Repair- (G) Gouge 0.095" x 3/8" dia.	1											DO	RC	2/9/2012	RC	2/9/2012	DO	4/27/2012							DO	4/27/2012	DC	5/9/2012					DC	5/9/2012	1
WR010	20	7	(P)20-7-1	M	Weld Repair- (P) Porosity 5/32" (2)	1											DO	RC	2/3/2012	RC	2/3/2012	DO	4/28/2012							DO	4/28/2012	JK	5/16/2012					JK	5/16/2012	1
WR011	20	7	(P)20-7-2	M	Weld Repair - (UF) Underfill 0.060" x 1/2"	1											DO	RC	2/3/2012	RC	2/3/2012	DO	4/28/2012							DO	4/28/2012	JK	5/16/2012					JK	5/16/2012	1
WR012	16	7	#178 (P)16-7-1	M M	Weld Repair- (P) Porosity 0.110" depth Weld Repair- (UC) Undercut 0.090" x 4" L	1											DO	RC	2/3/2012	RC	2/3/2012	DO	4/28/2012							DO	4/28/2012	DC	5/9/2012					DC	5/9/2012	1
WR013	15	6	(P)15-6-1	M	Weld Repair- (LF) Lack of Fusion 0.050" dia.	1											DO	RC	2/3/2012	RC	2/3/2012	DO	4/28/2012							DO	4/28/2012	DC	5/9/2012					DC	5/9/2012	1
WR014	15	6	(P)15-6-4	M	Weld Repair- (UC) Undercut 0.090" x 1/2"L	1											DO	RC	2/3/2012	RC	2/3/2012	DO	4/28/2012							DO	4/28/2012	DC	5/9/2012					DC	5/9/2012	1
WR015	15	6	(P)15-6-2	M	Weld Repair- (UC) Undercut 0.090" x 1/2"L	1											DO	PC	1/27/2012	RC	2/9/2012	DO	4/28/2012							DO	4/28/2012	DC	5/9/2012					DC	5/9/2012	1
WR016	13	7	(P)13-7-1	M	Weld Repair - (UC) Undercut 0.090" x 3/8" dia.	1											DO	RC	2/4/2012	RC	2/4/2012	PC	4/27/2012							PC	4/27/2012	DC	5/9/2012					DC	5/9/2012	1
WR017	11	6	(P)11-6-1	M	Weld Repair- (P) Porosity 3/16" dia.	1											DO	RC	2/8/2012	RC	2/8/2012	PC	4/27/2012							PC	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WR018	12	6	(P)12-6-1	M	Weld Repair- (LF) Lack of Fusion 3/8" L & 1/8" L Weld Repair- (UC) Undercut 0.110" x 1/2" L	1											DO	PC	1/27/2012	RC	2/9/2012	PC	4/27/2012							PC	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WR019	13	4	(P)13-4-1 (P)13-4-2	M	Weld Repair- (LF) Lack of Fusion 1 1/2" L Weld Repair- (UC) Undercut 0.070" x 4" L	1											PC	PC	1/27/2012	DC	2/25/2012	DO	4/28/2012							DO	4/28/2012	DC	5/10/2012					DC	5/10/2012	1
WR020	1	1	(P)1-1-4	M	Weld Repair- (LF) Lack of Fusion	1											DO	RC	2/3/2012	RC	2/3/2012	PC	4/27/2012							PC	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WR021	10	3	(P)10-3-1	M	Weld Repair- (UC) Undercut 0.110" x 3/4" L	1											PC	DC	2/25/2012	DC	2/25/2012	DO	4/27/2012							DO	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WR022	13	2	(P)13-2-1	M	Weld Repair- (UC) Undercut 0.070" x 1/2" dia.	1											PC	RC	2/9/2012	RC	2/9/2012	DO	4/28/2012							DO	4/28/2012	DC	5/10/2012					DC	5/10/2012	1
WR023	A	19	(P)A-19-2	M	Weld Repair- (P) Porosity 0.060" (2)	1											PC	JK	2/16/2012	JK	2/16/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WR024	A	21	(P)A-21-1	M	Weld Repair- (P) Porosity 5" L	1											PC	JK	2/16/2012	JK	2/16/2012	RC	4/19/2012							RC	4/19/2012	DC	5/8/2012					DC	5/8/2012	1
WR025	D	6	(P)D-6-1	M	Weld Repair - (UF) Underfill 1" L	1											PC	DC	2/21/2012	DC	2/21/2012	RC	4/23/2012	DR	4/25/2012					DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WR025A	C	20	(P)C-20-1	M	Weld Repair-(LF) Lack of Fusion	1											PC	DC	2/20/2012	DC	2/20/2012	PC	4/21/2012							PC	4/21/2012	JK	5/7/2012					JK	5/7/2012	1
WR026	D	5	(P)D-5-1	M	Weld Repair- (UC) Undercut 2" 0.070"	1											PC	DC	2/21/2012	DC	2/21/2012	PC	4/21/2012							PC	4/21/2012	JK	5/7/2012					JK	5/7/2012	1
WR027	3	14	(P)3-14-1	M	Weld Repair- (UF) Underfill 0.090" x 3" L Weld Repair- (G) Gouge x 1/2" dia.	1											JA	JK	2/15/2012	JK	2/15/2012	PC	4/25/2012							PC	4/25/2012	RC	5/15/2012					RC	5/15/2012	1
WR028	3	14	(P)4-13-2	M	Weld Repair- (UF) Underfill 0.090" x 8" L	1											JA	JK	2/15/2012	JK	2/15/2012	PC	4/25/2012							PC	4/25/2012	RC	5/15/2012					RC	5/15/2012	1
WR029	2	13	#140 (P)2-13-1	M	Weld Repair - (P) Porosity 5/32" Dia.	1											JA	RC	2/16/2012	RC	2/16/2012	DO	4/20/2012							DO	4/20/2012	RC	5/14/2012					RC	5/14/2012	1
WR030	2	13	#140 (P)2-13-1	M	Weld Repair - (P) Porosity 5/32" Dia.	1											JA	RC	2/16/2012	RC	2/16/2012	DO	4/20/2012							DO	4/20/2012	RC	5/14/2012					RC	5/14/2012	1
WR031	3	12	(P)3-12-1	M	Weld Repair- (P) Porosity 5/32" dia.	1											JA	JK	2/15/2012	JK	2/15/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WR032	3	12	(P)3-12-1	M	Weld Repair- (G) Gouge 0.130" x 3/8" dia.	1											JA	JK	2/15/2012	JK	2/15/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1

						REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS									QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS								
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WR033	2	12	(P)2-12-1	M	Weld Repair- (P) Porosity 5/32" dia.	1											JK	JK	2/15/2012	JK	2/15/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WR034	3	10	(P) 3-10-1	M M	Weld Repair - (UC) Undercut Weld Repair- (UF) Underfill	1											JA	JK	2/15/2012	JK	2/15/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WR035	2	9	(P)2-9-1	M	Weld Repair- (LF) Lack of Fusion 3/16" L	1											JA	JK	2/15/2012	JK	2/15/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WR036	1	9	(P)1-9-1	M	Weld Repair - (LF) Lack of Fusion	1											JA	JK	2/15/2012	JK	2/15/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WR037	5	8	# 212 (P)4-9-1	M	Weld Repair- (UC) Undercut 0.110" x 1.5" L	1											JA	RC	2/16/2012	RC	2/16/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WR038	5	14		M	Weld Repair- (UF) Underfill 0.080" depth	1											JA	DC	2/14/2012	DC	2/14/2012	PC	4/25/2012							PC	4/25/2012	RC	5/15/2012					RC	5/15/2012	1
WR039	5	15	(P)5-15-1	M	Weld Repair - (UF) Underfill 0.080" depth	1											JA	RC	3/20/2012	RC	3/20/2012	PC	4/17/2012							PC	4/17/2012	RC	5/15/2012					RC	5/15/2012	1
WR040	4	13	(P)4-13-1	M M	Weld Repair- (SI) Slag Inclusion Weld Repair- (LF) Lack of Fusion 4" L	1											JA	DC	2/14/2012	DC	2/14/2012	PC	4/25/2012							PC	4/25/2012	RC	5/14/2012					RC	5/14/2012	1
WR041	7	15	(P)7-15-1	S	Weld Repair- (G) Gouge 0.080" x 1/2" dia.	1											DO	DC	2/4/2012	DC	2/4/2012	PC	4/17/2012							RC	5/21/2012	RC	5/15/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WR043	7	14	(P)7-14-1 (P)7-14-2	M	Weld Repair- (P) Porosity 3/32" Dia.	1											DO	DC	2/4/2012	DC	2/4/2012	PC	4/26/2012							RC	5/21/2012	RC	5/15/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WR044	17	11	(P)17-11-1	M	Weld Repair- (UC) Undercut 0.035" x 1/2" L	1											JA	JA	1/26/2012	DC	2/4/2012	DO	4/20/2012							RC	5/21/2012	RC	5/14/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WR045	24	14	(P)24-14-4	M	Weld Repair- (LF) Lack of Fusion	1																																		
WR048	26	16	(P)26-16-3	M	Weld Repair - (UF) Underfill 1/16" dia.	1											JA	JA	1/27/2012	RC	2/13/2012	DO	4/19/2012	DC	4/23/2012					PC	4/25/2012	RC	5/10/2012					RC	5/10/2012	1
WR052	28	14	(P)28-14-2	M	Weld Repair- (P) Porosity 1/4" dia.	1											JA	RC	2/13/2012	RC	2/13/2012	PC	4/17/2012							PC	4/17/2012	RC	5/10/2012					RC	5/10/2012	1
WR053	28	14	(P)28-14-1	M	Weld Repair- (LF) Lack of Fusion 1/4" L	1											JA	RC	2/13/2012	RC	2/13/2012	PC	4/17/2012							PC	4/17/2012	RC	5/10/2012					RC	5/10/2012	1
WR056	28	13	(P)28-13-1	M	Weld Repair- (LF) Lack of Fusion 1/4" L	1											JA	DC	2/3/2012	DC	2/3/2012	PC	4/17/2012							PC	4/17/2012	JK	5/18/2012					JK	5/18/2012	1
WR057	28	13	(P)28-13-2	M	Weld Repair- (UC) Undercut 0.085" x 6" L	1											JA	DC	2/3/2012	DC	2/3/2012	PC	4/17/2012							RC	5/21/2012	RC	5/10/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WR062	27	12	(P)27-12-4	M	Weld Repair- (G) Arc Gouge 0.070" depth	1											JA	RC	2/13/2012	RC	2/13/2012	PC	4/25/2012							PC	4/25/2012	RC	5/14/2012					RC	5/14/2012	1
WR064	E4	15	#271 (P)E4-15-1	S	Plate Repair- 12" W x 4" L x 0.177" Thk							1				corner	DO	JA	1/27/2012	DC	4/2/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WR065	E4	13	(P)E4-13-2	M	Weld Repair- (P) Porosity 1/8"	1											DO	DC	2/3/2012	DC	2/3/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WR066	E3	11	(P)E3-11-1	M	Weld Repair - (P) Porosity 1/8"	1											DO	DC	2/3/2012	DC	2/3/2012	PC	4/17/2012							PC	4/17/2012	RC	5/8/2012					RC	5/8/2012	1
WR067	E3	12	(P)E3-12-1	M	Weld Repair- (P) Porosity Leak in Telltale Channel	1											DO	DC	2/3/2012	DC	2/3/2012	PC	4/17/2012							PC	4/17/2012	RC	5/8/2012					RC	5/8/2012	1
WR068	E3	14	(P)E3-14-1	M	Weld Repair - (P) Porosity 5/32"	1											DO	DC	2/3/2012	DC	2/3/2012	PC	4/17/2012							PC	4/17/2012	RC	5/8/2012					RC	5/8/2012	1
WR069	A	61	(P)A-61-1 (P)A-61-2	M M	Weld Repair- (LF) Lack of Fusion Weld Repair- (P) Porosity 5/32" dia.	1											JA	JA	1/27/2012	DC	2/1/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WR070	A	56	(P)A-56-1	M	Weld Repair- (LF) Lack of Fusion	1											DO	DC	2/2/2012	DC	2/2/2012	PC	4/17/2012							PC	4/17/2012	RC	5/8/2012					RC	5/8/2012	1
WR071	A	47	(P)A-47-1	M	Weld Repair- (LF) Lack of Fusion	1											DO	RC	3/21/2012	RC	3/21/2012	PC	4/17/2012							PC	4/17/2012	RC	5/8/2012					RC	5/8/2012	1
WR072	A	43	(P)A-43-3	M	Weld Repair- (LF) Lack of Fusion	1											DO	DC	2/2/2012	DC	2/2/2012	RC	4/19/2012							JK	5/18/2012	RC	5/9/2012	JK	5/18/2012	JK	5/18/2012	JK	5/18/2012	1
WR073	A	42	(P)A-42-1	M	Weld Repair- (P) Porosity 5/32" dia.	1											JA	JA	1/26/2012	DC	2/3/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WR074	A	40	(P)A-40-1	M	Weld Repair- (UC) Undercut 0.070" x 1 1/2" L	1											DO	DC	2/2/2012	DC	2/2/2012	RC	4/19/2012							RC	4/19/2012	RC	5/23/2012					RC	5/23/2012	1
WR075	A	39	(P)A-39-1	M	Weld Repair- (LF) Lack of Fusion	1											JA	DC	2/3/2012	DC	2/3/2012	DO	4/24/2012							DO	4/24/2012	RC	5/9/2012					RC	5/9/2012	1
WR076	B	41	(P)B-41-1	M	Weld Repair- (LF) Lack of Fusion 9" L	1											JA	RC	3/2/2012	RC	3/2/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WR077	B	43	(P)B-43-1	M	Weld Repair- (LF) Lack of Fusion	1											JA	DC	2/8/2012	DC	2/8/2012	PC	4/23/2012							PC	4/23/2012	RC	5/23/2012					RC	5/23/2012	1
WR078	B	43	(P)B-43-2	M	Weld Repair- (SI) Slag Inclusion	1											JA	DC	2/8/2012	DC	2/8/2012	PC	4/23/2012							PC	4/23/2012	RC	5/23/2012					RC	5/23/2012	1
WR079	B	45	(P)B-45-1	M	Weld Repair- (SI) Slag Inclusion 1" L	1											JA	DC	2/8/2012	DC	2/8/2012	PC	4/18/2012							PC	4/18/2012	RC	5/9/2012					RC	5/9/2012	1
WR080	B	47	(P)B-47-3	M	Weld Repair- (LF) Lack of Fusion	1											JA	DC	2/7/2012	DC	2/7/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WR081	B	47	(P)B-47-4	M	Weld Repair- (LF) Lack of Fusion	1											JA	DC	2/7/2012	DC	2/7/2012	PC	4/23/2012							PC	4/23/2012	RC	5/9/2012					RC	5/9/2012	1
WR082	B	50	(P)B-50-1	M M	Weld Repair- (LF) Lack of Fusion Weld Repair- (P) Porosity	1											JA	DC	2/7/2012	DC	2/7/2012	PC	4/23/2012	DC	4/23/2012	PC	4/30/2012	JK	5/1/2012	DO	5/1/2012	RC	5/9/2012					RC	5/9/2012	1
WR083	B	57	(P)B-57-1	M	Weld Repair- (UC) Undercut 1 1/2" L	1											JA	DC	2/7/2012	DC	2/7/2012	PC	4/17/2012							PC	4/17/2012	RC	5/8/2012					RC	5/8/2012	1
WR084	B	59	(P)B-59-3	M	Weld Repair- (UC) Undercut 2 1/2" L	1											JA	DC	2/7/2012	DC	2/7/2012	PC	4/21/2012							PC	4/21/2012	RC	5/9/2012					RC	5/9/2012	1
WR085	B	65		M	Weld Repair- (UC) Undercut 2" L	1											JA	JA	1/27/2012	RC	3/2/2012	PC	4/23/2012							PC	4/23/2012	RC	5/10/2012					RC	5/10/2012	1
WR086	C	45	(P)C-45-1 (P)C-45-3	M	Weld Repair- (LF) Lack of Fusion	1											JA	DC	2/9/2012	DC	2/9/2012	PC	4/23/2012							PC	4/23/2012	RC	5/16/2012					RC	5/16/2012	1
WR087	D	34	(P)D-34-2	M	Weld Repair- (UC) Undercut 0.065" x 2" L	1											DO	RC	2/24/2012	RC	2/24/2012	DO	4/24/2012							DO	4/24/2012	JK	5/15/2012					JK	5/15/2012	1
WR087A	C2	31	(P)C2-31-1	M	Weld Repair- (UC) Undercut 0.055" x 6" L	1											DO	DC	4/13/2012	DC	4/13/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1
WR088	C3	36	(P)C3-36-1	M	Weld Repair-(UC) Undercut 2" L x 0.050" depth	1											JA	RC	2/28/2012	RC	2/28/2012	IM	4/28/2012							IM	4/28/2012	RC	5/17/2012					RC	5/17/2012	1
WR089	C3	32	(P)C3-32-1 #33	M S	Weld Repair-(UC) Undercut 0.090" Comp. Cir. Gouge Repair- 0.090" x 1/4" dia	1								1			DO	DC	3/7/2012	DC	3/7/2012	DO	4/27/2012							DO	4/27/2012	JK	5/15/2012					JK	5/15/2012	2
WR090	C3	34	(P)C3-34-1	M	Weld Repair- (UC) Undercut 1 1/2" L x 0.060" depth (2)	1											DO	DC	3/7/2012	DC	3/7/2012	PC	4/25/2012							PC	4/25/2012	JK	5/17/2012					JK	5/17/2012	1
WR091	1	8	(P)1-8-1	M	Weld Repair - (UC) Undercut 0.080" x 1/4" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/27/2012							PC	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WR092	1	8	(P)1-8-1	M	Weld Repair - (UC) Undercut 0.050" x 3/16" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/27/2012							PC	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WR093	1	8	(P)1-8-1	M	Weld Repair - (UC) Undercut 0.050" x 3/16" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/27/2012							PC	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WR094	2	8	(P)2-8-1	M	Weld Repair - (UF) Underfill 0.090" x 3/16" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	DO	4/25/2012							RC	5/17/2012	JK	5/16/2012	JK	5/16/2012	RC	5/17/2012	RC	5/17/2012	1
WR095	5	8	(P)5-8-1 -	M	Weld Repair- (UC) Undercut 0.070" x 3" L	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/27/2012							PC	4/27/2012	JK	5/16/2012					JK	5/16/2012	1
WR096	5	8	(P)5-8-1 -	M	Weld Repair- (UC) Undercut 0.090" x 4" L	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/27/2012							PC	4/27/2012	JK	5/16/2012					JK	5/16/2012	1
WR101	9	8	(P)9-8-1	M	Weld Repair- (UC) Undercut 0.100" x 1/4" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/21/2012							PC	4/21/2012	DC	5/10/2012					DC	5/10/2012	1

					REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS										QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS								
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WR101A	D	3	(P)D-3-3	M	Weld Repair- (P) Porosity 0.080" depth	1											DO	JK	2/22/2012	JK	2/22/2012	PC	4/27/2012							PC	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WR101B	D	25	(P)D-25-2	M	Weld Repair- (UC) Undercut 0.090" x 4" L	1											DO	JK	4/9/2012	JK	4/9/2012	DO	4/27/2012							DO	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WR101C	E4	9	(P)E4-9-1	M	Weld Repair - (UC) Undercut 0.070" x 3/16" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	DO	4/24/2012	JK	4/25/2012					DO	4/26/2012	DC	5/9/2012					DC	5/9/2012	1
WR102	9	8	(P)9-8-1	M	Weld Repair- (UC) Undercut 0.050" x 1/2" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/27/2012							PC	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WR102A	A	4	(P)A-4-2	M	Weld Repair- (UC) Undercut 0.170" x 2" L	1											DC	DC	3/1/2012	DC	3/1/2012	RC	4/17/2012	DC	4/25/2012					DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WR103	9	8	(P)9-8-1	M	Weld Repair- (UC) Undercut 0.080" x 1/2" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	RC	4/18/2012	DC	4/25/2012					DO	4/26/2012	DC	5/10/2012					DC	5/10/2012	1
WR103A	A	11	(P)A-11-1	M	Weld Repair- (P) Porosity 3/8" W x 1 1/2"L x 0.075" depth	1											PC	RC	2/1/2012	RC	2/1/2012	PC	4/27/2012							PC	4/27/2012	DC	5/8/2012					DC	5/8/2012	1
WR104	9	8	(P)9-8-1	M	Weld Repair- (UC) Undercut 0.060" x 1/2" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	RC	4/19/2012							RC	4/19/2012	DC	5/10/2012					DC	5/10/2012	1
WR104A	A	19	(P)A-19-1	M	Weld Repair- (UC) Undercut 0.095" x 8" L	1											PC	JK	2/16/2012	JK	2/16/2012	PC	4/27/2012							PC	4/27/2012	DC	5/8/2012					DC	5/8/2012	1
WR105	A	28	(P)A-28-1	M	Weld Repair- (UC) Undercut	1											PC	JK	2/16/2012	JK	2/16/2012	DO	4/26/2012							DO	4/26/2012	DC	5/8/2012					DC	5/8/2012	1
WR106	1	4	(P)1-4-1	M	Weld Repair- (P) Porosity 3/16" dia.	1											DO	RC	2/10/2012	RC	2/10/2012	PC	4/27/2012							PC	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WR107	1	8	(P)1-8-2	M	Weld Repair - (UC) Undercut 0.050" x 1/4" dia.	1																																	
WR108	2	1		M	Weld Repair- (UC) Undercut 0.060" x 1/2" L	1											RC	RC	2/10/2012	RC	2/10/2012	PC	4/27/2012							PC	4/27/2012	JK	5/7/2012					JK	5/7/2012	1
WR109	5	8	(P)5-8-1 -	M	Weld Repair- (UC) Undercut 0.050" x 1/2" L	1											DO	RC	2/7/2012	RC	2/7/2012	DO	4/25/2012							DO	4/25/2012	RC	5/16/2012					RC	5/16/2012	1
WR110	6	9	(P)6-9-1	M	Weld Repair- (UC) Undercut 0.060" x 1/2" L	1											DO	RC	2/7/2012	RC	2/7/2012	DO	4/25/2012							DO	4/25/2012	RC	5/14/2012					RC	5/14/2012	1
WR111	6	8	(P)6-8-1	M	Weld Repair- (UC) Undercut 0.050" x 1/2" L	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/27/2012							PC	4/27/2012	DC	5/11/2012					DC	5/11/2012	1
WR112	6	8	(P)6-8-3	M	Weld Repair- (UC) Undercut 0.070" x 1/2" L	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/27/2012							PC	4/27/2012	JK	5/16/2012					JK	5/16/2012	1
WR113	6	8	(P)6-8-1	M	Weld Repair- (UC) Undercut 0.050" x 1/2" L	1											DO	RC	2/7/2012	RC	2/7/2012	DO	4/25/2012							DO	4/25/2012	DC	5/11/2012					DC	5/11/2012	1
WR114	6	8	(P)6-8-1	M	Weld Repair- (UC) Undercut 0.050" x 1/2" L	1											DO	RC	2/7/2012	RC	2/7/2012	DO	4/25/2012							DO	4/25/2012	DC	5/11/2012					DC	5/11/2012	1
WR115	7	8	(P)7-8-1	M	Weld Repair - (UC) Undercuts Listed: 0.070" x 4" L (3)	1											DO	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR116	7	8	(P)7-8-1	M	Weld Repair - (UC) Undercuts Listed: 0.070" x 4" L (3)	1											DO	RC	2/8/2012	RC	2/8/2012	PC	4/27/2012							PC	4/27/2012	DC	5/11/2012					DC	5/11/2012	1
WR117	7	8	(P)7-8-1	M	Weld Repair - (UC) Undercuts Listed: 0.070" x 4" L (3)	1											DO	RC	2/8/2012	RC	2/8/2012	PC	4/27/2012							PC	4/27/2012	DC	5/11/2012					DC	5/11/2012	1
WR118	7	8	(P)7-8-1	M	Weld Repair - (UC) Undercuts Listed: 0.070" x 4" L (3)	1											DO	RC	2/8/2012	RC	2/8/2012	PC	4/27/2012							PC	4/27/2012	DC	5/11/2012					DC	5/11/2012	1
WR119	7	8	(P)7-8-1	M	Weld Repair - (UC) Undercuts Listed: 0.070" x 4" L (3)	1											DO	RC	2/7/2012	RC	2/7/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR120	7	8	(P)7-8-1	M	Weld Repair - (UC) Undercuts Listed: 0.070" x 4" L (3)	1											DO	RC	2/8/2012	RC	2/8/2012	PC	4/27/2012							PC	4/27/2012	DC	5/11/2012					DC	5/11/2012	1
WR121	7	8	(P)7-8-1	M	Weld Repair - (UC) Undercuts Listed: 0.070" x 4" L (3)	1											JA	RC	2/8/2012	RC	2/8/2012	DO	4/27/2012							DO	4/27/2012	DC	5/11/2012					DC	5/11/2012	1
WR122	6	8	(P)6-8-2	M	Weld Repair- (UC) Undercut 0.050" x 1/2" L	1											DO	RC	2/7/2012	RC	2/7/2012	DO	4/27/2012							DO	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WR123	7	8	(P)7-8-1	M	Weld Repair - (UC) Undercuts Listed: 0.070" x 4" L (3)	1											DO	RC	2/8/2012	RC	2/8/2012	DO	4/25/2012	JK	4/27/2012	PC	4/30/2012	JK	5/1/2012	DO	5/1/2012	RC	5/15/2012					RC	5/15/2012	1
WR124	8	8	(P)8-8-1	M	Weld Repair- (UC) Undercut 0.050" x 1/4" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/27/2012							PC	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WR125	8	8	(P)8-8-1	M	Weld Repair- (UC) Undercut 0.050" x 1/4" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	PC	4/27/2012							PC	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WR126	8	8	(P)8-8-1	M	Weld Repair- (UC) Undercut 0.100" x 1/4" dia.	1											DO	RC	2/7/2012	RC	2/7/2012	DO	4/28/2012							DO	4/28/2012	DC	5/10/2012					DC	5/10/2012	1
WR127	8	8	(P)8-8-1	M	Weld Repair- (UC) Undercut 0.050" x 1/4" dia.	1											DO	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR128	9	8	(P)9-8-1	M	Weld Repair- (UC) Undercut 0.050" x 1/2" dia.	1											DO	RC	2/4/2012	RC	2/4/2012	DO	4/28/2012							DO	4/28/2012	DC	5/10/2012					DC	5/10/2012	1
WR128A	9	2		M	Weld Repair- (UC) Undercut 0.050"	1											PC	DC	2/25/2012	DC	2/25/2012	DO	4/25/2012							DO	4/25/2012	JK	5/17/2012					JK	5/17/2012	1
WR128B	8	3	#67A (S)8-3	M	Weld Repair- (UC) Undercut 0.125" x 5" L	1											DO	DC	2/28/2012	DC	2/28/2012	DO	4/28/2012							DO	4/28/2012	JK	5/17/2012					JK	5/17/2012	1
WR129	9	8	(P)9-8-1	M	Weld Repair- (UC) Undercut 0.070" x 1/2" dia.	1											DO	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	RC	5/15/2012					RC	5/15/2012	1
WR130	10	8	(P)10-8-1	M	Weld Repair- (UC) Undercut- 0.040" x 4" L	1											DO	RC	2/4/2012	RC	2/4/2012	DO	4/25/2012							DO	4/25/2012	JK	5/17/2012					JK	5/17/2012	1
WR131	10	8	(P)10-8-1	M	Weld Repair- (UC) Undercut- 0.050" x 1/2" L	1											DO	RC	2/4/2012	RC	2/4/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR132	11	7	(P)11-7-1	M	Weld Repair- (UC) Undercut 0.040" x 6" L	1											DO	RC	2/4/2012	RC	2/4/2012	PC	4/27/2012							PC	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WR133	11	8	(P)11-8-4	M	Weld Repair- (UC) Undercut 0.050" x 8" L	1											DO	RC	2/4/2012	RC	2/4/2012	PC	4/27/2012							PC	4/27/2012	DC	5/10/2012					DC	5/10/2012	1
WR134	11	8	(P)11-8-4	M	Weld Repair- (UC) Undercut 0.050" x 2" L	1											DO	RC	2/4/2012	RC	2/4/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR135	11	8	(P)11-8-4	M	Weld Repair- (UC) Undercut 0.050" depth	1											DO	RC	2/4/2012	RC	2/4/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR136	12	8	(P)12-8-2	M	Weld Repair- (UC) Undercut 0.050" depth	1											DO	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR137	12	8	(P)12-8-1	M	Weld Repair- (UC) Undercut 0.050" depth	1											DO	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR138	18	9	(S)18-9-1	M	Weld Repair- (UC) Undercut 0.080" x 1 1/2" L	1											DO	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	JK	5/16/2012					JK	5/16/2012	1
WR139	20	8	(P)20-8-4	M	Weld Repair- (UC) Undercut 0.050" depth	1											DO	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	DC	5/9/2012					DC	5/9/2012	1
WR140	19	2	#62 (P)19-2-1	M	Weld Repair- (G) Gouge 0.050" x 5" L	1											PC	RC	2/9/2012	RC	2/9/2012	DO	4/28/2012							DO	4/28/2012	DC	5/9/2012					DC	5/9/2012	1
WR141	27	3	(P)27-3-1	M	Weld Repair- (LF) Lack of Fusion 1/2"	1											PC	PC	1/27/2012	DC	2/27/2012	RC	4/19/2012							RC	4/19/2012	DC	5/7/2012					DC	5/7/2012	1
WR142	C1	3	#12	M	Weld Repair- (UF) Underfill 2 1/2" L	1											JA	DC	3/20/2012	DC	3/20/2012	DO	4/28/2012							DO	4/28/2012	JK	5/17/2012					JK	5/17/2012	1
WR143	C1	11	#14	M	Weld Repair- (UF) Underfill 1" L	1											JA	DC	3/20/2012	DC	3/20/2012	DO	4/28/2012							DO	4/28/2012	JK	5/17/2012					JK	5/17/2012	1
WR144	C1	10	#13	M	Weld Repair- (UF) Underfill 1" L	1											JA	DC	3/20/2012	DC	3/20/2012	DO	4/28/2012							DO	4/28/2012	JK	5/17/2012					JK	5/17/2012	1
WR145	C2	34	(P)C2-34-1	M	Weld Repair- (UC) Undercut 1/2" L	1											JA	RC	2/28/2012	RC	2/28/2012	DO	5/1/2012							DO	5/1/2012	RC	5/23/2012					RC	5/23/2012	1
WR146	C2	15	#16	M	Weld Repair- (UC) Undercut 4" W x 4" L	1											DO	DC	4/13/2012	DC	4/13/2012	DO	4/28/2012							DO	4/28/2012	JK	5/15/2012					JK	5/15/2012	1

						REPAIR TYPE											REPAIR DATA					NDE - DYE PENETRANT (PT) FOR ALL REPAIRS									QA/QC REVIEW - VISUAL TESTING (VT) FOR ALL REPAIRS								
Repair Number	Row No	Plate No	Picture / Sketch	Repair ype	Repa rs Required	WELD REPAIR	6" ROUND	12" ROUND	6" RADIUS CORNER	12" RADIUS CORNER	6" SQUARE	12" Square	3 1/2" ROUND (GN)	End & Sides (GN)	SPECIAL	NO ES	REPAIR PREP	SAFE Y INSPEC ION	SI DA E	WELDING	WELD DA E	NDE ECH	Initial NDE Date	Repair #1	Date	NDE	NDE Date	Repair #2	Date	Final NDE	Date	Initial QC	QC DA E	Repair #3	Date	NDE	Date	Final QC	QC DA E	otal WGS Repairs
WR147	C2	8	#21 (S)C2-8	M	Weld Repair- 6" L x 0.050" depth	1											DO	DC	4/13/2012	DC	4/13/2012	DO	4/27/2012							DO	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WR148	C4	35	(P)C4-35-1	M	Weld Repair- (UC) Undercut 0.050" x 1" L	1											DO	RC	2/16/2012	RC	2/16/2012	PC	4/24/2012	JK	4/27/2012					DO	5/1/2012	JK	5/16/2012					JK	5/16/2012	1
WR149	C4	34	(P)C4-34-1	M	Weld Repair- (UF) Underfill 1/4" L	1											DO	RC	2/16/2012	RC	2/16/2012	PC	4/25/2012							PC	4/25/2012	JK	5/16/2012					JK	5/16/2012	1
WR150	C4	34	(P)C4-34-1	M	Weld Repair- (UC) Undercut 0.060" x 1/2" L	1											DO	RC	2/16/2012	RC	2/16/2012	PC	4/25/2012							PC	4/25/2012	JK	5/16/2012					JK	5/16/2012	1
WR151	C4	34	(P)C4-34-2	M	Weld Repair- (UC) Undercut 0.070" x 1/2" L	1											JA	RC	2/16/2012	RC	2/16/2012	PC	4/25/2012							PC	4/25/2012	JK	5/16/2012					JK	5/16/2012	1
WR152	C4	34	(P)C4-34-3	M	Weld Repair- (UC) Undercut 0.050"	1											DO	RC	2/16/2012	RC	2/16/2012	PC	4/25/2012							PC	4/25/2012	JK	5/16/2012					JK	5/16/2012	1
WR153	C4	32	(P)C4-32-1	M	Weld Repair- (UC) Undercut 0.070"	1											DO	DC	3/7/2012	DC	3/7/2012	PC	4/27/2012							PC	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WR154	C4	32	(S)C4-32	L	Pit Repair- 0.050" x 1/4" dia.	1											DO	DC	3/5/2012	DC	3/5/2012	PC	4/27/2012							PC	4/27/2012	JK	5/15/2012					JK	5/15/2012	1
WR155	C	26	(P)C-26-1	M	Weld Repair- (UC) Undercut 0.050" depth	1											JA	RC	3/15/2012	RC	3/15/2012	DO	4/27/2012							DO	4/27/2012	RC	5/8/2012					RC	5/8/2012	1
WR156	B	48	(P)B-48-1	M	Weld Repair- (LF) Lack of Fusion	1											JA	DC	2/7/2012	DC	2/7/2012	PC	4/23/2012							RC	5/23/2012	RC	5/9/2012	JK	5/11/2012	RC	5/23/2012	RC	5/23/2012	1
WR157	A	71	(P)A-71-1	M	Weld Repair- (UC) Undercut 0.080" x 1" L	1											RC	RC	3/8/2012	RC	3/8/2012	PC	4/21/2012							PC	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WR158	A	71	(P)A-71-2	M	Weld Repair- (LF) Lack of Fusion 1" L	1																																	
WR159	A	37	(P)A-37-1	M	Weld Repair- (UC) Undercut 0.050" depth	1											DO	DC	2/3/2012	DC	2/3/2012	DO	4/24/2012	DC	4/26/2012	PC	4/30/2012	JK	5/1/2012	RC	5/2/2012	RC	5/9/2012					RC	5/9/2012	1
WR160	A	37	(P)A-37-1	M	Weld Repair- (UC) Undercut 0.050" depth	1											DO	DC	2/3/2012	DC	2/3/2012	RC	4/17/2012	DC	4/23/2012					DO	4/26/2012	RC	5/9/2012					RC	5/9/2012	1
WR161	A	37	(P)A-37-1	M	Weld Repair- (UC) Undercut 0.060" depth	1											DO	DC	4/11/2012	DC	4/11/2012	RC	4/17/2012	DC	4/23/2012					DO	4/26/2012	RC	5/9/2012					RC	5/9/2012	1
WR162	22	9	(P)22-9-1	M	Weld Repair - (UC) Undercut 0.080" x 1/4" dia.	1											DO	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	RC	5/16/2012					RC	5/16/2012	1
WR163	20	1	(P)20-1-1	M	Weld Repair- (UF) Underfill 0.100" depth	1											DO	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	RC	5/16/2012					RC	5/16/2012	1
WR163A	22	9	(P)22-9-2	M	Weld Repair - (UC) Undercut 0.070" x 1/4" dia.	1											JA	RC	3/14/2012	RC	3/14/2012	DO	4/27/2012							DO	4/27/2012	RC	5/16/2012					RC	5/16/2012	1
WR164	13	8	(P)13-8-1	M	Weld Repair- (UC) Undercut 0.050" depth	1											DO	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR166	12	9	(P)12-9-1	L	Weld Repair- (UC) Undercut 0.060" x 1/2" dia.	1											DO	DC	4/10/2012	DC	4/10/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR167	11	8	(P)11-8-1	M	Weld Repair- (UC) Undercut 0.050" depth	1											DO	RC	2/4/2012	RC	2/4/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR168	11	8	(P)11-8-2	M	Weld Repair- (UC) Undercut 0.070" depth	1											DO	RC	2/4/2012	RC	2/4/2012	DO	4/25/2012							DO	4/25/2012	DC	5/10/2012					DC	5/10/2012	1
WR169	10	9	(P)10-9-1	M	Weld Repair- (UC) Undercut 0.060" x 1/2" dia.	1											JA	RC	2/6/2012	RC	2/6/2012	DO	4/25/2012							RC	5/21/2012	RC	5/15/2012	JK	5/18/2012	RC	5/21/2012	RC	5/21/2012	1
WR170	C3	49	#37	M	Weld Repair- (UC) Undercut 0.055" x 2" L	1											JA	RC	2/17/2012	RC	2/17/2012	DO	4/20/2012							DC	4/23/2012	RC	5/17/2012					RC	5/17/2012	1
WR171	C4	1	(P)C4-1-1	M	Weld Repair- (G) Gouge 0.050" x 2" L	1											RC	RC	2/17/2012	RC	2/17/2012	DO	4/27/2012							DO	4/27/2012	RC	5/17/2012					RC	5/17/2012	1
WR172	C3	1	(P)C3-1-1	M	Weld Repair- (UC) Undercut 1" L	1											DO	RC	2/17/2012	RC	2/17/2012	DO	4/27/2012							DO	4/27/2012	RC	5/16/2012					RC	5/16/2012	1
WR173	C3	2	#235	M	Weld Repair- (UC) Undercut 0.060"	1											DO	RC	3/14/2012	RC	3/14/2012	DO	4/27/2012							DO	4/27/2012	RC	5/16/2012					RC	5/16/2012	1
WR174	2	16	(P)2-16-1	M	Weld Repair- (UC) Undercut 0.060" x 1/4" dia.	1											JA	RC	2/16/2012	RC	2/16/2012	DO	4/27/2012							DO	4/27/2012	RC	5/16/2012					RC	5/16/2012	1
WR175	6	1	(P)6-1-1	M	Weld Repair- (UC) Undercut 0.050" x 1/4" dia.	1											JA	RC	3/14/2012	RC	3/14/2012	DO	4/27/2012							DO	4/27/2012	RC	5/15/2012					RC	5/15/2012	1
WR176	5	16	(P)5-16-1	M	Weld Repair- (UF) Underfill 0.100" depth	1											JA	RC	3/14/2012	RC	3/14/2012	DO	4/27/2012							DO	4/27/2012	RC	5/15/2012					RC	5/15/2012	1
WR177	8	1	(P)8-1-1	M	Weld Repair- (UC) Undercut 0.060" x 1/4" dia.	1											DO	RC	3/14/2012	RC	3/14/2012	DO	4/27/2012							DO	4/27/2012	RC	5/15/2012					RC	5/15/2012	1
WR178	10	16	#76 (P)10-16-3	M	Weld Repair- (UC) Undercut 0.050" depth	1											DO	RC	2/13/2012	RC	3/15/2012	DO	4/27/2012							DO	4/27/2012	RC	5/16/2012					RC	5/16/2012	1
WR179	14	1		M	Weld Repair- (UC) Undercut 0.050" depth	1											DO	RC	3/14/2012	RC	3/14/2012	DO	4/27/2012							DO	4/27/2012	RC	5/24/2012					RC	5/24/2012	1
WR180	A	1	(P)A-1-2	M	Weld Repair- (UC) Undercut 0.070" x 2" L at GN	1											RC	RC	3/5/2012	RC	3/5/2012	DO	4/21/2012	JK	4/26/2012					DO	4/27/2012	RC	5/8/2012					RC	5/8/2012	1
WR181	A	1	(P)A-1-2	M	Weld Repair- (P) Porosity 0.250" depth	1											RC	RC	3/7/2012	RC	3/7/2012	DO	4/21/2012							DO	4/21/2012	RC	5/8/2012					RC	5/8/2012	1
WR182	C	1	(P)C-1-2	M	Weld Repair- (UC) Undercut 0.050" depth	1											JA	RC	3/5/2012	RC	3/5/2012	DO	5/1/2012							DO	5/1/2012	RC	5/8/2012					RC	5/8/2012	1
WR183	C	2	(P)C-2-1	M	Weld Repair- (G) Gouge 0.050" x 1/8" dia.	1											DC	DC	4/16/2012	DC	4/16/2012	DO	4/28/2012							DO	4/28/2012	JK	5/17/2012					JK	5/17/2012	1
WR184	C	1	(P)C-1-2	M	Weld Repair- (UC) Undercut 0.050" depth	1											JA	RC	3/5/2012	RC	3/5/2012	DO	5/1/2012							DO	5/1/2012	RC	5/8/2012					RC	5/8/2012	1
WR187	F	19		M	Weld Repair- 2" dia. (Nozzle is not welded, just tacked)	1											DC	JA	1/27/2012	DC	4/19/2012	DO	4/30/2012	JK	5/1/2012					DO	5/1/2012	JK	5/16/2012					JK	5/16/2012	1
WR188	F	19		M	Weld Repair- (UC) Undercut 0.220" x 1 1/2" L (Near thru hole)	1											DC	JA	1/27/2012	DC	4/19/2012	RC	5/1/2012	JK	5/1/2012					DO	5/1/2012	JK	5/16/2012					JK	5/16/2012	1
WR190	Top MW	1		M	Weld Repair- (P) Porosity 5/32" Dia.	1											DC	JA	1/27/2012	DC	4/18/2012	DO	4/30/2012							DO	4/30/2012	JK	5/16/2012					JK	5/16/2012	1
WR191	Top MW	1		M	Weld Repair- (P) Porosity 5/32" Dia.	1											DC	JA	1/27/2012	DC	4/18/2012	DO	4/30/2012							DO	4/30/2012	JK	5/16/2012					JK	5/16/2012	1
WR192	Top MW	1		M	Weld Repair- (P) Porosity 5/32" Dia.	1											DC	JA	1/27/2012	DC	4/18/2012	DO	4/30/2012							DO	4/30/2012	JK	5/16/2012					JK	5/16/2012	1
WR193	Top MW	1		M	Weld Repair- (P) Porosity 5/32" Dia.	1											DC	JA	1/27/2012	DC	4/18/2012	DO	4/30/2012	JK	5/2/2012					RC	5/2/2012	JK	5/16/2012					JK	5/16/2012	1
WR194	Top MW	1		M	Weld Repair- (UC) Undercut 2" 0.080"	1											DC	JA	1/27/2012	DC	4/18/2012	DO	4/30/2012							DO	4/30/2012	JK	5/16/2012					JK	5/16/2012	1
WR195	Top MW	1		M	Weld Repair- (UC) Undercut 2" 0.080"	1											DC	JA	1/27/2012	DC	4/18/2012	DO	4/30/2012							DO	4/30/2012	JK	5/16/2012					JK	5/16/2012	1

PROJECT CERTIFICATION REPORT / REPAIR DATA
REDHILL COMPLEX - TK5

Item No.	Document / Data / Name / Description	Folder	Date Added to Site
	Quality Control Log / Data		
1	Quality Control Log - Redhill TK5 5 Repair QA QC	Cert	1/21/2014
	Welding Procedures (WPS) & Procedure Qualifications (PQR)		
2	WPS 1-F-1 w/ supporting PQR(s)	Cert	6/20/2014
3	WPS 1-M-1 w/ supporting PQR(s)	Cert	6/20/2014
4	WPS 1-M-1L w/ supporting PQR(s)	Cert	6/20/2014
5	WPS 1-S-1 w/ supporting PQR(s)	Cert	6/20/2014
6	WPS 1-S-4 w/ supporting PQR(s)	Cert	6/20/2014
7	WPS 1-S-6 w/ supporting PQR(s)	Cert	6/20/2014
8	WPS 1-S-6L w/ supporting PQR(s)	Cert	6/24/2014
9	WPS 1-S-10w/ supporting PQR(s)	Cert	6/20/2014
10	WPS Welding Specification List	Cert	6/24/2014
	Welding Performance Qualifications (WPQ)		
11	Dana Routt (DR) / Welder ID (A) - WPQ -S	Cert	7/1/2014
12	Dana Routt (DR) / Welder ID (A) - WPQ -S1	Cert	7/1/2014
13	Robert Chapman (RC) / Welder ID (B) - WPQ -F1	Cert	7/1/2014
14	Robert Chapman (RC) / Welder ID (B) - WPQ -M	Cert	7/1/2014
15	Robert Chapman (RC) / Welder ID (B) - WPQ -M1	Cert	7/1/2014
16	Robert Chapman (RC) / Welder ID (B) - WPQ -S1	Cert	7/1/2014
17	Donald Clark (DC) / Welder ID (C) - WPQ -F1	Cert	7/1/2014
18	Donald Clark (DC) / Welder ID (C) - WPQ -M	Cert	7/1/2014
19	Donald Clark (DC) / Welder ID (C) - WPQ -M1	Cert	7/1/2014
20	Donald Clark (DC) / Welder ID (C) - WPQ -S1	Cert	7/1/2014
21	Justin Kotry (JK) / Welder ID (D) - WPQ -S	Cert	7/1/2014
22	Justin Kotry (JK) / Welder ID (D) - WPQ -S1	Cert	7/1/2014
23	Justin Kotry (JK) / Welder ID (D) - WPQ -S2	Cert	7/1/2014
24	Justin Kotry (JK) / Welder ID (D) - WPQ -S3	Cert	7/1/2014
	Pressure Testing Data / Records		
25	TK5 Pressure Test Log	Cert	6/23/2014
26	Integrity Piping Pressure Test records	Cert	6/23/2014
27	Piping Repair Pressure Test records	Cert	6/23/2014
28	TK5 175ft Sample Line Pressure Test record	Cert	6/23/2014
29	Gauge Certs 2010	Cert	6/23/2014
30	2012 Ashcroft Certs (Gauges)	Cert	6/23/2014
31	2013 Ashcroft Certs (Gauges)	Cert	6/23/2014
	Non-Destructive Examination & Testing Procedures (NDE)		
32	Magnetic Particle - Yoke Procedure (MT)	Cert	6/20/2014
33	Magnetic Particle - Prod Procedure (MT)	Cert	6/20/2014
34	Dye Penetrant - Color Contrast Procedure (PT)	Cert	6/20/2014
35	Pressure Testing Procedure (LT)	Cert	6/20/2014
36	Pressure Testing Form	Cert	6/20/2014

	Quality Control Procedures (QA/QC)		
37	Quality Control (QA/QC) Manual	Cert	6/20/2014
	Non-Destructive Examination & Testing Reports (NDE)		
38	PT - Penetrant Test Reports	Cert	6/20/2014
39	RT - Xray Inspection Reports - Grout Nozzles	Cert	6/23/2014
40	RT - Xray Inspection Reports - Drain Piping	Cert	6/20/2014
41	RT - Xray Inspection Reports - Weld Test - LKS DR	Cert	7/1/2014
42	RT - Xray Inspection Reports - Weld Test - LKS DR1	Cert	7/1/2014
43	RT - Xray Inspection Reports - Weld Test - PII DC	Cert	7/1/2014
44	RT - Xray Inspection Reports - Weld Test - PII RC	Cert	7/1/2014
45	RT - Xray Inspection Reports - Weld Test - PII JK	Cert	7/1/2014
46	VT - Visual QC Inspection Reports	Cert	6/20/2014
	Non-Destructive Examination (NDE) Personnel Certs		
47	Donald Clark (DC) NDE - PT	Cert	7/1/2014
48	Donald Clark (DC) NDE - VT	Cert	7/1/2014
49	Daniel Opulento (DO) NDE - PT	Cert	7/1/2014
50	Daniel Opulento (DO) NDE - VT	Cert	7/1/2014
51	Justin Kotry (JK) NDE - PT	Cert	7/1/2014
52	Justin Kotry (JK) NDE - VT	Cert	7/1/2014
53	Jarrett Sano (JS) NDE - RT, UT, ET, MT, PT	Cert	7/1/2014
54	Joe Wolfe(JW) NDE - RT, UT, MT, PT	Cert	7/1/2014
55	Pat Collins (PC) NDE - PT	Cert	7/1/2014
56	Pat Collins (PC) NDE - VT	Cert	7/1/2014
57	Robert Chapman (RC) NDE - PT	Cert	7/1/2014
58	Robert Chapman (RC) NDE - VT	Cert	7/1/2014
	Tank Inspection, Assessment & Integrity Analysis Report		
59	TK5 API 653 Draft Final Inspection & Assessment Report	Work Plan	4/13/2014

4.9 REPAIRS

Tank repairs are not covered under the initial contract SOW or as a part of the original scope of work for this project. After the inspection is completed a preliminary report will be submitted to NAVFAC ESC for their review. The final inspection report and recommendations will be submitted to NAVFAC ESC for review and approval of items which are to be repaired, modified or replaced. All repairs will be executed under a contract modification. All repair activities and task will be identified and listed on the project schedule. The schedule will be updated to incorporate the repair task, activities and additional time required to perform the repairs.

4.10 DEMOBILIZATION

Demobilization and staging of equipment and tools will be an on-going process as various stages of the work are completed to mitigate work site congestion. Upon completion of site operations, remaining site personnel, materials, temporary facilities, and equipment will be demobilized from the site. The final demobilization will not occur until NAVFAC ESC personnel approve all site work and conduct a final inspection.

Willbros will conduct a final inspection and walk through with NAVFAC ESC and FISC Pearl Harbor personnel. The findings will be included in the Project Construction Certification Report.

5.0 KEY PERSONNEL AND SUBCONTRACTORS

Willbros personnel project personnel are listed below. Each person meets or exceeds all the minimum qualifications required by the SOW. Willbros key person has extensive experience in the POL industry, design and construction of fuel piping, knowledge and experience in tanks cleaning, inspection, repairs, and strapping. The Table 5-1 demonstrates that our personnel meet or exceed the minimum qualifications for this task order.

KEY PERSONNEL POSITION	PERSONNEL NAME	QUALIFICATIONS
Project Manager / API 653 Inspector	Tim Anderson	▪ B.S., Mechanical Engineering ▪ API 653 Cert - #494 Tank Inspector ▪ API 570 Cert - #1080 Piping Inspector ▪ API 510 Cert - #5034 Pressure Vessel Inspector ▪ AWS CWI Welding Inspector ▪ ASNT Level II – UT, MT, PT, RT, VT, LT ▪ 23 years POL facilities experience including work in remote Syrian and Omani deserts ▪ 23 years industry experience ▪ DOT Registered Tank Inspector / Engineer
Project Engineer	Gene Humes, P.E.	▪ M.S., Civil Engineering ▪ 35 years engineering and construction of piping systems experience ▪ Professional Engineer - #10844
Site Manager / Field Superintendent	Reed Cavin	▪ 7 years POL Facilities and Industrial Construction and Maintenance experience ▪ SPCC C-7 Certification ▪ Hazardous Waste/Confined Space/Lead/Scaffolding/Operator Certified.

DEPARTMENT OF THE NAVY
NAVSUP GLOBAL LOGISTICS SUPPORT
937 N HARBOR DRIVE
SAN DIEGO CA 92132-0001

NAVSUPGLSINST 10345.1
070
9 May 15

NAVSUP GLS INSTRUCTION 10345.1

From: Commander, NAVSUP Global Logistics Support

Subj: FUEL TANK RETURN TO SERVICE

Encl: (1) Tank Return to Service Review and Approval Template

1. Purpose. Provide specific procedures and guidance for returning fuel tanks to service, with the goal of preventing environmental fuel releases. Commanding Officers are accountable for the safe and proper return of fuel tanks to service.

2. Applicability. This instruction applies to all Naval Supply Systems Command (NAVSUP) Global Logistics Support fuel activities. At contracted activities, this instruction shall not be interpreted as providing direction in contradiction to existing contract clauses. In those instances, the activity shall determine how to best meet the intent of this instruction using organic and contracted assets. For the longer term, the activity shall work with the Contracting Officer and Contracting Officer Representative to include the appropriate requirements as a contract modification or in subsequent contract Performance Work Statements.

3. Tank Return To Service Requirements. Each activity shall consider newly returned to service tanks as suspect for potential leaks, establishing and following specific operational and facility management controls with the goal of preventing environmental fuel releases.

a. Tanks Covered By This Instruction

(1) All tanks containing petroleum, oil, or lubricant products under formal inspection programs, such as American Petroleum Institute Standard 653, Steel Tank Institute Standard SP001, Petroleum Equipment Institute Recommended Practice RP900, and Fiberglass Tank and Pipe Institute Recommended Practice 2007-1.

(2) Aboveground and underground tanks of any configuration, whether shop-fabricated or field-erected.

(3) Tanks placed in service for the first time after having been installed or erected on site.

(4) Tanks returned to service after having been removed from service for cleaning, inspection, or repair.

b. Facility Management Return To Service Requirements

(1) Prior to returning a tank to service, the NAVSUP Fleet Logistics Center (FLC) Regional Fuels Engineer shall:

(a) Review any maintenance and repair actions performed on the tank, looking for any areas that might pose an environmental risk.

(b) For tanks previously under the control of another organization (e.g., if the tank was being repaired by an Execution Agent), coordinate and review proper turnover documentation with the Execution Agent. At a minimum, the following is required:

1. A statement signed by an appropriately certified tank inspector indicating the tank is suitable for return to service including any caveats, clarifications, or limitations that would affect tank operations after return to service. The statement shall include due dates for the next applicable formal inspections (internal, external, and leak test) and any repairs required prior to those next inspections. Next inspection due dates shall be the maximum allowable by code, calculated from the latest of the inspection or repair completion dates.

2. A completed inspection report compliant with the applicable code including all required calculations and analysis. Preliminary or field reports cannot be substituted for this requirement.

3. A list of repairs identified during the inspection, including completed repairs and repairs that are still pending. All pending repairs shall be annotated with a due date.

4. Third-party certified calibration ("strapping") charts when a tank is first placed in service, when certified calibration charts did not previously exist, or when repairs were made that would be reasonably expected to change the tank's calibration. For shop-fabricated tanks, manufacturer-provided calibration charts require third-party certification before they can be accepted.

5. A statement signed by an agent of the Execution Agent and repair contractor that custody of the tank is returned to the activity and that items in paragraph 3.b.(1)(b) have been provided to the NAVSUP FLC.

(c) Coordinate with the NAVSUP Energy Office Engineering Division to ensure all engineering requirements have been adequately considered and the tank's records are entered into the NAVSUP Energy Office's information repository.

(2) After returning a tank to service, the NAVSUP FLC Regional Fuels Engineer shall:

(a) Work with the Site Director to ensure the Tank Maintenance Record is updated appropriately.

(b) For tanks that were inspected or repaired, work with the performing organization to obtain copies of the final inspection report and completion report. Provide copies of these reports to the NAVSUP Energy Office for inclusion in their information repository.

(c) Work with the Site Director to ensure warranty issues with the tank are tracked and reported back to the Execution Agent. The warranty period will start on the date of the transfer of custody statement from the Execution Agent per paragraph 3.b.(1)(b)5.

c. Operational Return To Service Requirements

(1) Prior to returning a tank to service, the Site Director or designee shall:

(a) Review and comply with all facility management return to service requirements in paragraph 3.b, obtaining concurrence for returning the tank to service from the NAVSUP FLC Regional Fuels Engineer.

(b) Develop local tank filling standard operating procedures (SOPs). Each SOP can encompass multiple tanks of a similar design and service. SOPs shall be submitted to the NAVSUP Energy Office for technical review at least 90 days prior to the first covered tank being returned to service. Subsequent review is only required when an SOP substantially changes. SOPs will be reviewed for completeness and accuracy during scheduled command inspections.

(c) Develop a tank-specific Operations Order in accordance with local tank filling SOPs. The Operations Order shall be reviewed and approved by the NAVSUP FLC Commanding Officer and shall include at a minimum:

1. Tank filling procedures with appropriately defined incremental fill levels and hold times;

2. Physical inspection, gauging, and trend analysis as appropriate upon reaching each incremental fill level; and

3. Emergency drain-down plan in the event the tank needs to be emptied, including specific triggers as to when the drain-down plan should be activated.

(d) Receive NAVSUP FLC Commanding Officer approval, through the NAVSUP FLC Regional Fuels Officer, to execute the Operations Order and return the tank to service.

(2) While returning a tank to service, the Site Director or designee shall not deviate from the approved Operations Order except in the event of an emergency. During tank return to service operations, any abnormal or out-of-tolerance readings shall be immediately communicated to the Site Director and the Commanding Officer.

(3) After returning a tank to service, the Site Director or designee shall:

(a) Notify the NAVSUP FLC Commanding Officer and the NAVSUP Energy Office, through the NAVSUP FLC Regional Fuels Officer, that the tank has been successfully returned to service.

(b) Continue to monitor the tank in accordance with local SOPs to ensure the tank is not releasing product to the environment.

(4) Preparation and execution of the tank return to service process shall be reviewed and approved by the NAVSUP FLC Commanding Officer. A return to service review and approval template with the minimally required information is included as enclosure (1); the NAVSUP FLC may supplement this information as desired. Once Part IV of enclosure (1) is signed by the Commanding Officer, notify the Execution Agent the tank was successfully returned to service.

4. Implementation. Each activity shall be fully compliant with this instruction within 30 days of issuance.

5. Non-compliance. Non-compliance with this instruction shall be considered a finding at the next command inspection.

6. Point of Contact

NAVSUP Energy Office
8725 John J. Kingman Road
Suite 3719
Fort Belvoir, VA 22060
703-767-7333

7. Records Management. Records created as a result of this instruction, regardless of media and format, shall be managed per SECNAV Manual 5210.1 of November 2007.

J. R. MCNEAL

Distribution:
NAVSUP FLCs

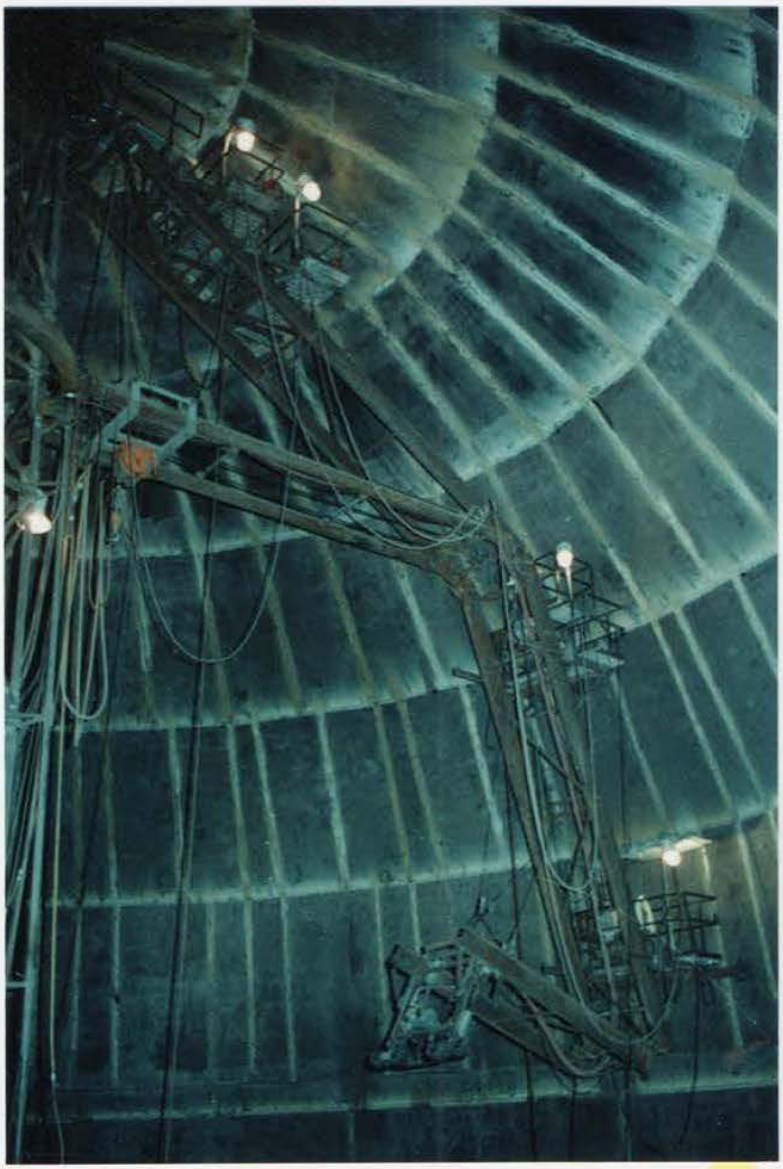
TANK RETURN TO SERVICE REVIEW AND APPROVAL

PART I - GENERAL INFORMATION	
1. SITE NAME	2. TANK IDENTIFIER

PART II - OPERATIONS ORDER		
3. OPERATIONS ORDER IDENTIFIER		
4. OPERATIONS ORDER REVIEW AND APPROVAL I concur with the referenced Operations Order for returning this tank to service.		
4a. NAME	4b. CO SIGNATURE	4c. DATE

PART III - TANK FILLING		
5. OPERATIONS ORDER INITIATION DATE		
6. APPROVAL TO BEGIN FILLING TANK I concur that the referenced Operations Order can be initiated for this tank on the indicated date.		
6a. NAME	6b. CO SIGNATURE	6c. DATE

PART IV - TANK RETURN TO SERVICE		
7. OPERATIONS ORDER COMPLETION DATE (RETURN TO SERVICE DATE)		
8. TANK RETURNED TO SERVICE I have been notified that the tank was successfully returned to service.		
8a. NAME	8b. CO SIGNATURE	8c. DATE



SOLICITATION, OFFER, AND AWARD *(Construction, Alteration, or Repair)*	1. SOLICITATION NO.	2. TYPE OF SOLICITATION ☐ SEALED BID (IFB) ☐ NEGOTIATED *(RFP)*	3. DATE ISSUED 23-Apr-2004	PAGE OF PAGES 1 OF 9

IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO.
N62742-03-C-1402	SEE SCHEDULE	

7. ISSUED BY CODE N62742	8. ADDRESS OFFER TO *(If Other Than Item 7)* CODE
ROICC PEARL HARBOR MIDPAC DIVISION 258 MAKALAPA DR SUITE 100 PEARL HARBOR HI 96860-3134 TEL: FAX:	**See Item 7** TEL: FAX:

9. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. *(Include area code)* *(NO COLLECT CALLS)*

SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS *(Title, identifying no., date):*

11. The Contractor shall begin performance within 30 calendar days and complete it within 1000 calendar days after receiving

☒ award, ☐ notice to proceed. This performance period is ☒ mandatory, ☐ negotiable. *(See _____ .)*

12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? *(If "YES," indicate within how many calendar days after award in Item 12B.)* ☒ YES ☐ NO	12B. CALENDAR DAYS

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and _____ copies to perform the work required are due at the place specified in Item 8 by _____ *(hour)* local time _____ *(date)*. If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee ☐ is, ☐ is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than _____ calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

SOLICITATION, OFFER, AND AWARD (Continued)

(Construction, Alteration, or Repair)

OFFER ***(Must be fully completed by offeror)***

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*	15. TELEPHONE NO. *(Include area code)*
DUNKIN & BUSH, INC. DON HOVDE 17301 NE 70TH STREET REDMOND WA 98052-4918	(360) 733-8033
	16. REMITTANCE ADDRESS *(Include only if different than Item 14)* **See Item 14**
CODE 0EB16 / FACILITY CODE	

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirements stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS	SEE SCHEDULE OF PRICES

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS

(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)

AMENDMENT NO.										
DATE										

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*	20B. SIGNATURE	20C. OFFER DATE

AWARD ***(To be completed by Government)***

21. ITEMS ACCEPTED:

SEE SCHEDULE

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA
$4,684,864.00	**See Schedule**

24. SUBMIT INVOICES TO ADDRESS SHOWN IN *(4 copies unless otherwise specified)*	ITEM	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C. 2304(c) ☐ 41 U.S.C. 253(c)
26. ADMINISTERED BY CODE **See Item 7**		27. PAYMENT WILL BE MADE BY: CODE N68894 DEFENSE FINANCE AND ACCOUNTING SERVICE OPLOC OAKLAND ATTN: CODE FPV PO BOX 23870 OAKLAND CA 94623-3870

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

☐ 28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return _ copies to issuing office)* Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.

☒ 29. AWARD *(Contractor is not required to sign this document)*

Your offer on this solicitation, is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

REF: Solicit N62742-03-B-1402-0005

30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*	31A. NAME OF CONTRACTING OFFICER *(Type or print)* [redacted] / CONTRACT SPECIALIST TEL: (808) 474-3377 [redacted]
30B. SIGNATURE / 30C. DATE	31B. UNITED STATES OF AMERICA BY [redacted] / 31C. AWARD DATE 23-Apr-2004

Section 00010 - Solicitation Contract Form

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001		1	Lump Sum	$4,684,864.00	$4,684,864.00

FFP
In accordance with solicitation N62742-03-B-1402 which includes amendment numbers 0001 through 0005, NAVFAC specification 40031402, and Contractor's offer of March 22, 2004, Contractor shall repair underground storage tank numbers 1, 15, 6, and 16 located at Fleet Industrial Supply Center, Pearl Harbor, Hawaii. Contractor anticipates supplies to be transporated by sea. The contract completion date is March 19, 2007. Also refer to exhibit "A" for tank numbers 1 and 15, and exhibit "B" for tank numbers 6 and 16.
FOB: Destination
PURCHASE REQUEST NUMBER: 40031402

NET AMT $4,684,864.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000101		1			

FFP
Repair tank number 1. Also see exhibit "A."
FOB: Destination
PURCHASE REQUEST NUMBER: [redacted]

NET AMT $0.00

[redacted] $1,281,260.00

See Exhibit A

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000102		1			

FFP
Repair tank number 15. Also see exhibit "A."
FOB: Destination
PURCHASE REQUEST [redacted]

NET AMT $0.00

[redacted] $1,281,260.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000103		1			

FFP
Repair tank number 6. Also see exhibit "B."
FOB: Destination
PURCHASE REQUEST NUMBER: [redacted]

NET AMT $0.00

[redacted] $1,061,172.00

See Exhibit B

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000104		1			

FFP
Repair tank number 16. Also see exhibit "B."
FOB: Destination
PURCHASE REQUEST NUMBER: [redacted]

NET AMT $0.00

[redacted] $1,061,172.00
[redacted]

EXHIBIT A
Tank Numbers 1 and 15

EXTENDED EXHIBIT NUMBER	ITEM	DESCRIPTION	QUANTITY	UNIT	AMOUNT
A001	0001AA	With exception of line items 0001AB through 0001AM below, Repair Red Hill Tank Numbers 1 and 15 in accordance with NAVFAC specifications 40031402.	1	Lump Sum	$2,175,000
A002	0001AB	Repair Type 1 for Tank Number 1 and 15: rust area, pitting from NAVFAC drawing number 7947881 (1 unit is equal to 1 place). A quantity of 8 places to be priced where offered unit price has a destination of 0.25 square meter.	[redacted]	[redacted]	[redacted]
A003	0001AC	Repair Type 2 for Tank Number 1 and 15: deep gouge in linear plate (1 unit is equal to 1 place). A quantity of 6 places to be priced where offered unit price has a dimension of 0.60 meter.	[redacted]	[redacted]	[redacted]
A004	0001AD	Repair Type 3 for Tank Number 1 and 15: Leak: porous defective weld (1 unit is equal to 1 place). A quantity of 16 to be priced where offered unit price has a dimension of 0.10 meter.	[redacted]	[redacted]	[redacted]
A005	0001AE	Repair Type 4 for Tank Number 1 and 15: leak/doubler plate (1 unit is equal to 1 place). A quantity of 2 places to be priced where offered unit price has a dimension of 0.25 square meter.	[redacted]	[redacted]	[redacted]

A006	0001AF	Repair Type 5 for Tank Number 1 and 15: blister, rust through from back side (1 unit is equal to 1 place). A quantity of 12 places to be priced where offered unit price has a dimension of 0.20 square meter.	[redacted]	[redacted]	[redacted]
A007	0001AG	Repair Type 6 for Tank Number 1 and 15: leak hole (1 unit is equal to 1 place). A quantity of 2 places to be priced where offered unit price has a dimension of 0.20 square meter.	[redacted]	[redacted]	[redacted]
A008	0001AH	Repair Type 7 for Tank Number 1 and 15: blister/dent (1 blister/dent is equal to 1 place). A quantity of 8 places to be priced where offered unit price has a dimension of 0.10 square meter.	[redacted]	[redacted]	[redacted]
A009	0001AJ	Repair Type 8 for Tank Number 1 and 15: coating failure (1 unit or coating failure is equal to 1 place). A quantity of 18 places to be priced where offered unit price has a dimension of 0.10 square meter.	[redacted]	[redacted]	[redacted]
A0010	0001AK	Repair Type 9 for Tank Number 1 and 15: buttweld failure between linear plates (1 unit is equal to 1 place). A quantity of 12 places to be priced where offered unit price has a dimension of 0.30 meter.	[redacted]	[redacted]	[redacted]
A0011	0001AL	Repair Type 10 for Tank Number 1 and 15: fillet weld failure between backer strips and linear plate in upper dome (1 unit is equal to 1 place). See detail 2/M-6/M-6. A quantity of 6 places to be priced where offered unit price has a dimension of 0.30 meter.	[redacted]	[redacted]	[redacted]
A0012	0001AM	Repair Type 11 for Tank Number 1 and 15: fillet weld failure between 3.5 mm thick steel cover plate and linear plate in upper dome (1 unit is equal to 1 place). See detail 3/M-6/M-6. A quantity of 6 places to be priced where offered unit price has a dimension of 0.30 meter.	[redacted]	[redacted]	[redacted]
		Total for Tank Numbers 1 and 15			$2,562,520

EXHIBIT B
Tank Numbers 6 and 16

EXTENDED EXHIBIT NUMBER	ITEM	DESCRIPTION	QUANTITY	UNIT	AMOUNT
B001	0001AN	With exception of line items 0001AP through 0001BB below, Repair Red Hill Tank Numbers 6 and 16 in accordance with NAVFAC specifications 40031402.	1	Lump Sum	$1,575,000
B002	0001AP	Repair Type 1 for Tank Number 6 and 16: rust area, pitting from NAVFAC drawing number 7963077 (1 unit is equal to 1 place). A quantity of 8 places to be priced where offered unit price has a destination of 0.25 square meter.	[redacted]	[redacted]	[redacted]
B003	0001AQ	Repair Type 2 for Tank Number 6 and 16: deep gouge in linear plate (1 unit is equal to 1 place). A quantity of 6 places to be priced where offered unit price has a dimension of 0.60 meter.	[redacted]	[redacted]	[redacted]
B004	0001AR	Repair Type 3 for Tank Number 6 and 16: Leak: porous defective weld (1 unit is equal to 1 place). A quantity of 16 to be priced where offered unit price has a dimension of 0.10 meter.	[redacted]	[redacted]	[redacted]
B005	0001AS	Repair Type 4 for Tank Number 6 and 16: leak/doubler plate (1 unit is equal to 1 place). A quantity of 2 places to be priced where offered unit price has a dimension of 0.25 square meter.	[redacted]	[redacted]	[redacted]
B006	0001AT	Repair Type 5 for Tank Number 6 and 16: blister, rust through from back side (1 unit is equal to 1 place). A quantity of 12 places to be priced where offered unit price has a dimension of 0.20 square meter.	[redacted]	[redacted]	[redacted]
B007	0001AU	Repair Type 6 for Tank Number 6 and 16: leak hole (1 unit is equal to 1 place). A quantity of 2 places to be priced where offered unit price has a dimension of 0.20 square meter.	[redacted]	[redacted]	[redacted]
B008	0001AV	Repair Type 7 for Tank Number 6 and 16: blister/dent (1 blister/dent is equal to 1 place). A quantity of 8 places to be priced where offered unit price has a dimension of 0.10 square meter.	8	Unit	$20,640

B009	0001AW	Repair Type 8 for Tank Number 6 and 16: coating failure (1 unit or coating failure is equal to 1 place). A quantity of 18 places to be priced where offered unit price has a dimension of 0.10 square meter.	[redacted]	[redacted]	[redacted]
B0010	0001AX	Repair Type 9 for Tank Number 6 and 16: buttweld failure between linear plates (1 unit is equal to 1 place). A quantity of 12 places to be priced where offered unit price has a dimension of 0.30 meter.	[redacted]	[redacted]	[redacted]
B0011	0001AY	Repair Type 10 for Tank Number 6 and 16: fillet weld failure between backer strips and linear plate in upper dome (1 unit is equal to 1 place). See detail 2/M-6/M-6. A quantity of 6 places to be priced where offered unit price has a dimension of 0.30 meter.	[redacted]	[redacted]	[redacted]
B0012	0001AZ	Repair Type 11 for Tank Number 6 and 16: fillet weld failure between 3.5 mm thick steel cover plate and linear plate in upper dome (1 unit is equal to 1 place). See detail 3/M-6/M-6. A quantity of 6 places to be priced where offered unit price has a dimension of 0.30 meter.	[redacted]	[redacted]	[redacted]
B0013	0001BA	In Tank 6, remove existing polyurethane and underlying flame-sprayed aluminum coatings from the lower dome, and provide coating of 88 square meters in accordance with specification section 09978.	[redacted]	[redacted]	[redacted]
B0014	0001BB	In Tank 16, remove existing polyurethane and underlying flame-sprayed aluminum coatings from the lower dome, and provide coating of 88 square meters in accordance with specification section 09978.	[redacted]	[redacted]	[redacted]
		Total for Tank Numbers 6 and 16			$2,122,344

ACCOUNTING AND APPROPRIATION DATA

[redacted]
AMOUNT: $1,281,260.00
[redacted]: $1,281,260.00

[redacted]
AMOUNT: $1,281,260.00
[redacted]: $1,281,260.00

[redacted]
AMOUNT: $1,061,172.00
[redacted]: $1,061,172.00

[redacted]
AMOUNT: $1,061,172.00
[redacted]: $1,061,172.00

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
J	1 | 1

2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00001	01-Nov-2004	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC ROICC PEARL HARBOR NAVSTA DIVISION 258 MAKALAPA DR SUITE 100 PEARL HARBOR HI 96860-3134	N62742	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
DUNKIN & BUSH, INC.
DON HOVDE
17301 NE 70TH STREET
REDMOND WA 98052-4918

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
X	10B. DATED (SEE ITEM 13) 23-Apr-2004

CODE 0EB16 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☒ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

☐ C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402 CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PPRL 99-21, PRL 03-12, AND PRL 02-11, REPAIR RED HILL TANK NUMBERS 1, 15, 5 AND 16, FLEET AND INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Effective immediately, Block 16 REMITTANCE ADDRESS of the contract shall read:
Dunkin & Bush, Inc.
P.O. Box 807
Redmond, WA 98073-0807

There is no change in contract price and time for completion by reason of this modification.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] CONTRACT ADMINISTRATOR TEL: 808-474-3220 X 270 EMAIL: [redacted]

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	01-Nov-2004

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

(End of Summary of Changes)

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00002	26-Sep-2005	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII PT BLUE, ROICC 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
DUNKIN & BUSH, INC.
DON HOVDE
17301 NE 70TH STREET
REDMOND WA 98052-4918

CODE 0EB16 FACILITY CODE

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
X	10B. DATED (SEE ITEM 13) 23-Apr-2004

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.243-04D CHANGES-SUPPLEMENTAL AGREEMENT

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402, CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-12, AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6 AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

See attached confirmation letter dated 14 September 2005 reflecting the contractor's original signature and concurrence with this supplemental agreement.

Description of this modification begins on Page 2.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL: [redacted]

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	26-Sep-2005

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 7 September 2005, the parties hereto mutually agree to the following contract prices as complete equitable adjustment for the following:

PC #000001: TANK 15: Provide fifteen (15) work days of tank interior access support for tank inspection work to be performed by separate Government contractor. Provide close access to tank interior wall directly under the center-tower access catwalk.
[Amount: $145,000.00; 30 calendar days]

PC #000002: TANK 15: Relocate the existing ladder in the center tower as directed by FISC and NAVFAC HI. Provide new bolting on center tower as required wherever determined to be missing.
[Amount: $35,000.00; 0 calendar days]

PC #000003: TANK 16: Relocate the existing ladder in the center tower as directed by FISC and NAVFAC HI. Provide new bolting on center tower as required wherever determined to be missing. Remove sensor pipe and sensor wiring as directed.
[Amount: $40,000.00; 0 calendar days]

.

AMOUNT: **$220,000.00** **TIME: 30 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $220,000.00, from $4,684,864.00 to $4,904,864.00. The contract period of performance is hereby extended 30 calendar days from 19 March 2007 to 18 April 2007.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]
Amount: $145,000.00
Reason Code: [redacted]

[redacted]
Amount: $ 35,000.00
Reason Code: [redacted]

[redacted]
Amount: $ 40,000.00
Reason Code: [redacted]

You are not required to sign this document. Your proposals of 8 June 2005 and 25 July 2005 and your signed letter of confirmation dated 14 September 2005, based on our negotiations, are accepted. This action consummates the supplemental agreement, which consists of the following documents: your proposal, your signed letter of confirmation, and this contractual document. No further contractual documentation is necessary.

"CONTRACTOR'S STATEMENT OF RELEASE"
Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00003	09-Feb-2006	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII PT BLUE, ROICC 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
DUNKIN & BUSH, INC.
DON HOVDE
17301 NE 70TH STREET
REDMOND WA 98052-4918

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
X	10B. DATED (SEE ITEM 13) 23-Apr-2004

CODE 0EB16 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.236-02 Differing Site Conditions (APR 1984)

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402; CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-12, AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6 AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this Modification continues on Page 2.

See attached confirmation letter dated 10 January 2006 reflecting the Contractor's original signature and concurrence with this supplemental agreement.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL: [redacted]

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	09-Feb-2006

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 20 December 2005, the parties hereto mutually agree to the following contract prices as complete equitable adjustment for the following:

PC #000004: TANK 15: Remove the existing and replace with new 5-inch flexible slip-line in the 8-inch slop drain line at the bottom of Tank 15. [Amount: $45,000.00; 5 calendar days]

PC #000006: TANK 15: Provide additional tank repairs in response to tank inspection report prepared by Weston Solutions Inc. dated 28 September 2005 which is hereby made a part of this modification. [Amount: $435,000.00; 63 calendar days]

AMOUNT: **$480,000.00** **TIME: 68 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by 480,000.00, from $4,904,864.00 to $5,384,864.00. The contract period of performance is hereby extended 68 calendar days from 18 April 2007 to 25 June 2007.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]

Amount: $45,000.00
Reason Code: [redacted]

[redacted]

Amount: $435,000.00
Reason Code: [redacted]

You are not required to sign this document. Your proposals of 20 December 2005 and 5 November 2005 and your signed letter of confirmation dated 10 January 2006 based on our negotiations are accepted. This action consummates the supplemental agreement, which consists of the following documents: your proposal, your signed letter of confirmation, and this contractual document. No further contractual documentation is necessary.

"CONTRACTOR'S STATEMENT OF RELEASE"
Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00004	15-Jun-2006	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII PT BLUE, ROICC 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
DUNKIN & BUSH, INC.
DON HOVDE
17301 NE 70TH STREET
REDMOND WA 98052-4918

CODE 0EB16 FACILITY CODE

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
X	10B. DATED (SEE ITEM 13) 23-Apr-2004

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.236-02 DIFFERING SITE CONDITIONS (APR 1984)

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-D-1402; CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-12, AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6, AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this Modification continues on Page 2.

See attached confirmation letter dated 8 June 2006 reflecting the Contractor's original signature and concurrence with this supplemental agreement.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL: [redacted]

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	15-Jun-2006

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

2ND PAGE MOD

As negotiated on 1 June 2006, the parties hereto mutually agree to the following contract prices as complete equitable adjustment for the following:

PC #000005: TANK 15: Provide additional patch plate and weld seam repairs to Tank 15 addressing the Tank Inspection Report for Red Hill Tank No. 15 by Testex Corp. via Thermal Engineering Corp. Referring to Exhibit "A" of the contract bid schedule, for Tank 15 only: Deduct 4 units of Repair Type 1, deduct 3 units of Repair Type 2, deduct 8 units of Repair Type 3, deduct 1 unit of Repair Type 4, add 12 units of Repair Type 5, add 5 units of Repair Type 6, deduct 4 units of Repair Type 7, deduct 9 units of Repair Type 8, add 14 units of Repair Type 9, deduct 3 units of Repair Type 10, deduct 3 units of Repair Type 11, and add 33 units of repair by 4" round plates (hereinafter Repair Type 12). [Amount: $133,916.00; 21 calendar days]

PC #000007: TANK 16: Provide twenty-four (24) work days of tank interior access support for tank inspection work to be performed by separate Government contractor. Provide close access to tank interior wall directly under the center-tower access catwalk. [Amount: $148,165.00; 20 calendar days]

PC #000008: TANK 15: Repair failed coating spots of tank interior lower dome, 82 square meters total. Repair tank interior coatings on one hundred twelve (112) existing grout nozzles throughout tank interior. [Amount: $129,349.00; 22 calendar days]

AMOUNT: **$411,430.00** **TIME: 63 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $411,430.00, from $5,384,864.00 to $5,796.294.00. The contract period of performance is hereby extended 63 calendar days from 25 June 2007 to 27 August 2007.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]
Amount: $ 133,916.00
Reason Code: [redacted]

[redacted]
Amount: $148,165.00
Reason Code [redacted]

[redacted]
Amount: $129,349.00
Reason Code: [redacted]

You are not required to sign this document. Your proposals of 5 December 2005, 17 November 2005 and 8 November 2005 and your signed letter of confirmation dated 8 June 2006 based on our negotiations are accepted. This action consummates the supplemental agreement, which consists of the following documents: your proposal, your signed letter of confirmation, and this contractual document. No further contractual documentation is necessary.

"CONTRACTOR'S STATEMENT OF RELEASE"

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00005	16-Aug-2006	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	**See Item 6**	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
DUNKIN & BUSH, INC.
DON HOVDE
17301 NE 70TH STREET
REDMOND WA 98052-4918

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
X	10B. DATED (SEE ITEM 13) 23-Apr-2004

CODE 0EB16 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.243-04 Changes

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402; CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-12, AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6 AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this modification begins on Page 2.

See attached confirmation letter dated 9 August 2006 reflecting the Contractor's original signature and concurrence with this supplemental agreement.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL: [redacted]

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	16-Aug-2006

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 31 July 2006, the parties hereto mutually agree to the following contract prices as complete e□uita□e ad□ustment for the following□

PC #000009: TANK 15: Provide logistical support to separate FISC contractor (Weston Solutions Inc.) to perform strapping of tank. Replace sampling and slop line valves in lower tunnel piping. Provide weld repairs to address paragraphs 3, 4, and 5 of tank repair recommendation report prepared by separate FISC contractor (Weston Solutions Inc.). Provide logistical support to separate FISC contractor (Weston Solutions Inc.) to perform grout nozzle inspection. Remove five (5) existing grout nozzles and repair with patch plates. Repair tower welds per safety inspection report. Provide additional clean up and waste disposal from slop line work. Change coating system to Poly Spec FNEC 2515 for 48 weld and patch plate repairs. Change coating system for tank bottom from Specification Section 09978 to 09970, which is hereby made a part of this modification. Provide credit for failure to provide Quality Control personnel on site until March 23, 2005. [Amount: $114,767.00; 9 calendar days]

PC #000010: TANK 6: Provide twelve (12) work days of tank interior access support for tank inspection work to be performed by separate Government contractor. [Amount: $150,000.00; 21calendar days]

PC #000013: TANK 16: Provide logistical support to separate FISC contractor (Weston Solutions Inc.) to perform strapping of tank. Provide close access to tank interior wall directly under the center-tower access catwalk. Replace sampling and slop line valves in lower tunnel piping. Repair tower welds per safety inspection report. Provide additional clean up and waste disposal from slop line work. [Amount: $78,360.00; 13 calendar days]

AMOUNT: **$343,127.00** **TIME: 43 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $343,127.00, from $5,796.294.00 to $6,139,421.00. The contract period of performance is hereby extended 43 calendar days from 27 August 2007 to 9 October 2007.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]
Amount: $114,767.00
Reason Code: [redacted]

[redacted]
Amount: $150,000.00
Reason Code: [redacted]

[redacted]
Amount: $78,360.00
Reason Code: [redacted]

You are not required to sign this document. Your proposals of 1 March 2006, 23 May 2006, and 1 June 2006 and your signed letter of confirmation dated 9 August 2006 based on our negotiations are accepted. This action consummates the supplemental agreement, which consists of the following documents: your proposal, your signed letter of confirmation, and this contractual document. No further contractual documentation is necessary.

"CONTRACTOR'S STATEMENT OF RELEASE"

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00006	16-Aug-2006	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
DUNKIN & BUSH, INC. DON HOVDE 17301 NE 70TH STREET REDMOND WA 98052-4918		9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
	X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
	X	10B. DATED (SEE ITEM 13) 23-Apr-2004
CODE 0EB16	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.236-02 Differing Site Conditions

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402; CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-12, AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6 AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this modification begins on Page 2.

See attached confirmation letter dated 9 August 2006 reflecting the Contractor's original signature and concurrence with this supplemental agreement.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL: [redacted]

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	16-Aug-2006

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 31 July 2006, the parties hereto mutually agree to the following contract prices as complete e□uita□e ad□ustment for the following□

PC #000012: TANK 15: The Contractor shall reorder coating system for Tank 15.

AMOUNT: **$7,388.00** **TIME: 0 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $7,388.00, from $6,139,421.00 to $6,146,809.00. The contract period of performance remains unchanged.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]

Amount: $7,388.00

Reason Code: [redacted]

You are not required to sign this document. Your proposals of 23 May 2006 and your signed letter of confirmation dated 9 August 2006 based on our negotiations are accepted. This action consummates the supplemental agreement, which consists of the following documents: your proposal, your signed letter of confirmation, and this contractual document. No further contractual documentation is necessary.

"CONTRACTOR'S STATEMENT OF RELEASE"

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00007	22-Sep-2006	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
DUNKIN & BUSH, INC.
DON HOVDE
17301 NE 70TH STREET
REDMOND WA 98052-4918

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
X	10B. DATED (SEE ITEM 13) 23-Apr-2004

CODE 0EB16 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.236-02 DIFFERING SITE CONDITIONS

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402; CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-12, AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6, AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this Modification continues on Page 2.

See attached confirmation letter dated 11 September 2006 reflecting the Contractor's original signature and concurrence with this supplemental agreement.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL: corinne.kurth@navy.mil

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	22-Sep-2006

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 5 September 2006, the parties hereto mutually agree to the following :ontra:t pri:es as :omplete e:uitable ad:ustment for the following:

PC #000014: TANK 16: Provide tank repairs in response to tank inspection report prepared by Weston Solutions, Inc. Tank repairs include installation of 108 patch plates of various sizes, 120 weld repairs, pipe repairs and vacuum box testing as recommended in the report by Weston Solutions, Inc. Referring to Exhibit "B" of the contract bid schedule, for Tank 16 only: Deduct 4 units of Repair Type 1, deduct 3 units of Repair Type 2, deduct 8 units of Repair Type 3, deduct 1 unit of Repair Type 4, deduct 6 units of Repair Type 5, deduct 1 units of Repair Type 6, deduct 4 units of Repair Type 7, deduct 9 units of Repair Type 8, deduct 6 units of Repair Type 9, deduct 3 units of Repair Type 10, and deduct 3 units of Repair Type 11. Deduction due to change in coating system specification, credit for work not performed (Remove 2nd Sensor Pipe), and failure to have full-time QC on site until March 2005. [$192,819.00; 72 calendar days]

PC #000015: TANK 16: Remove the existing and replace with new 5-inch flexible slip-line in the 8-inch slop drain line at the bottom of Tank 16. Repair failed coating spots of tank interior lower dome, 9 square meters total. Provide additional tank repairs in response to tank inspection report prepared by Weston Solutions Inc. Install four (4) insert plates and three (3) lap plates to repair flaws 438-463 (excluding 459) in Tank 16. Reorder coating system for Tank 16. [$86,704.00; 0 calendar days]

PC #000018: TANK 16: Compensate the contractor for overhead charges for eleven (11) additional stand down days. No production was performed on these days. [$69,000.00; 17 calendar days]

PC #000023: TANK 15: Compensate the contractor for overhead charges for nine (9) additional stand down days. No production was performed on these days. [$63,000.00; 15 calendar days]

AMOUNT: **$411,523.00** **TIME: 104 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $411,523.00, from $6,146,809.00 to $6,558,332.00. The contract period of performance is hereby extended 104 calendar days from 9 October 2007 to 21 January 2008.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]
Amount: $192,819.00
Reason Code [redacted]
[redacted]

[redacted]
Amount: $86,704.00
Reason Code: [redacted]
[redacted]

[redacted]
Amount: $69,000.00
Reason Code [redacted]
[redacted]

[redacted]

Amount: $63,000.00
Reason Code: [redacted]

You are not required to sign this document. Your proposals of 2 June 2006, 1 March 2006, 17 May 2005 and your signed letter of confirmation dated 11 September 2006 based on our negotiations are accepted. This action consummates the supplemental agreement, which consists of the following documents: your proposal, your signed letter of confirmation, and this contractual document. No further contractual documentation is necessary.

"CONTRACTOR'S STATEMENT OF RELEASE"
Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00008	22-Sep-2006	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
DUNKIN & BUSH, INC.
DON HOVDE
17301 NE 70TH STREET
REDMOND WA 98052-4918

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
X	10B. DATED (SEE ITEM 13) 23-Apr-2004

CODE 0EB16 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.243-04 CHANGES

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]8
CONTRACT N62742-03-C-1402; CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-12 AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6 AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this modification begins on Page 2.

See attached confirmation letter dated 11 September 2006 reflecting the Contractor's original signature and concurrence with this supplemental agreement.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL [redacted]

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	22-Sep-2006

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 5 September 2006, the parties hereto mutually agree to the following :ontra:t pri:es as :omplete e:uitable ad:ustment for the following:

PC #000016: Tank 6: Provide logistical support to separate FISC contractor (Weston Solutions Inc.) to perform strapping of tank. Provide close access to tank interior wall directly under the center-tower access catwalk. Relocate the existing ladder in the center tower as directed by FISC and NAVFAC HI. Provide new bolting on center tower as required wherever determined to be missing. Remove failed sample tubes and replace with new sample tubes inside Tank 6.

AMOUNT: **$127,192.00** **TIME: 12 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $127,192.00, from $6,558,332.00 to $6,685,524.00. The contract period of performance is hereby extended 12 calendar days from 21 January 2008 to 2 February 2008.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]

Amount: $127,192.00

Reason Code: [redacted]

[redacted]

You are not required to sign this document. Your proposals of 22 May 2006, 1 March 2006, 1 November 2005 and your signed letter of confirmation dated 11 September 2006 based on our negotiations are accepted. This action consummates the supplemental agreement, which consists of the following documents: your proposal, your signed letter of confirmation, and this contractual document. No further contractual documentation is necessary.

"CONTRACTOR'S STATEMENT OF RELEASE"

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00009	22-Sep-2006	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
DUNKIN & BUSH, INC. DON HOVDE 17301 NE 70TH STREET REDMOND WA 98052-4918		9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
	X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
	X	10B. DATED (SEE ITEM 13) 23-Apr-2004
CODE 0EB16	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.236-02 DIFFERING SITE CONDITIONS

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]1
CONTRACT N62742-03-C-1402; CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-21, AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6, AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this modification begins on Page 2.

See attached confirmation letter dated 15 September 2006 reflecting the Contractor's original signature and concurrence with this supplemental agreement.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) [redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL: [redacted]	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY [redacted] (Signature of Contracting Officer)	16C. DATE SIGNED 22-Sep-2006

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 12 September 2006, the parties hereto mutually agree to the following :ontra:t pri:es as :omplete e:uitable ad:ustment for the following:

PC #000017: TANK 6: Provide 192 patch plates of various sizes as recommended in the report by Weston Solutions, Inc. Referring to Exhibit "B" of the contract bid schedule, for Tank 16 only: Deduct 4 units of Repair Type 1, deduct 3 units of Repair Type 2, deduct 8 units of Repair Type 3, deduct 1 unit of Repair Type 4, deduct 6 units of Repair Type 5, deduct 1 units of Repair Type 6, deduct 4 units of Repair Type 7, deduct 9 units of Repair Type 8, deduct 6 units of Repair Type 9, deduct 3 units of Repair Type 10, and deduct 3 units of Repair Type 11. Deduction due to change in coating system specification. [$367,885.00, 105 calendar days]

PC #000019: TANK 6: Remove the existing and replace with new 5-inch flexible slip-line in the 8-inch slop drain line at the bottom of Tank 6. [$27,637.00, 0 calendar days]

PC #000022: TANK 6: Provide additional tank repairs in response to tank inspection report prepared by Weston Solutions Inc. Repair 32 inch line (40 feet of welding work). Repair 269 weld flaws. Vacuum box test at fifty-seven (57) locations. Repair supports on 18 inch line inside tank. Perform eight (8) additional coating repairs. Replace slop line and sample tube valves in lower tunnel. [$127,454.00, 2 calendar days]

AMOUNT: **$522,976.00** **TIME: 107 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $522,976.00, from $6,685,524.00 to $7,208,500. The contract period of performance is hereby extended 107 calendar days from 2 February 2008 to 19 May 2008.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]
Amount: $367,885.00
Reason Code: [redacted]
[redacted]
Amount: $27,637.00
Reason Code: [redacted]
[redacted]
Amount: $127,454.00
Reason Code: [redacted]
OA# 75258

You are not required to sign this document. Your proposals of 7 July 2006 and 6 September 2006, and your signed letter of confirmation dated 15 September 2006 based on our negotiations are accepted. This action consummates the supplemental agreement, which consists of the following documents: your proposal, your signed letter of confirmation, and this contractual document. No further contractual documentation is necessary.

"CONTRACTOR'S STATEMENT OF RELEASE"
Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
J	1 | 2

2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00010	25-Sep-2006	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
DUNKIN & BUSH, INC.
DON HOVDE
17301 NE 70TH STREET
REDMOND WA 98052-4918

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
X	10B. DATED (SEE ITEM 13) 23-Apr-2004

CODE 0EB16 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.236-02 DIFFERING SITE CONDITIONS

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: kurthcf064105
CONTRACT N62742-03-C-1402; CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-21, AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6 AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this modification begins on Page 2.

See attached confirmation letter dated 20 September 2006 reflecting the Contractor's original signature and concurrence with this supplemental agreement.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL: [redacted]

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
_____ (Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	25-Sep-2006

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 15 September 2006, the parties hereto mutually agree to the following □ontra□t pri□es as □omplete e□uitable ad□ustment for the following

PC #000021: TANK 6: Remove the existing stairs in the upper dome of tank. Then replace stairs after completion of tank 6. Replace missing angle iron beneath catwalk per structural engineer report.

AMOUNT: **$66,428.00** **TIME: 10 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $66,428.00, from $7,208,500 to $7,274,928.00. The contract period of performance is hereby extended 10 calendar days from 19 May 2008 to 29 May 2008.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]

Amount: $66,428.00

Reason Code: [redacted]

[redacted]

You are not required to sign this document. Your proposals of 1 November 2005, 17 May 2006 and 13 September 2006, and your signed letter of confirmation dated 20 September 2006 based on our negotiations are accepted. This action consummates the supplemental agreement, which consists of the following documents: your proposal, your signed letter of confirmation, and this contractual document. No further contractual documentation is necessary.

"CONTRACTOR'S STATEMENT OF RELEASE"

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00011	25-Sep-2006	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR UNITED STATES 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
DUNKIN & BUSH, INC.
DON HOVDE
17301 NE 70TH STREET
REDMOND WA 98052-4918

CODE 0EB16 FACILITY CODE

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
X	10B. DATED (SEE ITEM 13) 23-Apr-2004

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.243-04 CHANGES

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402; CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL-21, PRL 03-21, AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6, AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this modification begins on Page 2.

See attached confirmation letter dated 20 September 2006 reflecting the Contractor's original signature and concurrence with this supplemental agreement.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL: [redacted]

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	25-Sep-2006

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 16 September 2006, the parties hereto mutually agree to the following :ontra:t pri:es as :omplete e:uitable ad:ustment for the following:

PC #000024: TANK 1: Provide twelve (12) work days of tank interior access support for tank inspection work to be performed by separate Government contractor. Provide close access to tank interior wall directly under the center-tower access catwalk. Provide logistical support to separate FISC contractor (Weston Solutions Inc.) to perform strapping of tank.

AMOUNT: **$190,355.00** **TIME: 24 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $190,355.00, from $7,274,928.00 to $7,465,283.00. The contract period of performance is hereby extended 24 calendar days from 29 May 2008 to 22 June 2008.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]

Amount: $190,355.00

Reason Code: [redacted]

[redacted]

You are not required to sign this document. Your proposals of 12 September 2006, and your signed letter of confirmation dated 20 September 2006 based on our negotiations are accepted. This action consummates the supplemental agreement, which consists of the following documents: your proposal, your signed letter of confirmation, and this contractual document. No further contractual documentation is necessary.

"CONTRACTOR'S STATEMENT OF RELEASE"

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00012	19-Apr-2007	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
DUNKIN & BUSH, INC. DON HOVDE 17301 NE 70TH STREET REDMOND WA 98052-4918		9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
	X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
	X	10B. DATED (SEE ITEM 13) 23-Apr-2004
CODE 0EB16	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.236-02 Differing Site Conditions (APR 1984)

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 2 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402; CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL-21, PRL 03-21, AND PRL 02-11, REPAIR RED HILL TANKS NUMBERS 1, 15, 6, AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this modification begins on Page 2.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	[redacted] / CONTRACT SPECIALIST TEL: (808) 474-3220 EXT 270 EMAIL: [redacted]

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY [redacted] (Signature of Contracting Officer)	19-Apr-2007

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 3 April 2007, the parties hereto mutually agree to the following contract prices as complete e: uita: le ad: ustment for the following:

PC #000026: TANK 6: Provide a separate third party coating inspector the meets the contract spec section 09978 requirements. The inspection firm shall provide all the necessary inspection equipment, daily inspection reports/log book, and abide by all safety requirements

AMOUNT: **$65,107.00** **TIME: 0 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $65,107.00, from $7,465,283.00 to $7,530,390.00. The contract period of performance remains unchanged.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]

Amount: $65,170.00

Reason Code: [redacted]

[redacted]

"CONTRACTOR'S STATEMENT OF RELEASE"

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00013	07-Jun-2007	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
DUNKIN & BUSH, INC. DON HOVDE 17301 NE 70TH STREET REDMOND WA 98052-4918		9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
	X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
	X	10B. DATED (SEE ITEM 13) 23-Apr-2004
CODE 0EB16	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.236-02 Differing Site Conditions (APR 1984)

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 2 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402, CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL-21, PRL 03-21, AND PRL 02-11, REPAIR RED HILL TANK NUMBERS 1, 15, 6, AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this modification begins on Page 2.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
		[redacted] / CONTRACT SPECIALIST TEL: (808) 653-1355 EMAIL: [redacted]
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY [redacted] (Signature of Contracting Officer)
		16C. DATE SIGNED 07-Jun-2007

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 25 May 2007, the parties hereto mutually agree to the following contract prices as complete e: uita: le ad: ustment for the following:

PC #000025: TANK 1: The Contractor shall (1) Replace 16 missing bolts on tower; (2) Remove and replace cracked Government boom bracket; (3) Provide non typical boom installation of rail/bracket; (4) Remove and dispose of existing failed paint coating; and (5) Dispose of 14,500 gal. of waste water. (6) Provide safety watch in Lower Tunnel during fuel transfer. Referring to Exhibit "A" of the contract bid schedule, for Tank 1 only: Deduct 4 units of Repair Type 1, deduct 3 units of Repair Type 2, deduct 8 units of Repair Type 3, deduct 1 unit of Repair Type 4, deduct 6 units of Repair Type 5, deduct 1 unit of Repair Type 6, deduct 4 units of Repair Type 7, deduct 9 units of Repair Type 8, deduct 6 units of Repair Type 9, deduct 3 units of Repair Type 10, deduct 3 units of Repair Type 11.

AMOUNT: **$31,576.00 CREDIT** **TIME: 7 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby decreased by $31,576.00, from $7,530,390.00 to $7,498,814.00. The contract period is hereby extended 7 calendar days from 22 June 2008 to 29 June 2008.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted]

Amount: $31,576.00 CREDIT

Reason Code: [redacted]

[redacted]

"CONTRACTOR'S STATEMENT OF RELEASE"

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00014	31-Aug-2007	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
DUNKIN & BUSH, INC. DON HOVDE 17301 NE 70TH STREET REDMOND WA 98052-4918		9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
	X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
	X	10B. DATED (SEE ITEM 13) 23-Apr-2004
CODE 0EB16	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.236-02 Differing Site Conditions (APR 1984)

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 2 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402, CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-12, AND PRL 02-11, REPAIR RED HILL TANK NUMBERS 1, 15, 6, AND 16, FLEET INDUSTRIAL SUPPLY CENTER, PEARL HARBOR, HAWAII

Description of this modification begins on Page 2.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
		[redacted] / CONTRACT SPECIALIST TEL: (808) 653-1355 EMAIL: [redacted]
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY [redacted] (Signature of Contracting Officer)
		16C. DATE SIGNED 31-Aug-2007

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:
MOD PAGE 2

As negotiated on 27 July 2007, the parties hereto mutually agree to the following contract prices as complete equitable adjustment for the following:

PC #000020: TANK 6: The Contractor shall repair approximately 1,371 square meters of failed coating in tank interior lower dome.

AMOUNT: **$764,395.00** **TIME: 44 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $764,395.00, from $7,498,814.00 to $8,263,209.00. The contract period is hereby extended 44 calendar days from 29 June 2008 to 12 August 2008.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA
[redacted]
Amount: $764,395.00
Reason Code: [redacted]

"CONTRACTOR'S STATEMENT OF RELEASE"
Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1 CONTRACT ID CODE	PAGE OF PAGES
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2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (If applicable)
A00015	31-Mar-2008	SEE SCHEDULE	

6 ISSUED BY	CODE	7 ADMINISTERED BY (If other than item 6)	CODE
NAVFAC HAWAII FACILITIES ENGINEERING & ACQUISITION DIVISION, ACQUISITION (PRP22) 400 MARSHALL ROAD PEARL HARBOR HI 96860-3139	N62478	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
DUNKIN & BUSH, INC. DON HOVDE 17301 NE 70TH STREET REDMOND WA 98052-4918		9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
	X	10A. MOD. OF CONTRACT/ORDER NO. N62742-03-C-1402
	X	10B. DATED (SEE ITEM 13) 23-Apr-2004
CODE 0EB16	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
FAR 52.243-04 Changes

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 2 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: [redacted]
CONTRACT N62742-03-C-1402, CONSOLIDATED CONSTRUCTION PROJECTS, PRL 99-15, PRL 99-21, PRL 03-12, AND PRL 02-11, REPAIR RED HILL TANK NUMBERS 1, 15, 6 AND 16, FLEET INDUSTRIAL SUPPLY CENTER PEARL HARBOR, HAWAII

Description of this modification begins on Page 2.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
		[redacted] / CONTRACT SPECIALIST TEL: (808) 653-1355 EMAIL: [redacted]
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY [redacted] (Signature of Contracting Officer)
		16C. DATE SIGNED 31-Mar-2008

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

MOD 2ND PAGE

As negotiated on 7 March 2008, the parties hereto mutually agree to the following contract prices as complete equitable adjustment for the following:

PC #000027: TANK 6: The Contractor shall replace the failed pipe section located on the tank nozzle.

AMOUNT: **$151,781.00** **TIME: 28 Calendar Days**

As a result of the Modification agreed to herein, the total contract price is hereby increased by $151,781.00, from $8,263,209.00 to $8,414,990.00. The contract period is hereby extended 28 calendar days from 12 August 2008 to 9 September 2008.

BLOCK 12: ACCOUNTING AND APPROPRIATION DATA

[redacted] $102,819.00
$ 48,962.00
Total Amount: $151,781.00

Reason Code: [redacted]

"CONTRACTOR'S STATEMENT OF RELEASE"

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

Section C - Descriptions and Specifications

STATEMENT OF WORK

Statement of Work
Clean, Inspect, and Repair Storage Tanks

Project Title: Clean, Inspect, and Repair Storage Tanks 5 and 17 at FISC Pearl Harbor Red Hill Complex, HI

Location: FISC Pearl Harbor Red Hill Complex, HI

Project Number: P-035940-09

Date: 10/9/09

Submitted By: David Walton

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Location: **FISC Pearl Harbor Red Hill Complex, HI**
Project: **Clean, Inspect, and Repair Storage Tanks 5 and 17**

Statement of Work
Clean, Inspect, and Repair Storage Tanks

1.0 GENERAL

1.1 Scope

This Statement of Work defines the scope for cleaning, inspecting and repairing military storage tanks worldwide. Depending on tank type and/or history a complete out-of-service API 653 inspection, an in-service API 653 inspection, a modified API 653, or Steel Tank Institute (STI) inspection will be performed. Tank repairs under this scope shall include installation of tank gauging tubes (stilling wells) for all tanks over 30,000 gal. The repairs of deficiencies found during the inspection shall be an option to the contract. Site specific information including the type of inspection, the need for stilling wells and other applicable information is located in Section 2.0.

1.2 Requirements

The following are requirements that shall be followed unless stated otherwise in Section 2.0. Latest editions of all codes shall be used.

1.2.1 All work shall be performed in a safe and professional manner in accordance to applicable federal, state and local regulations.

1.2.2 Inspections and repairs shall be carried out in accordance to American Petroleum Institute (API) Standard 653, *Tank Inspection, Repair, Alteration And Reconstruction,* Steel Tank Institute (STI) SP001-00 *Standard for the Inspection of Aboveground Storage Tanks SP001*, and all amendments as supplemented by this statement of work. Types of inspections to be performed are specified in Section 2.0.

1.2.3 All coating work shall be performed by SPCC QP-1 certified contractors in accordance to UFGS 09970, 09971, and 09973.

1.2.4 The tank evaluation shall be performed by a qualified inspector or engineer, experienced in tank design, fabrication, repair, construction, inspection, operation and behavior. The inspection report shall be signed by the API 653 inspector and stamped and signed by a registered professional engineer familiar with the provisions of the API Standard 653.

2.0 SITE SPECIFIC INFORMATION

The following section is created for this specific location(s) for this proposal request. The rest of the scope of work shall be followed unless Section 2.0 states otherwise.

2.1 Tank Information

The facility identified above requires services for tanks 5 and 17. Relevant information for each tank can be found in Table 2.1 in Appendix A.

The Red Hill fuel storage tank complex is located on the Island of Oahu, Hawaii. The Red Hill fuel storage tank complex consists of multiple underground storage tanks constructed in 1942-1943. The Red Hill Tanks have a coated welded steel liner backed up by concrete which bears against the solid rock from which the tanks were carved. Each tank's nominal capacity is 302,000 barrels of JP-5. The configuration of these vertical cylindrical tanks is 100 feet in diameter and 250 feet in height. The tank is domed on the lower and upper ends. Access to the tanks is provided by an upper access tunnel 190 feet above the tank bottom and a lower access tunnel just below the tank bottom.

2.2 Inspections Due

Tank 5 – Modified API 653 Out of Service Inspection
Tank 17 – Modified API 653 Out of Service Inspection

2.3 Gauge Tubes (Stilling Wells)

No gauge tubes are required.

2.4 Anticipated Problems

None know at this time.

2.5 Government Furnished Information

Information is located in Appendix E.

2.5.1 History of Tank 5 & 17
2.5.2 Drawings of Tank 5 & 17.
2.5.3 Drawings of hydraulic boom and basket. This information is provided to the Contractor for the bidding purpose

2.6 Government Services Available to the Contractor

Table 2.2, lists the services, if any, the facility can provide to the contractor for purposes of completing the required tasks stated in this SOW.

Table 2.2. Government Services Available to the Contractor

	Yes/No	If Yes, limits on what the government can provide or accept.
Government will provide water for tank cleaning	Yes	
Government will accept residual fuel/ wash rinsates /sludge	Yes/No/No	
Government to provide electricity	Yes	Government can provide electricity inside the tunnel, but not outside for trailers.
Government will provide compressed air	No	
Government will install high legs for tanks with floating roofs	NA	
Other	The Government will provide train assistance in tunnel. See Section 2.10.7.	

2.7 Tank History

Tanks 5 & 17 were constructed in 1942 and 1943 respectively.

2.8 Base Access

In order for the contractor to gain access to the facility in a timely manner the following needs to be submitted.

2.8.1 Contractor Information

The information required to obtain base access shall be submitted to the NTR 14 calendar days prior to arrival:

2.8.1.1 Full Name with Middle Initial
2.8.1.2 SSN

2.8.1.3 Date of Birth
2.8.1.4 Citizenship
2.8.1.5 Driver's License with State of Issuance
2.8.1.6 Employer's Name, address, phone number
2.8.1.7 Planned arrival date and planned finish date for site personnel
2.8.1.8 Vehicle/Equipment make, model and year
2.8.1.9 Vehicle/Equipment type
2.8.1.10 Vehicle/Equipment tag number

If a rental car is used, the rental agreement shall be presented to Pass and Decal when access is required. A valid picture ID will need to be presented at the time of arrival.

2.8.2 **Special Security Measures**

Red Hill access will also need to be obtained. For this access the needed information is the same as 2.8.1, but a recent photo of each person is required. A digital photo is acceptable.

2.9 Scheduling

Initially the Contractor will be given one tank. (Tank 5) After the cleaning, inspection, recommendations and repairs have been made, the Contractor will be given the second tank. (Tank 5 must be returned to service prior to NOV 10) Contract modification negotiations and other contract administration will be done while the Contractor is working on the second tank.

2.10 Other

2.10.1 Hydrostatic pressure test the piping between the tanks' skin valves and the tank. These lines shall be tested to 1.5 MAWP for a minimum of four hours. There is approximately 20 ft of pipe per tank to test. Government will NOT accept inconclusive results. Contractor shall provide a pass or fail result.

2.10.2 Once the degassing of tank is completed, the Contractor shall notify the NTR to make arrangement with FISC to remove tank gauging and temperature sensing equipment from the tank. The Contractor shall maintain a vapor-free condition inside of the tank. The ventilation equipment shall be explosion proof and have an air rate of one tank volume change per hour.

2.10.3 Prior to any work inside of tank, replace any missing structural members to repair the tower and the access catwalk. The Contractor shall provide a separate cost estimate for any repair of the tower and the access catwalk. This shall be an option for Delivery Order modification. The Contractor shall provide structural integrity certification of the tower and the access walkway by a registered professional structural engineer.

2.10.4 The information of existing Government booms and baskets will be provided to the Contractor for their information only. The Government provided booms and baskets cannot be utilized for execution of the project.

2.10.5 Due to the unusual dimensions and configurations of the Red Hill Tanks and the requirement of cleaning and inspection of entire tank interior, the Contractor shall provide a detailed plan of engineering approach how to access all the steel plates of Tank 5 & 17 The plan shall be reviewed and approved by the Government as a part of the Work Plan. A brief discussion of this shall also be included in the bid proposals.

2.10.6 The Contractor shall thoroughly clean the tank including the center tower, catwalk structure, top & bottom domes, and the shell. All sludge, sediment, wash water and other deleterious material from the tank shall be removed and disposed of by the Contractor. For the bidding purposes, the Contractor shall estimate 20 barrels of sludge to be present in each tank. Assume minimal residual fuel is present.

2.10.7 The Government will provide train assistance to a maximum of four hours on any work day in the Lower Access Tunnel only. Train support shall only be provided during standard Government work hours of 8 am to 4 pm, Monday thru Friday. The Contractor shall notify the Government no less than one (1) day in advance of the time and location that the contractor requires the train support. All loading, unloading and securing of material onto flat beds shall be the Contractor's responsibility. Contractor retains responsibility for all items during Government transport.

2.10.8 The Contractor shall disconnect pipelines (two fuel lines and one slop line) connected to the tank bottom by removing double-block-and-bleed plug valves and/or ball valves and installing solid-plate blind flanges to prevent any flammable material entering from the tanks to the active pipelines. The skin valves to be removed are motor operated valves, and all electrical components shall be disengaged by a certified electrician before removing the valves from the pipelines. Upon completion of the inspection (post-repair inspection, if there is any repair done), the valves shall be installed back to the pipelines and the electrical components shall be restored for normal operating condition with new gaskets and bolts. The Contractor shall confirm the sizes of valves to remove at site-walk. Control system to be locked and tagged out by Government.

2.10.9 Inspection shall include assessments of upper dome, extension, under catwalk, entire course shells, lower dome, appurtenances, accessways, vents, and coatings. Upper & lower domes, shell, and all welds shall be 100% inspected. The Contractor shall propose type with recommendation why each inspection methods to be used in the inspection process. This shall be included in the bid proposals. Some example methods are Magnetic Flux Leakage (MFL), Low Frequency Electromagnetic Technique (LFET), Ultrasonic Thickness (UT) scanning, Eddie Current, Balance Field Electromagnetic Technique (BFET), etc. Contractor shall take every precaution not to damage the tank coating. The Contractor/inspector shall be responsible for any damage to interior tank coating during work.

2.10.10 Prior to starting work inside of the tanks, the Contractor shall install probe port covers of existing Mass Tank Gauging (MTG) system of Tank 5 & 17. These probe port covers shall be removed upon completion of post-repair inspection.

2.10.11 Inspection reports shall include detailed information about the recommend repairs and their locations. Each recommended repair shall be labeled and referenced in such as manner that the Government shall be capable of locating these deficiencies from the report. These locations shall also be identified and referenced on the actual tank.

2.10.12 Abrasive blasting is considered Hot Work.

2.11 Government Points of Contact (POC)

2.11.1 **Contracting Officer**
The Contracting Officer is:

[redacted]
Naval Facilities Engineering Command Southwest
Specialty Center Contracts Core, Code AQN00
151 36th Avenue, Suite 2 Port Hueneme, CA 93043-4438

Telephone (805) 982-2479
[redacted]

2.11.2 **Contracts Officer Representative**
The Contracts Officer Representative for this contract is:

[redacted]
Naval Facilities Engineering Service Center (NFESC), Code ESC 232
1100 23rd Avenue Port Hueneme, CA 93043
Telephone (805) 982-3597
[redacted]

2.11.3 **Naval Technical Representative (NTR)**
The NTR for this contract is:

TBD
Naval Facilities Engineering Service Center (NFESC), Code ESC 232
1100 23rd Avenue Port Hueneme, CA 93043
Telephone (805) 982-3595

3.0 REFERENCES

The work performed shall comply with all federal, state, and local regulations. In addition applicable, but not limited to, codes for this work include:

3.1 American Petroleum Institute (API)

3.1.1 API Recommended Practice 574, *Inspection Practices for Piping System Components*, Latest Edition.
3.1.2 API Recommended Practice 575, *Inspection of Atmospheric and Low-Pressure Storage Tanks*, Latest Edition.
3.1.3 API Standard 650, *Welded Steel Tanks for Oil Storage*, Latest Edition.
3.1.4 API Recommended Practice 651, *Cathodic Protection of Aboveground Petroleum Storage Tanks*, Latest Edition.
3.1.5 API Recommended Practice 652, *Lining of Aboveground Petroleum Storage Tanks*, Latest Edition.
3.1.6 API Standard 653, *Tank Inspection, Repair, Alteration and Reconstruction*, Latest Edition.
3.1.7 API/ANSI Standard 2015, *Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks*
3.1.8 API/ANSI RP 2016 *Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks*
3.1.9 API Standard 2550, *Measurement and Calibration of Upright Cylindrical Tanks*

3.2 American Society of Mechanical Engineers (ASME)

3.2.1 ASME B31.3, *Process Piping*, Latest Edition.
3.2.2 ASME B31.4, *Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids*, Latest Edition.
3.2.3 ASME IX.

3.3 Code of Federal Regulations (CFR)

3.3.1 29 CFR 1910, *Permit-Required Confined Spaces for General Industry*.
3.3.2 40 CFR 112, *Oil Pollution Prevention*.

3.4 Military Handbooks (MIL-HDBK)

3.4.1 MIL-HDBK 1022A, *Department of Defense Handbook: Petroleum Fuel Facilities*, 01 November 1999.
3.4.2 MIL-HDBK 201B, *Military Standardization Handbook: Petroleum Operations*.

3.5 National Association of Corrosion Engineers (NACE)

3.5.1 NACE Recommended Practice, RP0184-97, *Repair of Lining Systems.*

3.5.2 NACE Recommended Practice, RP0193, *External Cathodic Protection of On-Grade Metallic Storage Tank Bottoms.*

3.5.3 NACE Recommended Practice, RP0288-94, *Inspection of Linings on Steel and Concrete.*

3.6 National Fire Protection Association (NFPA)

3.6.1 NFPA-30, *Flammable and Combustible Liquids Code.*

3.7 Steel Tank Institute (STI)

3.7.1 STI SP001, *Standard for the Inspection of Aboveground Storage Tanks.*

3.8 Safety

3.8.1 EM 385-1-1, *U.S. Army Corps of Engineers Safety and Health Requirement, Appendix A Minimum Basic Outline for Accident Prevention, and paragraph 6.*

3.9 Unified Facilities Criteria (UFC)

3.9.1 UFC 3-460-01, *Petroleum Fuel Facilities.*

3.10 Unified Facilities Guide Specification (UFGS)

3.10.1 UFGS 09970, Epoxy/Fluoropolyurethane Interior Coating Of Welded Steel Petroleum Fuel Tank

3.10.2 UFGS 09971, Exterior Coating System for Welded Steel Petroleum Storage Tanks

3.10.3 UFGS 09973, Interior Coating System for Welded Steel Petroleum Storage Tanks

3.10.4 UFGS 01351, Safety, Health, and Emergency Response

3.10.5 UFGS 13205, Steel Tanks with Fixed Roofs

4.0 WORK REQUIREMENTS

Work shall be performed in compliance with applicable federal, state and local codes and regulations. This includes adherence to all military service regulations concerning safety, work quality and security.

4.1 Tank Cleaning

The tank(s) shall be professionally cleaned for personnel entry. The tank cleaning contractor shall coordinate all site work with the base POC and the designated Navy Technical Representative (NTR). The Contractor shall provide adequately trained personnel, necessary personal protective equipment (PPE) and conduct safety meetings in accordance to API 2015, 2016 and UFGS 01351.

4.1.1 Tank Lockout/Tag-Out

The contractor shall be responsible for ensuring the tanks are properly locked and tagged out and procedures shall be discussed with onsite personnel. Items for lockout/tag-out include: valves, pumps, motor starters, etc. Lockout/tag-out and shall also consist of installing skillets or temporarily replacing valves with blinds to prevent unauthorized fuel transfer into the tank.

4.1.2 Residual Fuel, Sludge and Wash Rinsates

The contractor shall be responsible for proper disposal of any residual fuel, sludge and/or wash rinsates, encountered during the tank cleaning if the facility cannot accept as stated in Section 2.0.

4.1.3 Floating Roofs (if applicable)

Unless otherwise stated in Appendix A of this SOW the base shall be responsible for installing the high level legs on tanks with floating roofs prior to performing the inspection. The Contractor shall make their best attempt to clean the interface between the floating roof and the tank shell and remove all fuel from floating roof seals.

4.1.4 Safe for Entry/Inspection Certification

A certified Marine Chemist or a certified Industrial Hygienist is to issue a Safe for Entry Permit after cleaning and before inspection and repairs.

4.2 Inspections

The type of inspection to be performed is identified in Section 2.0 for each tank. The inspector shall coordinate all site work with the designated Navy Technical Representative (NTR) and the base POC. The inspector shall arrive at the site with all testing equipment necessary to perform a thorough inspection. The inspector shall verify that all testing equipment is calibrated and in good working order and shall include proof in the inspection report. Facility personnel will be briefed on all inspection results before the inspectors leave.

4.2.1 In-Service API 653 Inspection of Aboveground Storage Tanks

This inspection shall be performed while the tank is still in service. The following shall be performed:

4.2.1.1 Non-Destructive Testing

4.2.1.1.1 Visual Inspection

Visually inspect the overall condition of the tank. This includes plates, corrosion, coating, welds, appurtenances, gauging, presence of cathodic protection, foundation, secondary containment, stairways, nozzles, grounding, etc.

4.2.1.1.2 Ultrasonic Thickness (UT) Measurements and Recording

Perform UT measurements of the tank shell, roof, and nozzles. UT measurements shall be taken around the first course and on the upper courses accessible by stairways. The UT reading will be used for documentation, shell/roof thickness acceptability, and if applicable, remaining life calculations.

4.2.1.2 Color Photographs

Color photographs shall be taken to document tank condition, discrepancies and overall construction.

4.2.1.3 API 653 Checklist in Appendix C

The appropriate API 653 Checklist in Appendix C shall be performed.

4.2.1.4 Mapping

As-built mapping shall be performed of shell and roof plate orientation. Stairways, appurtenances, manways, vents and other significant tank details shall also be included.

4.2.1.5 Settlement Survey and Evaluation

A shell and floor edge settlement survey shall be performed to identify edge settlement, differential settlement, and/or planar tilt. The results of the evaluation shall be discussed in the body of the report and the acceptability of these results shall also be made. A graphical representation of the settlement shall be included in the report. The tank will be accessed for out-of-roundness as well.

4.2.1.6 Coating

A coating assessment shall be made by the persons inspecting. The inspectors shall be familiar with military coatings, but if significant or complex coating issues are present the contractor shall provide a NACE certified coating inspector. The NACE inspector shall only be included at the request of the Contracting Officer. Dry Film Thickness (DFT) reading shall be taken at assessable tank locations (as applicable) to determine the average thickness readings of the internal/external shell, floor, and roof.

4.2.1.7 Secondary Containment

Visually inspect containment and assess the general secondary containment condition. Note the presence of cracks, settlement, and deterioration. Record condition and need for repairs is needed.

4.2.1.8 Tank Appurtenances

The tank nozzles, manways and other appurtenances shall be examined for adequacy and applicable standard compliance of wall thickness, reinforcement, weld spacing, and corrosion allowance. Tank accessories such as relief valves and level gauges shall be examined for general condition. Shell

nozzles and reinforcements shall be ultrasonic thickness tested for determination of minimum required thicknesses, corrosion rates, and remaining life.

4.2.1.9 Level Alarms/Water Draw-Off/ATG Systems/Vents

Identify methods/systems for level alarms, water draw-off, ATG, and venting systems. Gather operability information from onsite personnel. General condition and system functionality shall be included in the report.

4.2.2 Out-of-Service API 653 Inspection of Aboveground Storage Tanks

This inspection shall be performed while the tank is out-of-service. The following shall be performed:

4.2.2.1 Non-Destructive Testing

4.2.2.1.1 Visual Inspection (VT)

Visually inspect the overall condition of the tank. This includes plates, roof underside, corrosion, coating, welds, appurtenances, gauging, presence of cathodic protection, foundation, secondary containment, stairways, nozzles, grounding, sumps, etc.

4.2.2.1.2 Ultrasonic Thickness (UT) Measurements and Recording

Perform UT measurements of the tank shell, floor, roof, and nozzles. UT measurements shall be taken around the first course and on the upper courses accessible by stairways. The UT reading will be used for documentation, shell/roof/floor thickness acceptability, and if applicable, remaining life calculations.

4.2.2.1.3 Magnetic Flux Leakage (MFL)

MFL floor scanning shall be performed on all accessible areas of the floor. Topside or bottom side corrosion indications shall be verified by VT and/or UT. In areas inaccessible by scanning, a sufficient number of UT readings shall be taken to gain a representation of the bottom underside condition.

4.2.2.1.4 Vacuum Box Testing (VBT)

On uncoated floors and shells, VBT all welds on the tank floor and internal shell to floor weld. If the floor is coated, the contactor should have the capability to perform VBT if needed.

4.2.2.2 Color Photographs

Color photographs shall be taken to document tank condition, discrepancies and overall construction.

4.2.2.3 API 653 Checklist in Appendix C

The appropriate API 653 Checklist in Appendix C shall be performed.

4.2.2.4 Mapping

As-built mapping shall be performed of shell, floor, and roof plate orientation. Stairways, appurtenances, manways, vents and other significant tank details shall also be included.

4.2.2.5 Settlement Survey and Evaluation

A shell and floor edge settlement survey shall be performed to identify edge settlement, differential settlement, and/or planar tilt. The results of the evaluation shall be discussed in the body of the report and the acceptability of these results shall also be made. A graphical representation of the settlement shall be included in the report. The tank will be accessed for out-of-roundness as well.

4.2.2.6 Coating

A coating assessment shall be made by the persons inspecting. The inspectors shall be familiar with military coatings, but if significant or complex coating issues are present the contractor shall provide a NACE certified coating inspector. The NACE inspector shall only be included at the request of the

Contracting Officer. Dry Film Thickness (DFT) reading shall be taken at assessable tank locations (as applicable) to determine the average thickness readings of the internal/external shell, floor, and roof.

4.2.2.7 Secondary Containment

Visually inspect containment and assess the general secondary containment condition. Note the presence of cracks, settlement, and deterioration. Record condition and need for repairs is needed.

4.2.2.8 Tank Appurtenances

The tank nozzles, manways and other appurtenances shall be examined for adequacy and applicable standard compliance of wall thickness, reinforcement, weld spacing, and corrosion allowance. Tank accessories such as relief valves and level gauges shall be examined for general condition. Shell nozzles and reinforcements shall be ultrasonic thickness tested for determination of minimum required thicknesses, corrosion rates, and remaining life.

4.2.2.9 Level Alarms/Water Draw-Off/ATG Systems/Vents

Identify methods/systems for level alarms, water draw-off, ATG, and venting systems. Gather operability information from onsite personnel. General condition and system functionality shall be included in the report.

4.2.3 Modified API 653 Inspection

This section includes all other tanks that do not fall under the API 653 definition of an Aboveground Storage Tank.

4.2.3.1 Field Erected Cut and Cover Tanks

As applicable, use Section 4.2.1.10 "Out-of-Service Inspection of Aboveground Storage Tanks" for inspection of cut and cover tanks. The following will also be performed:

4.2.3.1.1 UT scan four locations from the tank floor/shell weld to the tank roof. This will used for shell backside evaluation.

4.2.3.2 Horizontal Cyclical Welded Steel Underground Tanks (Section to be included at a later date.)

4.2.3.3 Shop Fabricated Aboveground Tanks (Section to be included at a later date.)

4.2.3.4 Other (Section to be included at a later date.)

4.2.4 Steel Tank Institute Inspection

STI SP001 shall be used as guidance on all storage tanks not in contact with the ground. These tanks are typically smaller shop fabricated in a horizontal position. The purpose of the inspection shall be to document the tank and secondary containment condition, and ensure is the tank is not leaking.

4.3 Tank Calibration (Strapping Charts)

Prepare two calibration tables for each tank specified in Section 2.0, one in English units and one in metric units. Both tables shall show the volume of the fuel for all liquid levels in the tank starting at the shell to bottom joint and going up to the level of the overflow. Tank calibration shall be in accordance with API 2003 "Manual of Petroleum Measurements Standards" for "critical measurement," API Standard 2550 "Measurement and Calibration of Upright Cylindrical Tanks" and in accordance with UFGS Specification 33 56 13.13, paragraph 3.4.1.d (Chapter 2.2D, Internal Electro-optical Distance Ranging Method (EODR) (using a theodolite with an electronic distance ranging device).)

The English units calibration table shall show the volume of the fuel in barrels of 42 gallon and the level in 1/16-inch increments. The metric unit calibration table shall show the volume of the fuel in cubic meters and the level of the fuel in 2.0 mm increments. The zero level shall be the bottom of the shell. The level of the bottom of the shell and the level of the overflows shall be identified on the calibration table (strapping chart). The table shall not include tank volume above the level of the overflows. Preparation of new calibration tables from API report information or by interpolation of existing tables shall not be permitted. The table shall be certified by a

third party. The tables shall be include in the tank inspection report and in addition two laminated copies each of English and metric units provide shall be sent to the facility.

4.4 Tank Gauging Tubes (Stilling Wells)

The government is in the process of refining requirements for gauge tubes in all storage tanks. The standard design shall be used for the installation of the gauge tubes. Modification to any existing tubes shall be made if acceptable and feasible. All damaged coatings shall be repaired in accordance to UFGS 09770 and UFGS 09771.

4.4.1 Standard Design

The standard details shall be used for each tank identified in Section 2.0 and the Contractor shall make site specific adjustments as appropriate for each tank. The Contractor shall develop applicable details to retrofit identified tanks. Location of gauging tubes is critical for water and temperature sensing. Tubes shall be constructed of schedule 40 aluminum. Special considerations shall be made for unusual circumstances such as geodesic domes, very large or uncommonly shaped tanks, etc. These special circumstances will be addressed in Section 2.0.

4.4.2 Gauge Tube Requirements

The gauge tubes will need to provide the capability for the ATG system servo float, the temperature sensor (maybe included inside the ATG system gauge tube), and manual gauging.

4.5 Repairs

The Government shall have the option to modify the contract to include repairs identified during the inspection. This section shall include all repairs identified in the inspection, but shall not include tank gauge tubes that are in Section 4.4. If significant repairs are needed, the Government will require an API 653 inspector certify all repairs/NDT work. If repairs are deemed necessary, the government will submit a scope of work for repairs and request a modification to the existing contract. Once modification is awarded, the contractor shall prepare the following:

4.5.1 Work Plan

The Contractor shall prepare a Work Plan and it will be reviewed and approved before performing repairs to the tank(s). The Contractor shall have the option to amend the existing Work Plan or create a new plan. The Work Plan shall incorporate all Federal, State, and Local environmental regulations. The Repair Work Plan shall include all information requested in Section 5.2, but should also include the following if applicable:

4.5.1.1 Hydrostatic Testing Plan

If significant repairs are made, especially in the tank critical zone, the contractor may recommend a hydrostatic test be performed. The hydro test shall be performed in accordance to API Standard 653. Personnel performing the test shall be identified and documentation on qualifications shall be submitted.

4.5.1.2 Non-Destructive Testing (NDT)

The Contractor shall be responsible for performing all necessary NDT to prove the validity of repairs. NDT methods and technician qualification shall be chosen and applied according to API Standard 653.

4.5.2 Health and Safety Plan

The Health and Safety Plan for the repairs shall follow all the guidelines in Section 5.3.

4.5.3 Repair Certification Reports

A separate report shall be provided for each tank repaired. These reports will include thorough documentation all work performed. Hard copies of each tank shall be bind in plastic ring binding with a plastic sleeve inside to hold electronic copy of each report. NFESC will provide the cover and report number.

Repair Reports Shall Include:

4.5.3.1 Executive Summary
4.5.3.2 Suitability for Service Statement
4.5.3.3 Work Performed
4.5.3.4 Timeline

Appendices:
4.5.3.5 Documenting Photographs
4.5.3.6 Personnel Certifications
4.5.3.7 NDT Documentation
4.5.3.8 QC Documentation
4.5.3.9 Materials and Coating Data
4.5.3.10 As-built Drawings, if applicable
4.5.3.11 API 653 follow up inspection (if deemed necessary)

5.0 POST AWARD, PRE-WORK SUBMITTALS

Prior to the start of work, all submittals shall be reviewed and approved in accordance to Appendix xxx.

5.1 Schedule

After contract award, a projected schedule with dates of mobilization, major milestone and demobilization shall be submitted.

5.2 Work Plan

Provide a written plan for cleaning, inspecting and stilling well repairs for the requested storage tanks in Section 2.0. The work plan shall include the following:

5.2.1 Project Summary and Background

5.2.2 Detailed Schedule
This schedule shall have more detail the previous schedule required in Section 5.1.

5.2.3 Methodology
Provide details on the proposed methodology for completing the required work.

5.2.4 Execution Strategy
Provide strategy for execution. This should include incorporate the work methodology and schedule along with quality control, mobilization/demobilization, applicable permitting, etc.

5.2.5 Key Personnel and Subcontractors
Provide contact information for key personnel and subcontractors. Include brief description qualifications and responsibilities of all parties.

5.2.6 Materials and Equipment to be Used
Provide list materials and major equipment to be used. These items will need to be review and approved by the NTR. Material specification sheets shall be submitted in accordance to Appendix D.

5.2.7 Hazardous Waste Disposal
Provide a plan for proper identification, handling, storage, transportation and disposal of any anticipated hazardous material.

5.3 Health and Safety Plan (H&SP)

5.3.1 **General Work Safety**

The Contractor shall submit a Health & Safety Plan detailing such items as briefings, training, hazard control, general housekeeping, personal protective equipment, etc. Submit in accordance with EM 385-1-1 Appendix A Minimum Basic Outline for Accident Prevention. It is stressed the contractor shall perform all work in a safe manner and maintain all proper documentation. A complete hard copy of the H&SP shall be on-site at all times.

5.3.2 Confined Space Plan

Only a qualified person shall issue tank entry and confined space permits. Tank atmosphere shall be gas-freed and monitored in accordance with OSHA guidelines for oxygen content, flammable, and toxic vapors. API standard 2015 and 29 CFR 1910.146 shall also be followed.

5.3.3 Hazardous Materials Handling

Hazardous material handling shall be performed according to the manufacturer's specifications and conform to all applicable federal, state, and local regulations. Personnel handling hazardous materials shall be properly trained and provided with any required personal protective equipment (PPE).

5.3.4 Environmental Protection

Preventative measures shall be addressed and followed to protect the environment from any work being performed. This section shall also discuss contingency plans to contain and clean up in the event a spill.

5.3.5 Hot Work

Hot work permits shall be obtained prior to any hot work being performed. Hot work procedures for both above the floor work and on the floor work shall be included in the H&SP as well as the Work Plan. The Contract shall obtain Hot Work permits from a Marine Chemist or Certified Industrial Hygienist and also the local base fire department. Hot work is defined as welding, cutting, etc. Abrasive blasting will be considered hot work unless stated otherwise in Section 2.9.

5.4 Personnel and Contractor Qualifications

Provide information on experience, training and licensing.

5.4.1 Project Manager

The Project Manager for this project shall have the technical and practical background in petroleum storage tank construction and inspection. This person shall be familiar with the applicable API, STI, and other Military standards and recommend practices. This person shall be knowable of appropriate NDE/NDT techniques and quality assurance of these practices.

5.4.2 Site Manager

The Site Manager for this project shall have the technical and practical background in petroleum storage tank construction and inspection. This person shall be familiar with the applicable API, STI, and other Military standards and recommend practices. This person shall be knowable of appropriate NDE/NDT techniques and quality assurance of these practices. The site manager will also ensure all persons onsite are abiding to all safety measures outlined in the Health and Safety Plan.

5.4.3 Tank Cleaning Personnel

Tank cleaning personnel shall be trained in all safety equipment and procedures needed to perform work. This shall include, but not be limited to confine space, hazardous material handling, hazardous atmosphere monitoring, fall protection, etc. All appropriate safety regulations and guidelines shall be followed.

5.4.4 API 653 Inspectors

The inspectors shall be experienced with various types of storage tanks. Inspectors shall be a certified in accordance with to API 653 Appendix D - Authorized Inspector Certification. Inspectors shall furnish proof of API certification.

5.4.5 NDE/NDT Technicians

All non-destructive examination (NDE) testing shall be conducted by personnel qualified to ASNT Level II in accordance with inspection company's procedures or by an ASNT Level I qualified individual under the direct supervision of an ASNT Level II or Level III. Technicians shall provide NDE/NDT qualifications.

5.4.6 **STI Inspectors**
Inspectors performing STI inspections shall be certified in accordance to STI SP001.

5.4.7 **Welders**
Welding Procedure Specification (WPS) and welders shall be qualified in accordance with Section IX of the ASME Code. Personnel performing welds shall be experienced with construction and repairs of petroleum storage tanks and pipelines.

5.4.8 **Coating Applicators**
All contractors and subcontractors that perform surface preparation and coating application shall be certified by the Society for Protective Coatings (formerly Steel Structure Painting Council) (SSPC) to the requirement of SSPC QP 1 prior to contract award, and shall remain certified while accomplishing any surface preparation or coating application. Contractors shall be familiar with military coatings and experienced with their application.

5.4.9 **National Association of Corrosion Engineers (NACE) Inspector –** (If applicable)
As an option, a tank coating inspection shall be performed by a certified NACE Level III Coatings Inspector in accordance with the National Association of Corrosion Engineers (NACE).

5.4.10 **Marine Chemist/Industrial Hygienist**
The Marine Chemist or Certified Industrial Hygienist shall be certified by the American Board of Industrial Hygiene.

5.4.11 **Tank Calibration Personnel**
Contractor shall provide the services of a specialty calibration organization to provide tank field measurements to produce tank calibration charts (strapping tables) and electronic data files for use by the ATG system.

5.5 Daily Reports
Daily reports shall be generated by the contractor for each work day while on site. Daily reports shall be emailed by 0900 the following work day to the NTR and all agreed upon parties. A daily report format is included in Appendix C.

5.6 Inspection Reports

5.6.1 Preliminary Reports
Upon completion of the field work, a preliminary report shall be communicated to the NFESC. This information will be utilized in determining whether repairs need to be accomplished prior to returning the tank(s) into service. Preliminary reports shall be submitted within 48 hours of completing each inspection.

As a minimum, preliminary inspection reports shall include:

5.6.1.1.1 Tank ID, location, and inspection date
5.6.1.1.2 Statement if tank is suitable for service or should be removed or reduced from service. If tank is unsuitable for service, a brief description of tank issue(s) shall be discussed.
5.6.1.1.3 Inspector(s) name, certification number, and date.

5.6.2 **Inspection Reports**
A separate report shall be provided for each tank inspected. Provide hardcopies of each report in plastic ring binding with a plastic sleeve inside to hold an electronic copy of each report. NFESC will provide the report covers with a report number.

Inspection Reports shall include:

5.6.2.1 Executive Summary
One page summary of the condition of the tank and basic recommendations for repairs

5.6.2.2 Suitability for Service Statement
This statement shall be a one page document with both the API 653 inspector's number and signature and the professional engineer's stamp and signature.

5.6.2.3 Tank History
The inspector shall establish a complete historical record of the entire tank. The records shall include as much information as possible including:

5.6.2.3.1 Nameplate Information
5.6.2.3.2 Products previously and presently stored in the tank.
5.6.2.3.3 List of previous inspections
5.6.2.3.4 List and describe any significant environmental (earthquake, hurricane, etc) or operational (over-pressure, vacuum, foundation settlement, etc) events.
5.6.2.3.5 List and describe any repairs or alterations performed (Include significant drawings, executive summaries from other repair reports, etc in the Report Appendix).
5.6.2.3.6 Other pertinent information and details.

5.6.2.4 Methodology
Detailed discussion on the actual methodology of how each component was inspected. This section includes type of inspection, equipment, and methods.

5.6.2.5 Findings
Detailed description of each component including containment, foundation, bottom, shell, appurtenances, access ways, floating roof/pan, and fixed roof. Provide discussion on all findings.

5.6.2.6 Recommendations
Recommendations shall be included in the report and broken into three categories. These categories are Mandatory, Near Future, and Long Term repairs.

5.6.2.6.1 Mandatory
Provide mandatory actions that need to be completed before the tank can be returned to service.

5.6.2.6.2 Near Future
Provide recommended actions that should be programmed for completion within 2-3 years. All recommendations shall be accompanied by a recommended completion date.

5.6.2.6.3 Long Term
Provide recommended actions that currently have no adverse affect on tank operability or integrity but should be monitored and/or performed to ensure long term continued service. All recommendations shall be accompanied by a recommended completion date.

5.6.2.7 Report Appendices

5.6.2.7.1 Data (UT, MFE, Settlement, Safe Fill Heights, etc)
Include all data collected during the inspection along with an interpretation and discussion of the data. Data will be in tabular form with tank locations.

5.6.2.7.2 API checklist in API 653 Appendix C
Include actual notes and readings taken by the field inspector including: tank history, visual checklist and definitive inspection results.

5.6.2.7.3 Drawings

As a minimum, the following drawings, if applicable, shall be included in the report: shell, roof, and floor plate orientation with appurtenances and other significant tank details.

5.6.2.7.4 Photographs

Color photographs with captions shall be included to document tank condition, discrepancies and overall construction.

5.6.2.7.5 Calculations

Provide calculations required by API 653. This includes determination of the minimum shell thickness, next inspection date, safe fill height, settlement, nozzle reinforcement requirements, and estimated remaining service life of shell, nozzles, roof and floor.

5.7 Project Certification Reports

A separate report shall be provided for each tank on this task order. These reports shall include thorough documentation of all work performed. This includes cleaning, inspection, repairs, stilling well installation, strapping charts, etc. Hard copies of each tank report shall be bound in plastic ring binding with a plastic sleeve inside to hold electronic copy of each report. NFESC will provide the cover and report number.

Project Certification Reports Shall Include:

5.7.1.1 Executive Summary
5.7.1.2 Suitability for Service Statement
5.7.1.3 Work Performed (Include all subcontractors, with contact information)
5.7.1.4 Timeline

Appendices:

5.7.1.5 Documenting Photographs
5.7.1.6 Personnel Certifications
5.7.1.7 NDE Documentation
5.7.1.8 Quality Control Documentation
5.7.1.9 Materials, Equipment Specifications, and Coating Data
5.7.1.10 As-built Drawings, if applicable
5.7.1.11 API 653 follow up inspection (if deemed necessary)
5.7.1.12 Hazardous Waste Manifest

5.8 Materials, Workmanship, Quality Control and Testing

5.8.1 The contractor shall provide materials, workmanship, quality control and testing in accordance with the Work Plan. (Refer to paragraph 5.2 above).

5.8.2 The Contractor shall provide shop drawings and material specification sheets of all materials and major equipment to be used in accordance with the Submittal Register (refer to paragraph 5.5 above). Shop drawings and material specification sheets shall be submitted in accordance with Appendix H for Government Review and Approval.

5.8.3 The contractor shall provide reports from all quality control and testing in accordance with the Submittal Register. These reports shall be submitted in accordance with Appendix H for Government Review and Approval.

5.9 Submittal Register

5.9.1 The Contractor shall prepare and submit the Submittal Register, "SUBMITTAL FORM, Jan 96", found in Appendix G of this SOW. Columns (a) thru (I) shall be completed by the Contractor for all submittals required.

5.9.2 The Contractor shall prepare and maintain the submittal register as the work progresses. The submittal register is to be included with all submittals with the appropriate columns filled-in. Additional information concerning the Submittal Register is may be found in UFGS 01 33 00.

5.9.3 The Submittal Register shall be submitted in accordance with Appendix H for Governmental Review and Approval.

5.9.4 No work is to start on-site prior to review and approval by the Government.

6.0 MEETINGS

6.1 Work Kickoff Meeting

A Work Kickoff meeting will be coordinated by NFESC to establish the responsibilities of each party involved, discussion of the schedule, and to ensure a mutual understanding of the scope.

6.2 Repair Kickoff Meeting (If applicable)

A Repair Kickoff Meeting shall be held if work outside the original scope is being performed. This does not apply stilling well installation. This meeting is to be conducted to establish each party's responsibilities and achieve consensus on the repairs scope.

6.3 Work Completion Walk Through

Upon completion of the required tasks a Work Completion Walk Through is to be conducted. The purpose of this meeting is to ensure that all the government's requirements and expectations have been successfully completed and the government will accept all work performed.

7.0 BID PROPOSAL REQUIREMENTS

The contractor bid proposals are to include the following:

7.1 Brief Work Plan

A brief statement of how the contractor plans to complete the required tasks.

7.2 Schedule

Provide a schedule which identifies major milestones along with projected start and end dates.

7.3 Project Personnel and Subcontractors

Provide the names and contact information for the planned project personnel and subcontractors.

7.4 Costs Proposal

Provide a cost proposal for entire project. As part of the proposal, costs for cleaning, inspecting, and repairing each tank shall be included. These broken out costs will be used for government information only and the project will not be de-scoped according to them.

APPENDIX A

TANK INFORMATION

Tank ID	**Site 1 Tank 5**	**Site 1 Tank 17**
Facility Number	332	344
Capacity (specify gal or bbls)	12,697,986 gal	12,712,392 gal
Tank configuration	UST Vertical	UST Vertical
Construction Date	1942	1943
Product	JP-8	JP-5
Diameter	100'	100'
Height	250'	250'
Tank Material	Concrete with Welded Steel liner	Concrete with Welded Steel liner
Type of roof (if applicable)	N/A	N/A
If floating, can facility have high legs installed?	N/A	N/A
Type and date of last coating application	N/A	N/A
Date of last cleaning	N/A	N/A
Date of last out-of-service (internal) API 653 inspection. Can inspection report be provided?	1982	1974?
Date of last in-service (external) API 653 inspection. Can report be provided?	N/A	N/A
How far can tank be drained down? Est remaining product in gal or inches		
Is sludge anticipated? Estimate amt.		
Can facility provide water for tank cleaning? Is there a limit?	Yes/No	Yes/No
Can facility accept oily water or sludge from the tank cleaning?	w/ EMD approval	w/ EMD approval
If so, how many gallons and/or drums? Is there any testing or other requirements?		
Maximum time tank can be down		
Sump Location (center or edge?)	Center	Center
Bottom (Flat, Cone-up, Cone-down)	Cone-down	Cone-down
ATG stilling wells? If so, what size & location? at center, off center, or edge of tank?		
Slotted or Non-slotted		
Manual gauging still well? If so, what size & location? at center, off center, or edge of tank?		
Slotted or Non-slotted		
Water probe stilling well? If so, what size & location? at center, off center, or edge of tank?		
Slotted or Non-slotted		
Center roof vent		
Known or anticipated problems with the tank? (ie level shutoffs, coating, water intrusion in secondary containment, etc.		
Please provide any information about scheduling. (ie how many tanks can be take out of service at a time, for how long, can tanks be staggered, etc)	1 tank per product	1 tank per product
Can drawings of the tank construction/orientation be provided?	yes	yes
Other Comments		

APPENDIX B

GAUGE TUBE STANDARD DESIGN

Attached electronic files

APPENDIX C

GOVERNMENT FURINISHED INFORMATION

APPENDIX D removed intentionally – incorporated by reference

APPENDIX E

DAILY REPORT FORMAT

DAILY PRODUCTION REPORTS

A Production Report is required for each day that work is performed on the tanks. Unless unusual circumstances arise, the Production Report should be limited to 1-2 pages. The report is informal and can consist of hand written notes on a standard form. The report shall account for each calendar day while on-site. The reporting of work shall be identified by terminology consistent with the statement of work. Contractor Production Reports are to be prepared, signed and dated by the contractor's on-site Project Supervisor and shall contain the following information:

1.0 Date of report, report number, name of contractor, Delivery Order Number, title and location of tasks, and Construction manager present.

2.0 Weather conditions in the morning and in the afternoon. Include temperature, wind, rain, fog, and humidity.

3.0 A list of contractor and subcontractor personnel on the work site, their trades, employer, work location, descriptions of work performed, and hours worked.

4.0 A list of contractor and subcontractor equipment on the work site, rented or owned, if rented-from who, location, description of work performed with equipment and hours the equipment was on-site, used, idle, and/or down for repair.

5.0 A list of job safety actions taken and safety inspection conducted. Indicate that safety requirements have been met including the results of the following:

- **5.1.** Was a job safety meeting held? (If YES, attach a copy of the meeting minutes.)
- **5.2.** Were there any lost time accidents? (If YES, attach a copy of the completed OSHA report.)
- **5.3.** Was crane/trenching/scaffold/high voltage electrical/ high work done? (If YES, attach a statements or checklist showing inspection performed.)
- **5.4.** Was hazardous material/waste released into the environment? (If YES, attach a description of what was released, how it was released, actions taken to contain/clean-up, people/organizations contacted, meetings held, and future actions to be taken.)
- **5.5.** A list of material received each day that is incorporated into the project.
- **5.6.** Include a " diameterRemarks" diameter Section in the report which will contain the following: pertinent information including problems encountered during work, delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, minutes of QC meeting and/or other meetings, and a record of visitors to the work site.

APPENDIX F

INSPECTION/REPAIR SUMMARY TEMPLATE

Tank Inspection Summary Sheet	
Tank Location	
Tank No. (plus previous identification)	
Facility Number	
Inspection Date(s)	
Tank Type	**(AST, UST, Vertical, Horizontal, In Contact w/ground, etc)**
Type of Inspection	**(In-Service, Out of Service, Modified, API, STI, Other, etc)**
Contract Number, Task Order	
Prime Contractor Name	
Inspector, Cert #, Inspection Company	
Manufacturer, Date, Design Standard	
Diameter	
Height/Safe Fill Height	
Product/Specific Gravity	
Design Pressure/Temperature	
Gross Capacity/Nominal Capacity	
Safe Fill Height	
GPS Latitude & Longitude	
Foundation Configuration	
Shell Configuration	(# of courses, heights of each, thickness, etc)
Floor Configuration	(annular ring, sketch plates, butt welded, lap welded, etc)
Roof (Fixed, Floating or both. Seal type)	
Cathodic Protection, if so what type	
Stilling Wells (Sizes, Applications)	
Last Inspection (type, date)	
Last Coated Internally (Product)	
Last Coated Externally (Product)	
Inspection Results	
Can tank be returned to service?	Yes / No (If No, explain)
Deficiencies identified as mandatory repairs	
Deficiencies identified as recommended repairs	
Deficiencies identified as long term repairs	
Next Scheduled Inspection (type, date)	
Upgrades / Repairs Made at this Time	Use second page if more space is needed
Tank Re-Calibration to 1/16 in	Yes / No (if Yes, when)
Stilling Wells	
Coating (specify system, location)	
Floor (including sump)	
Shell	
Vents / Appurtenances	

Secondary Containment	
Other:	
General Comments	

APPENDIX G

SUBMITTAL FORM

APPENDIX H

SUBMITTAL LIST, SCHEDULE, AND DISTRIBUTION

SUBMITTAL LIST, SCHEDULE, AND DISTRIBUTION

SUBMITTAL	SUBMITTAL SCHEDULE			DISTRIBUTION - NUMBER OF COPIES	
	DRAFT (WACA)	GOVT Review	FINAL (WAGR)	NFESC	SCAN
Schedule	2 weeks	1 week		EC	
Submittal Register	2 weeks	1 week	1 week		
Draft				EC	
Final				EC	
As Required				EC	
Work Plan					
Draft	3 weeks	2 weeks	1 week	EC	
Final				EC	
Quality Control, Testing Reports, etc	In Accordance with Submittal Register			EC	
Health And Safety Plan					
Draft	3 weeks	3 weeks	1 week	EC	
Final				EC	
Qualifications	2 weeks	1 week	-	EC	
Shop Drawings, Material Information, etc	In Accordance with Submittal Register			EC	
	DRAFT (WACO)	GOVT Review	FINAL (WAGR)		
API 653 Reports					
Preliminary	48 hrs	-	-	EC	
Draft	4 days	2 weeks	2 weeks	EC	
Final				4 HC w/ CD, 4 additional CDs	
Work Certification Report					
Draft	4 weeks after completion of field work	2 weeks	1 weeks	EC	
Final				4 HC w/ CD, 4 additional CDs	
Quality Control Daily Reports❸				EC	EC
Meeting Minutes❸,❹				EC	

NOTES:

WACA – Weeks after Contract Award, WACO – Weeks after Completion
GOVT Review – Number of weeks for Government review after receipt of submittal.
WAGR – Weeks after Government Review
EC = Electronic Copy, HC = Hard Copy
❸ - Daily reports shall be e-mailed daily, by 0900 local time, the following day.
❷ - Minutes of meetings shall be e-mailed no later than three (3) working days following each meeting.

APPENDIX I

PRE-CONSTRUCTION AGENDA

PRE-INSPECTION MEETING

[TANK XX]

[FACILITY, CITY, STATE]

[DD MONTH YYYY]

[time hrs]

AGENDA

- **NFESC OPENING REMARKS/BRIEF TEAM INTRODUCTIONS**
- **ROLES & RESPONSIBILITIES – PROJECT ORGANIZATION**
- **INSTALLATION SUPPORT – [FACILITY] / COORDINATION**
- **EXECUTION PLAN**
  - Summary Project Scope
  - Meetings
  - Project Documentation - Submittals
  - Quality Control – Corrective Actions
- **HEALTH & SAFETY**
- **WASTE MANAGEMENT/DISPOSAL PROCEDURES**
- **ACTION ITEMS (Specific Project Issues – Logistics – Scheduling)**
- **SITE WALK (as necessary)**
- **OFF-LINE DISCUSSIONS – Subcontractor Invoicing Procedures, procurements, etc.**
- **- Adjourn - -**

TEAM INTRODUCTIONS

NFESC – NTR (COTR and ROICC),
[FACILITY Personnel - (Opening Comments/Introductions)
Construction Team:
Prime: [Contractor's Name]
Tank Cleaning: [Name]
Tank Inspection: [Name]
Tank Repairs: [Name]

- **ROLES & RESPONSIBILITIES – PROJECT ORGANIZATION**

[Prime Contractor]
Project Manager, Construction Site Manager, Superior Industrial Maintenance Foreman, Procurement Manager, Contract Manager

[FACILITY]
Point(s) of Contact and Individual Roles

NFESC
COTR/ROICC, Assistant ROICC, CO

LINES of COMMUNICATION
Subcontractors → [Prime] → ROICC/AROICC → [FACILITY] → NFESC

- **INSTALLATION SUPPORT- COORDINATION**

☐ Security/Site Access (Base security force, escorts, contractor vehicle requirements, contractor personnel information requirements, material deliveries, etc.)
☐ [FACILITY] Fire Department
☐ [FACILITY] Environmental
☐ [FACILITY] Fuels Manager
☐ LB&B
☐ Hours of Operation (Monday – Friday 7am – 4 pm; Saturdays only with special permission/circumstances)
☐ Utility Coordination (Water, Fire hydrants, Electric, Telephone) with [FACILITY]
☐ Confined Space Entry Permits & Hot Work Permits (FACILITY and Fire Safety)
☐ Project Trailer/Facilities (break areas, portable toilets, restricted cell phone usage)
☐ Contractor Laydown Area(s)

- **EXECUTION PLAN**

☐ **Summary Project Scope**

- Discuss Inspection/Repair work to be performed and general sequence
- Stilling Well installation
- Schedule

☐ **Meetings**

- Daily Safety Tailgate Meetings
- Weekly Construction Meetings w/FISC (if requested)
- 50% Project Completion Meeting (after ?)
- Pre-Final Completion Walk-Through Meeting (Develop punch list items)
- Final Inspection/As-built Review Meeting (if necessary)

☐ **Project Documentation**

- Construction Submittals (Material Approval Forms; Electronic review /Approval Process, Review and Approval Distribution)
- Daily Production Reports
- QC Inspection Checklists

☐ **Quality Control - Corrective Actions**

- QC Field Inspections/Reports – Response/Corrective Action
- Material Approval Submittal Process – [Prime/Sub] QC check of submittals
- H&S Audits/H&S non-conformance observations

- **HEALTH & SAFETY**

Job-Specific Safety Topic:

☐ Site Health & Safety Officer –[Prime Contractor]
☐ Daily Tailgate Safety Meetings
☐ [Prime] H&S Inspections - Subcontractor PPE & Subcontractor H&S Contacts
☐ Traffic Plan – Barricades, specific routing requirements
☐ Daily Housekeeping at jobsite
☐ Hurricane Preparedness Plan
☐ Emergency / Incident Notification and Procedures – Route to Hospital

- **WASTE MANAGEMENT/DISPOSAL PROCEDURES**

☐ Wash water, PCW management / hydro test water management
☐ Coatings abatement: General waste manifest requirements, Notifications
☐ Material waste/general construction debris disposal

- **SPECIFIC PROJECT ISSUES – LOGISTICS – SCHEDULING**

☐ Tank Cleaning and API Inspections
☐ Initial hot work permit, subsequent hot work permits
☐ Finalize Design Repair package after API 653 Inspection
☐ Tank repair work – initial work and repairs mandated by specific design details

- **ACTION ITEMS**

CLARIFICATIONS

Clean, Inspect, and Repair Tanks 5 & 17
FISC, Pearl Harbor, HI

October 20, 2009

Clarifications #1

Statement of Work
Clean, Inspect, and Repair Storage Tanks

Project Title:

Location:

Date:

Submitted By:

TABLE OF CONTENT

Statement of Work
Clean, Inspect, and Repair Storage Tanks

1. GENERAL

1.1. Scope

This Statement of Work (SOW) defines the scope for cleaning, inspecting and repairing military storage tanks worldwide. Depending on tank type and/or history, a complete out-of-service American Petroleum Institute (API) 653 inspection, an in-service API 653 inspection, a modified API 653, or Steel Tank Institute (STI) inspection will be performed. Tank repairs under this scope shall include installation of tank gauging tubes (stilling wells) for all tanks with a capacity of over 30,000 gallons.

The repairs of deficiencies found during the inspection shall be an option to the task order and shall only be exercised by direction of the Contracting Officer. Site specific information including the type of inspection, the need for stilling wells and other applicable information is located in Section 2.

1.2. Requirements

The following are requirements that shall be followed unless stated otherwise in Section 2. Latest editions of all codes shall be used.

1.2.1. All work shall be performed in a professional, safe, and environmentally responsible manner in accordance to applicable federal, state and local regulations.

1.2.2. Inspections and repairs shall be carried out in accordance to American Petroleum Institute Standard 653, *Tank Inspection, Repair, Alteration And Reconstruction,* Steel Tank Institute SP001-00 *Standard for the Inspection of Aboveground Storage Tanks SP001* and all amendments as supplemented by this statement of work.

1.2.3. All coating work shall be performed by Society for Protective Coatings (SPCC) QP-1 certified contractors in accordance to Unified Facilities Guide Specifications (UFGS) 09 97 13.15, *Epoxy/Fluoropolyurethane Interior Coating of Welded Steel Petroleum Fuel Tanks,* UFGS 09 97 13.17, *Three Coat Epoxy Interior Coating of Welded Steel Petroleum Fuel Tanks*, UFGS 09 97 13.27, *Exterior Coating of Steel Structures*, and UFGS 09 97 23.13, *Interior Lining for Concrete Storage Tanks (for Petroleum Fuels).* A QP-5 certified inspector will be required on all significant coating work. Determination of significant coating work and requirement for QP-5 inspector shall be determine by the Government and stated in section 2 of this SOW.

1.2.4. The tank inspections shall be performed by a certified API 653 inspector. The inspection report(s) shall be signed by the API 653 inspector as well as evaluated, stamped and signed by a registered professional engineer familiar with the provisions of the API Standard 653, experienced in tank design, fabrication, repair, construction, inspection, and operation.

2. SITE SPECIFIC INFORMATION

The following section is created for this specific location(s) for this proposal request. The rest of the scope of work shall be followed unless Section 2 states otherwise.

2.1. Description

The Naval Facilities Engineering Command (NAVFAC) Engineering Service Center (ESC) is requesting [internal tank cleanings], [in-service API 653 inspection(s), out-of-service API 653 inspection(s), STI inspection(s)], [gauge tube installation], and associated repairs from the inspections for [xxx aboveground storage tank(s), xxx underground storage tank(s)] at [Facility, STATE.] Repairs are to include deficiencies found from the inspection and shall be evaluated by NAVFAC ESC. Changes to the contract will be made at the discretion of the Contracting Officer.

2.2. Tank Information and History

The facilities identified above require services for [xxx tanks.] More detailed information for each tank can be found in Table 2.1 in Appendix A.

TANK	**[A]**
Capacity	[xxx, xxx gal]
Product	[JP-8, JP-5, Diesel, etc]
Diameter	[xx feet]
Height	[xx feet]
Construction	[Welded Steel throughout, Welded Floor, Riveted Shell, AST or UST, etc]
Roof Type	[Fixed roof with floating honeycomb pan, high legs stay installed at all times at eight feet, fixed roof only, floating steel pan only, etc]
Significant Modifications	[double bottom, new floor, new roof, etc]

TANK	**[B]**
Capacity	[xxx, xxx gal]
Product	[JP-8, JP-5, Diesel, etc]
Diameter	[xx feet]
Height	[xx feet]
Construction	[Welded Steel throughout, Welded Floor, Riveted Shell, AST or UST, etc]
Roof Type	[Fixed roof with floating honeycomb pan, high legs stay installed at all times at eight feet, fixed roof only, floating steel pan only, etc]
Significant Modifications	[double bottom, new floor, new roof, etc]

2.3. Inspections Due

[Tank XX - API 653 [In]/[Out]-of-Service Inspection, in accordance with [reference appropriate section of this SOW]

[Tank XX - API 653 [In]/[Out]-of-Service Inspection, in accordance with [reference appropriate section of this SOW]

2.4. Repairs to Tanks

Repairs will be determined based on inspection report.

Other repairs include: [Insert known repairs to be made for each tank. Examples are new coatings, piping modifications associated with tank, new skin valve, stairway modifications, etc.]

2.5. Gauge Tubes

Gauge tubes (stilling wells) [are, are not] required for tanks [XX and XX]. Unless otherwise specified stilling well installations shall be in accordance with the Automated Tank Guage (ATG) Installation Policy memorandum dated December 16, 2009. See Section 4.4 for more information on stilling well requirements and SK-1, SK-2, and SK-3 in Appendix B for standard design drawings.

2.6. Anticipated Problems

[Examples are: None known at this time, water intrusion, possible coating failure, etc.]

2.7. Government Furnished Information

Information is located in Appendix C.

2.7.1. [for example Tank Construction Drawings - Five pages]

2.8. Government Services Available to the Contractor

Table 2.2, below, lists the services, if any, the facility can provide to the contractor for purposes of completing the required tasks stated in this SOW.

Table 2.2 Government Services Available to the Contractor

	Yes/No	If Yes, limits on what the government can provide or accept.
Government will provide water for tank cleaning	Yes	Government will not provide the back flow preventer, Fire Hydrants are in close proximity to the tanks
Government will accept residual fuel/ wash rinsates /sludge	No/No/No	
Government to provide electricity	No	
Government will provide compressed air	No	
Government will provide lock out and tag out on product lines	Yes	Government and Contractor will jointly lock and tag out. Contractor to "blank" product lines.

Government will provide lock out and tag out on electrical power	Yes	Government and Contractor will jointly lock and tag out.
Restroom services	No	

2.9. Base Access

In order for the contractor to gain access to the facility in a timely manner the following needs to be submitted.

2.9.1. **Contractor Information**

The information below is required to obtain base access and shall be submitted to the [NTR 14 calendar days] prior to arrival. Use template in Appendix D of this SOW to insert information. When at all possible submit all personnel and subcontractor information together. If a rental car is used, the rental agreement shall be presented to Pass and Decal when access is required. A valid picture ID will need to be presented at the time of arrival.

2.9.1.1. Full Name with Middle Initial
2.9.1.2. SSN
2.9.1.3. Date of Birth
2.9.1.4. Citizenship
2.9.1.5. Driver's License with State of Issuance
2.9.1.6. Employer's Name, address, phone number
2.9.1.7. Planned arrival date and planned finish date for site personnel
2.9.1.8. Vehicle/Equipment make, model and year
2.9.1.9. Vehicle/Equipment type
2.9.1.10. Vehicle/Equipment tag number

2.9.2. **Facilities Hours / Work Days**

Contractor shall observe all Government holidays. [Work hours shall be between xxxx and xxxx]. Work on weekends [is/is not] allowed, but only after permission is granted by [xxxx with xx] days notice prior. [Insert other site specific details.]

2.10. Scheduling

[Only one tank at a time may be taken out of service. The first tank will be given to the Contractor on 5 November 2007. This date should be confirmed with the government prior to mobilizing. The Contractor will be given the next tank after the first tank is completed. The Contractor shall give the government 3 days to transfer fuel from one tank to the other tank. Contractor shall make an effort to perform all work in November, December, and first couple weeks in January. This is when flight operations are low.]

2.11. Other

This section includes other items not address in the Site Specific Section or the remaining of the SOW.

2.11.1. All materials and equipment shall be new and free of defects. All materials shall be manufactured in the United States conforming to applicable standards.

2.11.2. Waste Disposal: The Contractor shall thoroughly clean the tank. All sludge, sediment, wash water and other deleterious material from the tank shall be removed and properly disposed of by the Contractor. [For the bidding purposes, the Contractor shall estimate 16,340 gallons of residual fuel to be present in each tank. Contractor shall pump this fuel out and transfer to other tank using their equipment. No sludge is anticipated, however assume up to one 55-gallon drum of sludge or unacceptable fuel the contractor will have to dispose of.]

2.11.3. The Contractor shall notify the Government no less than three (3) days in advance delivery of equipment and materials. All loading, unloading and securing of material shall be the Contractor's responsibility. Contractor retains responsibility for all items through project completion. (This includes the security of all equipment.)

2.11.4. Abrasive blasting [is, is not] considered Hot Work.

2.11.5. Tank calibration shall be performed in accordance with Section 4.3 for tanks [A, B, C].

2.11.6. Tank Access: [Other information such as access point over berms/dikes, difficulties access tanks, etc.]

2.12. Government Points of Contact (POC)

2.12.1. **Contracting Officer**
The Contracting Officer is:
Ms. XXXXXXXXXX
Specialty Center Acquisitions NAVFAC
Naval Base Ventura County
1100 23rd Avenue
Port Hueneme, CA 93043-4347
Telephone (805) 982-XXXX

2.12.2. **Contracts Officer Representative**
The Contracts Officer Representative for this contract is:

(b) (6) [redacted]
NAVFAC ESC, PW 54
1100 23rd Avenue Port Hueneme, CA 93043
Telephone (805) 982-3597
[redacted]

2.12.3. **Naval Technical Representative (NTR)**
The NTR for this contract is:

[XXXXXX]
NAVFAC ESC, PW 54
1100 23rd Avenue Port Hueneme, CA 93043
Telephone (805) [982-xxxx]
[xxxxxx@navy.mil]

3. REFERENCES

The work performed shall comply with all federal, state, and local regulations. In addition applicable, but not limited to, codes for this work include:

3.1. American Petroleum Institute (API)

3.1.1. API Recommended Practice 574, *Inspection Practices for Piping System Components,* Latest Edition.
3.1.2. API Recommended Practice 575, *Inspection of Atmospheric and Low-Pressure Storage Tanks,* Latest Edition.
3.1.3. API Standard 650, *Welded Steel Tanks for Oil Storage,* Latest Edition.
3.1.4. API Recommended Practice 651, *Cathodic Protection of Aboveground Petroleum Storage Tanks*, Latest Edition.
3.1.5. API Recommended Practice 652, *Lining of Aboveground Petroleum Storage Tanks,* Latest Edition.
3.1.6. API Standard 653, *Tank Inspection, Repair, Alteration and Reconstruction,* Latest Edition.
3.1.7. API/ANSI Standard 2015, *Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks*
3.1.8. API/ANSI RP 2016 *Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks*
3.1.9. API Standard 2550, *Measurement and Calibration of Upright Cylindrical Tanks*

3.2. American Society of Mechanical Engineers (ASME)

3.2.1. ASME B31.3, *Process Piping*, Latest Edition.
3.2.2. ASME B31.4, *Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids,* Latest Edition.
3.2.3. ASME V, *Nondestructive Examination*
3.2.4. ASME IX, *Welding and Brazing Qualifications*

3.3. Code of Federal Regulations (CFR)

3.3.1. 29 CFR 1910, *Permit-Required Confined Spaces for General Industry*.
3.3.2. 40 CFR 112, *Oil Pollution Prevention*.

3.4. National Association of Corrosion Engineers (NACE)

3.4.1. NACE Recommended Practice, RP0184-97, *Repair of Lining Systems*.
3.4.2. NACE Recommended Practice, RP0193, *External Cathodic Protection of On-Grade Metallic Storage Tank Bottoms.*
3.4.3. NACE Recommended Practice, RP0288-94, *Inspection of Linings on Steel and Concrete*.

3.5. National Fire Protection Association (NFPA)

3.5.1. NFPA-30, *Flammable and Combustible Liquids Code*.

3.6. Steel Tank Institute (STI)

3.6.1. STI SP001, *Standard for the Inspection of Aboveground Storage Tanks*.

3.7. Safety

3.7.1. EM 385-1-1, *U.S. Army Corps of Engineers Safety and Health Requirement, Appendix A Minimum Basic Outline for Accident Prevention, and paragraph 6*.

3.8. Unified Facilities Criteria (UFC)

3.8.1. UFC 3-460-01, *Petroleum Fuel Facilities*.

3.9. Unified Facilities Guide Specification (UFGS)

3.9.1. UFGS-01 35 29**,** *Safety And Occupational Health Requirements*

3.9.2. UFGS-01 35 30, *Safety, Health, and Emergency Response(HTRW/UST)*

3.9.3. UFGS-09 97 13.15 (09970), *Epoxy/Fluoropolyurethane Interior Coating Of Welded Steel Petroleum Fuel Tank*

3.9.4. UFGS-09 97 13.17 (09973), *Three Coat Epoxy Interior Coating of Welded Steel Petroleum Fuel Tanks*

3.9.5. UFGS-09 97 13.27 (09971), *Exterior Coating of Steel Structures*

3.9.6. UFGS-09 97 23.13, *Interior Lining for Concrete Storage Tanks (for Petroleum Fuels)*

3.9.7. UFGS-33 52 90.00 20, *Welding for POL Service Piping*

3.9.8. UFGS-33 56 13.13 (13205), *Steel Tanks with Fixed Roofs*

3.9.9. UFGS-33 65 00 (13219) *Cleaning Petroleum Storage Tanks*

4. WORK REQUIREMENTS

Work shall be performed in compliance with applicable federal, state and local codes and regulations. This includes adherence to all military service regulations concerning safety, work quality and security.

4.1. Tank Cleaning

The tank(s) shall be professionally cleaned for personnel entry to the extent necessary to perform the required inspection. The tank cleaning contractor shall coordinate all site work with the base point of contact (POC) and the designated Navy Technical Representative (NTR). The Contractor shall provide adequately trained personnel, necessary personal protective equipment (PPE) and conduct safety meetings in accordance to API 2015, API 2016 and UFGS 01 35 30.

4.1.1. **Tank Lockout/Tag-Out**

The contractor shall be responsible for properly locking and tagging out the tank(s) prior to commencing any work. Procedures to perform the lockout/tag-out shall be discussed

with onsite personnel prior to arriving onsite and shall be included in the Work Plan and Health and Safety Plans.

Items for lockout/tag-out include: valves, pumps, motor starters, etc. Lockout/tag-out shall also consist of installing skillets or temporarily replacing valves with blinds to prevent unauthorized fuel transfer into the tank.

The Contractor shall be responsible for opening the tanks to perform the tasked work as well as installing blanks on all product lines prior to performing the inspection. In preparation for the tank to be returned to service the Contractor shall provide and install new manway and valve flange gaskets along with new bolting hardware for all manway and flanged connections that were opened during the inspection.

4.1.2. **Residual Fuel, Sludge and Wash Rinsates**

Unless otherwise stated in Section 2.8, the contractor shall be responsible for proper removal and disposal of any residual fuel, sludge and/or wash rinsates, encountered during the tank cleaning.

4.1.3. **Floating Roofs**

For tanks with floating roofs, unless otherwise stated in Section 2 of this SOW, the Contractor shall be responsible for installing the high level legs on tanks with floating roofs prior to performing the inspection. The Contractor shall make their best attempt to clean the interface between the floating roof and the tank shell and remove all fuel from floating roof seals.

4.1.4. **Safe for Entry/Inspection Certification**

A certified Marine Chemist or a certified Industrial Hygienist is to issue a Safe for Entry Permit after cleaning and before inspection and repairs. Proper confine space safety practices shall be followed at ALL times while working inside the tank or any other confined space.

4.2. Inspections

The type of inspection to be performed is identified in Section 2.3 for each tank. The inspector shall coordinate all site work with the designated Navy Technical Representative and the base POC. The inspector shall arrive at the site with all the necessary testing equipment to perform a thorough inspection. The inspector shall verify that all testing equipment is calibrated, in good working order and shall include proof of calibration in the inspection report. Facility personnel shall be briefed on all inspection results before the inspector(s) demobilize.

4.2.1. **In-Service API 653 Inspection of Aboveground Storage Tanks**

This inspection shall be performed while the tank is still in service. The following shall be performed:

4.2.1.1. **Non-Destructive Examination**

4.2.1.1.1. **Visual Inspection (VT)**
Visually inspect the overall condition of the tank. This includes plates, corrosion, coating, welds, appurtenances, gauging, presence of cathodic protection, foundation, secondary containment, stairways, nozzles, grounding, anchor bolts, wind girder, etc. API 575 provides recommended practices for performing an external in-service tank inspection.

4.2.1.1.2. **Ultrasonic Thickness (UT) Measurements and Recording**
Perform UT measurements of the tank shell, roof, and nozzles. UT measurements shall be taken around the first course and on the upper courses accessible by stairways. The UT reading will be used for documentation, shell/roof thickness acceptability, and if applicable, remaining life calculations.

4.2.1.2. **Color Photographs**
Include color photographs of adequate resolution to display the area of interest with a descriptive caption. Include photographs to document the general condition and vicinity of the tank, field identifications/markings of the tank, access points, secondary containment, general overall construction, and discrepancies found.

4.2.1.3. **API 653 Appendix C Checklist**
The appropriate API 653 Appendix C Checklist of reference code shall be performed.

4.2.1.4. **Mapping**
As-built mapping shall be performed of shell and roof plate orientation. Stairways, appurtenances, manways, vents and other significant tank details shall also be included.

4.2.1.5. **Settlement Survey and Evaluation**
A shell and floor edge settlement survey shall be performed to identify edge settlement, differential settlement, and/or planar tilt. The results of the evaluation shall be discussed in the body of the report and the acceptability of these results shall also be made. A graphical representation of the settlement shall be included in the report. The tank shall be assessed for out-of-roundness as well.

4.2.1.6. **Coating**
A coating assessment shall be made by the inspectors. The inspectors shall be familiar with military coatings; however, if significant or complex coating issues are present the contractor shall provide a NACE certified coating inspector. The NACE inspector shall only be included at the request of the Contracting Officer. Dry Film Thickness (DFT) reading shall be taken at assessable tank locations (as applicable) to determine the average thickness readings of the internal/external shell, and roof.

4.2.1.7. **Secondary Containment**

Visually inspect containment and assess the general secondary containment condition including direction of water run off drainage. Note the presence of cracks, settlement, and deterioration. Record condition and need for repairs, if needed.

4.2.1.8. **Tank Appurtenances**

The tank nozzles, manways and other appurtenances shall be examined for adequacy and compliance to applicable standards of wall thickness, reinforcement, weld spacing, and corrosion allowance. Tank accessories such as relief valves and level gauges shall be examined for general condition. Shell nozzles and reinforcements shall be ultrasonic thickness tested for determination of minimum required thicknesses, corrosion rates, and remaining life. Visually inspect the tank skin valves for any signs of leakage and document the manufacturer, class rating, type of valve and if motor operated valve (MOV) include manufacture model and serial numbers of actuators.

4.2.1.9. **Level Alarms/Water Draw-Off/ATG Systems/Vents/Product Recovery**

Identify methods/systems for level alarms, water draw-off, ATG, venting systems, and product recovery systems. Gather operability information from onsite personnel. General condition and system functionality shall be included in the report.

4.2.2. **Out-of-Service API 653 Inspection of Aboveground Storage Tanks**

This inspection shall be performed while the tank is out-of-service. The following shall be performed:

4.2.2.1. **Non-Destructive Examination**

4.2.2.1.1. **Visual Inspection (VT)**

Visually inspect the overall condition of the tank. This includes plates, roof underside, corrosion, coating, welds, appurtenances, gauging, presence of cathodic protection, foundation, secondary containment, stairways, nozzles, grounding, sumps, anchor bolts, wind girder, support columns, rafters, etc. In addition inspect and describe the tank's ability to remove water bottoms, i.e. pipe size and height from the floor. API 575 provides recommended practices for performing an external in-service tank inspection.

4.2.2.1.2. **Ultrasonic Thickness (UT) Measurements and Recording**

Perform UT measurements of the tank shell, floor, roof, and nozzles. UT measurements shall be taken around the first course and on the upper courses accessible by stairways. The UT reading will be used for documentation, shell/roof/floor thickness acceptability, and if applicable, remaining life calculations.

4.2.2.1.3. **Magnetic Flux Leakage (MFL)**

MFL floor scanning shall be performed on all accessible areas of the floor. Topside or bottom side corrosion indications shall be verified by VT and/or UT.

In areas inaccessible by scanning, a sufficient number of UT readings shall be taken to gain a representation of the bottom underside condition.

4.2.2.1.4. **Vacuum Box Testing (VBT)**
On uncoated floors and shells, VBT all welds on the tank floor and internal shell to floor weld. Regardless of coatings present, the contactor should have the capability to perform VBT if needed (i.e. to investigate possible pinholes.)

4.2.2.2. **Color Photographs**
Include color photographs of adequate resolution to display the area of interest with a descriptive caption. Include photographs to document the general condition and vicinity of the tank, field identifications/markings of the tank, access points, secondary containment, general overall construction, and discrepancies found.

4.2.2.3. **API 653 Appendix C Checklist**
The appropriate API 653 Appendix C Checklist of reference code shall be performed.

4.2.2.4. **Mapping**
As-built mapping shall be performed of shell, floor, and roof plate orientation. Stairways, appurtenances, manways, vents and other significant tank details shall also be included.

4.2.2.5. **Settlement Survey and Evaluation**
A shell and floor edge settlement survey shall be performed to identify edge settlement, differential settlement, and/or planar tilt. The results of the evaluation shall be discussed in the body of the report and the acceptability of these results shall also be made. A graphical representation of the settlement shall be included in the report. The tank will be accessed for out-of-roundness as well.

4.2.2.6. **Coating**
A coating assessment shall be made by the inspector(s). The inspector(s) shall be familiar with military coatings, but if significant or complex coating issues are present the contractor shall provide a NACE certified coating inspector. The NACE inspector shall only be included at the request of the Contracting Officer. Dry Film Thickness (DFT) reading shall be taken at assessable tank locations (as applicable) to determine the average thickness readings of the internal/external shell, floor, and roof.

4.2.2.7. **Secondary Containment**
Visually inspect containment and assess the general secondary containment condition including direction of water run off drainage. Note the presence of cracks, settlement, and deterioration. Record condition and need for repairs, if needed.

4.2.2.8. **Tank Appurtenances**

The tank nozzles, manways and other appurtenances shall be examined for adequacy and compliance to applicable standards of wall thickness, reinforcement, weld spacing, and corrosion allowance. Tank accessories such as relief valves and level gauges shall be examined for general condition. Shell nozzles and reinforcements shall be ultrasonic thickness tested for determination of minimum required thicknesses, corrosion rates, and remaining life. Visually inspect the tank skin valves for any signs of leakage and document the manufacturer, class rating, type of valve and if motor operated valve (MOV) include manufacture model and serial numbers of actuators.

4.2.2.9. **Level Alarms/Water Draw-Off/ATG Systems/Vents/Product Recovery**
Identify methods/systems for level alarms, water draw-off, ATG, venting systems, and product recovery systems. Gather operability information from onsite personnel. General condition and system functionality shall be included in the report.

4.2.3. **Modified API 653 Inspection**
This section includes all other tanks that do not fall under the API 653 definition of an Aboveground Storage Tank.

4.2.3.1. **Field Erected Cut and Cover Tanks**
As applicable, use Section 4.2.2 "Out-of-Service Inspection of Aboveground Storage Tanks" for inspection of cut and cover tanks. In addition the following shall also be performed:

4.2.3.1.1. As built mapping of the tank floor and shell. Establish a numbering system on the columns and vertical shell stiffeners to assist with mapping of defects.

4.2.3.1.2. As built mapping of the tank piping and drain.

4.2.3.1.3. Visually inspect the tank interior. The inspection shall include, but not limited to all steel surfaces (floor, shell, roof, and columns) and appurtenances including nozzles, valves, sumps, vents, stairs/ladders, vent stacks, vacuum breakers and spark arrestors. Document general conditions along with applicable photographs and include deficiencies on the as built mapping.

4.2.3.1.4. Examine each column and cap plate for evidence of damage due to seismic activity. Provide recommendations for repairs as appropriate.

4.2.3.1.5. Note if stitch welding or full seam welding is present at the base plates and doubler plates attached to the floor. Provide recommendations for repairs as appropriate.

4.2.3.1.6. Examine the internal shell stiffeners. Particular attention should be paid to the drain holes, the stitch welds attaching the stiffeners to the

shell plate and the heat affected zone of the shell. Measure depth of pits/corrosion, if present.

4.2.3.1.7. Provide a visual inspection and assessment of the tank coating system for integrity. Identify locations of coating failure, disbondment, laminations, pitting, fish eyes, pinholes, blisters, bubbles, etc. Identify type and extent of existing coating. Identify inspection results geographically within tanks. Perform dry film thickness measurements of the existing liner in accordance with SSPC PA2. On fully coated tanks the shell and column measurements shall include readings at 10%, 30%, 50%, 65% and 80% of the tank height. Organize the measured thicknesses into a tabular form and identify the minimum, maximum and average thickness obtained from the floor, shell, and columns. Identify the thickness locations on the as built mapping.

4.2.3.1.8. Measure UT thickness, through the coating, of the tank floor plates, shell plates, roof and nozzles.

4.2.3.1.9. Hand UT scan narrow vertical strips at four vertical drops on the tank shell from the floor-to-shell weld to roof. Note the thinnest UT reading. The results shall be used for general corrosion rate assessment and API calculations.

4.2.3.1.10. Magnetic Flux Leakage (MFL) floor scanning shall be performed on all accessible areas of the floor. Topside or bottom side corrosion indications shall be verified by VT and/or UT. In areas inaccessible by scanning, a sufficient number of UT readings shall be taken to gain a representation of the bottom underside condition.

4.2.3.1.11. Tank shell and floor edge survey to determine edge settlement and planar tilt.

4.2.3.1.12. Inspect welds at all penetrations in the floor and shell. Document general conditions and if discrepancies are identified include photographs along with size and location of cracks, pitting, porosity, etc.

4.2.3.1.13. Identify level alarms, means of water draw-off, automatic tank gauging (ATG) and venting systems. Gather operability information from onsite personnel. General condition and system functionality shall be included in the report. Include sizes and location of stilling wells, risers, etc.

4.2.3.1.14. Provide a list of deficiencies with respect to Section 5.6.2.

4.2.3.2. **Horizontal Cyclical Welded Steel Underground Tanks**

4.2.3.2.1. Perform a visual inspection for general condition of the tank. This includes corrosion, condition of coating or liner, appurtenances, gauging, foundation, stairways, nozzles, grounding, sumps, etc.

4.2.3.2.2. Perform UT measurements throughout the bottom and to the furthest extend possible up the walls without the aid of ladders or scaffolding to determine representative thickness.

4.2.3.2.3. Determine minimum thickness allowed per applicable standard and compare to minimum thickness recorded.

4.2.3.2.4. Provide color photographs to document the general condition of the tank, including general vicinity and deficiencies found.

4.2.3.3. **Shop Fabricated Aboveground Tanks**

4.2.3.3.1. Perform a visual inspection for general condition of the tank. This includes corrosion, condition of coating or liner, appurtenances, gauging, foundation, stairways, nozzles, grounding, sumps, etc.

4.2.3.3.2. Perform UT measurements of accessible location and evaluated for corrosion rates, remaining life, and inspection intervals.

4.2.3.3.3. Document manufacturer, date of manufacturer, and as-built standard.

4.2.3.3.4. For double wall tanks, check the interstitial space for evidence of unauthorized releases.

4.2.3.3.5. Provide color photographs to document the general condition of the tank, including the general vicinity and deficiencies found.

4.2.3.4. **Concrete Cut and Covers**

4.2.3.4.1. **Visual Inspection**

Visually inspect the overall condition of the tank. The inspection shall include, but no limited to all concrete surfaces, metal components including piping and valves and requirements for tank gauging. Check the columns for plumbness. The inspection shall be performed from the floor and from scaffolding. Generalize location of cracks in concrete floor, sell and columns. Cracks, defects and similar problems may be identified in tabular form based on the numbering system provided on the as-built mapping.

Note the construction of the roof to shell joint at the top of the wall. Determine if the top joint has been sealed with an epoxy sealer or any other means.

Note the construction of the floor-to-shell joint at the bottom of the wall. Determine if cove sealant is present. Document cracks, pin holes, disbanding, etc.

Examine the cold joints in the wall. Document whether the original iron dust mortar which was typical of original construction has been replaced with appropriate sealant.

Note all pipe penetrations in the floor/shell. Inspect sealant between piping and concrete shell/slab, specifically the joint at the tank's fill and suction lines. Perform and document UT thickness measurements on the tank nozzles.

4.2.3.4.2. **Mapping**

As-built mapping shall be performed of the tank floor and shell. Establish a numbering system on the columns and vertical construction joints to assist with mapping of defects. A floor level observation sketch of the roof shall be generated in the event that deleterious conditions are noted or repairs to the roof are necessary. As built mapping of the tank piping and drain. Include pipe sizes, lengths, penetration and appurtenances such as swing arms and related components.

4.2.3.4.3. **Settlement Survey and Evaluation**

A shell and floor edge settlement survey shall be performed to identify edge settlement, differential settlement, and/or planar tilt. The results of the evaluation shall be discussed in the body of the report and the acceptability of these results shall also be made. A graphical representation of the settlement shall be included in the report. The tank shall be assessed for out-of-roundness as well.

4.2.3.4.4. **Level Alarms/Water Draw-Off/ATG Systems/ Vents/ Product Recovery**

Identify methods/systems for level alarms, water draw-off, ATG, venting systems, and product recovery systems. Gather operability information from onsite personnel. General condition and system functionality shall be included in the report. Include sizes and location of stilling wells, risers, etc.

4.2.3.4.5. **Coating**

Provide a visual inspection and assessment of the tank coating system for integrity. Identify locations of coating failure, disbondment, laminations, etc. requiring repair.

Perform dry film thickness measurements of the existing liner in accordance with SSPC PA2. The shell and column measurements shall include readings at 10%, 30%, 50%, 65% and 80% of the tank height. Organize the measured thicknesses into a tabular form and identify the minimum, maximum and average thickness obtained from the floor, shell, and columns. Identify the thickness locations on the as built mapping.

4.2.3.4.6. **Other Items**

Perform chain drag inspection on the tank floor. A chain drag inspection consists of dragging a segment of chain across a horizontal concrete surface. A hollow sound is produced if the concrete has delaminated from the reinforcing steel or if the coating system has separated from the concrete.

Perform hammer test inspection of the tank at each column, and at random location on the tank floor, including the sump, and at the walls, including cold joints. A hammer test inspection consists of striking a concrete surface with consistent force. A hollow sound is produced if the concrete has delaminated from the reinforcing steel or if the lining has separated from the concrete.
Color photographs shall be taken to document the tank condition, discrepancies and overall construction. Provide a list of deficiencies with respect to Section 5.6.2.

4.2.4. **Steel Tank Institute Inspection**
STI SP001 shall be used as guidance on all storage tanks not in contact with the ground. These tanks are typically smaller shop fabricated in a horizontal position. The purpose of the inspection shall be to document the tank and secondary containment condition, and ensure is the tank is not leaking.

4.3. Tank Calibration
Prepare two calibration tables (strapping charts) for each tank specified in Section 2, one in English units and one in metric units. Both tables shall show the volume of the fuel for all liquid levels in the tank starting at the shell to bottom joint and going up to the level of the overflow. Tank calibration shall be in accordance with API 2003 "Manual of Petroleum Measurements Standards" for "critical measurement," API Standard 2550 "Measurement and Calibration of Upright Cylindrical Tanks" and in accordance with UFGS Specification 33 56 13.13, paragraph 3.4.1.d (Chapter 2.2D, Internal Electro-optical Distance Ranging Method (EODR) (using a theodolite with an electronic distance ranging device).)

The English units' calibration table shall show the volume of the fuel in barrels of 42 gallon and the level in 1/16-inch increments. The metric unit calibration table shall show the volume of the fuel in cubic meters and the level of the fuel in 2.0 mm increments. The zero level shall be the bottom of the shell. The level of the bottom of the shell and the level of the overflows shall be identified on the calibration table (strapping chart). The table shall not include tank volume above the level of the overflows. Preparation of new calibration tables from API report information or by interpolation of existing tables shall not be permitted. The table shall be certified by a third party. The tables shall be included in the tank inspection report. In addition two laminated copies each of English and metric units along with electronic media data files shall be provided to the facility.

4.4. Tank Gauging Tubes
All gauge tube installations shall be in accordance with the Automated Tank Gauge (ATG) Installation Policy dated December 16, 2009. Modification to any existing tubes shall be made if acceptable and feasible. All damaged coatings shall be repaired in accordance to UFGS 09 97 13.15 and UFGS 09 97 13.27.

4.4.1. **Standard Design**
The standard details shall be used for each tank identified in Section 2 and the Contractor shall make site specific adjustments as appropriate for each tank. The Contractor shall develop applicable details to retrofit identified tanks. Tubes shall be constructed of schedule 40 aluminum. Special considerations shall be made for unusual circumstances such as geodesic domes, very large or uncommonly shaped tanks, etc. These special circumstances will be addressed in Section 2.

4.5. Repairs

The Government shall have the option to modify the contract to include repairs identified during the inspection. This section may include all repairs identified in the inspection, but shall not include tank gauge tubes that are in Section 4.4.

If significant repairs are needed, the Government will require an API 653 inspector to certify all repairs/NDE work. If repairs are deemed necessary, the Government will submit a scope of work for repairs and request a modification to the existing task order. Once the modification is awarded, the Contractor shall prepare the following:

4.5.1. **Repair Work Plan**
The Contractor shall prepare a Repair Work Plan that shall be reviewed and approved by the Government before performing repairs to the tank(s). The Contractor shall have the option to amend the existing Work Plan or create a new plan. The Repair Work Plan shall incorporate all federal, state, and local environmental regulations. In addition to the information requested in Section 5.2 of this SOW the Repair Work Plan shall also address the following, if applicable:

4.5.1.1. **Hydrostatic Testing Plan**
If significant repairs are made, especially in the tank's critical zone, the contractor may recommend that a hydrostatic test be performed. The hydrostatic test shall be performed in accordance to API Standard 653. Personnel performing the test shall be identified and documentation on qualifications shall be submitted. Contractor shall be responsible for performing and documenting the necessary calculations, per current applicable standards, to determine the hydrostatic testing fill level using actual thickness measurements.

4.5.1.2. **Non-Destructive Examination (NDE)**
The Contractor shall be responsible for performing all necessary NDE to prove the validity of repairs. NDE methods and technician qualification shall be selected and applied in accordance with API Standard 653.

4.5.2. **Health and Safety Plan**
The Health and Safety Plan for the repairs shall follow all the guidelines in Section 5.3.

5. SUBMITTALS

Prior to the start of repair work, all submittals shall be reviewed and approved in accordance to Appendix G.

5.1. Schedule

After contract award, a projected schedule with dates of mobilization, major milestone and demobilization shall be submitted.

5.2. Work Plan

Provide a written plan for cleaning, inspecting and stilling well repairs for the requested storage tanks in Section 2. The work plan shall include the following:

5.2.1. **Project Summary and Background**

5.2.2. **Detailed Schedule**

This schedule shall have more detail than the previous schedule required in Section 5.1.

5.2.3. **Methodology**

Provide details on the proposed methodology for completing the required work including coordination and logistics.

5.2.4. **Execution Strategy**

Provide strategy for execution. This should include incorporate the work methodology and schedule along with quality control, mobilization/demobilization, applicable permitting, etc.

5.2.5. **Key Personnel and Subcontractors**

Provide contact information for key personnel and subcontractors. Include brief description qualifications and responsibilities of all parties.

5.2.6. **Materials and Equipment to be Used**

Provide list of materials and major equipment to be used. These items will need to be review and approved by the NTR. Material specification sheets shall be submitted in accordance with Appendix G.

5.2.7. **Hazardous Waste Disposal**

Provide a plan for proper identification, handling, storage, transportation and disposal of any anticipated hazardous material.

5.3. Health and Safety Plan (H&SP)

5.3.1. **General Work Safety**

The Contractor shall submit a Health & Safety Plan detailing such items as briefings, training, hazard control, general housekeeping, personal protective equipment, etc. Submit in accordance with EM 385-1-1, Appendix A *Minimum Basic Outline for Accident Prevention*. It is stressed the contractor shall perform all work in a safe manner

and maintain all proper documentation. A complete hard copy of the H&SP shall be on-site at all times.

5.3.2. **Confined Space Plan**

Only a qualified person shall issue tank entry and confined space permits. Tank atmosphere shall be gas-freed and monitored in accordance with Occupation Safety and Health Administration (OSHA) guidelines for oxygen content, flammable, and toxic vapors. API standard 2015 and 29 CFR 1910.146 shall also be followed.

5.3.3. **Hazardous Materials Handling**

Hazardous material handling shall be performed according to the manufacturer's specifications and conform to all applicable federal, state, and local regulations. Personnel handling hazardous materials shall be properly trained and provided with any required personal protective equipment (PPE).

5.3.4. **Environmental Protection**

Preventative measures shall be addressed and followed to protect the environment from any work being performed. This section shall also discuss contingency plans to contain and clean up in the event of a spill.

5.3.5. **Hot Work**

Hot work permits shall be obtained prior to any hot work being performed. Hot work procedures for both above the floor work and on the floor work shall be included in the H&SP as well as the Work Plan. The Contractor shall obtain Hot Work permits from a Marine Chemist or Certified Industrial Hygienist as well as from the local base fire department. Hot work is defined as welding, cutting, etc. Abrasive blasting will be considered hot work unless stated otherwise in Section 2.12.

5.4. Personnel and Contractor Qualifications

Provide information on experience, training and certification/licensing.

5.4.1. **Project Manager**

The Project Manager for this project shall have the technical and practical background in petroleum storage tank construction and inspection. This person shall be familiar with the applicable API, STI, and other Military standards and recommend practices. This person shall be knowledgeable of appropriate NDE techniques as well as quality assurance for such practices.

5.4.2. **Site Manager**

The Site Manager for this project shall have the technical and practical background in petroleum storage tank construction and inspection. This person shall be familiar with the applicable API, STI, and other Military standards and recommend practices. This person shall be knowledgeable of appropriate NDE techniques as well as quality assurance for such practices. The site manager will also ensure that all personnel onsite will adhere to all safety measures outlined in the Health and Safety Plan.

5.4.3. **Tank Cleaning Personnel**
Tank cleaning personnel shall be trained in all safety equipment and procedures needed to perform work. This shall include, but not be limited to confine space, hazardous material handling, hazardous atmosphere monitoring, fall protection, etc. All appropriate safety regulations and guidelines shall be followed.

5.4.4. **API 653 Inspectors**
The inspectors shall be experienced with various types of storage tanks. Inspectors shall be certified in accordance with to API 653 Appendix D - Authorized Inspector Certification. Inspectors shall furnish proof of API certification.

5.4.5. **NDE Technicians**
All non-destructive examination (NDE) testing shall be conducted by personnel qualified to American Society for Nondestructive Testing (ASNT) Level II in accordance with the inspection company's procedures or by an ASNT Level I qualified individual under the direct supervision of an ASNT Level II or Level III. Technicians shall provide NDE qualifications.

5.4.6. **STI Inspectors**
Inspectors performing STI inspections shall be certified in accordance to STI SP001.

5.4.7. **Welders**
Welding Procedure Specification (WPS) and welders shall be qualified in accordance with Section IX of the ASME Code. A copy of the WPS and Procedure Qualification Records (PQR) used for production welds shall be available for review by the authorized inspector and/or the Government at the fabrication site. Personnel performing welds shall be experienced with construction and repairs of petroleum storage tanks and pipelines.

5.4.8. **Coating Applicators**
All contractors and subcontractors that perform surface preparation and coating application shall be certified by the Society for Protective Coatings (formerly Steel Structure Painting Council) (SSPC) to the requirement of SSPC QP 1 prior to contract award, and shall remain certified while accomplishing any surface preparation or coating application. Contractors shall be familiar with military coatings and experienced with their application.

5.4.9. **National Association of Corrosion Engineers (NACE) Inspector**
As an option, a tank coating inspection shall be performed by a certified NACE Level III Coatings Inspector in accordance with the National Association of Corrosion Engineers (NACE).

5.4.10. **Marine Chemist/Industrial Hygienist**
The Marine Chemist or Certified Industrial Hygienist shall be certified by the American Board of Industrial Hygiene.

5.4.11. **Tank Calibration Personnel**

Contractor shall provide the services of a specialty calibration organization to provide tank field measurements in order to produce the tank calibration charts (strapping tables) and electronic data files for use by the automatic tank gauging (ATG) system.

5.5. Daily Reports

Daily reports shall be generated by the contractor for each work day while on site. Daily reports shall be emailed by 0900 the following work day to the NTR and all agreed upon parties. A daily report format is included in Appendix E.

5.6. Inspection Reports

5.6.1. **Preliminary Reports**

Upon completion of the field work, a preliminary report shall be communicated to the NTR. This information will be utilized in determining whether repairs need to be accomplished prior to returning the tank(s) into service. Preliminary reports shall be submitted within 48 hours of completing each inspection.

As a minimum, preliminary inspection reports shall include:

5.6.1.1.1. Tank ID, location, and inspection date

5.6.1.1.2. Suitability for service statement, identifying whether the tank is suitable for continued operation, reduce capacity or complete removal from service. If tank is unsuitable for service, a brief description of tank issue(s) shall be discussed.

5.6.1.1.3. Inspector(s) name, certification number, and date.

5.6.2. **Full Inspection Reports**

A separate report shall be provided for each tank inspected. Provide hardcopies of each report in plastic ring binding with a plastic sleeve inside to hold an electronic copy of each report. For sub contracted inspections the Prime Contractor shall provide their own cover sheet along with an independent inspection summary and recommendations based on the inspection report. NAVFAC ESC will provide a report cover with a report number for the final submission.

Inspection Reports shall include:

5.6.2.1. **Executive Summary**

Provide a one page summary of the condition of the tank and basic recommendations for repairs. Within the body make reference to and attached the Inspection/Repair Summary sheet from Appendix F of this SOW.

5.6.2.2. **Suitability for Service Statement**

This statement shall be a one page document with both the API 653 inspector's number and signature and the professional engineer's stamp and signature containing

the due date for the next inspection. Provide a suitability for service statement for each tank inspected and/or repaired. Tanks require a suitability for service statement before returning to service. In the event that Suitability for Service statement cannot be made, document the reason(s) and suggest a corrective action measure.

5.6.2.3. **Tank History**

The inspector shall establish a complete historical record of the entire tank. The records shall include as much information as possible including:

5.6.2.3.1. Nameplate Information
5.6.2.3.2. Products previously and presently stored in the tank.
5.6.2.3.3. List of previous inspections
5.6.2.3.4. List and describe any significant environmental (earthquake, hurricane, etc) or operational (over-pressure, vacuum, foundation settlement, etc) events.
5.6.2.3.5. List and describe any repairs or alterations performed (include significant drawings, executive summaries from other repair reports, etc in the Report Appendix).
5.6.2.3.6. GPS Coordinates
5.6.2.3.7. Other pertinent information and details.

5.6.2.4. **Methodology**

Detailed discussion on the actual methodology of how each component was inspected. This section includes type of inspection, equipment, and methods.

5.6.2.5. **Findings**

Detailed description of each component including containment, foundation, bottom, shell, appurtenances, access ways, floating roof/pan, and fixed roof. Provide discussion on all findings.

5.6.2.6. **Recommendations**

Recommendations shall be included in the report and broken into three categories. These categories are Mandatory, Near Future, and Long Term repairs.

5.6.2.6.1. **Mandatory**

Provide mandatory actions that need to be completed before the tank can be returned to service. Classification of mandatory repairs consists of any failure/deficiency that has breached the hydraulic, and/or structural integrity of the tank, and/or presents an eminent danger to personnel and/or adjacent structures. Examples of mandatory repairs include, but not limited to: leaks, broken access ladders, missing anchor bolts, excessive settlement, etc.

5.6.2.6.2. **Near Future**

Provide recommended actions that should be programmed for completion within 2-3 years. All recommendations shall be accompanied by a recommended completion date.

5.6.2.6.3. **Long Term**
Provide recommended actions that currently have no adverse affect on tank operability or integrity but should be monitored and/or performed to ensure long term continued service. All recommendations shall be accompanied by a recommended completion date.

5.6.2.7. **Report Appendices**

5.6.2.7.1. **Data (UT, MFL, Settlement, Safe Fill Heights, etc)**
Include all data collected during the inspection along with an interpretation and discussion of the data. Data shall be in tabular form with tank locations.

5.6.2.7.2. **API checklist in API 653 Appendix C**
Include actual notes and readings taken by the field inspector including: tank history, visual checklist and definitive inspection results.

5.6.2.7.3. **Drawings**
As a minimum, the following drawings, if applicable, shall be included in the report: shell, roof, and floor plate orientation with appurtenances and other significant tank details.

5.6.2.7.4. **Photographs**
Include color photographs of adequate resolution to display the area of interest with a descriptive caption. Include photographs to document the general condition and vicinity of the tank, field identifications/markings of the tank, access points, secondary containment, general overall construction, and discrepancies found.

5.6.2.7.5. **Calculations**
Provide calculations required by API 653. This includes determination of the minimum shell thickness, next inspection date, safe fill height, settlement, nozzle reinforcement requirements, and estimated remaining service life of shell, nozzles, roof and floor. Provide a sample calculation for each component along with any assumptions and references utilized.

5.7. Project Certification Reports
A separate report shall be provided for <u>each</u> tank on this task order. These reports shall include thorough documentation all work performed. This includes cleaning, inspection, repairs, stilling well installation, strapping charts, etc. Hard copies of each tank shall be bound in plastic ring binding with a plastic sleeve inside to hold electronic copy of each report. NAVFAC ESC will provide the cover and report number.
Project Certification Reports Shall Include:

5.7.1.1. Executive Summary
5.7.1.2. Suitability for Service Statement
5.7.1.3. Work Performed (Include all subcontractors, with contact information)
5.7.1.4. Timeline

Appendices:
5.7.1.5. Documenting Photographs
5.7.1.6. Personnel Certifications
5.7.1.7. NDE Documentation
5.7.1.8. Quality Control Documentation
5.7.1.9. Materials, Equipment Specifications, and Coating Data
5.7.1.10. As-built Drawings, if applicable
5.7.1.11. API 653 follow up inspection (if deemed necessary)
5.7.1.12. Hazardous Waste Manifest

5.8. Materials, Workmanship, Quality Control and Testing

5.8.1. The contractor shall provide materials, workmanship, quality control and testing in accordance with the Work Plan. (Refer to paragraph 5.2 above).

5.8.2. The Contractor shall provide shop drawings and material specification sheets of all materials and major equipment to be used in accordance with the Submittal Register (refer to paragraph 5.5 above). Shop drawings and material specification sheets shall be submitted in accordance with Appendix H for Government Review and Approval.

5.8.3. The contractor shall provide reports from all quality control and testing in accordance with the Submittal Register. These reports shall be submitted in accordance with Appendix H for Government Review and Approval.

5.9. Submittal Register

5.9.1. The Contractor shall prepare and submit the Submittal Register, "SUBMITTAL FORM, Jan 96", found in Appendix G of this SOW. Columns (a) thru (I) shall be completed by the Contractor for all submittals required.

5.9.2. The Contractor shall prepare and maintain the submittal register as the work progresses. The submittal register is to be included with all submittals with the appropriate columns filled-in. Additional information concerning the Submittal Register is may be found in UFGS 01 33 00.

5.9.3. The Submittal Register shall be submitted in accordance with Appendix H for Governmental Review and Approval.

5.9.4. No work is to start on-site prior to review and approval by the Government.

6. MEETINGS

6.1. Work Kickoff Meeting

A Work Kickoff meeting will be coordinated by NAVFAC ESC to establish the responsibilities of each party involved, discussion of the schedule, and to ensure a mutual understanding of the scope. After opening remarks by NTR, the Prime Contractor shall lead the discussion of specific project requirements, generate and submit meeting minutes for Government review and approval. Appendix I contains a templates the Contractor may use to prepare the agenda.

6.2. Repair Kickoff Meeting

A Repair Kickoff Meeting shall be held if work outside the original scope is being performed. This does not apply stilling well installation. This meeting is to be conducted to establish each party's responsibilities and achieve consensus on the repairs scope.

6.3. Work Completion Walk Through

Upon completion of the required tasks a Work Completion Walk Through is to be conducted. The purpose of this meeting is to ensure that all the government's requirements and expectations have been successfully completed and the government will accept all work performed.

7. BID PROPOSAL REQUIREMENTS

The contractor bid proposals are to include the following:

7.1. Brief Work Plan

A brief statement of how the contractor plans to complete the required tasks.

7.2. Schedule

Provide a schedule which identifies major milestones along with projected start and end dates.

7.3. Project Personnel and Subcontractors

Provide the names and contact information for the planned project personnel and subcontractors.

7.4. Costs Proposal

Provide a cost proposal for the entire project with a breakdown of burdened cost per tank for cleaning, inspecting, and repairing. These broken out costs will be used for government information only and the project will not be de-scoped according to them.

8. INVOICING

Invoicing shall be submitted and tracked per task, per tank, and percentage completed. In addition to the Contractor's regular invoicing practices, the contractor shall also include Prime Contractor costs for cleaning, inspection, stilling wells, and repairs for EACH tank.

These should be “out the door” costs that include weighted amounts for administration, project management, bonds, etc. See the example below.

	Cleaning	Inspection	Stilling Well	Repairs	Total
Tank A					
Tank B					
Tank C					
Project Total					

APPENDIX A

TANK INFORMATION

DELETE and INSERT in final PDF		
Tank ID		
Facility Number		
Capacity (specify gal or bbls)		
Tank configuration		
Construction Date		
Product		
Diameter		
Height		
Tank Material		
Type of roof (if applicable)		
If floating, can facility have high legs installed?		
Type and date of last coating application		
Date of last cleaning		
Date of last out-of-service (internal) API 653 inspection. Can inspection report be provided?		
Date of last in-service (external) API 653 inspection. Can report be provided?		
How far can tank be drained down? Est remaining product in gal or inches		
Is sludge anticipated? Estimate amt.		
Can facility provide water for tank cleaning? Is there a limit?		
Can facility accept oily water or sludge from the tank cleaning?		
If so, how many gallons and/or drums? Is there any testing or other requirements?		
Maximum time tank can be down		
Sump Location (center or edge?)		
Bottom (Flat, Cone-up, Cone-down)		
ATG stilling wells? If so, what size & location? at center, off center, or edge of tank?		
Slotted or Non-slotted		
Manual gauging still well? If so, what size & location? at center, off center, or edge of tank?		
Slotted or Non-slotted		
Water probe stilling well? If so, what size & location? at center, off center, or edge of tank?		
Slotted or Non-slotted		
Center roof vent		
Known or anticipated problems with the tank? (ie level shutoffs, coating, water intrusion in secondary containment, etc.		
Please provide any information about scheduling. (i.e. how many tanks can be take out of service at a time, for how long, can tanks be staggered, etc)		
Can drawings of the tank construction/orientation be provided?		
Other Comments		

APPENDIX B

GAUGE TUBE STANDARD DESIGN

APPENDIX C

GOVERNMENT FURINISHED INFORMATION

Attached electronic files

APPENDIX D

PERSONNEL SECURITY LIST FOR BASE ACCESS

Facility Location:	
Project Location:	
Project Description:	
NAVFAC ESC POC:	
Prime Contractor:	
Contractor POC:	
Date Submitted:	

First, MI, Last Name	SSN	Date of Birth	Place of Birth	Citizenship	Driver's License, State of Issuance	Employer's Name, address, phone number	Planned arrival date	Planned departure date	Vehicle/ Equipment make, model and year	Vehicle/ Equipment type	Vehicle/Eq-uipment tag number

APPENDIX E

DAILY REPORT FORMAT

DAILY PRODUCTION REPORTS

A Production Report is required for each day that work is performed on the tanks. Unless unusual circumstances arise, the Production Report should be limited to 1-2 pages. The report is informal and can consist of hand written notes on a standard form. The report shall account for each calendar day while on-site. The reporting of work shall be identified by terminology consistent with the statement of work. Contractor Production Reports are to be prepared, signed and dated by the contractor's on-site Project Supervisor and shall contain the following information:

1.0 Date of report, report number, name of contractor, Delivery Order Number, title and location of tasks, and Construction manager present.

2.0 Weather conditions in the morning and in the afternoon. Include temperature, wind, rain, fog, and humidity.

3.0 A list of contractor and subcontractor personnel on the work site, their trades, employer, work location, descriptions of work performed, and hours worked.

4.0 A list of contractor and subcontractor equipment on the work site, rented or owned, if rented-from who, location, description of work performed with equipment and hours the equipment was on-site, used, idle, and/or down for repair.

5.0 A list of job safety actions taken and safety inspection conducted. Indicate that safety requirements have been met including the results of the following:

- **5.1.** Was a job safety meeting held? (If YES, attach a copy of the meeting minutes.)
- **5.2.** Were there any lost time accidents? (If YES, attach a copy of the completed OSHA report.)
- **5.3.** Was crane/trenching/scaffold/high voltage electrical/ high work done? (If YES, attach a statements or checklist showing inspection performed.)
- **5.4.** Was hazardous material/waste released into the environment? (If YES, attach a description of what was released, how it was released, actions taken to contain/clean-up, people/organizations contacted, meetings held, and future actions to be taken.)
- **5.5.** A list of material received each day that is incorporated into the project.
- **5.6.** Include a “Remarks” Section in the report which will contain the following: pertinent information including problems encountered during work, delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, minutes of QC meeting and/or other meetings, and a record of visitors to the work site.

APPENDIX F

INSPECTION/REPAIR SUMMARY TEMPLATE

Tank Inspection Summary Sheet	
Tank Location	
Tank No. (plus previous identification)	
Facility Number	
Inspection Date(s)	
Tank Type	**(AST, UST, Vertical, Horizontal, In Contact w/ground, etc)**
Type of Inspection	**(In-Service, Out of Service, Modified, API, STI, Other, etc)**
Contract Number, Task Order	
Prime Contractor Name	
Inspector, Cert #, Inspection Company	
Manufacturer, Date, Design Standard	
Diameter	
Height/Safe Fill Height	
Product/Specific Gravity	
Design Pressure/Temperature	
Gross Capacity/Nominal Capacity	
Safe Fill Height	
GPS Latitude & Longitude	
Foundation Configuration	
Shell Configuration	(# of courses, heights of each, thickness, etc)
Floor Configuration	(annular ring, sketch plates, butt welded, lap welded, etc)
Roof (Fixed, Floating or both. Seal type)	
Cathodic Protection, if so what type	
Stilling Wells (Sizes, Applications)	
Last Inspection (type, date)	
Last Coated Internally (Product)	
Last Coated Externally (Product)	
Inspection Results	
Can tank be returned to service?	Yes / No (If No, explain)
Deficiencies identified as mandatory repairs	
Deficiencies identified as recommended repairs	
Deficiencies identified as long term repairs	
Next Scheduled Inspection (type, date)	
Upgrades / Repairs Made at this Time	Use second page if more space is needed
Tank Re-Calibration to 1/16 in	Yes / No (if Yes, when)
Stilling Wells	
Coating (specify system, location)	
Floor (including sump)	
Shell	
Vents / Appurtenances	
Secondary Containment	
Other:	

General Comments	

APPENDIX G

SUBMITTAL FORM

APPENDIX H

SUBMITTAL LIST, SCHEDULE, AND DISTRIBUTION

SUBMITTAL LIST, SCHEDULE, AND DISTRIBUTION

SUBMITTAL	SUBMITTAL SCHEDULE			DISTRIBUTION - NUMBER OF COPIES				
	DRAFT (WACA)	GOVT Review	FINAL (WAGR)	NAVFAC ESC	RK&K	DESC JR	NOLSC	SITE
Schedule	2	1		EC				
Submittal Register	2	1	1					
Draft				EC				
Final				EC				
As Required				EC				
Work Plan								
Draft	4	2	1	EC				
Final				EC				
Quality Control, Testing Reports, etc	In Accordance with Submittal Register			EC				
Health And Safety Plan								
Draft	4	2	1	EC				
Final				EC				
Qualifications	2	1	-	EC				
Shop Drawings, Material Information, etc	In Accordance with Submittal Register			EC				
	DRAFT (WACO)	GOVT Review	FINAL (WAGR)					
API 653 Reports								
Preliminary	48 hrs	-	-	EC				
Draft	4	2	2	EC				
Final				HC, EC, CD	EC	EC	EC	HC w/CD
Work Certification Report								
Draft	4	2	1	EC				
Final				HC, EC, CD	EC	EC	EC	HC w/CD
Quality Control Daily Reports❸				EC				EC

Meeting Minutes❸,❹				EC	

NOTES:
WACA – Weeks after Contract Award, WACO – Weeks after Completion
GOVT Review – Number of weeks for Government review after receipt of submittal.
WAGR – Weeks after Government Review
EC = Electronic Copy, HC = Hard Copy
❸ - Daily reports shall be e-mailed daily, by 0900 local time, the following day.
❹ - Minutes of meetings shall be e-mailed no later than three (3) working days following each meeting.

APPENDIX I

PRE-CONSTRUCTION AGENDA

PRE-INSPECTION MEETING

[TANK XX]

[FACILITY, CITY, STATE]
[DD MONTH YYYY]

[time hrs]

AGENDA

- **NAVFAC ESC OPENING REMARKS/BRIEF TEAM INTRODUCTIONS**

- **ROLES & RESPONSIBILITIES – PROJECT ORGANIZATION**

- **INSTALLATION SUPPORT – [FACILITY] / COORDINATION**

- **EXECUTION PLAN**

  - Summary Project Scope
  - Meetings
  - Project Documentation - Submittals
  - Quality Control – Corrective Actions

- **HEALTH & SAFETY**

- **WASTE MANAGEMENT/DISPOSAL PROCEDURES**

- **ACTION ITEMS (Specific Project Issues – Logistics – Scheduling)**

- **SITE WALK (as necessary)**

- **OFF-LINE DISCUSSIONS – Subcontractor Invoicing Procedures, procurements, etc.**

- **- Adjourn - -**

-

TEAM INTRODUCTIONS

NAVFAC ESC – NTR (COTR and ROICC),
[FACILITY Personnel - (Opening Comments/Introductions)
Construction Team:

Prime: [Contractor's Name]
Tank Cleaning: [Name]
Tank Inspection: [Name]
Tank Repairs: [Name]

- **ROLES & RESPONSIBILITIES – PROJECT ORGANIZATION**

[Prime Contractor]

Project Manager, Construction Site Manager, Superior Industrial Maintenance Foreman, Procurement Manager, Contract Manager

[FACILITY]

Point(s) of Contact and Individual Roles

NAVFAC ESC

COTR/ROICC, Assistant ROICC, CO

LINES of COMMUNICATION

Subcontractors → [Prime] → ROICC/AROICC → [FACILITY] → NAVFAC ESC

- **INSTALLATION SUPPORT- COORDINATION**

- ☐ Security/Site Access (Base security force, escorts, contractor vehicle requirements, contractor personnel information requirements, material deliveries, etc.)
- ☐ [FACILITY] Fire Department
- ☐ [FACILITY] Environmental
- ☐ [FACILITY] Fuels Manager
- ☐ LB&B
- ☐ Hours of Operation (Monday – Friday 7am – 4 pm; Saturdays only with special permission/circumstances)
- ☐ Utility Coordination (Water, Fire hydrants, Electric, Telephone) with [FACILITY]
- ☐ Confined Space Entry Permits & Hot Work Permits (FACILITY and Fire Safety)
- ☐ Project Trailer/Facilities (break areas, portable toilets, restricted cell phone usage)
- ☐ Contractor Laydown Area(s)

- **EXECUTION PLAN**

☐ **Summary Project Scope**

- Discuss Inspection/Repair work to be performed and general sequence
- Stilling Well installation
- Schedule

☐ **Meetings**

- Daily Safety Tailgate Meetings
- Weekly Construction Meetings w/FISC (if requested)
- 50% Project Completion Meeting (after ?)
- Pre-Final Completion Walk-Through Meeting (Develop punch list items)
- Final Inspection/As-built Review Meeting (if necessary)

☐ **Project Documentation**

- Construction Submittals (Material Approval Forms; Electronic review /Approval Process, Review and Approval Distribution)
- Daily Production Reports
- QC Inspection Checklists

☐ **Quality Control - Corrective Actions**

- QC Field Inspections/Reports – Response/Corrective Action
- Material Approval Submittal Process – [Prime/Sub] QC check of submittals
- H&S Audits/H&S non-conformance observations

- **HEALTH & SAFETY**

Job-Specific Safety Topic:

☐ Site Health & Safety Officer –[Prime Contractor]
☐ Daily Tailgate Safety Meetings
☐ [Prime] H&S Inspections - Subcontractor PPE & Subcontractor H&S Contacts
☐ Traffic Plan – Barricades, specific routing requirements
☐ Daily Housekeeping at jobsite
☐ Hurricane Preparedness Plan
☐ Emergency / Incident Notification and Procedures – Route to Hospital

- **WASTE MANAGEMENT/DISPOSAL PROCEDURES**

☐ Wash water, PCW management / hydro test water management
☐ Coatings abatement: General waste manifest requirements, Notifications
☐ Material waste/general construction debris disposal

- **SPECIFIC PROJECT ISSUES – LOGISTICS – SCHEDULING**

☐ Tank Cleaning and API Inspections
☐ Initial hot work permit, subsequent hot work permits
☐ Finalize Design Repair package after API 653 Inspection
☐ Tank repair work – initial work and repairs mandated by specific design details

- **ACTION ITEMS**

SECTION TABLE OF CONTENTS

DIVISION 33 - UTILITIES

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INSPECTION OF FUEL STORAGE TANKS

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-- End of Section Table of Contents --

SECTION 33 56 17.00 20

INSPECTION OF FUEL STORAGE TANKS
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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN PETROLEUM INSTITUTE (API)

API 570	(2016, 4th Ed) Piping Inspection Code: In-Service Inspection, Rating, Repair, and Alteration of Piping Systems
API RP 1110	(2013) Pressure Testing of Steel Pipelines for the Transportation of Gas, Petroleum Gas, Hazardous Liquids, Highly Volatile Liquids or Carbon Dioxide
API RP 571	(2011; 2nd Ed) Damage Mechanisms Affecting Fixed Equipment in the Refining Industry
API RP 2207	(2007; R 2012; 6th Ed) Preparing Tank Bottoms for Hot Work
API RP 574	(2009; 3rd Ed) Inspection Practices for Piping System Components
API RP 575	(2014; 3rd Ed) Inspection Practices for Atmospheric and Low-Pressure Storage Tanks
API RP 579-1	(2016) Fitness-For-Service
API Std 2015	(2014) Safe Entry and Cleaning of Petroleum Storage Tanks
API Std 650	(2013; Errata 1 2013; Addendum 1 2014; Errata 2 2014) Welded Tanks for Oil Storage
API Std 653	(2014) Tank Inspection, Repair, Alteration, and Reconstruction

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)

ANSI/ASNT CP-189	(2016) ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel (ANSI/ASNT CP-105-2006)

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 37-14	(2015) Design Loads on Structures During Construction

ASME INTERNATIONAL (ASME)

ASME B16.48	(2015) Line Blanks
ASME BPVC SEC IX	(2015) BPVC Section IX-Welding and Brazing Qualifications
ASME B16.5	(2013) Pipe Flanges and Flanged Fittings: NPS 1/2 Through NPS 24 Metric/Inch Standard
ASME BPVC SEC V	(2015) BPVC Section V-Nondestructive Examination

ASTM INTERNATIONAL (ASTM)

ASTM A370	(2014) Standard Test Methods and Definitions for Mechanical Testing of Steel Products
ASTM D610	(2008; R 2012) Evaluating Degree of Rusting on Painted Steel Surfaces
ASTM E1316-14	(2014) Standard Terminology for Nondestructive Examinations
ASTM E2807-11	(2011) Standard Specification for 3D Imaging Data Exchange
ASTM E2862-12	(2012) Standard Practice for Probability of Detection Analysis for Hit/Miss Data
ASTM E329	(2014a) Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
ASTM E543	(2015) Standard Practice for Agencies Performing Non-Destructive Testing

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 306	(2014) Standard for Control of Gas Hazards on Vessels

SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC PA 2	(2015) Measurement of Dry Coating Thickness With Magnetic Gages

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)

TIA-222	(2009g; Add 1 2007; Add 2 2009; R 2012; R 2013; R 2014) Structural Standards for Antenna Supporting Structures and Antennas

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety and Health Requirements

Manual

U.S. DEPARTMENT OF DEFENSE (DOD)

FC 1-300-09N	(2014) Navy and Marine Corps Design Procedures
MIL-HDBK-1823A	(2009) Nondestructive Evaluation System Reliability Assessment
UFC 3-460-01	(2010; Chg 2 2015) Design: Petroleum Fuel Facilities
UFC 3-460-03	(2003) O&M: Maintenance of Petroleum Systems

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1926.1400	Cranes and Derricks in Construction

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)

NAVFAC P-307	(2009) Management of Weight Handling Equipment

U.S. NAVAL SUPPLY SYSTEMS COMMAND (NAVSUP)

NAVSUPGLSINST 10345.1	(2015) Fuel Tank Return to Service

1.2 DEFINITIONS

1.2.1 Hazardous Area

As used in this Section, any area within 100 feet of active storage tanks, areas within 100 feet of leaking sections of fuel pipelines or other vapor sources, areas within 200 feet of the downwind side of potential vapor emission sources (i.e., pressure-vacuum vents, sample ports, or open vents on active tanks; leaking sections of pipelines), areas within existing tanks, and areas within a tunnel or adit.

1.2.2 Hot Work

Hot work, for work covered by this section, includes: drilling, boring, flame heating, welding, torch cutting, brazing, carbon arc gouging, grinding, abrasive blasting, or any work which produces heat, by any means, of 400 degrees F or more; or in the presence of flammables or flammable atmospheres, other ignition sources such as spark or arc producing tools or equipment, static discharges, friction, impact, open flames or embers, nonexplosion-proof lights, fixtures, motors or equipment.

1.2.3 Inspector of Record

The individual, certified as a fuel storage tank inspector, in responsible charge of the storage tank inspection who will sign the suitability for service letter. The recognized certification is API Std 653.

1.2.4 Long Term Repair

Action intended to extend the service life of the tank, ensure continued compliance with policy, criteria, standards, and regulations, and currently has no adverse affect on tank operability or integrity.

1.2.5 Mandatory Repair

Action necessary to preserve or restore the structural and hydraulic integrity of the tank. Includes any condition which has or may breach the hydraulic or structural integrity of the tank prior to the next integrity inspection.

1.2.6 Marine Chemist

The holder of a valid Certificate issued by the National Fire Protection Association in accordance with the "Rules for Certification of Marine Chemists", pursuant to NFPA 306, establishing the individual as qualified to determine whether construction, alteration, repair, or shipbreaking of vessels can be undertaken with safety.

1.2.7 MAWP

Maximum allowable working pressure: As used in this Section, maximum internal pressure in the piping system for continued operation at the most severe condition of coincident internal or external pressure and temperature expected during service.

1.2.8 Near Term Repair

Action based on good engineering practice or compliance with policy or criteria, and which should be programmed for completion within ten years.

1.2.9 POD Analyst

The individual responsible for performing Probability of Detection (POD) analysis on hit/miss data resulting from a POD examination.

1.2.10 Progressive Indication

A response from a nondestructive examination interpreted to be relevant and evaluated to be temporal deterioration.

1.2.11 Tank Engineer

One or more licensed professional engineers, or an engineering firm, acceptable to the Contracting Officer who are knowledgeable and experienced in the engineering disciplines associated with evaluating mechanical and material characteristics that affect the integrity and reliability of storage tanks. The storage tank engineer is the tank repair subject matter expert and is responsible of all storage tank design and repair.

1.2.12 Tank Inspection

As used in this Section, a tank inspection is a multi-disciplinary engineering assessment of all petroleum, oil, and lubricant storage tank systems within or connected to the tank hydraulic boundary. Systems include nozzles, appurtenances and conveyance systems such as piping, stilling well, valve, flow control, overflow protection, spill prevention,

walkway, fire suppression, tower, bridge, catwalk, manual gauging control, atmospheric ventilation, lighting, and other electrical systems.

1.2.13 Tank Inspector

An individual certified as a fuel storage tank inspector. The recognized certification is API Std 653.

1.2.14 Tank Shell

As used in this Section, all surfaces of the tank hydraulic boundary including bottom, lower dome, barrel, extension ring, upper dome, nozzles, adjustment rings, and expansion joints.

1.3 ADMINISTRATIVE REQUIREMENTS

1.3.1 Sequencing

Schedule Probability of Detection examination activities with adequate time for the analyst to review the procedure and results, analyze data, and produce a report in accordance with ASTM E2862-12.

Schedule metallurgical testing with adequate time for receipt of results and analysis to be used in the design of repairs.

Schedule tank inspection and validation of predictive repairs to occur during the design phase of the contract.

1.3.2 Inspection Review Meeting

During the tank inspection phase, provide a weekly meeting to brief the Government on technical details of the tank inspection and non-destructive examination (NDE). Discuss progress, inspection findings, tank conditions, data quality, data management, and NDE detection uncertainty. Subcontractors performing any aspect of tank inspection, including NDE, are required to attend the meeting. The intent is an open, unconstrained discussion of the tank inspection process and data. The quality control manager will chair the meetings.

1.3.3 Safety Permits and Equipment

Acquire safety permits and necessary safety equipment in compliance with Installation Requirements, Section 01 35 26.05 20, Section 33 65 00 CLEANING PETROLEUM STORAGE TANKS, and EM 385-1-1. A permit is required for all hot work. The storage tank is a confined space and entry shall be made in accordance with requirements of EM 385-1-1 Section 34.

1.3.4 Regulatory Requirements

Obtain permits required to comply with local, State, and Federal regulations.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor QC approval.][for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submittals with an "S" are for inclusion in the

Sustainability Notebook, in conformance to Section 01 33 29, SUSTAINABILITY REQUIREMENTS. Submit the following in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Tank Inspector Credentials; G

Laboratory Accreditation; G

Pipeline Inspector Credentials; G

Tank Engineer Credentials; G

POD Analyst Credentials; G

NDE Examiner Credentials; G

NDE Firm Credentials; G

Tank Plate Access Plan; G

SD-05 Design Data

Inspection Design; G

SD-06 Test Reports

NDE Reliability Report

Preliminary Inspection Report; G

Pedigree Report

Substrate Test; G

Cleaning Test Panel Results; G

Inspection Report; G

1.5 QUALITY ASSURANCE

1.5.1 Modification of References

Perform work in accordance with FC 1-300-09N, UFC 3-460-01 and UFC 3-460-03. Except as modified herein, work shall conform to API Std 653, API RP 575, API 570, and API RP 574. Where the word "should" appears in these publications, substitute "shall."

1.5.2 Qualification and Certification

1.5.2.1 Tank Engineer

Qualification
Minimum seven years verifiable experience in tank evaluation, design, repair, and integrity assessment on bulk fuel storage tanks. Provide evidence of having completed designs, repair designs and assessments on at least five similar tanks within the previous five years.

Certification
Licensed Professional Engineer. Knowledge of or certification as an API Std 653 tank inspector. Provide Tank Engineer Credentials and qualification.

1.5.2.2 Tank Inspector

Qualification
Minimum seven years verifiable experience performing inspections of bulk fuel storage tanks. Provide evidence of having completed inspections on at least five bulk storage tanks within the previous five years.

Certification
API Std 653 tank inspector. Provide Tank Inspector Credentials to include API Std 653 certification and qualification.

1.5.2.3 Piping Inspector

Qualification
Minimum five years verifiable experience performing fuel piping inspections of the same type as required. Provide evidence of having completed at least five similar inspections within the previous five years.

Certification
API 570 piping inspector. Provide Pipeline Inspector Credentials to include API 570 certification and qualification.

1.5.2.4 Non-Destructive Examination Company

Qualification
Independent third party company meeting requirements of ASTM E329 and ASTM E543. Verifiable experience conducting:

a. Bulk fuel storage tank examination
b. Plate scanning for surface, subsurface, and backside indications
c. Weld scanning for surface and subsurface indications
d. Thin plate (0.25 in) thickness measurement

Certification
Submit the name, address, and telephone number of the company selected to perform inspection-phase NDE of the storage tank. Provide NDE Firm Credentials to include industry qualification and experience.

1.5.2.5 Non-Destructive Examiner

Qualification
Examiners shall be qualified to perform non-destructive examination in accordance with API Std 653 and API Std 650. Examiners shall meet minimum requirements for qualification in ANSI/ASNT CP-189. Qualified examiners shall have minimum five years verifiable experience performing non-destructive examination of bulk fuel storage tanks. Examiners performing thickness measurements shall be experienced and skilled in the examination of thin steel. Experience is defined as work activity accomplished in a specific NDE method under the direction of qualified supervision including the performance of the NDE method but does not include time spent in training programs. Should an NDE examiner also be a welder, that individual is disqualified from inspecting or examining a weld or any portion thereof of the examiner's own work.

Certification
Examiners shall meet minimum requirements for certification in ANSI/ASNT CP-189. Provide examiners certified to at least Level II for the applicable method to be deployed. Level II Limited certification does not meet this requirement. Provide NDE Examiner Credentials to include qualification and certification.

1.5.2.6 POD Analyst

Provide an independent third party analyst experienced in POD analysis performed pursuant to ASTM E2862-12. Minimum experience is five years verifiable. Provide POD Analyst Credentials to include certification and experience.

1.5.2.7 Testing Laboratory

Submit the name, address, and telephone number of the testing laboratory selected to perform metallurgical testing. Provide documents demonstrating current Laboratory Accreditation by A2LA.

1.6 DESIGN

Consult with experts experienced in Red Hill tank inspection and repair. Provide subject matter professional engineering expertise in the design.

1.6.1 Tank Plate Access

Design means and methods which provide access for personnel, materials, and equipment to all areas of the tank envelope. Design in accordance with ASCE 7, AISC 325, ASCE 37-14, EM 385-1-1, NAVFAC P-307, and 29 CFR 1926.1400. Address all inspection and construction loading conditions imposed on the lattice tower, bridge, and catwalk - including point loads - in the design. Brace and repair tower, bridge, and catwalk pursuant to Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS. Submit Tank Plate Access Plan in accordance with paragraph SUBMITTALS.

1.6.2 Environmental Conditions

Design ventilation and tank entry means which will provide a gas-free environment suitable for safe entry, and compliance with Section 33 65 00 CLEANING PETROLEUM STORAGE TANKS and API Std 2015. Consider all regions of the storage tank equivalent to a tank bottom and prepare for work in accordance with API RP 2207.

1.6.2.1 Gas Test Holes

Liquid or hydrocarbon vapor might exist in the tank shell to substrate interstice. Should the interstice be required to be sampled or inerted, provide an engineered detail to install test holes. Purge the interstice with inert gas if required to establish gas-free conditions and in accordance with API RP 2207. Provide test holes pursuant to paragraph GAS TEST HOLE INSTALLATION. Repair gas test holes in accordance with paragraph GAS TEST HOLE REPAIR..

1.6.3 Tank Geometric Data

Design a survey regime which will result in a thorough, survey-grade, electronic dataset of the tank hydraulic boundary and interior piping. Data shall be non-proprietary and conform to ASTM E2807-11. Point density

shall be adequate to provide surface resolution of 0.25 inch each axis. Data are intended for use as a permanent set of baseline information and to be registered with the inspection data. Ensure point cloud is supported directly within AUTOCAD software.

1.6.4 Destructive Testing

Design destructive testing which will test coupons and report chemical, mechanical, macrographic, and metallographic analysis of the material. Use the services of an accredited testing laboratory. Design the testing to inform the repair design, and perform weldability testing as required in Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS.

1.6.5 Storage Tank Inspection Design

Provide an engineered design of the storage tank inspection and other specialized engineering services. Incorporate inspection of components which fall outside the scope of API Std 653 and API 570, but which fall within the scope of this Section. Design the inspection to validate storage tank conditions during the design phase in order to fully inform the repair design. Produce professional design drawings, sketches, shop drawings, and specifications which are complete, usable, and compliant with FC 1-300-09N.

Specify complementary methods capable of detecting and sizing surface and subsurface defects, as well as product and backside corrosion. Qualitative methods are acceptable for screening purposes as long as requirements of this Section are met and quantitative data are obtained by follow-on means.

Design an approach which will examine 100 percent of the tank shell, hydraulic boundary, nozzles, cover channels, expansion joints, and welds. Tailor design to specific facility conditions. Address relevant damage mechanisms pursuant to engineering best practice and API RP 571.

1.6.5.1 Modified Inspection Approach Analysis

A modified approach is required in order to apply principles of API Standard 653 to the extent practicable and also assess unique characteristics of vintage mined storage tanks. Evaluate tank conditions through a systematic approach led by the Tank Engineer. Many original construction welds do not meet current standards and practices for geometry and spacing. Use engineering judgement when determining whether repair of existing fully-performing but noncompliant welds is warranted. Exercise care to inspect existing tank welds for subsurface or included indications.

Provide a Modified Inspection Approach Analysis (MIAA) which describes the engineering basis for an inspection. Adhere to principles of the API Std 653 Standard and TIA-222. Take into account the tank design and construction methods. Incorporate best engineering practice. Do not use a risk based approach. Analyze and submit the MIAA in accordance with Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES.

Provide the following components in the MIAA:

a. Identify inspection aspects which will deviate and those which will not deviate from the Standards. Analyze the planned means versus API Std 653. Provide a written reconciliation report of the analysis.

b. State which scanning technologies will detect backside corrosion, weld

surface indications, and weld subsurface defects.

c. Identify how tank scanning technologies are complementary.

1.6.5.2 Modified API Inspection

Design an inspection regime which implements this Section and principles of API Std 653, API RP 575, API 570, and API RP 574 to the extent possible.

1.6.5.3 Corrosion Rate

Organize thickness data into bottom, lower dome, lower barrel, upper barrel, and upper dome regions. Screen inspection data to distinguish progressive versus non-progressive indications. Calculate corrosion rates by two methods.

a. Calculate long term corrosion rates per region in accordance with API Std 653. Use 1/2 inch (bottom) and 1/4 inch (other regions) nominal thicknesses. Use only progressive indications in rate calculations. Report both product side and backside rates in mils per year.

b. Calculate through the end of a new 20-year service interval using a modified approach to API Std 653 straight line method. Use assumptions listed in Table 1 (thickness units in inches). Substitute 1/2 inch nominal thickness into the calculation for the bottom region.

Table 1 Modified Corrosion Rate Calculation

Thickness at the end of the original service interval	0.100
Nominal thickness	0.250
Original service interval start date	1942

1.6.5.4 Remaining Thickness Analysis

Calculate minimum plate thickness applying the approach in API Std 653 Minimum Thickness for Tank Bottom to all regions. Assume topside corrosion rate is zero. Use the corrosion rate calculated from values in Table 1 modified by a factor of safety of two. Report minimum thickness required to achieve, at the end of a 20-year interval, 100 mils of plate thickness at the modified corrosion rate. Do not use less than 160 mils as the repair threshold. If stress analysis is performed, use allowable stress values obtained from the pedigree analysis pursuant to paragraph DESTRUCTIVE TESTING. Report minimum thickness in mils per year.

1.6.5.5 Remaining Service Life

Classify relevant indications into mandatory, near term, and long term repair criteria. Apply requirements in paragraph SUITABILITY FOR SERVICE.

1.6.5.6 Tower, Bridge, and Catwalk

Design a modified approach to inspection of the lattice tower, bridge, and catwalk. Apply principles of TIA-222 to the extent applicable. Review the condition assessment checklist and design an inspection regime to provide

the basis for a structural analysis. Provide a structural analysis per TIA-222 to determine the overall stability and adequacy of structural members and connections. Use Structure Class II in TIA-222 Table 2-1. Attachment of mechanical equipment used to provide personnel access is a changed condition in accordance with TIA-222.

1.6.5.7 Vent Piping

Spiral welded pipe encased in gunite was used as tank atmospheric piping. Provide a digital format camera inspection of the pipe from the tank to the flange in the upper cross tunnel. Illuminate to allow a clear, infocus image extending at least five feet in front of the camera.

Use color camera with mininimum resolution of 1280 x 720, minimum interlaced frame rate of 24 frames per second, and capability to pan and tilt at least 360 x 270 degree. Equipment shall have a footage counter to record the camera distance in units of one-tenth of a foot.

1.6.5.8 High Stress Regions

Expected high stress regions in a Red Hill tank are the flat bottom, dome to filler or adjustment plate welds, bottom to first course welds, and bottom to tower leg welds. At minimum, examine the welds and heat affected zones with MT and BFET. Identify cracks, surface and subsurface indications, porosity, and deformation. After removing bottom coating examine welds at the tower leg to bottom plate joints with SWUT. After construction loads have been removed from the tower, examine the same welds in accordance with SECTION 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS.

1.6.5.9 Expansion Joint and Adjustment Plate Joint

Design an inspection of the expansion joint and adjustment plate welds. Detect and size surface and subsurface cracks, pinholes, and porosity. Examine the seal weld between the stiffener plates for tightness. Examine the plug welds with MT. Leak test the joints with VBT. Do not perform diesel oil tests on the joints.

1.6.5.10 Strain Gauge Pipes

Remove the plugs in the strain gauge pipes. Test the space for hydrocarbon vapors. Design a low pressure vacuum test on the open pipe. Repair the strain gauge pipes per Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS.

1.6.5.11 Grout Nozzles

Determine and report whether grout pipe is packed full with grout. Test the space for hydrocarbon vapors. Design a vacuum test on the nozzle pipe.

1.6.6 Non-Destructive Examination

Design the examination to provide complementary non-destructive techniques. Do not rely on a single technology to detect a type of flaw. Procedures shall be compliant with ASME BPVC SEC V.

Design a regime of NDE which will result in a assessment of tank integrity. Consider all available technologies and techniques. Provide proven technologies with a demonstrable record of reliable results. Mitigate the limitations of each technology with a complementary approach tailored to the limitations. Ensure techniques, in the aggregate, have the

capability to detect flaws both at the minimum threshold as well as those of large volume, to include through holes.

Qualitative methods are acceptable for screening as long as requirements of this Section are met and quantitative data are obtained by follow-on means.

Record associated geometric data for each indication. Register data with the geometric dataset.

Consider the following inspection technologies: Magnetic flux leakage (MFL); Low frequency electromagnetic technique (LFET); Saturated low frequency eddy current (SLOFEC); Balanced field electromagnetic technique (BFET); Liquid penetrant (PT); Magnetic particle (MT); Ultrasonic examination (UT); Visual examination (VT); Vacuum box examination (VBT); Inline inspection (ILI); Ultrasonic shear wave (SWUT); Phased array ultrasonic (PAUT).

Specify VT, UT, and VBT techniques fully compliant with this Section, ASME BPVC SEC V, and API Std 650. MFL shall be compliant with API Std 653 Annex G. Adhere to NDE terminology in ASTM E1316-14. Provide an NDE Plan which includes requirements of ASME BPVC SEC V and:

a. Written procedures

b. Validation of equipment

c. Procedures to performance-qualify operators

1.6.6.1 Shell Plate Scan

In this Section, substitute the term "tank shell" for "tank bottom" as it is used in API Std 653 Appendix G. Design tank shell plate scanning to screen surfaces with LFET and in accordance with API Std 653 Appendix G. Specify UT at the corners of each plate and adjacent to welded obstacles. Prove up indications with an ultrasonic method.

Screen for arc strikes. At arc strikes, provide surface and subsurface examination to detect hardening or localized cracking.

1.6.6.2 Weld Examination

Design tank weld examination independent of shell plate scanning. Scan welds with BFET. Prove up indications with UT. Prove up linear indications with SWUT. Assess indications to identify conditions non-compliant with API Std 653.

1.6.6.3 Vacuum Box Testing

Design a procedure to test in two pressure increments. Start the test with a 2 psig differential. Maintain vacuum pressure for at least 10 seconds. Slowly increase to full pressure differential and maintain for at least 10 seconds.

1.6.7 Piping and Nozzle Inspection Design

Design an inspection of all tank process piping, appurtenances such as drain and sample lines, nozzles, flanges, valves, and steam piping. The intent of the inspection is to provide condition information, identify deterioration, and establish geometric data for the inaccessible piping.

Incorporate into the inspection design principles of API 570 and API RP 574.

1.6.7.1 Nozzle, Steam, and Drain Piping

Inspect the vertical and mitered portions of piping with a ultrasonic or electromagnetic method. Use a tethered or motorized approach to inspect the horizontal reaches. Use an instrumented tool which scans the entire circumference. Assess for metal loss, pits, cracks, or other indications. Qualitative technologies are acceptable for screening as long as quantitative data are obtained with an ultrasonic or ultrasonic shear wave technique. Tool uncertainty shall not exceed +/- 5 percent of wall thickness. Tool shall have the capability to detect an anomaly of depth 10 percent of wall thickness at a 95 percent confidence level.

1.6.7.2 Miter Joints

Examine the miter joint welds with an ultrasonic or ultrasonic shear wave technique. Detect surface, subsurface, and backside indications. Assess weld integrity.

1.6.7.3 Longitudinal Welds

The longitudinal joints are believed to have been manufactured with low frequency electric resistance welds. Scan the longitudinal seam welds for corrosion, weld inclusions, and cracks. Use an ultrasonic or ultrasonic shear wave technique.

1.6.7.4 Drain Line

Clean the drain line carrier piping interior surface to provide a suitable surface for the inspection. Inspect the drain piping with a videoscope. Provide an illuminated, articulating camera with mininimum resolution of 1280 x 720. Provide means to ensure the carrier pipe telltale is functional.

1.6.7.5 Tank Piping Hydrostatic Testing

Design a temperature compensated, volume - pressure change reconciled, combined strength plus leak hydrostatic test. Segments are issue, receipt, steam piping, drain line carrier pipe, and drain line piping. Design test in accordance with API RP 1110. Isolate test segments with suitable means. Steam piping and drain line carrier piping is not flanged. Use water as the test medium. Test pressure shall be 162.5 psig unless an alternative is authorized by the Contracting Officer. Do not exceed test pressure permitted by an ASME B16.5, carbon steel, ANSI Class 150 flange rating. Minimum test duration is eight hours.

Test shall be rigorous and analyze consistent error, inconsistent error, the magnitude of lost volume, and data trends. Inconsistent error able to be reconciled to less than 0.25 degree F is an acceptable result unless an alternative threshold is authorized by the Contracting Officer.

1.6.8 Design Submittals

Provide concept, design development, and For Construction design submittals. Submit Inspection Design pursuant to Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES

1.7 TANK RETURN TO SERVICE

Provide a plan to return the tank to the operator fit for service. Provide an approach which will ensure all dirt, abrasive material, and foreign objects are removed. Include a thorough cleaning of tank. The tank interior shall be as clean as possible without removing or damaging coating. Provide adequate time for curing of coating. Verify the vents are not covered and are operating properly. Tank cannot be returned to the operator until the suitability for service statement has been provided. Ensure requirements of NAVSUPGLSINST 10345.1 have been met.

1.8 SUITABILITY FOR SERVICE

Evaluate inspection data to determine suitability for continued use. Identify conditions which pose a threat to integrity. Set thresholds for mandatory, near term, and long term repairs.

In the determination of mandatory repairs:

a. Use a "first, do no harm" approach to classifying tank repairs.
b. Use 20 years as the interval to next inspection.
c. Minimum acceptable thickness shall be no less than 0.100 inch at the next inspection.
d. Do not repair conditions non-compliant with current standards which do not pose an integrity or structural threat (e.g., gouge, improper weld spacing, excessive weld profile).
e. Apply repair criteria to individual indications and not across an entire plate or course.

1.9 PROJECT/SITE CONDITIONS

1.9.1 Preparation for Inspection

Develop written procedures in accordance with API RP 575 for entry and re-entry into a storage tank. Ensure gas-generating, pyrophoric, or toxic residues have been removed. Review requirements in this Section and the inspection design to test the interstice for hydrocarbons and purge as necessary. Be vigilant to accumulation of dry pyrophoric material. Do not start inspection until storage tank has been certified by the Marine Chemist to be safe for entry and requirements of this Section and EM 385-1-1 have been met. Prepare for entry in a manner compliant with Section 01 35 26.05 20.

PART 2 PRODUCTS

2.1 QUALIFICATION TEST PLATE

Provide qualification test plate, in both vertical and horizontal configurations, pursuant to API Std 653 Annex G for POD examination. Size and type of induced flaws shall be representative of tank conditions. Ensure backside corrosion anomalies are fully represented. Quantify number, volume, and distribution of induced discontinuities. Secure test panel to ensure the integrity of the POD Examination, equipment qualification, and operator certification.

2.2 TESTS, INSPECTIONS, AND VERIFICATIONS

2.2.1 Tank Piping Hydrostatic Testing

2.2.1.1 Testing Plan

Submit hydrostatic testing plan pursuant to Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES. Include:

a. Site specific test procedure
b. Description of the equipment, piping, and valves to be used
c. Method to secure test segment
d. Test record form
e. Method to determine acceptance
f. Method to characterize test water to screen for contaminants
g. Method to transport, store, and dispose test water

2.2.1.2 Hydrostatic Testing

Calibrate instruments and provide current certificates pursuant to API RP 1110. Provide means to remove entrapped air. Provide means of communication between technicians at each end of the test segment. Ensure test water contains less than 50 ppm chloride content.

2.2.1.2.1 Pressure Recording

Provide pressure recording instruments with an accuracy of at least +/- 1 psi. Ensure instrument accuracy exceeds the uncertainty required to achieve acceptance criteria. Utilize chart recorder to document pressure trends in addition to electronic data acquired for post-test calculations.

2.2.1.2.2 Temperature Recording

Measure test medium temperature independent of the environment. Provide instrument with output resolution of at least 0.1 degree F for water as the test medium. Ensure instrument accuracy exceeds the uncertainty required to achieve acceptance criteria.

2.2.1.2.3 Volume Measurement

Account for an accurate determination of fluid volume during a test. Provide volume measurements to the nearest fluid ounce.

2.2.2 NDE Reliability

Evaluate the reliability of NDE shell scanning by performing a Probability of Detection examination. Unless noted otherwise in this Section, terminology shall adhere to ASTM E2862-12.

Perform statistical analyses on POD examination data in accordance with ASTM E2862-12 and implementing principles of MIL-HDBK-1823A. The objectives are:

a. Quantify uncertainty in the detection of flaws for use in an assessment of the NDE system capability
b. Calibrate equipment to operate within the range of uncertainty
c. Validate equipment to verify it is operating within the range of uncertainty
d. Certify equipment operator capability to perform within the range of

uncertainty

2.2.2.1 POD Examination

Qualify plate scanning method(s) on test plates to generate hit/miss data per ASTM E2862-12.

2.2.2.1.1 Metal Loss (General) Qualification Test Acceptance Criteria

For areas of corrosion, the NDE system and operator shall detect metal loss, at a 95 percent confidence level, as given in Table 12.

Table 2 Detection of Metal Loss

Remaining Thickness, t (in) Original Thickness, T	Flaws Detected (Minimum Percentage)
t < 0.050	95
0.050 < t < 0.5T	85
0.5T < t < 0.7T	60
General Corrosion	100

2.2.2.1.2 Metal Loss (Pitting) Qualification Test Acceptance Criteria

For pitting, the NDE system and operator shall detect minimum tank shell wall loss, at a 95 percent confidence level, as given in Table 3.

Table 3 Detection of Pits

Pit Diameter, d (in)	Detectable Size (Percent Wall Loss)
d < 0.250	20
d >= 0.250	15

2.2.2.1.3 Crack Qualification Test Acceptance Criteria

The NDE system and operator shall detect a crack of width 0.025 in with a 95 percent confidence level.

2.2.2.2 Dimensional Uncertainty

Calibrate equipment and train operators to reliably estimate metal loss, discontinuities, and flaw dimensions. Analyze the sizing techniques. Determine and report the variability in NDE results. Variability shall not exceed 20%.

2.2.3 NDE Equipment

Qualify NDE equipment by testing on a qualification test plate. Demonstrate the capability of equipment to detect flaws at the threshold demonstrated during the POD Examination.

2.2.4 NDE Examiner Certification

Within 6 months of start of NDE, certify each NDE examiner by testing on a qualification test plate. Demonstrate the capability of each operator to detect flaws at the minimum threshold demonstrated during the POD Examination. Demonstrate the capability of each examiner to size flaws at the limits of dimensional uncertainty. Produce a certificate of competency for the technology and area of expertise of each examiner. Re-certify examiners should conditions in tank be different than the test panel, NDE results exceed the expected detection uncertainty, or at the request of the Contracting Officer. Re-certify each examiner at minimum every six months.

2.3 DATA MANAGEMENT

The geometry survey and tank inspection will result in a large point cloud. Establish a non-proprietary professional data management system which will result in secure, auditable, and organized data. Serialize all NDE and API inspection indications with a system of records. The system shall have the capability to easily be searched to track the provenance of repairs back to indications.

Label tank row and plate number information on tank plates in a neat and professional manner for orientation and photographic purposes. Do not use fluorescent paint in the tank.

Categorize indications pursuant to definitions in ASTM E1316-14.

2.4 TANK RETURN TO SERVICE

In accordance with Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS.

PART 3 EXECUTION

3.1 CONTROL OF HAZARDOUS ENERGY

Prior to entry, provide proper lockout and tagout of the storage tank and appurtenances to completely isolate from sources of energy. Items to be isolated include nozzles, valves, pumps, and motor starters. Isolate tank and piping with physical means such as blind flanges compliant with ASME B16.5 or line blanks compliant with ASME B16.48 to prevent fuel transfer into the tank or piping. Do not use isolation or control valves as means of isolation. Execute in accordance with accepted Accident Prevention Plan, Section 01 35 26.05 20 GOVERNMENT SAFETY REQUIREMENTS FOR DESIGN-BUILD and EM 385-1-1.

3.2 TANK PLATE ACCESS

Install robust means of access to all areas of the tank envelope for personnel, materials, and equipment. Provide access to the work, coordinated with Installation Safety, for the Contracting Officer representative while work is being performed.

3.3 GAS-FREE ENVIRONMENT

Degass tank until requirements of Section 33 65 00 CLEANING PETROLEUM STORAGE TANKS, the accepted Accident Prevention Plan, API Std 2015, 29 CFR 1910.146, and the certified Marine Chemist are met. Use care to ensure the upper dome cover channels do not contain liquid or hydrocarbon vapor. Obtain gas-free certification from the Marine Chemist. Maintain

the gas-free environment. Purge the interstice with inert gas as-needed to remove hydrocarbon vapors and comply with API RP 2207.

3.4 TANK CLEANING

Clean tank in accordance with this Section and SECTION 33 65 00 CLEANING PETROLEUM STORAGE TANKS. The interior surfaces shall be cleaned not to bare metal but only to the sound surface of the coating, free of rust, dirt, scale, loose material, fuel, oil, grease, sludge, and other deleterious material. Do not damage the sound existing coating material. Remove unsound or disbonded coating and clean the surfaces exposed to bare metal.

Use only fresh water under pressure. Maximum allowable pressure on coated surfaces is 200 psig. Maximum temperature of wash water is 135 degrees Fahrenheit.

Clean a representative test panel with the planned procedure. Examine to determine whether damage to coating resulted from the procedure. Adjust procedure to incorporate results of test panel. Provide test panel access to the Contracting Officer to review test. Report Cleaning Test Panel Results.

3.5 GAS TEST HOLE INSTALLATION

In the event verification of conditions in the interstice is required and pursuant to Marine Chemist requirements, install gas test holes in accordance with the inspection design and hot work permit. Drill with a pneumatic tool using cooling lubricant. Test hole diameter shall not exceed 3/16 in. Record all gas test hole locations in the indications database with a serialized identifier. Mark all test hole locations on the tank shell in a neat and professional manner. Repair gas test holes in accordance with paragraph GAS TEST HOLE REPAIR.

3.6 GEOMETRIC SURVEY

Establish an identifiable and repeatable control network. Provide dataset of all tank hydraulic surfaces and interior piping. Screen, edit, and re-survey data as-needed. Remove artifacts, noise, and data voids. Locate tower, catwalk, and structural features.

3.7 PHOTOGRAPHIC DOCUMENTATION

Document conditions with thorough photographic means and minimum capture resolution of 2560 x 1920. Only downsample images for reporting purposes. Provide full resolution images in electronic format on portable media. USB flash drives are not allowed. Include photographs which document the condition of the tank, general overall construction, and discrepancies.

3.8 STORAGE TANK INSPECTION

Arrive at site with all necessary equipment. Perform a thorough storage tank inspection in accordance with API Std 570, API Std 653, API RP 575, this Section, and pursuant to the engineered inspection design. Scan 100 percent of tank hydraulic surfaces to screen for discontinuities, flaws, anomalies, corrosion, cracks, gouges, delaminations, and other deviations in condition. Collect data to be used in the assessment of brittle fracture considerations, structural integrity, and hydraulic integrity.

Detect discontinuities, flaws, anomalies, corrosion, cracks, gouges, delaminations, and other deviations in condition.

Populate the database with inspection results. Ensure any gas test holes which were installed are recorded in the database. Distinguish between product-side and back-side indications. Categorize indications into corrosion-based and non corrosion-based indications.

3.8.1 Inspection Before and During Cleaning

Pressure washing can remove trace indications in areas requiring further examination. Perform a visual screening of the tank by the API Std 653 inspector prior to cleaning. Note areas of disbonded coating. Review the upper dome to determine whether product is present inside the cover channels. Review cleaning test panel to determine suitability of procedure. Provide oversight during cleaning to ensure excessive pressure is not applied to the coating system.

3.8.2 Tank Shell and Appurtenances

Examine flanges, weld cover plates, and grout nozzles. Pay particular attention to stitch welds, areas of incongruent geometry, corrosion at the grout nozzles, cover plate gaps, and weepholes.

Examine original plate seam welds and previous repairs. Pay particular attention to cracking in the heat affected zone and areas of minimal weld spacings. Note weld spacing which is non-compliant with API Std 653.

Note areas of bulges and out of roundness. Hammer test to detect substrate voids.

Examine shell structural penetrations for signs of stress, water intrusion, and corrosion.

Measure to determine tank gauge tube is plumb and centered over the datum plate.

3.8.2.1 Expansion Joint and Adjustment Plate Joint

Examine the adjustment plate joints and expansion joints. Use SWUT or MT to detect weld indications. Leak test the adjustment plate and expansion joints per paragraph VACUUM BOX TESTING.

3.8.2.2 Upper Dome Cover Plates

Carefully examine the seal welds on the cover channels for porosity or weld defects. Expect 1/8 inch mominal thickness of the channel material.

3.8.3 Structure

Examine the tank structure, columns, and joints. Assess whether there are signs of stress or water intrusion. Inspect all metal surfaces and metal components including piping and valves.

Inspect each leg of the tower structure for plumb and twist. Determine and report twist and out-of-plumb in accordance with TIA-222 Annex J. Perform a structural analysis of the tower and catwalk pursuant to TIA-222 Annex J.

3.8.4 Substrate

At each location where the concrete substrate is exposed for paragraph DESTRUCTIVE TESTING or for any reason:

a. Measure the alkalinity or acidity of the surface at two points. Do not clean the surface prior to measurement. Use a pH reading meter accurate to 0.01. Calibrate meter prior to use.

b. Lightly clean the surface. Examine the substrate for cracks, stains, spalls, or deterioration. Hammer test to detect delamination.

c. Document conditions with photography in accordance with paragraph PHOTOGRAPHIC DOCUMENTATION. Record location in geometric dataset. Report Substrate Test findings.

3.8.5 Vent Piping

Propel the camera through the pipe in a uniform manner which will not result in jerky movement. Adjust lighting intensity to minimize glare and picture quality to provide a clear, infocus image. Capture a full 360 degree view of the pipe interior. Record the inspection on portable digital media.

Produce a continuous color digital recording in MPEG 4 format with a minimum interlaced frame rate of 24 frames per second at minimum 1280 x 720 resolution.

Assess the camera inspection to identify areas of defects, corrosion, and damage. Generate still images from the system software of all relevant indications. Serialize and report relevant indications in spreadsheet format. Provide still images in JPEG format at minimum 1280 x 720 resolution, annotated with the associated footage and clock position, for each relevant indication.

Submit inspection data on a DVD containing the spreadsheet, video, and photo files in accordance with Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES.

3.8.6 Drain Line

Deploy wire brush, urethane, and magnetic tools to clean the drain line interior surface to be suitable for inspection. Use detergent in accordance with SECTION 33 65 00 CLEANING PETROLEUM STORAGE TANKS if water by itself is inadequate to remove fuel residue. Inspect the drain line pursuant to the inspection design. Inspect casing telltale to determine functionality.

[3.8.7 Coating Inspection

Provide an internal coating condition survey (CCS) by a NACE Certified Protective Coating Specialist (PCS). Do not perform CCS on coating which will be removed. PCS minimum qualifications are provided in Section 01 45 00.05 20 DESIGN AND CONSTRUCTION QUALITY CONTROL. PCS who is providing the CCS shall have verifiable experienced in the field of coating analysis, coating failure analysis, and coating design. Submit qualifications and experience of the proposed PCS and the CCS report per Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

Use visual observations, non-destructive testing, and destructive means in the survey. Provide objective ratings of coating system conditions at various tank regions. Evaluate the degree of corrosion in accordance with ASTM D610. Assess coating adhesion, pulloff strength, hardness, and dry film thickness.

The CCS shall contain detailed observations and analytical data about the coating, its condition, and the substrate. Cite industry criteria applied in the survey. Minimum CCS report contents are listed below.

a. Existing coating conditions, including condition of coating film, and existence of potentially hazardous substances which may impact coating management (i.e. lead, cadmium, chromium)
b. Analysis of remaining coating life, suitability for overcoating, and technical requirements for overcoating
c. Other information of interest in management of the coating system such as surface corrosion, checking, chalking, adhesion, thickness, and blistering
d. Criteria citations for each aspect of the survey
e. Technical recommendations for cost effective management of existing coating systems, including management of any hazardous materials present in paint film.

][3.8.8 Coating Inspection

Provide an assessment of the tank coating system. Identify type and extent of existing coating. Identify locations of coating failure, disbondment, laminations, pitting, fish eyes, pinholes, blisters, and bubbles. Perform dry film thickness (DFT) measurements in accordance SSPC PA 2. Measure DFT on the barrel and upper dome regions at 30, 50, 65 and 80 percent heights. Organize the DFT data into tabular form. Identify the minimum, maximum, and average thickness obtained from the regions. Register the thickness measurements with tank geometric data.

]3.8.9 Engineering Assessment

Use the data obtained during the inspections to perform an engineering assessment of the hydraulic and structural conditions of the storage tank and its appurtenances. Determine and report product and backside corrosion rates for regions of the tank. Calculate the remaining service life.

3.8.10 Protect in Place

Protect in place tower, catwalk, piping, and ATG probe and conductors. Mark indications and inspection information on tank plates in a neat and professional manner. Do not use fluorescent paint in the tank.

3.9 NDE TECHNIQUES

3.9.1 Visual Examination

Visually inspect the overall condition of the tank. Include manway cover, atmospheric vent system, dome, bottom, and barrel plates. Assess corrosion, coating condition, welds, appurtenances, gauging, nozzles. Apply API RP 575 recommended practices for performing a tank inspection. Enhance visual acuity with a magnifying lens of 5X to 10X power wherever required to discern indications otherwise not clear. Measure size and contour of welds with suitable gages. Minimum light intensity at the examination surface shall be 100 foot-candles. The VT procedure shall be

compliant with ASME BPVC SEC V. The VT acceptance standard for welds is API Std 650.

3.9.2 Tank Shell Scan

Scan all tank shell surfaces for indications such as wall loss, pits, cracks, gouges, and general corrosion. Qualify operators and equipment according to paragraph NDE RELIABILITY. Distinguish between product and backside thinning and indications.

Quantify indications with an ultrasonic method. Be vigilant to detect large areas of uniformly-corroded metal and laminations. In areas inaccessible by scanning, use UT to characterize condition.

3.9.3 Weld Scan

Scan welds and heat affected zones to detect surface and subsurface indications. Be vigilant to detect linear indications. Identify in the serialized dataset weld indications which are linear, subsurface, or backside.

3.9.4 Thickness Measurement

Perform measurements of the tank shell and nozzles with a volumetric method. Procedures shall be compliant with ASME BPVC SEC V. Record measurements, exclusive of coating, for tank bottom plates, and each lower dome, barrel, expansion joint, and upper dome plate. In addition, provide UT thickness measurement on no less than 5 random locations per plate and at indications determined to be relevant from the screening technologies.

Mark relevant indications on tank surfaces in a neat and professional manner. Register UT data locations with geometric dataset.

3.9.5 Vacuum Box Testing

Remove coating on floor, lower dome, and barrel to 40 inches above the lower dome to barrel joint. Perform VBT on locations in the tank where a breach in the hydraulic boundary is suspected. Using a specialty apparatus, perform VBT around the adjustment plate and expansion joint edges. Minimum light intensity at the examination surface shall be 100 foot-candles. Use a procedure compliant with this Section and ASME BPVC SEC V. Evacuate the vacuum box slowly. During the test, elevate differential pressure slowly from low to high. Do not increase vacuum during active bubble formation. The VBT standard for acceptance is the no leak condition and API Std 650.

Perform VBT on the upper dome cover channels to determine whether the seal welds are tight.

Mark relevant indications on tank surfaces in a neat and professional manner. Register VBT test locations with geometric dataset. Repair areas of removed coating in accordance with SECTION 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS.

3.10 PIPING AND NOZZLE INSPECTION

Using a Piping Inspector, perform an piping inspection of the tank nozzle, drain line, and steam piping using the principles of API 570 and API RP 574. For areas determined to require further investigation, provide Fitness for

Service evaluation pursuant to API RP 579-1 assessment methodology.

Examine piping couplers, expansion joints, reducers, and means of vibration isolation with regard to suitability and serviceability. Evaluate whether the devices are serviceable and capable of performing the function for which they were intended.

3.10.1 Tank Piping Hydrostatic Testing

Notify the Contracting Officer 14 days prior to hydrostatic testing. Hydrotest tank nozzle, drain line, sample line, and steam lines piping in accordance with API RP 1110 and the engineered design. Utilize the first flange inside the tank and the first accessible flange outside the tank as boundaries. Utilize alternative means to isolate the steam piping. Remove appurtenances within the test segment and isolate with blind flanges. Deploy components with pressure rating no less than existing flanges. Use water as the test medium. Maintain the pressure within the piping for the test duration with no leakage or reduction in gauge pressure. Synchronize temperature and pressure data log intervals.

3.10.2 Valves

Verify tank double block and bleed (DBB) isolation and control valves with regard to suitability and serviceability. Verify operation of all valve appurtenances including motor-operated equipment and position indicators. Clean, recondition, test, and commission the DBB valve and actuators back into service.

3.11 GAS TEST HOLE REPAIR

Repair all gas test holes pursuant to Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS. Fill every gas test hole with weld metal.

3.12 DESTRUCTIVE TESTING

After shell scanning has been performed and backside corrosion data reviewed, obtain five 8 in by 4 in coupons of tank shell material for testing. Coupon locations shall represent each region of the tank. Designate barrel coupon locations at sites with backside corrosion. Remove test coupons with a straight, neat, distortion-free cutline and in accordance with Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS. Assign one coupon to qualify weld procedure(s) in accordance with requirements in Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS.

Document coupon front and back side conditions with photography in accordance with paragraph PHOTOGRAPHIC DOCUMENTATION. Prepare samples and submit to laboratory for testing. In-situ testing is not acceptable as a substitute for laboratory testing. Use the services of an accredited laboratory to perform testing.

Perform chemical, mechanical, macrographic, and metallographic analysis of the coupons. Test mechanical properties pursuant to ASTM A370. Analyze carbon, sulphur, phosphorous, silicon, and other element content to determine an appropriate P-Number per ASME BPVC SEC IX, and to inform the weld plan pursuant to Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS. Provide carbon equivalent limits, ductility (Charpy impact), microhardness, yield stress, tensile strength, and microstructure examination.

Compare and contrast test results with ASTM plate material specifications.

Index properties with a modern standard per API Std 650 Section 4. Establish the allowable product stress and allowable hydrostatic test stress for use in API Std 653 Table 4.1 and to inform the minimum acceptable thickness calculations. Analyze and report results in the Pedigree Report. Submit Pedigree Report in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

Repair holes from coupons pursuant to Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS.

3.13 TANK CALIBRATION

Perform tank calibration in accordance with Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS.

3.14 DATA MANAGEMENT

Manage the database in a secure, auditable, and organized manner. Record visual and API inspection findings and associated geometric data in the system.

3.14.1 Data Integrity

Deploy data backup capability which will mitigate the security, integrity, and data loss risks of the database. Limit edit rights to individuals in a position of trust with a specific need. Provide physical and administrative safeguards which will ensure data integrity.

3.15 INSPECTION REPORT

3.15.1 Preliminary Report

Upon completion of the inspection for each tank, provide a preliminary report to the Design Manager. Submit Preliminary Inspection Report in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES. Preliminary report contents are:

a. Tank ID, location, and inspection date.
b. Suitability for service analysis pursuant to paragraph SUITABILITY FOR SERVICE, suitability for service statement identifying whether the tank is suitable for continued operation, reduce capacity or complete removal from service. If tank is unsuitable for service, provide a concise description of the reason(s).
c. Inspector of Record name, certification number, and date.
d. Storage Tank Engineer name, license number, and date.
e. Summary of tank, nozzle, and appurtenance conditions.
f. Structural analysis of tower and catwalk.

3.15.2 Full Inspection Report

Deliver a full report of inspection findings to the Contracting Officer. The report shall include a record of NDE findings with scale drawings depicting plate layout and thickness measurement locations. Incorporate engineering analysis, suitability for service analysis pursuant to paragraph SUITABILITY FOR SERVICE, corrosion rate determinations, and remaining service life calculations. Include electronic appendices with inspection and geometric data. Provide separate report for each tank inspected. Provide Tank Inspection Summary Sheet for each tank inspected. Define all terms including adjectival descriptions. Submit Inspection

Report in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

3.15.2.1 Executive Summary

Provide a one page summary of the condition of the tank and concise recommendations for repairs.

3.15.2.2 Suitability for Service Statement

This statement shall be a one page document. Specify the due date for the next inspection. Include the API 653 inspector of record certificate number and signature as well as the tank engineer's seal and signature. Provide a statement for each tank inspected. In the event the statement cannot be made, document the reason(s) and recommend corrective measures.

3.15.2.3 Tank History

Establish a complete historical record of the tank. The record shall include as much information as possible and include:

a. Nameplate information
b. Products previously and currently stored in the tank
c. List of previous inspections
d. List and describe significant environmental (earthquake, hurricane) or operational (over-pressure, vacuum, mechanical damage, settlement) events
e. List and describe repairs or alterations performed (include significant drawings and executive summaries from other repair reports in the report appendices)
f. Other pertinent facts and data

3.15.2.4 Inspection Methodology

Provide a detailed description of the inspection methodology for each tank component inspected. Include MIAA. Identify type of inspection, equipment, and methods. Discuss corrosion rates, minimum thickness, remaining service life and hydrostatic testing methodologies. Explain how statistical significance was addressed and meaningful data were obtained.

3.15.2.5 Findings

Describe inspection and NDE findings for each component, bottom, lower dome, barrel, upper dome, tower, appurtenances, access ways, nozzles, and ventilation. Present corrosion rates, minimum thickness, and remaining service life calculations. Interpret hydrostatic test results. Discuss all findings. Summarize NDE data in the report body and provide complete NDE data in appendices.

3.15.2.6 Recommendations

Include recommendations. Categorize repair recommendations into Mandatory, Near Term, and Long Term. Accompany each recommendation with a completion date. Recommendations based on policy, criteria, standards, and regulations shall include citations.

3.15.2.7 Appendices

3.15.2.7.1 Data

Include all data collected during the inspection. Data shall be electronic, in tabular form, and be registered with tank geometric data.

3.15.2.7.2 API Checklist

Prepare a modified API Std 653 Appendix C checklist. Annotate items which are not applicable. Incorporate the relevant items from the tower condition assessment checklist. Provide checklist, field notes, and measurements taken by the tank inspector and checklist.

3.15.2.7.3 Drawings

Include tank plate drawings depicting control points, indications, bottom, domes, and roof plate orientation, appurtenances, and other significant tank features.

3.15.2.7.4 Photographs

Provide full resolution well-lit electronic color photographs which depict the area of interest. Provide a photoguide which contains descriptive caption for each photograph.

3.15.2.7.5 Calculations

Provide calculations consistent with API Std 653. Include corrosion rates, minimum thickness, next inspection date, settlement, and estimated remaining service life. Provide a sample calculation for each determination along with assumptions and references utilized.

3.16 NDE RELIABILITY REPORT

Compile the POD and reliability assessment analysis into a report. Comply with minimum report requirements in ASTM E2862-12. Clearly report the demonstrated POD for each technology. Submit an NDE Reliability Report pursuant to Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

3.17 TANK RETURN TO SERVICE

Provide in accordance with Section 33 56 18.00 20 REPAIR OF FUEL STORAGE TANKS.

-- End of Section --

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SECTION 33 56 18.00 20

REPAIR OF FUEL STORAGE TANKS

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Repair of a Red Hill fuel storage tank.

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SECTION 33 56 18.00 20

REPAIR OF FUEL STORAGE TANKS
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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 325	(2011) Steel Construction Manual

AMERICAN PETROLEUM INSTITUTE (API)

API MPMS 2.2D	(2003; R 2009) Manual of Petroleum Measurement Standards Chapter 2: Tank Calibration - Section 2D: Calibration of Upright Cylindrical Tanks Using the Internal Electro-Optical Distance Ranging Method
API RP 1110	(2013) Pressure Testing of Steel Pipelines for the Transportation of Gas, Petroleum Gas, Hazardous Liquids, Highly Volatile Liquids or Carbon Dioxide
API RP 2207	(2007; R 2012; 6th Ed) Preparing Tank Bottoms for Hot Work
API RP 575	(2014; 3rd Ed) Inspection Practices for Atmospheric and Low-Pressure Storage Tanks
API RP 578	(2010; 2nd Ed) Material Verification Program for New and Existing Alloy Piping Systems
API RP 621	(2010; 3rd Ed) Reconditioning of Metallic Gate, Globe, and Check Valves
API Spec 6D	(2014; Errata 1-2 2014; Errata 3-5 2015; ADD 1 2015) Specification for Pipeline Valves
API Spec 6FA	(1999; R 2006; Errata 2006; Errata 2008; R 2011) Specification for Fire Test for Valves
API Std 2015	(2014) Safe Entry and Cleaning of Petroleum Storage Tanks
API Std 598	(2009) Valve Inspecting and Testing

API Std 650	(2013; Errata 1 2013; Addendum 1 2014; Errata 2 2014; Addendum 2 2016) Welded Tanks for Oil Storage
API Std 653	(2014) Tank Inspection, Repair, Alteration, and Reconstruction

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)

ANSI/ASNT CP-189	(2016) ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel (ANSI/ASNT CP-105-2006)

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 10-15	(2015) Design of Latticed Steel Transmission Structures
ASCE 37-14	(2015) Design Loads on Structures During Construction
ASCE 7	(2010; Errata 2011; Supp 1 2013) Minimum Design Loads for Buildings and Other Structures

AMERICAN WELDING SOCIETY (AWS)

AWS A2.4	(2012) Standard Symbols for Welding, Brazing and Nondestructive Examination
AWS A5.1/A5.1M	(2012) Specification for Carbon Steel Electrodes for Shielded Metal Arc Welding
AWS A5.10/A5.10M	(2012) Welding Consumables - Wire Electrodes, Wires and Rods for Welding of Aluminum and Aluminum-Alloys - Classification
AWS A5.18/A5.18M	(2005) Carbon Steel Filler Metals for Gas Shielded Arc Welding
AWS A5.22/A5.22M	(2012) Specification for Stainless Steel Flux Cored and Metal Cored Welding Electrodes and Rods
AWS A5.3/A5.3M	(1999; R 2007) Specification for Aluminum and Aluminum-Alloy Electrodes for Shielded Metal Arc Welding
AWS A5.32/A5.32M	(2011) Specification for Welding Shielding Gases
AWS A5.4/A5.4M	(2012) Specification for Stainless Steel Electrodes for Shielded Metal Arc Welding
AWS A5.9/A5.9M	(2012) Specification for Bare Stainless Steel Welding Electrodes and Rods
AWS D1.1/D1.1M	(2015) Structural Welding Code - Steel

AWS D10.7/D10.7M	(2008) Guide for the Gas Shielded Arc Welding of Aluminum and Aluminum Alloy Pipe
AWS QC1	(2007) Standard for AWS Certification of Welding Inspectors
AWS WHB-4.8	(1998) Welding Handbook, Volume 4 - Materials and Applications Part 2
AWS Z49.1	(2012) Safety in Welding and Cutting and Allied Processes

ASME INTERNATIONAL (ASME)

ASME B1.1	(2003; R 2008) Unified Inch Screw Threads (UN and UNR Thread Form)
ASME B16.11	(2011) Forged Fittings, Socket-Welding and Threaded
ASME B16.21	(2011) Nonmetallic Flat Gaskets for Pipe Flanges
ASME B16.34	(2013) Valves - Flanged, Threaded and Welding End
ASME B16.48	(2015) Line Blanks
ASME B16.5	(2013) Pipe Flanges and Flanged Fittings: NPS 1/2 Through NPS 24 Metric/Inch Standard
ASME B16.9	(2012) Standard for Factory-Made Wrought Steel Buttwelding Fittings
ASME B18.2.1	(2012; Errata 2013) Square and Hex Bolts and Screws (Inch Series)
ASME B18.2.2	(2010) Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series)
ASME B31.3	(2014) Process Piping
ASME B40.100	(2013) Pressure Gauges and Gauge Attachments
ASME BPVC SEC II-A	(2015) BPVC Section II-Materials-Part A-Ferrous Materials Specifications
ASME BPVC SEC IX	(2015) BPVC Section IX-Welding and Brazing Qualifications
ASME BPVC SEC V	(2015) BPVC Section V-Nondestructive Examination

ASTM INTERNATIONAL (ASTM)

ASTM A105/A105M	(2014) Standard Specification for Carbon

	Steel Forgings for Piping Applications
ASTM A182/A182M	(2016) Standard Specification for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service
ASTM A193/A193M	(2016) Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service and Other Special Purpose Applications
ASTM A194/A194M	(2016) Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature Service, or Both
ASTM A216/A216M	(2016) Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service
ASTM A234/A234M	(2013; E 2014) Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service
ASTM A325	(2014) Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A36/A36M	(2014) Standard Specification for Carbon Structural Steel
ASTM A500/A500M	(2013) Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A53/A53M	(2012) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A536	(1984; R 2014) Standard Specification for Ductile Iron Castings
ASTM A563	(2015) Standard Specification for Carbon and Alloy Steel Nuts
ASTM A743/A743M	(2013a; E 2014) Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application
ASTM A992/A992M	(2011) Standard Specification for Structural Steel Shapes
ASTM B247	(2009) Standard Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings

ASTM C144	(2011) Standard Specification for Aggregate for Masonry Mortar
ASTM E1316-14	(2014) Standard Terminology for Nondestructive Examinations
ASTM E1621-13	(2013) Standard Guide for Elemental Analysis by Wavelength Dispersive X-Ray Fluorescence Spectrometry
ASTM E329	(2014a) Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
ASTM E415-15	(2015) Standard Test Method for Analysis of Carbon and Low-Alloy Steel by Spark Atomic Emission Spectrometry
ASTM E94	(2004; R 2010) Radiographic Examination
ASTM F3125-15a	(2015) Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi and 150 ksi Minimum Tensile Strength
ASTM F436	(2011) Hardened Steel Washers

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO 9001	(2008; Corr 1 2009) Quality Management Systems- Requirements

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 306	(2014) Standard for Control of Gas Hazards on Vessels

RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC)

RCSC S348	(2009) RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts

SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL (SAE)

SAE AMS3275	(2009; Rev C) Sheet, Acrylonitrile Butadiene (NBR) Rubber and Non-Asbestos Fiber Fuel and Oil Resistant

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety and Health Requirements Manual

U.S. DEPARTMENT OF DEFENSE (DOD)

FC 1-300-09N	(2014) Navy and Marine Corps Design Procedures

MIL-PRF-907	(2004; Rev F) Antiseize Thread Compound, High Temperature
STANDARD DESIGN AW78-24-27	(2015) Aboveground Vertical Steel Fuel Tanks With Fixed Roofs
UFC 3-301-01	(2013; Change 1) Structural Engineering

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1910.23	Guarding Floor and Wall Openings and Holes
29 CFR 1926.1400	Cranes and Derricks in Construction
49 CFR 195	Transportation of Hazardous Liquids by Pipeline

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)

NAVFAC P-307	(2009) Management of Weight Handling Equipment

U.S. NAVAL SEA SYSTEMS COMMAND (NAVSEA)

NAVSEA T9074-AS-GIB-010/271	(2014; Revision 1) Requirements for Nondestructive Testing Methods

U.S. NAVAL SUPPLY SYSTEMS COMMAND (NAVSUP)

NAVSUPGLSINST 10345.1	(2015) Fuel Tank Return to Service

1.2 DEFINITIONS

1.2.1 Barrel

As used in this Section, volume unit of product comprised of 42 US gallons.

1.2.2 Designer of Record

The professional engineer nominated by the prime contractor to be in responsible charge of all storage tank design and repair.

1.2.3 Gas Test Hole

Hole installed through the tank shell for purposes of determining the presence of hydrocarbon vapors, compliance with Marine Chemist requirements to certify a space to be gas-free, or inerting a space.

1.2.4 Hazardous Area

As used in this Section, any area within 100 feet of active storage tanks, areas within 100 feet of leaking sections of fuel pipelines or other vapor sources, areas within 200 feet of the downwind side of potential vapor emission sources (i.e., pressure-vacuum vents, sample ports, or open vents on active tanks; leaking sections of pipelines), areas within existing tanks, and areas within a tunnel or adit.

1.2.5 Hot Work

As used in this Section, includes: drilling, boring, flame heating, welding, torch cutting, brazing, carbon arc gouging, grinding, abrasive blasting, or any work which produces heat, by any means, of 400 degrees F or more; or in the presence of flammables or flammable atmospheres, other ignition sources such as spark or arc producing tools or equipment, static discharges, friction, impact, open flames or embers, nonexplosion-proof lights, fixtures, motors or equipment.

1.2.6 Independent

Impartial third party not a part or affiliated with Contractor or subcontractor principal or subsidiary businesses.

1.2.7 Marine Chemist

The holder of a valid Certificate issued by the National Fire Protection Association in accordance with the "Rules for Certification of Marine Chemists", pursuant to NFPA 306, establishing the individual as qualified to determine whether construction, alteration, repair, or shipbreaking of vessels can be undertaken with safety.

1.2.8 Seal Weld

Weld required to maintain hydraulic integrity and compliant with acceptance criteria for porosity in ASME B31.3.

1.2.9 Snug-Tight Condition

Tightness attained by either a few impacts of an impact wrench or the full effort of a worker with an ordinary spud wrench that brings the plies into firm contact in accordance with RCSC S348.

1.2.10 Tank Engineer

One or more licensed professional engineers, or an engineering firm, acceptable to the Contracting Officer who are knowledgeable and experienced in the engineering disciplines associated with evaluating mechanical and material characteristics that affect the integrity and reliability of fuel storage tanks. The storage tank engineer is the tank repair subject matter expert.

1.2.11 Tank Inspector of Record

The individual, certified as a fuel storage tank inspector, in responsible charge of the storage tank inspection who will sign the suitability for service letter. The recognized certification is API Std 653.

1.2.12 Turn-of-Nut Pretensioning

Method of achieving specified pretension by rotating the nut or bolt of a fastener assembly a specific turn angle in accordance with RCSC S348.

1.2.13 Weld Map

Drawing(s) containing sketches and tables which correlate design, weld plan, shop drawings, and nondestructive examination (NDE).

1.2.14 Welding Personnel

As used in this Section, individuals performing welding to include welder, welding operator, and tack welder.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submittals with an "S" are for inclusion in the Sustainability Notebook, in conformance with Section 01 33 29 SUSTAINABILITY REPORTING. Submit the following in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

NDE Plan; G

Test Water Disposal Plan; G

Weld Plan; G

Welding Procedure Specification; G

Welder Performance Qualification; G

Ventilation Plan; G

Tank Plate Access Plan; G

SD-02 Shop Drawings

Tower, Bridge, and Catwalk; G

Grout Nozzles And Strain Gauge Pipe; G

Weld Map

Interior Piping And Supports; G

Sample Lines; G

Drain Line; G

Nozzles, Flanges, And Manway; G

Tank Appurtenances And Attachments; G

Weld Repair; G

Fillet Welded Patch Plate; G

Insert Plate; G

Weld Tracking Log; G

Gas Test Hole Repair; G

SD-03 Product Data

Ball Valve; G

Double Block And Bleed Ball Valve; G

Anti-Seize Compound

Plug Valve (Double Block And Bleed Type); G

SD-05 Design Data

Repair Log; G

Design Documents; G

SD-06 Test Reports

Test Water Characterization; G

Hydrostatic Test Record; G

Impact Test Data

Mill Test Reports

DBB Valve Hydrotest Report

Base Metal Data; G

Procedure Qualification Record; G

Weldability Procedure Qualification Record; G

SD-07 Certificates

Marine Chemist Certificate

Independent Testing Organization; G

Independent Tank Inspector; G

Nondestructive Examiner Certification; G

Welding Inspector Certification; G

Instrument Calibration Certificate

Tank Inspector of Record; G

SD-09 Manufacturer's Field Reports

Valve Reconditioning Report; G

Audit Inspection Findings; G

SD-11 Closeout Submittals

Completion Report; G

Post-Repair Inspection Report; G

Tank Calibration Table; G

Electronic Tank Calibration Table; G

1.4 GENERAL REQUIREMENTS

Design, materials, repair, fabrication, appurtenances, welding, testing, and examination shall be in accordance with API Std 653, ASME B31.3, AWS D1.1/D1.1M, and as indicated and specified herein. The basis for tank repairs and alterations shall be API Std 650 equivalence. The basis for nozzle and piping repairs and alterations shall be ASME B31.3 equivalence.

1.4.1 Welding

This Section covers welding on storage tanks and associated piping. Contractor is responsible for the quality of design, joint preparation, welding, inspection, and examination.

Deviations from applicable codes, approved procedures, and approved detail drawings are not permitted without prior written approval by the Contracting Officer. Materials or components with welds made offsite will not be accepted if the welding does not conform to the requirements of this Section. Develop procedures for welding all metal included in the work. Material with welds will not be accepted unless the welding is specified or indicated on the drawings or otherwise approved.

Welding shall not start until welding procedures, inspectors, NDE personnel, and welding personnel have been qualified and approved. Procedure and performance qualification testing shall be performed by an approved testing laboratory. Notify the Contracting Officer at least 1 week in advance of the time and place of the tests. If the Contracting Officer elects to witness, the qualification tests shall be performed at or near the worksite.

Maintain current records of test results obtained in the welding procedure and welding personnel performance qualifications. Maintain NDE procedures readily available at the site for review by the Contracting Officer. Procedures for making transition welds between different materials or between plates or pipes of different wall thicknesses shall be qualified. Unless specified herein, the choice of welding process shall be the responsibility of the Contractor.

In-service welding is prohibited without specific approval from the Contracting Officer.

All materials used in the welding operations shall be clearly identified and recorded. The inspection and testing defined in this section are minimum requirements. Additional inspection and testing shall be the responsibility of the Contractor when it is necessary to achieve the quality required.

1.4.2 Weld Inspection

This Section contains requirements to inspect all welding. Ensure compliance with all requests of the Weld Inspector(s) to correct deficiencies in materials and workmanship. Correct all deficiencies in

materials and workmanship in compliance with the requirements of this Section.

1.4.3 Nondestructive Examination

This Section covers requirements for conducting NDE used to determine the presence of surface and subsurface discontinuities in metals. Nondestructive methods are also required to weld the weld design to material conditions inside the tank. This Section provides minimum requirements to qualify personnel, procedures, and equipment, and contains acceptance criteria.

1.5 ADMINISTRATIVE REQUIREMENTS

1.5.1 Sequencing

Conduct tank inspection in accordance with Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS. Inspect and validate predictive repairs during the design phase in accordance with Section 01 14 0.05 20. Use the results of the inspection and validation to inform the design in accordance with paragraph DESIGN REQUIREMENTS. Do not finalize the design until inspection results have been analyzed, reported to the Government, and concurrence has been received as to the extent of repairs.

Repair work shall be authorized by the Tank Inspector and the Designer of Record before commencement of work by a repair organization. The Tank Inspector will designate inspection hold points which are required during the repair sequence. The Tank Inspector shall approve all repair and alteration work at the designated hold points.

1.5.2 Scheduling

Do not start tank repairs until the design has been issued for construction and the Contracting Officer has accepted the design. Do not start coating repair until tank repairs affected by the coating installation have been completed, inspected and accepted by the Government.

1.5.3 Pre-Repair Meetings

Conduct onsite meetings prior to and during the execution of repair work pursuant to Section 01 45 00.05 20 DESIGN AND CONSTRUCTION QUALITY CONTROL, and as follows.

a. Prior to the start of each unique type of repair

b. Prior to restart of work following a shutdown

c. Upon any change in personnel of Superintendent, Quality Control Manager, or Site Safety and Health Officer (SSHO)

d. Minimum once per month during a continuous repair evolution

The Quality Control Manager (QCM) shall chair the meetings, extend meeting invitations, publish the agendas, and publish minutes. Notify the Contracting Officer 14 work days prior to each meeting. Minimum required attendance is the foreman for personnel conducting repairs, SSHO, Superintendent, and operators of any equipment providing tank shell access for workers. If the API inspector or tank engineer is onsite, attendance is required.

Meeting content shall comply with paragraph QUALITY ASSURANCE. Distribute meeting minutes to all attendees and the Contracting Officer within three calendar days of the meeting.

1.6 DESIGN REQUIREMENTS

Consult with experts experienced in Red Hill tank inspection and repair. Provide subject matter professional engineering expertise to design tank repairs. Design all repairs. Validate storage tank conditions as-needed during the design phase to fully inform a complete design. Produce professional design drawings, sketches, shop drawings, and specifications which are complete, usable, and compliant with FC 1-300-09N.

Use contents of pedigree report performed in Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS and positive material identification (PMI) performed pursuant to this Section to inform the weld design.

Analyze results of the inspection and structural analysis of the lattice tower, bridge, and catwalk performed in Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS. Analyze construction loading on the tower, bridge, and catwalk. Use results of these analyses to inform the structural repair design of the lattice tower, bridge, and catwalk.

Provide design drawings and specifications. Submit Design Documents pursuant to Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES.

1.6.1 Drawings

Design drawings shall be to scale. Depict all areas of the tank. Minimum drawing set shall consist of the following.

a. Title sheet and drawing index

b. Structural notes

c. Floor plan

d. Lower dome plan

e. Shell rollout elevation

f. Upper dome and cover channel reflected plan

g. Nozzle piping plan

h. Interior piping plan

i. Piping details

j. Tower, bridge, and catwalk details

k. Repair details

l. Existing features such as telltale patch plates, grout nozzles, strain gauge plugs

m. Adjustment plate and expansion joint details

1.6.2 Repair Standards

1.6.2.1 General

Geometry, configuration, and structural shapes exist in the tank which could require repairs not fully compliant with API Std 653. Design repairs to comply with API Std 653 to the fullest extent possible. Minimize welding in the original construction heat affected zone. Deploy larger patch plates which span adjacent repair sites and original construction welds in order avoid encroachment into minimum weld toe spacing requirements of API Std 653. Fillet welded patch plates shall overlap butt-joint welded vertical or horizontal shell seams a minimum of 6 inches beyond the shell seam. Identify locations where minimum spacing requirements cannot be met. Verify with light grinding and NDE all arc strikes are not crack initiation sites.

Coordinate the location of lapped patch and insert plates with existing tank joints. Make all necessary adjustments to meet joint spacing requirements.

1.6.2.2 Tower, Bridge, and Catwalk

Design repairs to the lattice tower, bridge, and catwalk structure to restore missing structural components or capacity, and address damage and defects. Provide guides to restrain the tower columns at the upper dome. Provide bracing and supports to resist all construction loading conditions and provide compliance with with ASCE 37-14. Follow design standards ASCE 10-15 and AISC 325. Use load requirements in accordance with ASCE 7 and ASCE 37-14. Use structural engineering criteria in UFC 3-301-01.

Design repairs to the catwalk guard which raise height and add rails to be compliant with 29 CFR 1910.23. Raise guard height to be no less than 42 inches measured vertically from the adjacent walking surface. Design guards to resist a single point load of 300 pounds applied in any direction at any point on the top rail to produce the maximum load effect on the element being considered, and to transfer this load through the supports to the structure with no deflection of the guard member greater than L/240. Design guards to resist a linear load of 60 pounds per linear foot and in accordance with Section 4.5 of ASCE 7. Guard and intermediate rail design loads shall be in accordance with Section 4.5 of ASCE 7.

1.6.2.3 Butt Joints

Design butt joints to be welded with complete joint penetration and complete fusion. Weld joint design shall be in accordance with API Std 650 Section 5. Use insert joint repair method on all locations of destructive testing. Each butt joint insert plate 12 inches or smaller in any dimension shall be covered by a fillet welded patch plate which overlaps the insert plate and provides no less than 3 inches between the weld edges. Provide the full regime of NDE on the insert plate welds prior to installing the fillet welded patch plate.

1.6.2.4 Fillet Welded Joints

Fillet welded patch plate repairs are an acceptable method of repair. Weld joint design for fillet welded repair joints shall be in accordance with API Std 653 Section 9, including corner radius criteria. Tombstone type repair plates are acceptable adjoining structural shapes, cover plates, and stiffener plates.

1.6.2.5 Grout Nozzle and Strain Gauge Pipe

Remove grout nozzles which protrude through the shell. Design grout nozzle repairs in a manner which corrects deficient conditions, does not create conditions conducive to crevice corrosion, and does not encroach into minimum weld toe spacing requirements of API Std 653.

Remove strain gauge bolts and shell reinforcement. Design repairs which plug the gauge pipe and annular space, and provide a fillet weld patch on the tank shell. Do not encroach into minimum weld toe spacing requirements of API Std 653.

1.6.2.6 Sample Lines

Design piping system to sample from product heights of 20 foot, 60 foot, 120 foot, and 175 foot. Route piping in lower tunnel to sample station. Provide funnel return at the sample station. Provide means for isolation, identification, and integrity testing of piping.

1.6.2.7 Drain Line

Use results of the inspection performed under Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS to inform the design. Provide in-process weld examination pursuant to ASME B31.3 Chapter VI in addition to requirements of this Section for drain piping. Visually inspect the condition of the root pass after cleaning. Examine with PT or MT technique.

1.6.2.8 Nozzles

Use results of the inspection performed under Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS to inform the design. Provide in-process weld examination pursuant to ASME B31.3 Chapter VI in addition to requirements of this Section for nozzle piping. Visually inspect the condition of the root pass after cleaning. Examine with PT or MT technique.

1.6.3 Engineered Plans

1.6.3.1 Tank Plate Access

Design means and methods which provide robust access for personnel, materials, and equipment to all areas of the tank envelope. Design in accordance with ASCE 7, AISC 325, ASCE 37-14, EM 385-1-1, NAVFAC P-307, and 29 CFR 1926.1400. Ensure all construction loading conditions of the lattice tower, bridge, and catwalk including point loads, are addressed in the design. Submit Tank Plate Access Plan in accordance with paragraph SUBMITTALS.

1.6.3.2 Ventilation

Design ventilation and tank entry means and methods which will provide a gas-free environment suitable for safe entry and compliant with API Std 2015. Consider all regions of the storage tank equivalent to a tank bottom and prepare for work in accordance with API RP 2207. Expect liquid or hydrocarbon vapors in the tank shell to substrate interstice. Address environmental conditions of the interstice. Should gas test holes be required, provide an engineered detail to install the holes and purge the interstice with inert gas. Submit Ventilation Plan in accordance with paragraph SUBMITTALS

1.6.3.3 Welding

Utilize PMI in-situ methods to assess the suitability of the base metal in relation to the pedigree report results, findings of the chemical analysis performed pursuant to paragraph DESIGN REQUIREMENTS, and the weld plan.

Address all aspects of welding, inspection, and examination to meet requirements of this Section. Identify methods to minimize heat distortion, sequence of welding, in-situ and offsite welding, and a process for utilizing multiple welders on the same weld. Establish fit-up and edge preparation tolerances. Do not use the FCAW process on tank envelope or seal welds. Use low-hydrogen processes and electrodes on welds to tank shell. Restrict weld processes for root passes to gas tungsten or shielded metal arc. Include in the plan weld specification and qualifying record for each procedure along with a summary table which lists all qualified welding personnel and the WPS under which they are qualified. Submit Weld Plan in accordance with paragraph SUBMITTALS.

1.6.3.3.1 Welding Personnel Identification

Assign each welding personnel a unique identification number, letter, or symbol. Place identification on the weld map. Ensure each identification is traceable to a welder and an associated performance qualification record.

1.6.3.3.2 Symbology

Weld symbology and drawings specifying NDE shall employ symbols accordance with AWS A2.4.

1.6.3.4 Hydrostatic Testing

Provide a Hydrostatic Testing Plan which will establish post-repair tightness of nozzle and containment piping, as well as tightness and strength of drain and sample line piping. Testing shall be in compliance with 49 CFR 195, API RP 1110, and ASME B31.3. Plan will include site specific procedure, fill points, anticipated fill volume, air bleed location, material specification, pressure classification of valves, flanges, fittings, and instruments in each segment. Use fresh water with less than 50 ppm Chloride content as the test medium. Do not use a test pressure which exceeds yield strength. Designate a hydrostatic test examiner who shall be in responsible charge of executing the test plan, examining for leaks, and certifying results. Acceptance criteria are in paragraph HYDROSTATIC TEST PARAMETERS.

1.6.3.5 Nondestructive Examination

Submit an NDE Plan for nondestructive examination and testing. Procedures, personnel, methods, equipment, calibration, examinations, and records shall be compliant with this Section, ASME B31.3, and ASME BPVC SEC V. Examination criteria for piping shall be considered severe cyclic conditions. Conform NDE terminology to ASTM E1316-14.

Perform PMI with in-situ elemental analysis methods such as x-ray fluorescence (XRF) or optical emission spectroscopy (OES) in accordance with API RP 578. Determine through PMI testing whether base metal at a weld site is consistent with the weld plan, pedigree report findings, and chemical analysis.

List individuals and their responsibilities for executing the NDE plan. Include examiner qualifications and certifications. Describe tests and examinations which will be performed. Include requirements for instrument calibration. Detail the process to identify and correct defects. Include written procedures, methods, specifications, and procedure qualifications for all NDE methods. Appropriate nondestructive technologies are listed in paragraph APPROPRIATE NONDESTRUCTIVE TECHNOLOGY.

1.6.3.6 Appropriate Nondestructive Technology

Nondestructive Method	Symbol	Detection Window
Visual inspection	VT	Detection of surface discontinuities by direct viewing using line-of sight vision or enhanced with the use of optical instruments
Ultrasonic testing	UT	Detection of discontinuities throughout the volume of material, measurement of wall thickness, and evaluation of bond characteristics in most types of material and in basic geometric configurations
Liquid penetrant examination	PT	Detecting the presence of surface discontinuities in ferrous and nonferrous materials
Magnetic particle examination, wet suspension	MT	Detection of surface or near surface discontinuities in ferromagnetic materials
Radiologic testing	RT	Detection of discontinuities throughout the volume of welds
Vacuum box testing	VBT	Detection of leaks and through wall defects in the hydraulic boundary
X-ray fluorescence	XRF	Elemental analysis of base metal
Optical emission spectroscopy	OES	Elemental analysis of base metal

1.6.4 Safety

Incorporate safety as an element of the design. Conform to Section 01 35 26.05 20 GOVERNMENT SAFETY REQUIREMENTS FOR DESIGN BUILD, EM 385-1-1, Hot Work Permit, and AWS Z49.1. Design ventilation such that throughout the duration of work, spaces will be maintained in a safe condition.

1.6.4.1 Marine Chemist

Provide the services of a Marine Chemist responsible for certifying all spaces safe for hot work and for specifying precautionary measures required to perform the work.

1.7 QUALITY ASSURANCE

1.7.1 Data Management

Provide a non-proprietary professional data management system to track destructive testing, PMI, repairs, inspection, NDE testing, and established pursuant to Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS. Provide secure, auditable, and organized data. Ensure the system has the capability to easily determine the provenance of each repair.

1.7.1.1 Repair Log

Produce a Repair Log capable of uniquely tracking every repair on the project. Follow the tank location identification scheme established pursuant to Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS. Initial dataset shall be informed by the inspection indication records. Populate repair log with gas test hole locations.

1.7.1.2 Weld Tracking Log

Develop a Weld Tracking Log as a subset of the Repair Log and capable of uniquely identifying and tracking every weld on the project. Follow the tank location identification scheme established pursuant to Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS. The log shall include the following:

a. Location in tank

b. Type of weld including temporary and tack welds

c. Applicable WPS

d. Name or identification number of welding personnel

e. Date and time of completion of welding or tacking

f. Name and date of inspector performing visual inspection

g. Date and type of NDE testing

h. Examiner name and acceptance criteria

i. Description of defects found; reason for non-compliance; corrective action taken

j. Date, time, and inspector who deemed weld acceptable

Weld identification on the shop drawings shall match weld tracking log. Update and populate the log as work progresses, and submit to the Contracting Officer as part of progress documentation and the contract completion report.

1.7.1.3 Base Metal Data

Provide Base Metal Data report containing findings of the pedigree report, chemical analysis, and PMI results. Provide detailed location in the tank of each coupon or test.

1.7.2 Shop Drawings

Prepare all shop drawings using a Registered Professional Engineer or under the direct supervision of a Registered Professional Engineer. Elements of fabricated items inadvertently omitted on design drawings shall be returned to the Designer of Record for detailing, or shall be detailed by the fabricator and so indicated on the shop drawings. Identify all field welds on the shop drawings and distinguish those which are seal welds. Any and all details developed by the fabricator shall be clouded on the shop drawings for separate approval by the Engineer of Record. All design shall

be prepared and sealed by a Registered Professional Engineer.

Correlate location of repairs depicted on the shop drawing to design plan view and elevation drawings. Shop drawings shall depict existing localized conditions to include shell thickness, weld toe spacing dimensions, and adjacent structural shapes. Show the isometric view when needed for clarity. Denote new material specification, grade, size, thickness, dimensions, and fitup tolerances. Identify weld specification, surface preparation standards, proposed weld sequence, and required NDE. Provide shop drawings for the following types of repairs.

1.7.2.1 Insert Plate

Insert plates shall be complete penetration and complete fusion butt joint welds. In addition to visual examination, provide UT in lieu of RT in accordance with API Std 650 Annex U.

Indicate original construction plate arrangement, cut edge locations, and distance to tower,bridge, catwalk, nozzles, flanges, welds, cover plates, and structural shapes. Identify associated fillet welded patch plate if required.

1.7.2.2 Fillet Welded Patch Plate

Indicate original construction plate arrangement, patch plate locations, and distance to tower, bridge, catwalk, nozzles, flanges, welds, cover plates, and structural shapes. Show clearance from original construction welds, insert plate welds, and shell repairs. Drawings shall also indicate details of nozzles, insert plates, welds, and reinforcing plates. Ensure patch plate meet API Std 653 requirements for minimum radius on all corners.

1.7.2.3 Gas Test Hole Repair

Indicate original construction plate arrangement, patch plate locations, and distance to tower, bridge, catwalk, nozzles, flanges, welds, cover plates, and structural shapes. Show clearance from original construction welds, insert plate welds, and shell repairs. Dimension test hole centerline with patch plate edges.

1.7.2.4 Weld Repair

Prior to repair, examine the surface to be repaired with either MT or PT. The area to be repaired shall have coating removed and be suitably prepared for welding in accordance with a written procedure. The area of an individual weld repair shall not exceed 50 square inches. The depth of a weld repair shall not exceed one-third of the base material thickness.

1.7.2.5 Barrel to Lower Dome Joint

Repair excessive corrosion on the stiffener plate with full penetration butt joint welds. Repairs to the stiffener plate and its joints with the shell and dome shall be in accordance with API Std 653 12.1.6.

1.7.2.6 Expansion Joint

Repair excessive corrosion on the expansion joint plates by removal and replacement with full penetration butt joint welds. Ensure repairs to the upper and lower joint plates do not fuse the plates together except at the edge.

Repairs to the expansion ring to barrel and upper dome joints shall be in accordance with API Std 653 Section 12.1.6.

1.7.2.7 Upper Dome and Extension Ring Cover Channels

Repair excessive cover plate corrosion by replacement. Replace leaking seal welds on the cover channels with new welding.

1.7.2.8 Grout Nozzles and Strain Gauge Pipe

Submit fabrication drawings of grout nozzle and strain gauge pipe repairs. Indicate materials. Include complete information for the fabrication and erection of the repairs, including the location, type, size, and dimensions of welds. Provide procedure to pack the gauge pipe and annular space with dry pack mortar.

1.7.2.9 Nozzles, Flanges, and Manway

Submit fabrication drawings of nozzle and manway repairs. Indicate materials, size, thickness, location, clearance from welds, details of nozzles and flanges, plates, welds, and reinforcing plates. Include complete information for the fabrication and installation of the repair, including the location, type, and size, and dimension of welds.

1.7.2.10 Drain Line

Submit fabrication drawings of drain line repair. Indicate materials, size, location, heights, and welds. Include complete information for the fabrication and installation.

1.7.2.11 Sample Lines

Submit fabrication drawings of sample line pipe routing, alignment, and supports. Indicate materials, size, location, heights, and welds. Include complete information for the fabrication and installation.

1.7.2.12 Interior Piping and Supports

Submit fabrication drawings of interior piping and support repairs. Indicate materials, size, location, thickness, plates, and welds. Include complete information for the fabrication and erection of the repair, including the location, type, size of bolts and welds, gaskets, pipe sizes and lengths, supports, and connection details.

1.7.2.13 Tank Appurtenances and Attachments

Submit fabrication drawings of existing shell attachments identified for removal and replacement: ladders, stairs, and other tank appurtenances. Indicate materials. Include complete information for fabrication and erection of the repairs, including the location, type, and size of bolts, welds, member sizes and lengths, and connection details.

1.7.2.14 Tower, Bridge, and Catwalk

Submit dimensioned fabrication drawings of tower, bridge, catwalk, guardrail, intermediate rail, toe board, and other tank appurtenance repairs. Indicate welds, member sizes, lengths, and connection details. Provide complete information for the fabrication and erection of the

repair. Include the location, type, size, grade of fasteners, and pretensioning procedure. Detail drawings to provide liquid drainage from components and not create conditions conducive to crevice corrosion.

1.7.2.15 Weld Map

Prepare Weld Map to coordinate the physical layout of the tank, the shop drawings, the weld plan, the NDE plan, and welder identification. Include joint configuration, and weld size and type.

1.7.3 Pre-Repair Meetings

Discuss repair work, quality expectations, acceptance standards, and lines of authority during the pre-repair meetings. The QCM shall provide clear direction to all parties regarding acceptable work output, individuals authorized to inspect and test repairs, and consequences for incompetent, careless, or otherwise objectionable work. Meeting agenda items include:

a. Safety

b. Repair procedures, fitup, weld specifications, welding personnel identification

c. Weld inspection process

d. Non-destructive examination process

e. Acceptance criteria

f. Responsibilities of the parties

g. Acceptable standards of quality

h. Documentation of work

1.7.4 Weld Inspection

Provide weld inspection procedures compliant with API Std 650 and ASME B31.3. The weld inspector(s) is considered a QC Specialist and must report results directly to the QC Manager, as specified in Section 01 45 00.05 20 DESIGN AND CONSTRUCTION QUALITY CONTROL.

1.7.5 NDE Procedures

Provide NDE procedures for methods compliant with API Std 653, ASME B31.3 and paragraph NDE PROCEDURE STANDARDS. Provide procedure for any PMI technology not listed.

1.7.5.1 NDE Procedure Standards

Method	Procedure Standard
MFL	ASME BPVC SEC V and API Std 653 Annex G
UT	ASME BPVC SEC V Article 4
UT in lieu of RT	API Std 650 Annex U

Method	Procedure Standard
VBT	API Std 650 8.6
PT	ASME BPVC SEC V Article 6
MT	ASME BPVC SEC V Article 7
RT	ASME BPVC SEC V Article 2
VT	API Std 650 8.5
XRF	ASTM E1621-13
OES	ASTM E415-15

1.7.6 Tank Repair Inspection

Provide inspection of repairs by the tank inspector of record. Provide oversight of repairs by the tank inspector of record and the tank engineer.

1.8 QUALIFICATION AND CERTIFICATION

1.8.1 Previously Qualified Procedures and Personnel

Welding procedures and welding personnel previously qualified by test may be accepted for the work without requalification, provided that all of the following conditions are fulfilled:

a. Copies of the Welding Procedure Specification, the Procedure Qualification Record, and the Welder Performance Qualification record for each procedure to be used are submitted in accordance with paragraph SUBMITTALS.

b. Testing was performed by an independent approved testing laboratory or an approved technical consultant. Copies of the Test Laboratory Accreditation and Technical Consultant Certification are submitted and approved in accordance with paragraph SUBMITTALS.

c. The welding procedures, welders, and welding operators were qualified in accordance with ASME BPVC SEC IX, and base materials, filler materials, electrodes, equipment, and processes conformed to the applicable requirements of this specification.

d. The requirements of paragraph RENEWAL OF QUALIFICATION are met and records showing name of employer and period of employment using the process for which qualified are submitted as evidence of conformance.

e. Each procedure qualified by mechanical test in accordance with ASME BPVC SEC IX QW-200 must contain coupon bend test results.

f. Each welding personnel qualified by mechanical test in accordance with ASME BPVC SEC IX QW-300 must contain coupon bend test results. Welding personnel cannot be qualified by initial production welding.

1.8.2 Welding Procedure Specification (WPS)

Prepare welding procedure specifications which provide direction to the welder and welding operator for making production welds. Use the WPS format QW-482 in ASME BPVC SEC IX. Include procedures for weld repairs. Specify back purge gas requirements and end preparation for butt joint welds to include cleaning, alignment, and root opening tolerances. Specify preheat, interpass temperature control, and postheat treatment of welds. Identify weld procedures uniquely and reference on the Weld Map and shop drawings.

WPS shall be compliant with API Std 650 and ASME BPVC SEC IX requirements. Submit each WPS together with its associated PQR, and in accordance with paragraph SUBMITTALS. Approval of a procedure does not relieve Contractor of the sole responsibility for design and production of acceptable welds.

1.8.3 Procedure Qualification Record (PQR)

Perform tests, qualify all procedures including weld repair, and document the results in detail on procedure qualification records. Qualify each proposed welding procedure. Qualify procedures in compliance with API Std 650, ASME BPVC SEC IX, and this Section. Use the PQR format QW-483 in ASME BPVC SEC IX. Submit each PQR together with its associated WPS, and in accordance with paragraph SUBMITTALS.

In addition to qualifying weld procedures, verify weldability of the existing plate steel by qualifying fillet and butt joint weld procedure(s) on a test coupon obtained in accordance with Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS. Qualify procedure(s) which will be used to repair the tank shell. Qualify in compliance with API Std 650, ASME BPVC SEC IX, and this Section. Use the PQR format QW-483 in ASME BPVC SEC IX. Submit the Weldability Procedure Qualification Record together with associated WPS, and in accordance with paragraph SUBMITTALS.

1.8.4 Welding Personnel Performance

Conduct tests to determine the welding personnel, using qualified procedures, are capable of producing the minimum requirements of an acceptable weldment. Test all welding personnel for each welding process to be used. Tests conducted by a different employer are not acceptable. Test in accordance with API Std 650 and ASME BPVC SEC IX.

1.8.4.1 Welder Performance Qualification (WPQ)

A welder or welding operator may be qualified by volumetric NDE or by bend tests on a test coupon. Qualification by initial production welding is not allowed. Before assigning welding personnel to the work, provide WPQ records which certify the individual is performance-qualified for the procedure in accordance with ASME BPVC SEC IX. The certification shall state the type of welding and positions for which each is qualified, the code and welding procedure specification under which each is qualified, date qualified, and the firm and individual certifying the qualification tests. Use the WPQ format in ASME BPVC SEC IX QW-484A for welders and QW-484B for welding operators. Submit each WPQ in accordance with paragraph SUBMITTALS.

1.8.4.2 Renewal of Qualification

Requalification of welding personnel shall be required under any of the

following conditions:

a. When welding personnel has not used the specific welding procedure for a period of 3 months; the period may be extended to 6 months if the welding personnel has been employed on another welding procedure.

b. When welding personnel has not welded with any procedure during a period of 3 months, all the personal qualifications shall be considered expired, including any extension by virtue of "a" above.

c. There is specific reason to question the individual's ability to make welds which will meet requirements of the specifications.

d. The welding personnel was qualified by an employer, other than those firms performing work under this contract, and a qualification test has not been taken within the preceding 12 months.

e. Renewal of qualification for a specific welding procedure under conditions a, b, and d above, needs to be made on only a single test joint or pipe of a thickness, position, or material required by the welding procedure specification to reestablish the welder's or welding operator's qualification for the previous qualification.

f. Any welding personnel qualified by initial production welding.

1.8.5 Weld Inspector

Welding inspectors shall be qualified in accordance with API Std 650, be a certified welding inspector (CWI) or be a senior certified welding inspector (SCWI) as defined in AWS QC1, and have minimum [5][7] years of experience inspecting storage tank welding or process pipe welding on military or commercial fuel storage tanks or piping. Each inspector shall be a certified to be a CWI or SCWI with ASME BPVC SEC IX endorsement. Provide AWS Certified Welding Inspector Certification in accordance with paragraph SUBMITTALS. Provide one SCWI in responsible charge of weld inspection duties to oversee CWI inspection and review all weld inspection reports. The SCWI shall be onsite no less than 25 percent of the time inspection is performed. The weld inspector(s) is considered a QC Specialist in accordance with paragraph WELD INSPECTION.

Should a weld inspector also be a welder, that individual is disqualified from inspecting or examining a weld or any portion thereof of the inspector's own work. All inspectors shall be independent and shall not represent nor be an employee of the prime construction contractor, welding subcontractor, fabricator, erector, or manufacturer. In addition inspectors shall have five years verifiable experience inspecting process pipe welds on military or commercial fuel storage tanks or piping or petroleum refineries.

1.8.6 NDE Examiner

NDE personnel shall be qualified in accordance with API Std 653 and API Std 650. Examiners shall meet minimum requirements for qualification in ANSI/ASNT CP-189. Examiners shall meet minimum requirements for certification in ANSI/ASNT CP-189 and shall be certified in accordance with paragraph NDE EXAMINER QUALIFICATION STANDARDS at minimum to Level II in the applicable NDE method. Provide Nondestructive Examiner Certification in accordance with paragraph SUBMITTALS.

Should an NDE examiner also be a welder, that individual is disqualified from inspecting or examining a weld or any portion thereof of the examiner's own work. Personnel performing NDE examination shall not represent nor be an employee of the prime construction contractor, welding subcontractor, fabricator, erector, or manufacturer. NDE examiners shall have a minimum of five years verifiable experience inspecting similar work. In addition inspectors shall have five years verifiable experience inspecting process pipe welds on military or commercial fuel storage tanks or piping or petroleum refineries.

1.8.6.1 NDE Examiner Qualification Standards

Method	Examiner Qualification Standard
MFL	API Std 653 Annex G
UT	Level II or III
UT in lieu of RT	API Std 650 Annex U with Level III review
VBT	Level II or III
PT	Level II or III
MT	Level II or III
RT	Level III
VT	AWS QC1 CWI and SCWI
XRF	API RP 578

1.8.7 Tank Engineer

Provide licensed professional engineer services with minimum qualifications of each individual:

a. Bachelor of Science degree in Civil or Mechanical Engineering

b. Seven years of experience in POL facilities engineering, including design, inspection, testing and construction.

1.8.8 Tank Inspector of Record

Provide the services of an experienced API Std 653 Inspector who shall have a minimum of seven years of experience. Submit copy of current Tank Inspector of Record certification in accordance with paragraph SUBMITTALS.

1.8.9 Independent Tank Inspector

Provide the services of an independent API Std 653 Inspector who shall have a minimum of five years of experience. Submit copy of current Independent Tank Inspector certification in accordance with paragraph SUBMITTALS.

1.8.10 Independent Testing Organization

The independent testing organization, testing laboratory, technical

consultant or NDE testing firm shall meet requirements of ASTM E329. The principal business of the testing organization, testing laboratory, technical consultant or NDE testing firm shall be inspection and testing, and shall have no involvement in design, procurement, fabrication, construction and installation. The testing organization, testing laboratory, technical consultant or NDE testing firm shall be a first tier subcontractor. Submit copy of current Independent Testing Organization certification in accordance with paragraph SUBMITTALS.

1.8.11 Marine Chemist

Submit copy of current Marine Chemist Certificate issued by the National Fire Protection Association in accordance with the Rules for Certification of Marine Chemists, pursuant to NFPA 306, and in accordance with paragraph SUBMITTALS.

1.9 DELIVERY, STORAGE, AND HANDLING

Handle, store, and protect equipment and materials to prevent damage before and during installation in accordance with manufacturer recommendations and as approved by the Contracting Officer. Replace damaged or defective items.

Deliver all filler metals, electrodes, and other welding materials to the site in original manufacturer containers. Store in a dry space protected from weather and contamination until used. Containers shall be properly labeled and designed to give maximum protection from moisture and to insure safe handling.

1.9.1 Material Control

Store materials in a controlled access and clean, dry area that is weathertight and is maintained at a temperature recommended by the manufacturer. Materials shall not be in contact with the floor and shall be stored on wooden pallets or cribbing. Cap all piping and valves to prevent contamination by dirt and other foreign material.

1.9.1.1 Damaged Containers

Low-hydrogen steel electrodes shall be stored in their sealed shipping container. If the seal is damaged during shipment or storage, and the damage is not immediately detected, the covered electrodes in that container shall be rebaked in accordance with manufacturer instructions prior to issuance, or shall be discarded. If a container is damaged in storage and the damage is witnessed, the electrodes from that container shall be immediately placed in a storage oven. The storage oven temperature shall be as recommended by the manufacturer or the welding material specification.

1.9.1.2 Partial Issues

When a container of covered electrodes is opened and only a portion of the content is issued, the remaining portion shall, within the limits established by AWS D1.1/D1.1M be placed in a storage oven.

1.9.1.3 Damaged Materials

Materials which are damaged shall be discarded. Covered electrodes which are oil or water-soaked, dirty, or on which the flux has separated from the wire shall be discarded.

PART 2 PRODUCTS

2.1 MATERIALS

Internal parts and components of equipment, piping, piping components, and valves that could be exposed to fuel during system operation shall not be constructed of zinc coated (galvanized) metal, brass, bronze, or other copper bearing alloys. Do not install cast iron bodied valves in piping systems that could be exposed to fuel during system operation.

2.1.1 Steel Plates

Plate material shall be manufactured by the open-hearth, electric-furnace, or basic oxygen process. Meet requirements of API Std 650, Group II, as-rolled, killed or semi-killed, and conforming to ASTM A36/A36M. Provide Mill Test Reports. Provide Impact Test Data when required by API Std 650 for the material group and thickness.

2.1.2 Gaskets

Gaskets shall be composition ring, one piece factory cut, compliant with ASME B16.21, Buna-N. Gaskets shall be composed of either graphite or synthetic fibers in a nitrile binder and shall be resistant to the effects of aviation hydrocarbon fuels and manufactured of fire-resistant materials. Use Full-face gaskets for flat-face flanged joints. Use ring gaskets on raised-face flanged joints. Buna-N material shall conform to SAE AMS3275.

2.1.3 Fasteners

2.1.3.1 Flange Bolts, Nuts, and Washers

Bolts for pipe flanges, flanged fittings, valves and accessories shall conform to ASME B18.2.1. Bolts shall be of sufficient length to obtain full bearing on the nuts and shall project no more than three full threads beyond the nuts with the bolts tightened to the required torque. Bolts shall be regular hexagonal bolts conforming to ASME B18.2.1 with material conforming to ASTM A193/A193M, Class 2, Grade B8, stainless steel, when connections are made where a stainless steel flange is involved, and Grade B7 when only carbon steel flanges are involved. Bolts shall be threaded in accordance with ASME B1.1, Class 2A fit, Coarse Thread Series, for sizes one inch and smaller and Eight-Pitch Thread Series for sizes larger than one inch.

Nuts for pipe flanges, flanged fittings, valves and accessories shall conform to ASME B18.2.2, hexagonal, heavy series with material conforming to ASTM A194/A194M, Grade 8, stainless steel for stainless steel bolts, and Grade 7 for carbon steel bolts. Nuts shall be threaded in accordance with ASME B1.1, Class 2B fit, Coarse Thread Series for sizes one inch and smaller and Eight-Pitch Thread Series for sizes larger than one inch.

Washers under bolt heads and nuts shall conform to ASTM F436, flat circular stainless steel for stainless steel bolts, and carbon steel for carbon steel bolts. Use calibrated torque wrenches to tighten all flange bolts to the torque recommended by the gasket manufacturer. Tightening pattern shall be as recommended by the gasket manufacturer.

2.1.3.2 Structural Bolts, Nuts, and Washers

a. Bolts: ASTM F3125-15a (ASTM A325), Type 1, heavy hex style, plain finish. Ensure bolt heads are distinctively marked with the manufacturer unique identifier and grade. Bearing type connections are Type N unless determined otherwise.

b. Nuts: ASTM A563, Grade C, heavy hex style, plain finish. Ensure nuts are distinctively marked with the manufacturer's unique identifier and grade.

c. Washers: ASTM F436, Type 1, circular. When the outer face of the joint has a slope greater than 1:20 with respect to a plane normal to the bolt axis, use ASTM F436, Type 1, beveled to compensate for the lack of parallelism.

2.1.3.3 Thread Lubricant

Provide thread lubricant on fastener to minimize galling compliant with MIL-PRF-907 Anti-Seize Compound on fasteners external to the tank. On tank interior fasteners use SAE 30 oil.

2.1.4 Carbon Steel Pipe

a. Pipe: ASTM A53/A53M, black steel, Type S, Grade B, standard mill finish. For pipe diameters 2 inch NPS or less, use Schedule 80.

b. Butt-Joint Fittings: End connections for pipe or fittings 2-1/2 inch NPS and larger shall be buttweld type conforming to ASTM A234/A234M Grade WPB, and ASME B16.9 Class 150. Backing rings shall conform to ASME B31.3 and be compatible with materials being welded.

c. Forged Fittings (Socket-Welded): End connections for pipe or fittings smaller than 2-1/2 inch NPS shall be forged, socket weld type conforming to ASTM A182/A182M and ASME B16.11 Class 3000.

d. Meet the chemical, physical, and toughness requirements of API Std 650. Submit certificates and certified mill pipe test reports demonstrating compliance with the requirements of API Std 650.

e. When required by API Std 650, submit Charpy V-notch impact test results demonstrating compliance with API Std 650.

2.1.5 Structural Steel Shapes

a. W-Shapes: ASTM A992/A992M, standard mill finish

b. Angles, Channels, and Plates: ASTM A36/A36M, standard mill finish

c. Steel Pipe: ASTM A53/A53M, standard mill finish, Grade B, Type E or S, or ASTM A500/A500M, Grade B

2.1.6 Aluminum Piping For Stilling Wells

Aluminum pipe shall be ASTM B241/B241M, alloy 6061-T6, Schedule 40 for pipe sizes 2 inches through 12 inches; Schedule 80 for pipe sizes 2 inches and smaller. Process per ASME B31.3, GTAW, consumables per AWS A5.10.

2.1.7 Flanges

Provide ASTM A105/A105M Class 150, raised face, weld-neck flange compliant with ASME B16.5.

2.1.8 Bolting And Aluminum Flanges For Stilling Wells

Aluminum flanges shall be ASME B16.5, Class 150 Flat Face Type, except aluminum shall conform to ASTM B247, alloy 6061-T6 or alloy 356-T6. Aluminum flanges may be welding neck or slip-on type. Provide bolting in accordance with paragraph FLANGE BOLTS, NUTS, AND WASHERS. Provide electrical isolation for separation of dissimilar metals.

2.1.9 Valves

Provide valves that meet the material, fabrication and operating requirements of ASME B31.3, except as modified herein. Valves shall have flanged end connections and conform to ASME B16.34, Class 150 except as modified herein. Provide stainless steel stem and trim for each valve. Valves shall have a weatherproof housing. Seats, body seals, and stem seals shall be fluoropolymer elastomer or Buna-N. Do not use threaded or socket welded valves.

a. Valves Connected to Stainless Steel, Aluminum, or Internally Coated Carbon Steel Piping. Provide valves with bodies, bonnets, and covers constructed of stainless steel conforming to ASTM A743/A743M, Type 304 or 316; or cast steel conforming to ASTM A216/A216M, Grade WCB internally plated with nickel or internally electroless nickel plated; or ductile iron conforming ASTM A536, electroless nickel plated.

b. Valves Connected to Carbon Steel Piping (No Internal Coating). Provide valves with bodies, bonnets, and covers constructed of cast steel conforming to ASTM A216/A216M.

2.1.9.1 Ball Valve

Valve shall be non-lubricated, double seated, ball type that conforms to API Spec 6D. Valve shall meet the fire test requirements of API Spec 6FA. Valve shall operate from fully open to fully closed with 90 degree rotation of the ball. Valve shall be capable of 2-way shutoff. Valve ball shall be constructed of stainless steel. Valves smaller than 2 inches shall have one piece bodies and shall have a minimum bore not less than 55 percent of the internal cross sectional area of a pipe of the same nominal diameter. Balls shall be provided with trunnion type support bearings for valves 14 inches and larger. Provide valves with worm gear operators, except valves 6 inches and smaller may be lever operated with a minimum 10 adjustable positions between fully opened and fully closed.

2.1.9.2 Ball Valve (Double Block and Bleed Type)

Valves shall be designed, manufactured, and tested to API Spec 6D. Double Block and Bleed Ball Valve (DBB) shall meet the fire test requirements of API Spec 6FA. Valves shall be trunnion-mounted with independent spring and hydraulically actuated, floating, single piston effect, self-relieving seat rings with bi-directional sealing. Ball shall be solid type with full through-conduit opening. Stem shall be anti-static, blow-out-proof design with o-ring seals and provided with an emergency sealant injection fitting. Valves shall be 3-piece, bolted body design equipped with body drain/bleed valve and vent fitting, and suitable for double block and bleed

service in the closed and open positions. Valves shall have nylon or teflon seat inserts, viton B body, stem, and seat o-rings, with stainless steel and graphite body gaskets and graphite secondary stem seals.

2.1.9.3 Plug Valve (Double Block and Bleed Type)

Provide non-lubricated, resilient, double seated, trunnion mounted type with a tapered lift plug capable of 2-way shutoff that conforms to API Spec 6D. Valve shall have electroplated nickel interiors. Valve plug shall be constructed of steel or ductile iron with electroplated nickel that is supported on upper and lower trunnions. Valve sealing slips shall be constructed of steel or ductile iron with Viton seals. Valve design shall permit sealing slips to be replaced from the bottom with the valve mounted in the piping. Minimum bore size shall be 65 percent of the internal cross sectional area of a pipe of the same nominal diameter, unless the manufacturer can show an equivalent or greater flow rate with a lower percent internal cross sectional area. Valves 6 inches and larger shall have removable lower and bonnet (upper) bushing. Valve shall have weatherproof, worm gear operators with mechanical position indicators. Indicator flag and shaft shall be made of steel. Provide valve body cavity relief and piping in accordance with STANDARD DESIGN AW78-24-27.

2.1.10 Welding Materials

Welding materials for carbon steel, stainless steel and aluminum shall comply with AWS WHB-4.8. Welding equipment, electrodes, welding wire, and fluxes shall be capable of producing satisfactory welds when used by a qualified welder or welding operator using qualified welding procedures. All field girth root pass welds shall be made with non-covered electrodes or welding wire. External welds on the pipe such as attaching pipe supports may be made with covered electrodes or welding wire. Electrodes, welding wire and fluxes are given in paragraph WELDING CONSUMABLES. Welding materials for aluminum and aluminum alloy shall comply with AWS D10.7/D10.7M.

2.1.10.1 Welding Consumables

AWS	Process	Alloy	Consumable	Use
			Note(1)	
AWS A5.1/A5.1M	SMAW	Low Carbon	E7018, E6010	Fill
AWS A5.4/A5.4M	SMAW	Stainless	E308L, E309L	Fill
AWS A5.3/A5.3M	SMAW	Aluminum		Fill
AWS A5.9/A5.9M	GTAW/GMAW	Stainless	ER308L,ER309L	Root and Fill
AWS A5.10/A5.10M	GTAW/GMAW	Aluminum	ER5356	Root and Fill Note (2)
AWS A5.18/A5.18M	GTAW/GMAW	Low Carbon	E70S-3,E70S-6	Root and Fill
AWS A5.22/A5.22M	GTAW	Stainless	E308LT1-1	GTAW-Root
AWS A5.32/A5.32M	GTAW/GMAW	All		Shielding Gas

AWS	Process	Alloy	Consumable	Use
			Note(1)	
Note(1): The consumable material designations shown are examples and are not intended to limit the selection of consumable materials. Note (2): Backing rings shall not be permitted.				

2.1.11 Dry Pack Mortar

Dry pack mortar shall be a combination of portland cement and sand passing a No. 16 sieve pursuant to ASTM C144. Mix with only enough water to hydrate the cement.

2.2 FABRICATION

Verify all dimensions with field measurements prior to fabrication. Fabricate structural steel for tank components in accordance with API Std 650 and AISC 325. All steel and metal work shall be well formed to shape and size, with sharp lines and angles, and true curves. Drilling and punching shall produce clean true lines and surfaces.

2.2.1 Steel Plates

2.2.1.1 Fillet Welded Patch Plates

Fabricate insert and patch plates shop rolled to match tank curvature. Edge of plates shall be smooth, free from laminations, scale, burrs, and slag. Prepare edges for welding in accordance with weld plan. Round corners of fillet welded repair plates to a minimum radius of 2 inches.

2.2.1.2 Insert and Replacement Plates

Fabricate insert plates and replacement plates in accordance with API Std 650, API Std 653, and as specified herein. Shop roll plates to match tank curvature. Edges of plates and edges of openings shall be uniform and smooth, free from scale, burrs, and slag accumulations, and prepared for welding in accordance with approved weld plan. Insert plates and replacement plates shall have 6 inch radius corners except when an entire shell plate is replaced to a horizontal joint.

2.2.2 Catwalk Repairs

Fabricate welded steel angle minimum L2 x 4.7 extensions to the catwalk guardrails.

2.2.3 Sample Lines

Fabricate sample piping from 3/4 inch NPS welded carbon steel pipe. Isolate each sample line with a DBB plug valve in the lower tunnel. Do not use threaded components.

PART 3 EXECUTION

3.1 SAFETY

3.1.1 Control of Hazardous Energy

Prior to entry, provide proper lockout and tagout of the storage tank and appurtenances to completely isolate from sources of energy. Items to be isolated include nozzles, valves, pumps, and motor starters. Isolate tank and piping with physical means such as blind flanges compliant with ASME B16.5 or line blanks compliant with ASME B16.48 to prevent fuel transfer into the tank or piping. Do not use a valve as means of isolation. Provide in accordance with accepted Accident Prevention Plan, Section 01 35 26.05 20 GOVERNMENT SAFETY REQUIREMENTS FOR DESIGN BUILD and EM 385-1-1.

3.1.2 Tank Plate Access

Install robust means of access to all areas of the tank envelope for personnel, materials, and equipment. Provide access to the work, coordinated with Installation Safety, for the Contracting Officer representative while work is being performed. Provide bracing and supports to resist all construction loading conditions.

3.1.3 Preparation for Entry

Develop written procedures in accordance with API RP 575 for entry and re-entry into a storage tank. Ensure gas-generating, pyrophoric, or toxic residues have been removed. Test the interstice for hydrocarbons and purge as necessary. Be vigilant to accumulation of dry pyrophoric material. Do not start repairs until storage tank has been cleaned in accordance with Section 33 65 00 CLEANING PETROLEUM STORAGE TANKS, certified by the Marine Chemist to be safe for entry, and requirements of this Section and EM 385-1-1 have been met. Prepare for entry in a manner compliant with Section 01 35 26.05 20 GOVERNMENT SAFETY REQUIREMENTS FOR DESIGN BUILD.

3.1.4 Gas-Free Environment

Degass tank until requirements of Section 33 65 00 CLEANING PETROLEUM STORAGE TANKS, the accepted Accident Prevention Plan, API Std 2015, 29 CFR 1910.146, and the certified Marine Chemist are met. Obtain gas-free certification from the Marine Chemist. Maintain the gas-free environment. Maintain the Marine Chemist certificate on-site and available for review at all times.

3.1.5 Gas Test Hole

Pursuant to Marine Chemist requirements, install gas test holes in accordance with the shop drawing and hot work permit. Drill with a pneumatic tool using cooling lubricant. Purge the interstice with inert gas as-needed to remove hydrocarbon vapors and comply with API RP 2207. Record all gas test holes in the repair log.

3.2 WELDING OPERATIONS

Conduct welding operations in accordance with the weld plan and coordinated with the weld map. Limit welding personnel to welding procedures for which they are qualified.

3.2.1 Identification

Assign each welder or welding operator weld a unique identification number, letter, or symbol. Identify identification on the weld map. Ensure each identification is traceable to a welder and associated performance qualification record. Do not use fluorescent paint in tank.

3.2.2 Weld Joint Fit-Up

Provide fit-up and joint preparation so that root openings are in accordance with the weld plan. Parts that are to be joined by welding shall be fitted, aligned, and retained in position during the welding operation by the use of bars, jacks, clamps, or other mechanical fixtures. End welds shall be properly aligned prior to welding. Welded temporary attachments shall not be used except when it is impractical to use mechanical fixtures. When temporary attachments are used, they shall be the same material as the base metal, and shall be completely removed by grinding or thermal cutting after the welding operation is completed. If thermal cutting is used, the attachment shall be cut to not less than 1/4 inch from the member and the balance removed by grinding. After the temporary attachment has been removed, the area shall be examined visually and with other NDE means as determined necessary by the Welding Inspector.

3.2.3 Preheat and Interpass Temperatures

Preheat temperatures shall meet the requirements specified by API Std 650. However, in no case shall the preheat be below 50 degrees F for ferritic steel or austenitic stainless steel, or 32 degrees F for nonferrous alloys. The maximum interpass temperatures shall not exceed 300 degrees F for austenitic stainless steels, nickel alloys, and copper alloys; and 500 degrees F for carbon steels. Preheat techniques shall be such as to ensure that the full thickness of the weld joint preparation and/or adjacent base material, at least 3 inches in all directions, is at the specified temperature. Preheating by induction or resistance methods is preferred. When flame heating is used, only a neutral flame shall be employed. Oxy-fuel heating shall not be used on austenitic stainless steel; however, air-fuel heating is acceptable if controlled to insure that the surface temperature does not exceed 150 degrees F. Interpass temperatures shall be checked on the surface of the component within 1 inch of the weld groove and at the starting location of the next weld pass, and for a distance of 6 inches ahead of the weld, but not on the area to be welded.

3.2.4 Welding

Insert plates and shell replacement plates shall be butt-joint welded to the existing shell plate with complete penetration and complete fusion. Provide fit-up, heat input, and welding sequence to prevent distortion of the tank shell and insert plate. Provide temporary reinforcement of shell openings to prevent shell distortions. Coordinate shell openings and insert plate sizes to account for shrinkage during welding operations and to prevent peaking and banding in excess of API Std 653 criteria. Remove erection tabs by grinding the attaching welds when welding is complete. Gouging or tearing of the shell, insert plate, and replacement plate is not permitted.

a. Welding shall not be done when the ambient temperature is lower than 0 degrees F.

b. Welding is not permitted on surfaces that are wet, when rain is falling

on the surfaces to be welded, or during periods of high winds. The exception is when the welders and the work are properly protected.

c. Gases for purging and shielding shall be welding grade and shall have a dew point of minus 40 degrees F or lower.

d. Any welding process which requires the use of external gas shielding shall not be done in a draft or wind unless the weld area is protected by a shelter. This shelter shall be of material and shape appropriate to reduce wind velocity in the vicinity of the weld to a maximum of 5 mph.

e. Tack welds to be incorporated in the final welds shall have their ends tapered by grinding or welding technique. Tack welds that are cracked or defective shall be removed and the groove shall be retacked prior to welding. Temporary tack welds shall be removed, the surface ground smooth, and visually inspected. For low-alloy and hardenable high-alloy steels, the area shall be examined with the MT method.

f. Grinding of completed welds is to be performed only to the extent required for NDE and to provide weld reinforcement within the requirements of API Std 650. If the surface of the weld requires grinding, follow requirements in paragraph TANK REPAIR. Minimum weld external reinforcement shall be flush between external surfaces.

g. Permanently mark each weld with the identification symbol of the individual welding personnel.

h. Direct welded connection of carbon steel and stainless steel shall not be made.

3.2.4.1 Complete Joint Penetration Welds

Complete joint penetration welds shall be continuous, full size, complete fusion, and shall be made with a minimum of two passes. Weld profile shall be in accordance with AWS D1.1/D1.1M. All weld starts and stops shall merge with complete fusion to each other and to the base metal. Starts shall overlap the end of any previous weld by a minimum of 3/4 inches.

3.2.5 Postweld Heat Treatment

a. Postweld heat treatment shall be performed in accordance with ASME B31.3 and the welding plan. Temperatures for local postweld heat treatment shall be measured continuously by thermocouples in contact with the weldment.

b. Postweld heat treatment of low-alloy steels, when required, shall be performed immediately upon completion of welding and prior to the temperature of the weld falling below the preheat temperature. However, postweld heat treatment may be postponed after the completion of the weld, if, immediately after the weld is completed, it is maintained at a minimum temperature of 300 degrees F or the preheat temperature, whichever is greater, for 2 hours per inch of weld thickness.

3.3 TANK REPAIR

Coordinate the location of repair joints and existing joints. Make necessary adjustments to meet joint spacing requirements upon approval from

the designer of record. Repair all arc strikes in accordance with paragraph SHELL PLATE regardless of location.

3.3.1 Grinding

For tank shell areas which require grinding and after all grinding operations are complete, measure and record remaining plate thickness with UT. When grinding results in shell thickness less than 190 mils, repair the depression. When welding to restore thickness, provide complete fusion with the base metal and to each other on all weld passes. Inspect and test each weld pass and the completed repair. Correct defects in the repair that fail acceptance criteria. Use a patch plate to restore reduced thickness due to grinding if required by the designer of record.

3.3.2 Cutting

3.3.2.1 Preparation

Prior to cutting bottom, barrel, or dome shell plates:

a. Remove existing coating a minimum of 6 inches from each cutline.

b. Coordinate cutlines with repair plate dimensions.

c. Mark cutlines on the plate.

d. Provide temporary reinforcement around opening to prevent shell distortions.

e. Obtain approval from the Contracting Officer to cut the shell.

3.3.2.2 Marking

Prior to erection, identify members and repair plates with a painted mark. Connecting parts pre-assembled in the shop for installation in the field shall be match marked with paint. Do not use scratch or notch marks. Do not locate marks on areas to be welded. Do not use fluorescent paint in the tank.

3.3.2.3 Installation

Cut plates using a track guided cutting device in accordance with an approved procedure which produces a straight, neat, distortion-free cutline. Air carbon arc gouging and hand-held unguided cutting are not permitted. Prepare cut edges of the shell by grinding to remove all slag and burrs. Inspect cut edges for laminations. Accurately match insert plate to the tank shell and retain in position with erection tabs during welding operation. Tack welding of joints shall not remain in the finished joints. Misalignment in joints shall not exceed API Std 650 tolerances for misalignment in shell joints.

3.3.3 Substrate

At locations where tank shell material is removed for any reason, inspect, test, and report findings on the tank substrate material in accordance with Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS.

3.3.4 Plate Repair

Prior to performing repairs, remove existing coating to bare metal surface. Investigate the extents of arc strikes, gouges, pits, and attachment removal locations by careful grinding to completely remove the defect. Provide a smooth 4:1 transition with the surrounding plate. Examine ground area with MT to verify complete removal of the defect. Repeat testing-inspecting-grinding until defect is removed. Verify and repair deficient remaining plate thickness with requirement in paragraph GRINDING.

3.3.5 Gas Test Hole Repair

Repair gas test holes by grinding a groove and welding flush with the top of the base metal. Provide weld overlay a minimum of 1 inch past the groove weld in both horizontal and vertical directions. Provide a fillet-welded patch plate over the test hole repair.

3.3.6 Weld Repair

Remove the defect to sound metal. Use MT or PT to determine whether the entire defect has been removed. Preheat the site if conditions exist which would adversely affect the quality of the weld repair.

3.3.7 Nozzles, Flanges, and Manway

Provide washers under bolt head and nuts. Make up bolts using thread lubricant. Use calibrated torque wrench to tighten flange bolts to the value recommended by the gasket manufacturer. Follow tightening pattern as recommended by the gasket manufacturer.

3.3.8 Expansion Joint and Adjustment Plate Joint

Do not fuse the expansion joint stiffener plates in an amount more than the amount of existing plug weld.

3.3.9 Strain Gauge Pipe

Produce a mortar at a no slump consistency. A ball of mortar formed by hand should neither slump nor crumble due to lack of moisture. Uniformly pack the gauge pipe and carrier pipe annular space with mortar. Compact solidly by striking a hardwood dowel with a hammer. Overfill the hole slightly, then place the flat side of a piece of hardwood against the hole and strike it several times with a hammer. Cure for minimum 7 days prior to installation of fillet welded patch plate.

3.3.10 Drain Line

Repair the carrier pipe telltale drain to be functional. Install new drain line piping through the existing carrier pipe. Inspect, examine, and test in accordance with paragraph INSPECTION, EXAMINATION, AND TESTING. Support piping along tank bottom, through sleeve carrier pipe, and in lower tunnel. Distinguish the drain line with unique identification. Provide flanged isolation DBB plug valve.

Hydrotest the drain piping and the repaired carrier pipe to criteria in paragraph HYDROSTATIC TEST PARAMETERS. Test the drain line, carrier pipe telltale, and DBB plug valve for proper operation.

3.3.11 Sample Lines

Install sample piping system to the sample station. Inspect, examine, and test in accordance with paragraph INSPECTION, EXAMINATION, AND TESTING. Support piping on tower, along tank bottom, through sleeve carrier pipe, and in lower tunnel. Coat sample lines in accordance with Section 09 97 13.15. Distinguish the sample lines with unique identification. Install isolation DBB plug valves. Properly support all piping, valves, and sample station.

Provide intermediate pipe supports inside the containment pipe for the sample lines. Support shall consist of a steel plate with properly oriented holes through which the sample lines pass. Coat plate in accordance with Section 09 97 13.15. Support sample pipes at 10 feet on center inside containment pipe.

Hydrotest each piping segment to criteria in paragraph HYDROSTATIC TEST PARAMETERS. Test each sample line and valve for proper operation.

3.3.12 Interior Nozzle Flange

Replace existing interior nozzle flange on 32 inch product line with ASME B16.5 compliant flange.

3.3.13 Tank Appurtenances and Attachments

Remove existing shell attachments identified for removal by grinding the attaching welds. Repair areas failing acceptance criteria in accordance with paragraph SHELL PLATE using approved methods. Provide inspection of repair areas in accordance with paragraph NDE SCHEDULE. Repeat repair procedure until acceptance criteria are satisfied.

3.3.14 Tower, Bridge, and Catwalk

Install guides to restrain the tower columns at the upper dome. Replace missing or damaged fasteners or structural members. Weld repairs of bolts, studs, and nuts are not permitted. Use snug-tightening procedure pursuant to RCSC S348 to bring plies into firm contact. Pretension all high strength connections to a tension no less than specified in paragraph STRUCTURAL BOLT PRETENSION CRITERIA for ASTM A325 Bolts. Pretensioning shall be done by turn-of-nut method.

Install repairs in a manner which allows complete drainage and precludes crevice corrosion.

3.3.14.1 Structural Bolt Pretension Criteria

Fastener Diameter (inch)	Tension (kips)
5/8	19
3/4	28
7/8	39
1	51

Fastener Diameter (inch)	Tension (kips)
1-1/8	56
1-1/4	71
1-3/8	85
1-1/2	103

Tighten all other connections to the snug-tight condition. Perform snugging in a systematic manner starting at the most rigid part of the joint and working to the outside of the connection or the free edges. Use thin metal feeler gages, such as a machinists 6 inch metal rule, to ensure that gaps do not exist between the steel at the bolt holes. Install all bolts in a connection to a snug tight condition prior to pretensioning. Perform pretensioning in the same order as snug-tightening.

3.3.14.2 Bolts, Nuts, and Washers

Provide bolts, nuts and washers of the type specified. All nuts shall be equipped with washers. Where the use of high strength bolts is specified the materials, workmanship and installation shall conform to the applicable provisions of ASTM A325 and RCSC S348.

3.3.15 Coating System

Provide tank interior coating in accordance with Section 09 97 13.15 LOW VOC POLYSULFIDE INTERIOR COATING OF WELDED STEEL PETROLEUM FUEL TANKS. recoat surfaces affected by welding or repairs. Spot coat new patch plates.

3.3.16 Tank Calibration Table

After repairs are complete, coating has been installed, and the cure period has passed, calibrate tank in accordance with paragraph TANK CALIBRATION METHOD. Provide two hard copy laminated capacity tables stamped by a Professional Engineer, one in English units and one in SI units. Both tables shall show the volume of the fuel at all liquid levels in the tank from the gauge plate to the level of overflow. Include unit conversion notes on each table.

English unit table shall show the volume of product in gallons and barrels, and the corresponding level of product in 1/16 inch increments. SI unit table shall show the volume of product in liters and in cubic meters, and the corresponding level of product in 2.0 mm increments.

Volume calculations shall be made in the smaller units. Larger units may be obtained by rounding. The zero inch level shall be the level of the bottom of the gauge tube. Level below the bottom of the shell, including nozzle piping, shall be shown in negative units starting at the lowest point of the shell.

The level of the bottom of the shell, alarm set points, high level shut off valve actuation point, and the level of the overflows shall be identified on the calibration table (strapping chart). Tables shall not include tank volume above the level of overflows.

Provide on electronic media Electronic Tank Calibration Table compatible with the Electronic Automatic Tank Gauging System. Also provide tables identical to the master gauge table in format compatible with Microsoft Excel. Contact Contracting Officer for direction on required format.

3.3.16.1 Tank Calibration Method

Calibrate storage tank in accordance with the API Manual of Petroleum Measurement Standards (API MPMS) using the API MPMS 2.2D, Calibration of Upright Cylindrical Tanks Using the Internal Electro-Optical Distance Ranging Method.

3.4 VALVE REPAIR

Provide professional valve reconditioning services for the tank skin and isolation valves in accordance with API Std 598 and API RP 621. Provide services from an independent reconditioning facility with a documented and established quality assurance program which includes essential elements described in the ISO 9001 standard, and has written procedures compliant with API RP 621.

Disassemble, clean, and inspect all component for dimensional accuracy, surface condition, mating fit, and mechanical integrity. Use PT examination procedures in accordance with this Section and API RP 621. Provide supplementary PT examination of castings or forgings in accordance with Part 8 of ASME B16.34. Replace slips, soft seats, bonnet and cover fasteners, packing, gaskets, and grease fittings. Recondition valves to manufacturer standards and API RP 621. Pressure test each assembled valve compliant with API Std 598. Recoat exterior valve surfaces in accordance with Section 09 97 13.27 EXTERIOR COATING OF STEEL STRUCTURES.

Provide Valve Reconditioning Report and DBB Valve Hydrotest Report for each valve in accordance with paragraph SUBMITTALS. Reinstall valves with new fasteners and gaskets. Commission valves back into service. Verify proper operation through the entire range. Ensure plug rotation towards open lifts the plug without wiping the seals and retracts the sealing slips so clearance is maintained between the slips and valve body. Verify full range of operation.

Adjust motor operator limit switches and torque settings to provide proper operation. Verify operation through its entire range and demonstrate to Government proper operation prior to requesting return to service.

3.4.1 Valve Operation

Valve shall operate from fully open to fully closed by rotation of the handwheel to lift and turn the plug. Rotation of the plug toward open shall lift the plug without wiping the seals and retract the sealing slips so that clearance is maintained between sealing slips and valve body. Rotation of the handwheel toward closed shall lower the plug after sealing slips are aligned with the valve body and force the sealing slips against the valve body for positive closure. When valve is closed, slips shall form a secondary fire-safe metal to metal seat on both sides of the resilient seal.

3.5 INSPECTION, EXAMINATION, AND TESTING

3.5.1 Inspection of Repairs

Provide inspector and engineering oversight during construction by the tank inspector of record and tank engineer. Provide an on-site in-progress presence by the API inspector of record to review and audit work . During the in-progress review, validate nondestructive testing results, evaluate weld quality, validate weld spacing meets API Std 653 criteria, and assess overall quality of repair work. Document results, prepare, and submit a brief report of Audit Inspection Findings.

During the construction phase, conduct review, inspection, and reporting by the tank inspector of record and the tank engineer. Provide:

a. Contemporaneous review of construction inspection, test, and examination records

b. Audit review of quality control reports, testimony photographs, repair log,and weld tracking log

c. In-progress review inspection at a minimum frequency of one review per every fifty repairs and no less than three on-site reviews

d. Prefinal inspection

e. Post-Repair Inspection Report

3.5.2 Weld Inspection

Welding personnel found making defective welds shall be removed from the work by the Quality Control Manager. The weld inspector(s) is considered a QC Specialist in accordance with paragraph WELD INSPECTION.

Perform weld inspection and NDE to detect surface and internal discontinuities in completed welds. Provide the services of independent NDE testing services for all nondestructive testing and inspection. Service organization shall meet requirements of paragraph QUALIFICATIONS and be approved by the Contracting Officer.

All tack welds, weld passes, and completed welds shall be visually inspected. In addition, perform magnetic particle examination on all root passes. Radiographic examination is required as indicated below. In addition to visual inspection, examine every weld with another method such as MT, PT, or RT.

When inspection and testing indicates disqualifying defects in a weld joint, the weld shall be repaired by a qualified welder in accordance with paragraph CORRECTION AND REWORK. The Contractor shall submit weld inspection and NDE field examination reports to the Contracting Officer.

Provide non-destructive examinations and inspections in accordance with paragraph NDE SCHEDULE.

3.5.2.1 Weld Inspector Duties

a. Verify the base materials and consumable welding materials conform to the specifications and that welding filler metals used are as specified for each base material.

b. Verify the welding equipment to be used for the work is appropriate for use with the welding procedure specification and has the capability to meet the applicable requirements of the welding procedure.

c. Verify only qualified and approved welding procedures are used.

d. Verify the edge preparation or joint geometry meet the requirements of the welding procedure and drawings.

e. Verify the specified filler metals are used and that filler metals are maintained in proper condition, per requirements, or as recommended by the manufacturer.

f. Verify procedure qualification and welding personnel qualifications are compliant with the weld plan.

g. Verify the technique and performance of each welding personnel is as specified.

h. Verify the work conforms to requirements of this Section, applicable standards, weld plan, design drawings, and manufacturer requirements.

i. Verify the work inspected is identified and documented in accordance with specified requirements.

j. Prepare and maintain clear and concise reports which record results of the inspections and examinations.

k. Verify the approved WPS pre-heat and post heat procedures are being used.

3.5.2.2 Visual Inspection

Inspect weld joints visually as follows:

a. Before welding: Compliance with requirements for joint preparation, alignment and fit-up, and cleanliness.

b. During welding: Cracks and conformance to the approved welding procedure.

c. After welding: Cracks, contour and finish, bead reinforcement, undercutting, overlap, weld slag on the interior of the pipe and size of welds. Visual examination of the interior of the pipe may be performed by any of the remote means allowed by ASME BPVC SEC V, visual inspection.

d. Enhance visual acuity with a magnifying lens of 5X power wherever required to discern indications otherwise not clear. Measure size and contour of welds with suitable gages.

3.5.3 NDE

The services of a qualified testing agency approved by the Contracting Officer shall be employed by the Contractor for testing of piping welds. Costs of testing, including retesting of repaired welds, shall be borne by the Contractor. Procedures for radiographic inspection shall be in accordance with NAVSEA T9074-AS-GIB-010/271 or ASTM E94. Weld ripples or

surface irregularities that might mask or be confused with the radiographic image of any objectionable defect shall be removed by grinding, or other suitable mechanical means. The weld surface shall be merged smoothly with the base metal surface.

Perform NDE as required by the weld inspector, this Section, ASME B31.3, and in accordance with written procedures. Procedures for radiographic, liquid penetrant, magnetic particle, or ultrasonic tests and methods shall conform to paragraph NDE PROCEDURE STANDARDS. Each approved procedure shall be demonstrated to the satisfaction of the Contracting Officer. In addition to the essential variables required in paragraph NDE PROCEDURE STANDARDS, the written procedures shall include the timing of the NDE in relation to the welding operations and safety precautions.

3.5.3.1 NDE Methods

a. Magnetic Particle: Perform magnetic particle inspection with the wet method and fluorescent particle material. The inspection zone shall include the weld and 1/2 inch of adjacent base material on each side of the weld.

b. Liquid Penetrant: Perform liquid penetrant exams prior to ultrasonic inspections on the same surfaces to avoid interference between the penetrant dye and residual couplant.

c. Vacuum Box: Apply a commercial bubble forming solution and subject the area of interest to a partial vacuum. Use a glass top vacuum box with hypalon or neoprene sealing gasket. Observe the solution film for bubble formation at an initial 2 psig differential pressure. Increase differential pressure to 5 psig. Hold vacuum for at least 20 seconds while continuing to observe the solution for bubbles. Minimum light intensity at the examination surface shall be 100 foot-candles.

d. PMI: Baseline the PMI instrument with reference spectra from the chemical analysis and pedigree report data. Analyze PMI results to determine whether variation exists with respect to base metal composition. Should variation in base metal composition be encountered, notify the Designer of Record and revise the weld plan for the localized condition.

3.5.3.2 NDE Frequency

Conduct NDE of all welding. The frequency of NDE shall be in accordance with paragraph NDE SCHEDULE. Provide VBT on all welding performed on the tank hydraulic boundary. Provide either PT or MT on all welding. Provide 100 percent radiographic testing for welds on underground piping.

All piping field welds shall be examined by radiographic methods to determine conformance with acceptance criteria in this Section. Provide random radiographic testing in accordance with ASME B31.3 for all aboveground piping on no less than twenty percent of welds. Random testing shall include RT of welds made by each welding operator or welder. Where RT is infeasible, perform PT of the root pass and the final surface of each joint. Employ the services of a qualified commercial or testing laboratory approved by the Contracting Officer for testing of piping welds.

If the testing reveals that any welds fail to meet minimum quality requirements, provide progressive sampling of welds in that same group in accordance with ASME B31.3. If all of the additional welds inspected meet

the quality requirements, the entire group of welds represented shall be accepted and the defective welds shall be repaired. If any of the additional welds inspected also fail to meet the quality requirements, that entire group of welds is rejected. The rejected welds shall be removed and rewelded, or the rejected welds shall be 100 percent inspected and all defective weld areas removed and rewelded.

3.5.3.3 NDE Schedule

Tank		NDE	
Location	Repair / Weld Type	Frequency	Method
Floor, lower dome, barrel, extension ring, upper dome	Full penetration butt joint weld	Each pass	VT
		Final pass	VT, MT, VBT
	Fillet weld	Each pass	VT
		Final pass	VT, MT, VBT
	Weld repair	Final pass	VT, UT, MT, VBT; Note 1
	Weld metal buildup	Final pass	UT, MT, VBT; Note 2
	Hole < 0.5 inch dia	Each pass	VT
		Final pass	VT, MT, VBT
	Cutline	Each	VT; Note 3
	Attachments		VT, MT, VBT
	Removal of attachments		VT, MT, VBT
	Insert plate	Each pass	VT
		Final pass	VT, MT, VBT
	Gouge, pit	Final pass	VT, MT, VBT

Tank		NDE	
	Adjacent to proposed weld	Barrel: Each row Upper Dome: Three Lower Dome: Five Tower/Catwalk: Three	PMI
Upper dome cover channels	Seal weld	Final pass	VBT
Nozzle	Butt joint weld	Root pass	PT
		Cover pass	PT
	Fillet weld		VT, MT
	Reinforcemen plate		VT, pneumatic, MT
Drain line	Butt weld	Root pass	RT or PT
		Cover pass	RT or PT
Sample line	Butt weld	Root pass	RT or PT
		Cover pass	RT or PT
Gas test hole	Groove weld	Final pass	VT, MT
	Weld overlay	Final pass	VT, VBT
Interior piping		Final pass	VT, MT
Tower, Bridge, Catwalk	Butt weld; Fillet weld	Final pass	VT, MT
Guardrail, intermediate rail, toe board	Butt weld; Fillet weld	Final pass	VT, MT
Base of tower legs - bottom plate joint		Prior to coating	SWUT
		After construction loads on tower removed, prior to	VBT

Note 1. Examination of a weld repair shall be repeated as required for the original weld.

Note 2. Examine the parent material with UT beneath the weld metal buildup to detect laminar defects after weld metal buildup.

Note 3. Examine the cutline for laminations, scale, burrs.

3.5.3.4 NDE Acceptance

NDE Acceptance shall be in accordance with API Std 653, API Std 650, ASME B31.3 Chapter VI, AWS D1.1/D1.1M,and this Section.

Interpretation of test results and limitations on imperfections in welds shall comply with the requirements of 100 percent radiography as defined in ASME B31.3. When NDE reveals imperfections of a type or magnitude not acceptable by the criteria specified in this Section, then progressive sampling for examination requirements in ASME B31.1 Chapter VI are triggered. Acceptance criteria are in the paragraph NDE ACCEPTANCE CRITERIA and notes.

3.5.3.5 NDE Acceptance Criteria

Method	Acceptance Criteria	Note
MFL	API Std 653 Annex G	
UT	ASME B31.3 Chapter VI	1
UT in lieu of RT	API Std 650 Annex U	1
VBT	API Std 650 8.6	
PT	ASME BPVC SEC VIII Appendix 8	2
MT	ASME BPVC SEC VIII Appendix 6	3
RT	API 650 8.1 / ASME B31.3	4
VT	AWS D1.1/D1.1M Table 6.1 / API Std 650 8.5	5
PMI	ASME BPVC SEC II-A	6

Note 1. Imperfections which produce a response amplitude greater than 20% of the reference level shall be investigated to the extent the operator can determine the shape, identity, and location of all such imperfections. Imperfections are unacceptable if the indications exceed the reference level amplitude and have lengths exceeding criteria in ASME B31.3 Chapter VI. In addition, indications characterized as cracks, lack of fusion, or incomplete penetration are unacceptable regardless of length.

Note 2. Indications with any dimension greater than 1/16 of an inch shall be considered relevant. All surfaces examined shall be free of ten or more rounded indications in any 6 square inches of surface, with the major dimension of this area not to exceed 6 inches, and the area taken in the most unfavorable location relative to the indications being evaluated.

Note 3. Indications with any dimension greater than 1/16 of an inch shall be considered relevant. All surfaces examined shall be free of ten or more rounded indications in any 6 square inches of surface, with the major dimension of this area not to exceed 6 inches, and the area taken in the most unfavorable location relative to the indications being evaluated.

Note 4. Acceptance criteria for all pipe and piping welds per ASME B31.3 Table 341.3.2 Severe Cyclic Conditions.

Note 5. Acceptance criteria per AWS D1.1/D1.1M except for surface porosity or exposed slag inclusion. Acceptance criteria for the extent of porosity or exposed slag inclusion is zero (no apparent imperfection) for welds less than or equal to 3/16 inch nominal thickness, and per API Std 650 8.5 for welds greater than 3/16 inch nominal thickness.

Note 6. Within the permitted variation in product analysis pursuant to ASME BPVC SEC II-A Table A.

3.5.4 Hydrostatic Testing

Isolate each test segment. Perform hydrostatic testing on nozzle, drain line, containment pipe, and sample line piping. Notify the Contracting Officer 14 calendar days in advance of testing. Hydrostatic testing shall not begin until permission is granted by the Contracting Officer. Only authorized personnel shall be permitted in the area during hydrostatic testing.

3.5.4.1 Instruments

Instruments shall be clean, in good working order, and within the calibration interval. Instruments without a calibration certificate shall not be used.

Calibrate all test instruments against a standard by a laboratory A2LA accredited to ISO 17025. Calibration shall have taken place no more than 6 months prior to the hydrostatic testing. Calibration certificates shall include the Model, Serial Number, date of certification and shall be signed by the testing company. Provide current Instrument Calibration Certificate for measurement instruments.

Provide indicating pressure test gauge connected directly to the segment and readily visible to the operator controlling pressure for the duration of the test. Analog type gauges shall be compliant with ASME B40.100 Grade 3A, accurate to ±0.25 percent full scale, graduated over a range not less than 1-1/2 times nor more than 4 times the test pressure, and incremented no greater than 0.5 psi.

Digital type pressure gauge shall be integral transducer type, compliant with ASME B40.100 Grade 3A, and accurate to ±0.25 percent full scale.

Provide digital contact thermometer incremented to 0.1 degree F or less. Memorialize pressure data with analog chart recorder. Transducers shall have a range not less than 1.5 times and not greater than 4 times the pressure being tested.

Use calibrated continuous recorders (dataloggers) with adequate storage capacity to record temperature and pressure data. Use the same time

interval for both measurements.

Measure the volume of test medium with a calibrated meter.

3.5.4.2 Procedure

For inaccessible piping, account for the volume of any test medium added or removed by measuring with a calibrated meter.

After filling has been completed, allow the test section to stabilize at twenty-five percent of the test pressure for twenty-four hours or until a temperature-time plot is asymptotic to ground temperature. Start pressure and temperature recorders prior to pressurization and run throughout the stabilization period to ensure proper stabilization has taken place before starting the hydrotest.

Test parameters are in paragraph HYDROSTATIC TEST PARAMETERS. Maintain segment at a steady test presure condition for a minimum of 15 minutes prior to initiation of examination for leakage. Examine piping, joints, and connections of accessible piping for leaks while maintaining test pressure. Leakage of temporary gaskets and seals, installed for the purpose of conducting the hydrostatic test and which will be replaced later, is permitted unless the leakage rate precludes maintenance of system test pressure for the required duration. Personnel performing the examination for leaks shall be qualified for visual examination. Extend the test interval as needed to ensure positive reconciliation of test data. Monitor temperature and pressure. Analyze consistent error, inconsistent error, the magnitude of any lost volume, and pressure versus temperature data trends.

Provide certification from the hydrostatic test examiner the piping segments are either pass or fail. Inconclusive results are not acceptable. Provide written Hydrostatic Test Record.

3.5.4.3 Hydrostatic Test Parameters

Piping Segment	Test Pressure	Test Duration (Hours)	Acceptance Criteria
Drain Line (accessible)	225 psig	4	No leak condition; no loss in gauge pressure
Drain Line (inaccessible)	162.5 psig	8	Inconsistent error less than 1 degree F
Sample Line	225 psig	4	No leak condition; no loss in gauge pressure
Telltale	225 psig	4	No leak condition; no loss in gauge pressure
Nozzle	162.5 psig	8	Inconsistent error less than 1 degree F
Carrier	162.5 psig	8	Inconsistent error less than 1 degree F

3.5.4.4 Test Water

Remove test water from segment upon completion of test. Apply for coverage under the State Department of Health Hawaii Administrative Rules 11-55 NPDES General Permit Authorizing Discharges of Hydrotesting Waters.

Sample, test, and characterize the water pursuant to the General Permit. Provide Test Water Characterization results to the Contracting Officer.

3.5.4.5 Disposal of Hydrostatic Test Water

If test results exceed allowable discharge limits in the General Permit, dispose of the water off installation in an appropriate manner. If discharge is allowed under the General Permit, provide a Test Water Disposal Plan to the contracting officer for approval. Water discharged on the surface shall be in a slow and controlled manner which will not result in erosion or migration outside the disposal area.

3.5.5 Inspection and Tests by the Government

The Government may perform inspection and supplemental nondestructive or destructive tests as deemed necessary. The cost of supplemental NDE will be borne by the Government. The correction and repair of defects and the re-examination of weld repairs shall be performed by the Contractor at no additional cost to the Government. Inspection and tests will be performed as required for visual inspection and NDE, except that destructive tests may be required also.

When destructive tests are ordered by the Contracting Officer and performed by the Contractor and the specimens or other supplemental examinations indicate that the materials and workmanship do not conform to the contract requirements, the cost of the tests, corrections, and repairs shall be borne by the Contractor. When the specimens or other supplemental examinations of destructive tests indicate that materials or workmanship do conform to the specification requirements, the cost of the tests and repairs will be borne by the Government.

When destructive tests are made, repairs shall be made by qualified welders or welding operators using welding procedures which will develop the full strength of the members cut. Welding shall be subject to inspection and tests in the mill, shop, and field. When materials or workmanship do not conform to the specification requirements, the work may be rejected at any time before final acceptance of the system containing the weldment.

In addition to inspection and test performed in compliance with this Section, the Contracting Officer may perform inspection and testing while work is in progress and at the completion of the work. The Contracting Officer shall have entry and access to all parts of the job while work is being performed. Provide access to the work surfaces necessary for Government inspection and testing.

3.6 CORRECTION AND REWORK

The tank shall be free from leaks and shall meet requirements of the Contract Documents. Correct defective and non-conforming work. Final determination of items requiring corrective action will be made by the Contracting Officer. When inspection and testing indicates defects in weld joints, repair the welds using a qualified welder.

3.6.1 Damage

Any damage, distortion, or deformation to any part of the tank or tank appurtenances resulting from the work shall be brought to the attention of the Contracting Officer within 24 hours of identification.

In the event faulty welding, or its removal for rewelding, damages the base metal so that in the judgment of the Contracting Officer its retention is not in conformance with the intent of the contract documents, remove and replace the damaged base metal.

Provide design and methods to repair the damage, distortion, or deformation to the Contracting Officer for approval. Conduct repair, inspection, and NDE examination of the repair in accordance with this Section.

3.6.2 Rework

Rework shall be in full compliance with requirements of this Section, API Std 650, and ASME B31.3. Repair defects in accordance with approved procedures. Defects discovered between weld passes shall be repaired before additional weld material is deposited. Wherever a defect is removed but repair by welding is not required, blend the affected area into the adjacent surface to eliminate sharp notches, crevices, or corners.

3.6.2.1 Defect Removal

Correct defective or unsound weld joints by removing and replacing the entire weld joint, or for the following defects corrections shall be made as follows:

a. Excessive Convexity and Overlap: Reduce by removal of excess metal

b. Excessive Concavity of Weld, Undersized Welds, Undercutting: Clean and deposit additional weld metal

c. Excessive Weld Porosity, Inclusions, Lack of Fusion, Incomplete Penetration: Remove defective portions and reweld.

d. Crack in Weld or Base Metal: Remove crack throughout its length, including sound weld metal for a distance of twice the thickness of the base metal or two inches, whichever is less, beyond each end of the crack, followed by the required rewelding. Complete removal shall be confirmed by magnetic particle inspection for carbon steel or liquid penetrant inspection for stainless steel.

3.6.2.2 Grinding

For areas which require grinding, and after all grinding operations are complete, measure and record remaining plate thickness with UT. Conform to requirements in paragraph TANK REPAIR.

3.6.3 Inspection and NDE of Rework

Inspect rework in accordance with all requirements of this Section. After a defect has been removed, re-examine the area with the nondestructive examination method with which it was discovered. Ensure the defect has been removed in accordance with the acceptance criteria in this Section. Any indication of a defect shall be regarded as a defect, unless re-evaluation by non-destructive methods after surface conditioning shows that no unacceptable defect is present. Do not repair an area by welding until the defect has been completely removed. Inspect and examine all reworked areas by repeating the original inspection and examination procedures.

3.7 DATA MANAGEMENT

Populate weld tracking and repair logs daily. Deploy data backup capability which will manage the security, integrity, and restorability risks of the repair database. Limit log edit rights to individuals in a position of trust with a specific need. Provide physical and administrative safeguards which will ensure data integrity

3.8 CLOSEOUT ACTIVITIES

The Tank Engineer and the Tank Inspector of record shall inspect, examine, and approve all repair and alteration work after repairs and alterations have been completed. The tank inspector of record is required to be on-site during additional occasions during construction as noted in Paragraph INSPECTION OF REPAIRS. Certify to the Contracting Officer compliance with this Section, requirements of API Std 653, and suitability for active fuel service. Provide a Post-Repair Inspection Report signed by the Inspector of Record, the independent tank inspector, and the Tank Engineer.

Provide new manway and valve flange gaskets along with new fasteners for all manway and flanged connections which were opened during the work.

3.8.1 Cleaning Interior Surfaces

After completion of the work, clean interior surfaces of the tank to remove all foreign matter such as dirt, debris, grease and oils. Provide interior surfaces free from sources of product contamination, fit for service in [diesel][aviation turbine] fuel storage, and to the satisfaction of the Contracting Officer.

3.8.2 Tower Leg Base Welds

After construction loads on the tower have been removed examine the tower leg to bottom plate welds with VBT.

3.8.3 Inspection During Tank Filling

After work is complete, remain onsite during tank filling. Verify all manways, flanges, gaskets, piping, valves, and other work are secure. Observe the tank being refilled until fuel level reaches full height. Assess for weeps and repair as necessary. Ensure full operation of MOVs.

3.8.4 Tank Return To Service

In order to return a storage tank to the operator fit for service, comply with NAVFAC Red Zone requirements in Section 01 45 00.05 20 DESIGN AND CONSTRUCTION QUALITY CONTROL, and requirements of NAVSUPGLSINST 10345.1. Minimum return to service requirements are:

a. Inspection Report

b. Tank Suitability for Service Statement

c. List of Identified Repairs

d. List of Recommended Repairs

e. List of Pending (Actual) Repairs

f. Calibration (Strapping) Charts

g. Signed statement which declares custody of the tank is returned to the Activity and items a through f above have been provided to the Contracting Officer

3.8.4.1 Completion Report

Upon completion of tank repairs and inspection of the repairs, provide a report. Submit Completion Report in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES. Minimum report contents are:

a. Full tank inspection report pursuant to Section 33 56 17.00 20 INSPECTION OF FUEL STORAGE TANKS.

b. Repair report compiling all design, materials, repairs, quality control documentation, and logs made pursuant to this Section.

c. Quality Control Specialist reports to include independent tank inspector, coating inspector report, and tank engineer report.

d. Suitability for service statement.

e. Inspector of Record name, certification number, and date.

f. Storage Tank Engineer name, license number, and date.

g. Independent Tank Inspector name, certification number, and date.

h. Post-Repair Inspection Report

3.8.4.2 Suitability for Service Statement

This statement shall be a one page document. Include recommended service interval based on the corrosion rate and tank conditions. Specify the due date for the next inspection. Make clear whether the recommended interval is greater than DoD guidance.

-- End of Section --

Tell-Tale Leak Detection and Leak Collection System

1. Introduction

This paper provides a description of the construction of the steel tank shell, the original tell-tale system and its problems, and subsequent improvements that were made to the system.

2. Tank Shell Construction

In order to understand how the tell-tales work to detect and collect fuel that has leaked through the steel plates of the tank shell, it is necessary to understand how the tank shell is constructed. There are three distinct areas of the tank shell: the Upper Dome, the Barrel (cylindrical section of the tank), and the Lower Dome. The arrangement of reinforcing angles welded onto the back side of the shell plates is different in each of the three areas. The reinforcing angles are situated with one leg of the angle flush against the back side of the joint between shell plates to insure a full penetration butt weld. The other leg of the angle is embedded in the concrete that surrounds the tank shell so that it contains and controls the movement of fuel that leaks through the shell plates into the interstitial space between the back side of the shell plates and the concrete.

Upper Dome
The shell plates of the Upper Dome were welded together working from the back side of the plates. There are stiffener angles welded to the back side of the plates, but they do not obstruct the flow of leaked fuel down the back side of the shell plates to the base of the Upper Dome where it pools and moves laterally until it reaches a thru-shell penetration into a tell-tale pipe.

Barrel
The Barrel is made up of rectangular shell plates 19'-7-3/8" wide x 5'-0" and curved lengthwise to a 50' radius. The plates were butt welded together from the front side (the welders were inside the tank). For the vertical butt joints the backer bar on the back side of the joint is a 2-inch wide flat bar. For the horizontal butt joints the backer bar is a 2½" x 3" x 5/16" reinforcing angle, with one leg of the angle flush against the back side of the joint and the other leg embedded in the surrounding concrete. The embedded leg of the reinforcing angle behind the horizontal joint serves to isolate the back side of each 5-foot high ring of shell plates as a separate compartment. A fuel leak through the shell plate in the Barrel of the tank flows downward 5-feet or less until it reaches the embedded leg of the horizontal reinforcing angle, then it moves laterally along the angle leg until it reaches a thru-shell penetration into a tell-tale pipe.

Lower Dome
The shell plates in the Lower Dome were butt welded together from the front side. Both the vertical and horizontal joints between shell plates used 2½" x 3" x 5/16" reinforcing angles as the backer bar. The embedded legs of the reinforcing angles make the interstitial space behind each shell plate an individual compartment. A leak through any given shell plate must be "jumped" downward from plate to plate until it reaches the collector ring around the perimeter of the 20-foot diameter bottom plate at the center of the Lower Dome.

3. Original Design and Construction of Tell-tale System and System Operational Problems

Upper Dome and Barrel
The original construction of the tell-tale leak detection system consisted of 11 vertical pipes equally spaced around the perimeter of each tank. Starting from a point just above the base of the Upper Dome the pipes ran vertically down the wall of the Barrel inside the tank, penetrated the shell in the Lower Dome, ran through the concrete plug under the tank, and ended at a monitoring station in the Lower Access Tunnel near the skin valves for each tank. The top thru-shell penetration connected to the tell-tale pipe was located just above base of the Upper Dome to collect any leakage from the Upper Dome. The bottom thru-shell penetration connected to the tell-tale pipe was just above the horizontal joint between the bottom of the Barrel and the top of the Lower Dome. Between the top and bottom thru-shell penetrations, thru –shell penetrations located every 5-feet just above each horizontal butt-welded joint between shell plates were connected to the vertical tell-tale pipe. In this way the tell-tales pipes were designed to collect any fuel that leaked through a hole in a shell plate (or through a hole in a shell plate weld) into the interstitial space between the back side of the steel shell plates and the inner side of the reinforced concrete wall, and deliver the fuel to the Lower Access Tunnel to indicate the presence of a leak.

Lower Dome
The Lower Dome of the tank was served by 165 jumper pipes, a collector ring around the perimeter of the 20' diameter flat plate at the center of the tank bottom, and a single 12th tell-tale pipe that collected all

leakage from the Lower Dome and delivered it to the monitoring station in the Lower Access Tunnel. As noted previously, because the back side of each shell plate in the Lower Dome was an individually contained compartment, jumper pipes were needed to move the leaked fuel down from plate to plate until it reached the collector ring and the 12th tell-tale pipe.

Use of Tell-tales in Original Construction
During the original construction of the tanks, the tell-tale pipes were used in reverse, i.e., compressed air was introduced into the tell-tales in the Lower Access Tunnel and the tell-tales delivered the compressed into the space behind the steel shell plates. With water in the tank, any air coming through a hole in a shell plate or a hole through a shell plate weld manifested itself in the form of bubbles which could be readily detected and the hole(s) marked for patching.

Operational Problems
The tell-tale leak detection system worked, but there were several problems with its design that prevented optimal performance:

- The tell-tale pipes were only ¾" diameter and in the event of a tank leak could become plugged with the solid materials contained in the heavy fuel oil that was stored at Red Hill in the early years, thereby stopping the tell-tale pipe from identifying the leak. With the top of the tell-tale pipe at a level just above the bottom of the Upper Dome there was no way to access it to blow or flush out a blockage in the pipe without first draining, cleaning, ventilating, and scaffolding the tank to allow the tell-tale pipe to be cut, cleaned, and repaired.
- The tell-tale pipes were standard wall thickness and ran down into the very bottom of the tanks where they were exposed to corrosive salt water that settled out of the fuel. With no corrosion allowance in the relatively thin pipe wall, the tank bottom water eventually corroded holes through the pipe wall, thereby causing the tell-tale pipe to indicate a tank leak when actually it was a leak in the tell-tale pipe itself. It should be noted that from 1942 when Red Hill came into service until the early 1960s when the Chevron refinery at Barbers Point started producing fuel, all fuel was delivered to Red Hill from tankers mostly coming from the West Coast. As waves washed over the deck of the fully loaded tankers, sea water entered the tank vents and settled to the bottom of the cargo tanks until it was discharged along with the fuel to the Red Hill tanks..

4. Improvements to the Tell-tale System

Melvin Miller, the Fuel Department Superintendent from the late-1940s through early-1970s and Charles Boerner, the PACDIV engineer who oversaw the construction of Red Hill and served as the resident in-house expert from 1941 until he retired in the early 1970s, both understood the problems with the tell-tales and worked to correct them with two separate rehab projects.

FY-59 POL Conversion Project

In 1960-1963 the tell-tales were modified and improved in Tanks 17-20. Improvements included:

- Increasing the pipe diameter from ¾" to 1½" to prevent clogging.
- Increasing the wall thickness from standard to extra heavy to provide corrosion allowance.

The 1963 improvements to the tell-tales remain in Tank 19 only.

FY-70 Special Project R1-67
In 1971-1973 in addition to the design improvements made in 1963, two more improvements to the tell-tale design were installed in Tanks 5, 6, and 12.
They were:

- Extending the pipes up into the Gauging Gallery at the top of the tank where they could be readily accessed for flushing and cleaning.
- Relocating the point at which the tell-tale pipes exit the tank to well above the tank bottom so the pipes would not be exposed to the corrosive effect of tank bottom water.

Unfortunately, in the early 1970s Mr. Boerner retired and Mr. Miller died before he retired, so neither man was available to defend the improvements they made to the tell-tale design in Tanks 5, 6, and 12 when the design for MILCON P-060 to rehab Tanks 1-16 started in 1977.

Subsequently, a design decision was made that MILCON P-060 should remove the tell-tale systems from Tanks 1-16 altogether.

5. Problems Created by Removing Tell-tales

- Removed a tool for potentially identifying and locating leaks, and collecting leaked fuel before it migrates into the surrounding rock.
- Eliminated a way to drain off any rainwater that percolates down through the lava rock and finds its way into the space between the back side of the steel shell plates and the inner side of the concrete wall. The standing water could cause accelerated corrosion of the back side of the steel shell plate.
- Eliminated the ability to relieve the buildup of hydrostatic pressure outside the tank shell working to force leaked fuel through the concrete outer shell and into the surrounding lava rock.

OPNAV 5216/144 (REV. 6-70)
S/N 0107 778 8099

DEPARTMENT OF THE NAVY

Memorandum

Mr Miller
NSC-Fuel Dept.

DATE: 10 Mar 1972

705

FROM 48A1

TO 48
48A

SUBJ Red Hill Fuel Leaks

Ref: (a) NSC PEARL 090117Z MAR 72

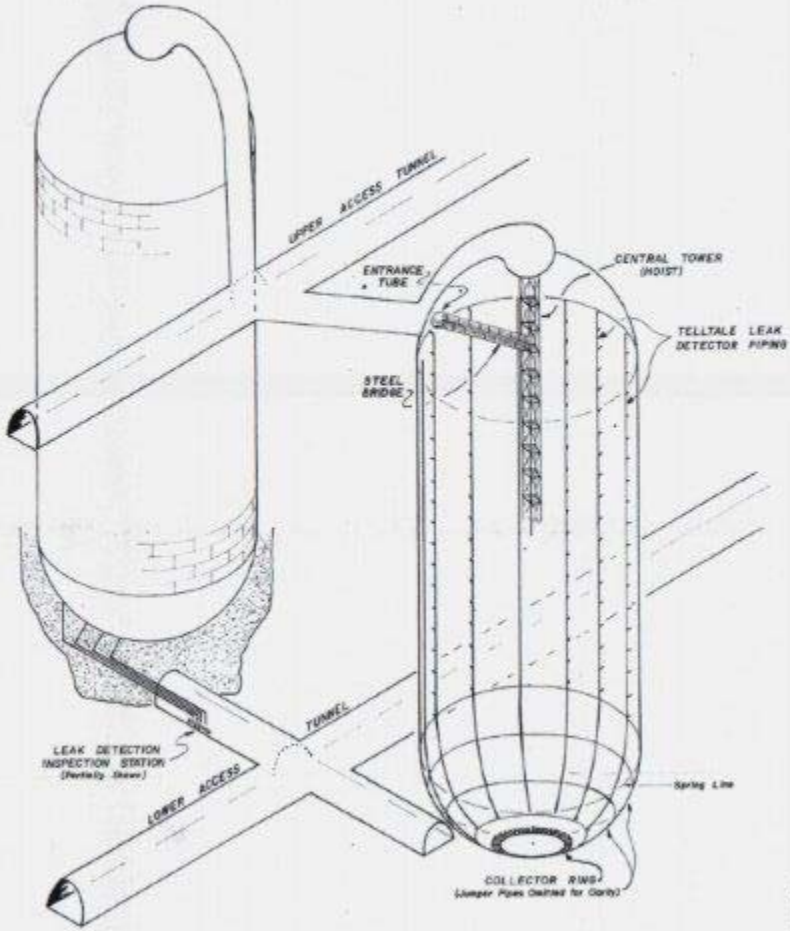
1. The suggested threat of potential pollution of the Red Hill potable water aquifer which lies less than 100' under the Red Hill tanks is real. This threat was one of the main reasons for the installation of the tell-tale piping system in each tank. This is also the reason why every effort should be made to continue the incremental funding for follow-on tank repair projects to keep tell-tales open and functioning.

2. The tell-tale system is the only real indicator of leakage in that a certain amount of the fuel is actually recovered as evidence of leakage. The new electronic gaging system is a highly sensitive and very accurate method of monitoring the fuel in the tank, but it does not compensate for the expansion and contraction of the fuel due to temperature changes. This temperature change is usually the cause for difference between tell-tale quantity and gaging quantity. (One degree change in temperature of full tank equates to 150 bbls of fuel). The tell-tale quantities will vary in accordance with quantity which might seep through concrete lining and gunite lining behind the plate lining and into the surrounding rock. However, precautions taken during original construction, and the extensive pressure grouting of the lining system and surrounding rock, made seepage of leaking fuel into the rock very improbable. This, however, is not the case if the tell-tales are not working or removed since a leak through the plate liner in the lower section of the tank, without tell-tale "relief", would subject the surrounding ground to up to 100#/sq.in. head pressures depending upon the height of fuel in the tank above the leak.

3. A recommended added precaution to protect the fresh water aquifer would be a series of two" diameter horizontally drilled holes into the porous rock under each tank to intercept and drain into the lower tunnel leaking fuel which may not have been picked up by the tell-tale system.

4. The above has been discussed with Mr. Miller, NSC PEARL.

C. H. BOERNER, PE

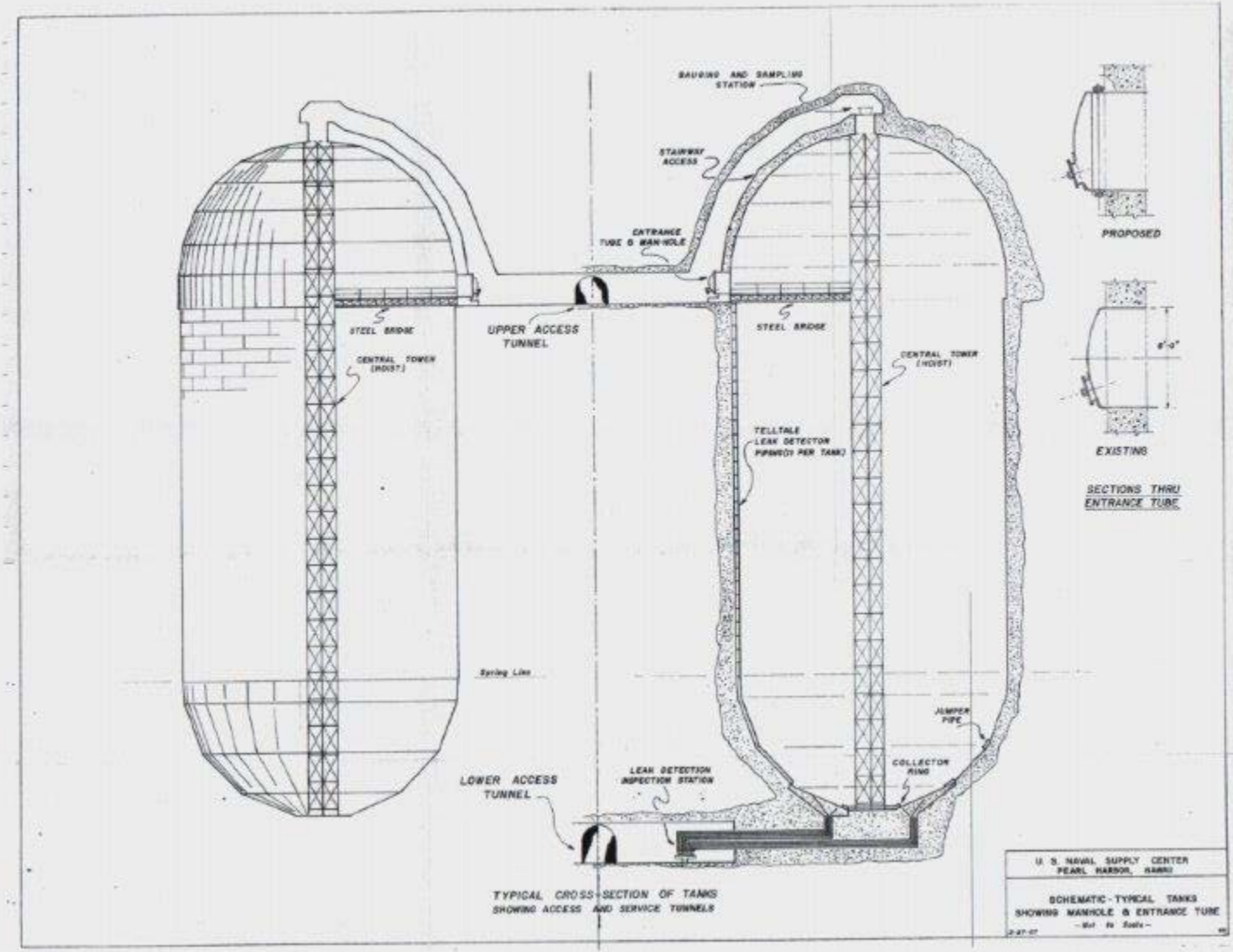


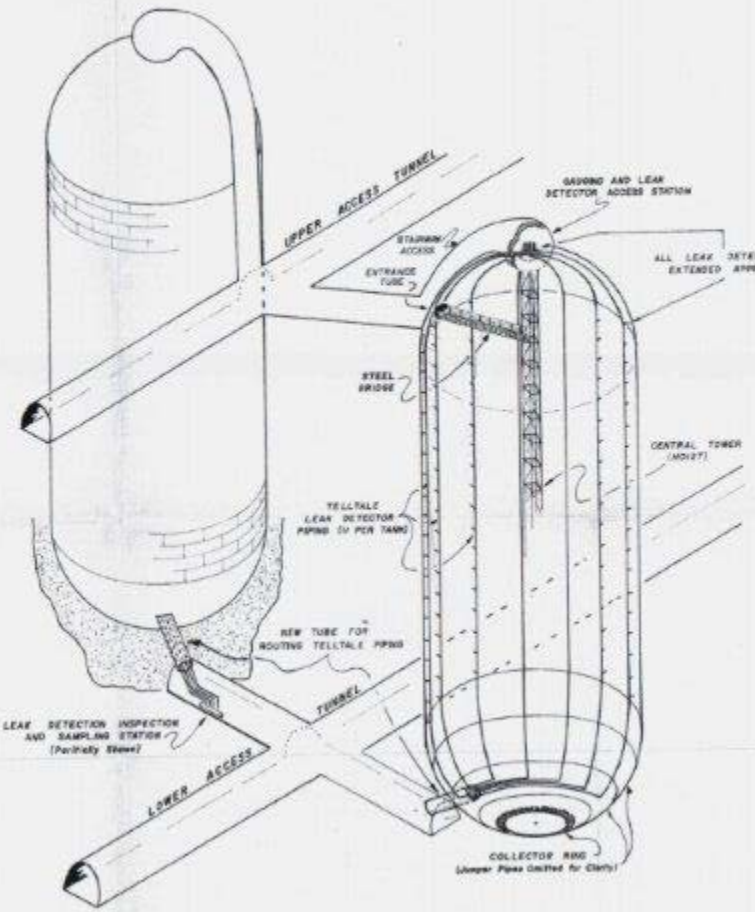
U. S. NAVAL SUPPLY CENTER
PEARL HARBOR, HAWAII

ISOMETRIC DEPICTING
INTERNAL DETAILS OF TANKS
—Not to Scale—

Enclosure (1)

11

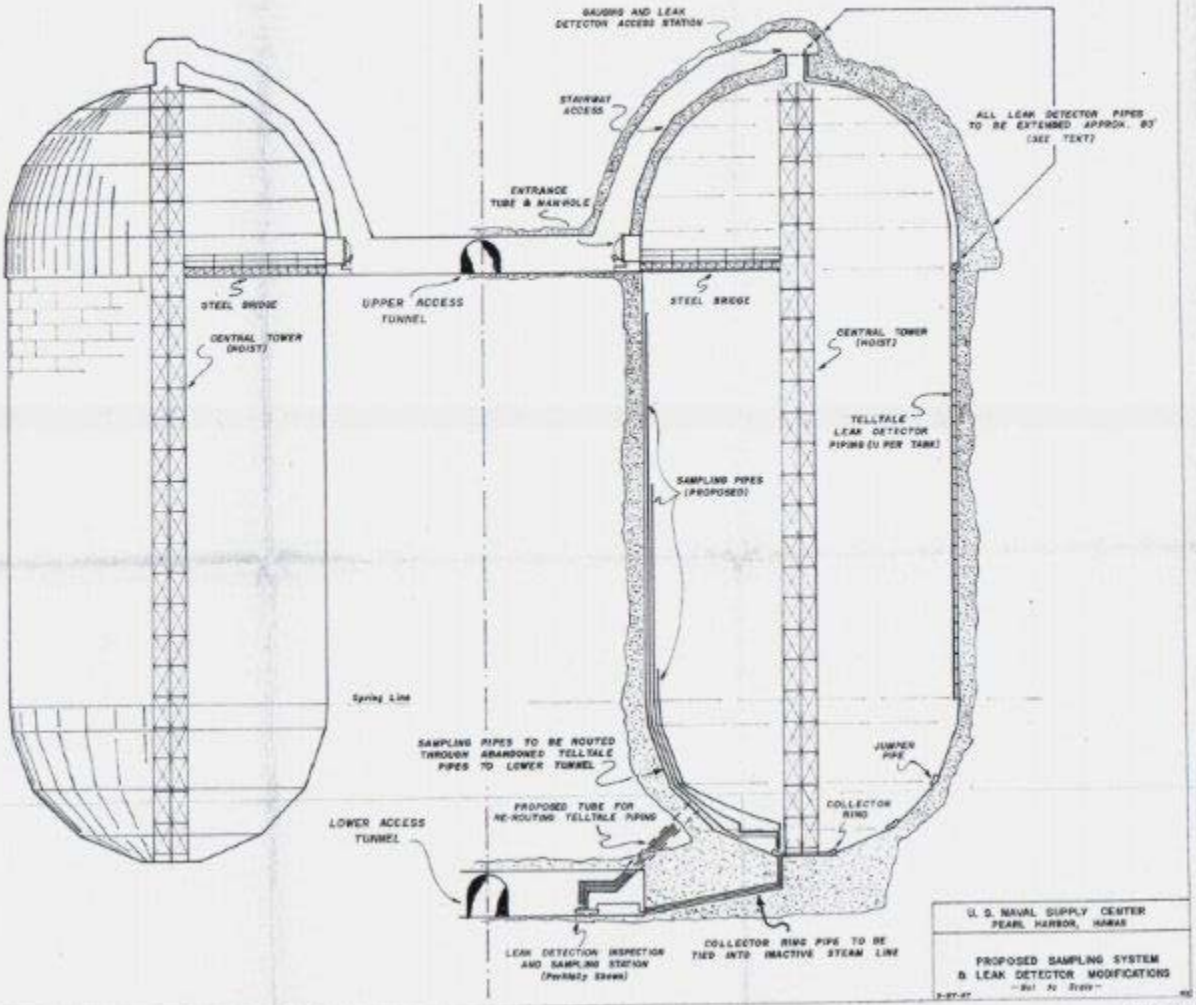

GAUGING AND SAMPLING STATION
STAIRWAY ACCESS
ENTRANCE TUBE & MAN-HOLE
STEEL BRIDGE
UPPER ACCESS TUNNEL
CENTRAL TOWER (HOIST)
STEEL BRIDGE
CENTRAL TOWER (HOIST)
TELLTALE LEAK DETECTOR PIPE(S) PER TANK)
Spring Line
JUMPER PIPE
COLLECTOR RING
LOWER ACCESS TUNNEL
LEAK DETECTION INSPECTION STATION
PROPOSED
8'-0"
EXISTING
SECTIONS THRU ENTRANCE TUBE
TYPICAL CROSS-SECTION OF TANKS SHOWING ACCESS AND SERVICE TUNNELS
U. S. NAVAL SUPPLY CENTER PEARL HARBOR, HAWAII
SCHEMATIC - TYPICAL TANKS SHOWING MANHOLE & ENTRANCE TUBE
- Not to Scale -



U. S. NAVAL SUPPLY CENTER
PEARL HARBOR, HAWAII

PROPOSED TELLTALE SYSTEM
WITH ALL REQUIRED CHANGES

9-27-67 — Not to Scale —


GAUGING AND LEAK DETECTOR ACCESS STATION
STAIRWAY ACCESS
ALL LEAK DETECTOR PIPES TO BE EXTENDED APPROX. 83' (SEE TEXT)
ENTRANCE TUBE & MANHOLE
STEEL BRIDGE
UPPER ACCESS TUNNEL
STEEL BRIDGE
CENTRAL TOWER (HOIST)
CENTRAL TOWER (HOIST)
TELLTALE LEAK DETECTOR PIPING (U PER TANK)
SAMPLING PIPES (PROPOSED)
Spring Line
SAMPLING PIPES TO BE ROUTED THROUGH ABANDONED TELLTALE PIPES TO LOWER TUNNEL
JUMPER PIPE
PROPOSED TUBE FOR RE-ROUTING TELLTALE PIPING
COLLECTOR RING
LOWER ACCESS TUNNEL
LEAK DETECTION INSPECTION AND SAMPLING STATION (Partially Shown)
COLLECTOR RING PIPE TO BE TIED INTO INACTIVE STEAM LINE
U. S. NAVAL SUPPLY CENTER
PEARL HARBOR, HAWAII
PROPOSED SAMPLING SYSTEM & LEAK DETECTOR MODIFICATIONS

DEFENSE LOGISTICS AGENCY
HEADQUARTERS
8725 JOHN J. KINGMAN ROAD
FORT BELVOIR, VIRGINIA 22060-6221

IN REPLY REFER TO DES-I

DEC 16 2009

MEMORANDUM FOR DIRECTOR, DEFENSE ENERGY SUPPORT CENTER

SUBJECT: Automated Tank Gauge (ATG) Installation Policy

Based on the Defense Energy Support Center ATG installation study, this memorandum establishes standardized DoD-wide criteria for all large fuel tanks (capacity greater than 30,000 gals). All tanks in this category will be fitted with ENRAF servo gauges with a combination temperature/water probe and installed in slotted stilling wells (sized as required). Facilities that have existing Automated Fuel Handling Equipment systems, with ATG probes other than ENRAF, shall have those ATG probes replaced with an ENRAF ATG solution when stilling well requirements are met.

The attached documents provide more details on these criteria. Point of contact for DES-I is (b) (6), and (b) (6).

(b) (6)

Staff Director
Installations Management

Attachment

AUTOMATED TANK GAUGE (ATG) INSTALLATION GUIDANCE

A. The following design/ installation guidance for ENRAF ATG probe and stilling wells are provided to accommodate the multiple possible configurations:

1. For tanks constructed with floating roofs or internal floating pans, the recommended stilling well installation is two (2) fully slotted stilling wells; one 6" well located directly over the sump (if feasible) and one 8" well located at a point on the tank that is either at or below the existing datum plate. Two (2) 6" slotted stilling wells are acceptable alternative configurations only if the 8" slotted stilling well is not feasible.

2. For tanks constructed with a fixed roof and no internal floating pan, the recommended stilling well installation is one (1) 8" slotted stilling well located at a point on the tank that is either at or below the existing datum plate. A separate 6" top-side riser shall also be installed directly over the sump (if feasible). A 6" slotted stilling well and a 6"center riser are acceptable alternative configurations only if the 8" slotted stilling well installation is not feasible.

3. A 10" slotted stilling well with an inner 2" slotted stilling well is not the preferred configuration and should be the last configuration considered. This type of stilling well should only be considered in special cases where only one tank penetration is feasible; such as domes with cone roofs or steep inclines, snow roofs, geodesic dome roofs with an internal floating pan, cut and cover tanks with limited penetration access or other non-standard tank roof configurations.

4. Smaller tanks (capacity less than or equal to 30,000 gals) with gauge heights less than 12 feet shall be fitted with Veeder-Root ATG probes and monitoring console. When gauge heights are greater than 12 feet, MTS ATG probes shall be installed with a Ronan monitoring console. Veeder-Root and MTS ATG probes have integrated temperature and water sensors and do not require stilling wells on fixed roof tanks without a floating pan. For these tanks, minimum of 4" risers will be installed at a point on the tank that is either at or below the existing datum plate or at the lowest feasible point in the tank.

5. Vapor Sleeve: Vapor sleeves are no longer required to be provided for installation on ATG slotted stilling wells as detailed in Section 6-14.2.4.1 of the Unified Facilities Criteria (UFC) 3-600-01, 26 September 2006, Change 1, 14 July, 2009. This is only allowed when one 6" and one 8" slotted stilling wells, or two 6" slotted wells, or one 10" slotted stilling well are installed.

6. Normally, the ATG installation will be accomplished in coordination with American Petroleum Institute (API)-653 inspection and stilling well modifications of the existing tanks. When tanks at a facility receive full or modified API-653 inspections; ATG slotted stilling wells and temperature/water probe slotted stilling wells will be installed as part of the API-653 effort. The installation of the ATG slotted stilling wells and temperature/water probe slotted stilling wells will be accomplished thru the Corps of Engineers (USACE), Naval

Facilities Engineering Command, (NAVFAC), and Air Force Civil Engineering Support Agency (AFCESA). ATG probe and temperature/water probe installation for the existing tanks, including connectivity to the control room computer, will be accomplished through Space and Naval Warfare Systems Center (SPAWAR), except in Military Construction (MILCON) projects, as described below.

7. MILCON projects: ATG Install the same ATG solution as the existing tanks at the facility. Install stilling wells with configurations as described above for all tanks associated with MILCON projects. The ENRAF ATG probes will be installed in the tanks constructed by the MILCON project after completion of the MILCON project in conjunction with the installation of the ENRAF ATG proves in the other tanks at the facility. The installation of stilling wells, ATG probe equipment, including connectivity (wired or wireless) to the control room computer, for tanks provided under MILCON will be accomplished through the MILCON contractor and with SPAWAR supervision testing and final acceptance.

8. Sustainment, Restoration & Maintenance (SRM) projects: Stilling well installations will also be accomplished during a SRM project construction when internal access to the tank is available. Stilling well configurations shall be designed and installed as outlined above.

Note: Sample designs for the aforementioned configurations are included in the enclosure. Exceptions to the above guidelines and designs can apply on a case by case basis.

B. The following guidance will apply to the funding procedures pertaining to ATG design and installation:

1. All stilling wells, ATG probes, temperature/water probes, communications devices, fiber optic or copper cabling to the control rooms will be considered as a system and funded with non-ADP capital/operating funds depending on the total cost of the system. If the total cost of the system is greater than or equal to $250K, it will be funded with capital equipment funding and if the total is less than $250K, operating funds will be utilized. This system cost will include design, material, labor, contractor overhead and profits, supervision, inspection and overhead for the executing agent. The determination as to whether capital or non-capital funds are used should be based on the total cost of the system and not on individual components. If the installation of individual components crosses fiscal years and are below the capital threshold, the components should still be funded with capital if the total system cost is equal to or above the capital threshold.

2. ATG probe slotted stilling well and temperature/water probe slotted stilling well installation planned for installation along with API-653 inspections, under the SRM program, will be funded separately with equipment monies. All equipment designed in the MILCON projects, as described above, and other aspects to include design review, integration and testing of the installed ATG system accomplished with SPAWAR will be funded separately from the non-ADP equipment program. Due to practical consideration, the design cost of this equipment part will be included in the MILCON design and funded as such.

Minimum Guidelines for ATG Stilling Wells Installation/Replacement

- This Presentation outlines the minimum requirements for the Installation/Replacement of ATG Stilling Wells for the Enraf/Vito ATG probe systems.

- These requirements are meant to be a guide for Installation/Replacement. Due to variations in tank design actual ATG installation requirements may vary.

ENCLOSURE

Minimum Guidelines for ATG Stilling Wells Installation/Replacement

- Enraf System in tanks with NO floating pan:
  - The Enraf 854 servo gauge may be placed anywhere on the tank at or below a point concentric with the datum plate. A stilling well of 8" is recommended.
  - The Vito temperature/water probe shall be placed over the sump or the lowest feasible point in the tank. A stilling well is **NOT** required nor recommended as long as there are no obstruction present. At a minimum, a 6" riser is recommended. No smaller then a 4" is recommended for a riser design.

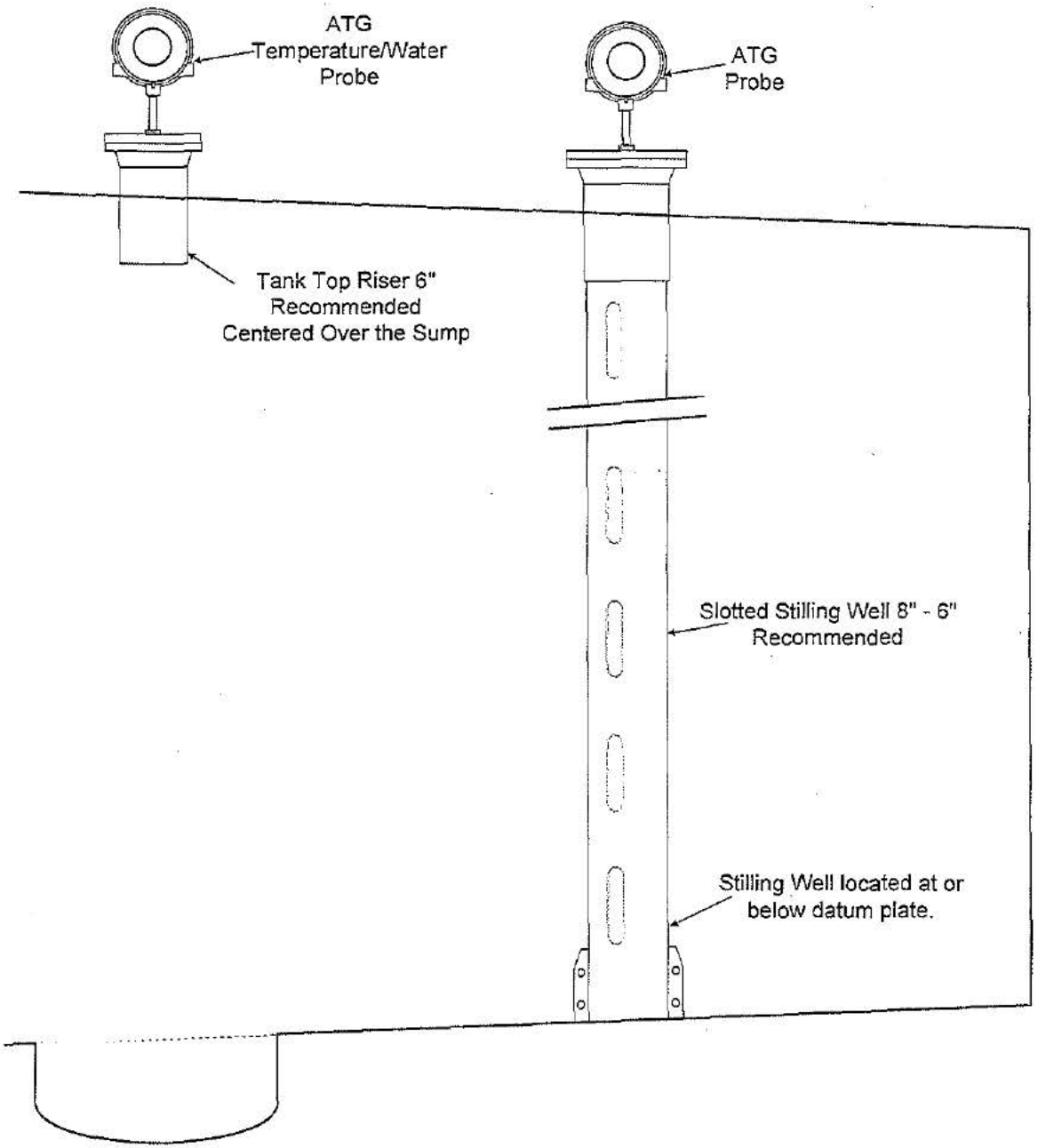
ATG System

- No Floating Pan
- Sump
- Multiple tank top penetrations Allowed

These drawings are for GUIDANCE ONLY.

NOT TO SCALE.

Actual Design may vary.



Minimum Guidelines for ATG Stilling Wells Installation/Replacement

- Enraf System in tanks with a floating pan and multiple pan penetrations are allowed:
  - The Enraf 854 servo gauge may be placed anywhere on the tank at or below a point concentric with the datum plate. A stilling well of 8" is recommended.
  - The Vito temperature/water probe shall be placed over the sump, or the lowest feasible point in the tank. A stilling well is recommended for the Vito probe. If a stilling well is used it must be no larger than a 6" diameter slotted well (no smaller than a 2" slotted well) and end at least 24" from the bottom of the tank/sump floor.

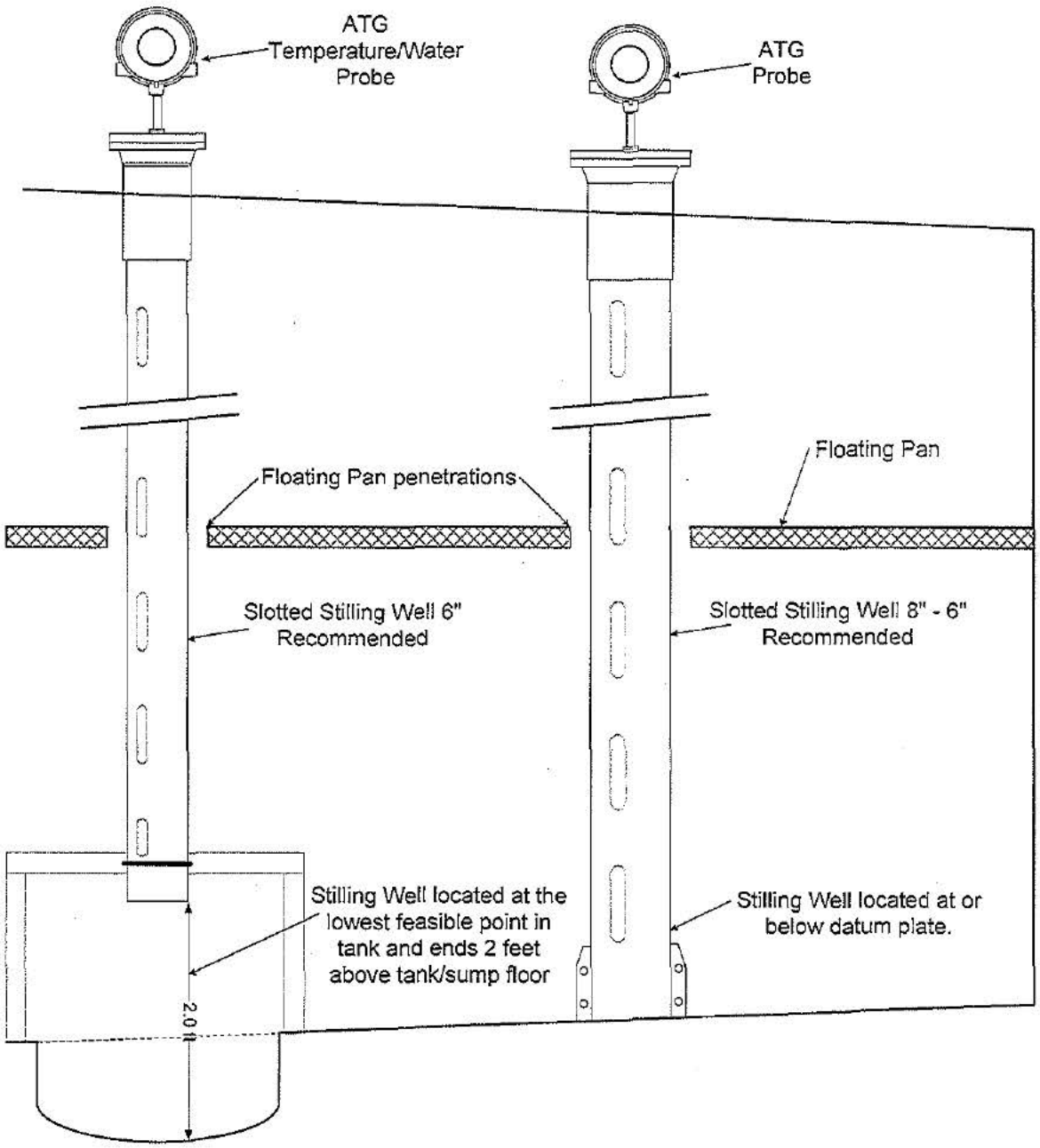
ATG System

- Floating Pan
- Sump
- Multiple pan penetrations Allowed

These drawings are for GUIDANCE ONLY.

NOT TO SCALE.

Actual Design may vary.



Minimum Guidelines for ATG Stilling Wells Installation/Replacement

- Enraf System in tanks with a floating pan and only ONE pan penetration is allowed:
  - The Enraf 854 servo gauge and Vito temperature/water probe shall be collocated in a 10" stilling well with a 2" inner well. The collocated stilling well shall be placed over the sump if feasible. If the stilling well cannot be placed over the sump, it shall be placed over the lowest feasible point in the tank. The collocated stilling well shall end 24" from the bottom of the tank floor.
  - THIS IS FOR SPECIFIC CONFIGURATIONS ONLY!!!

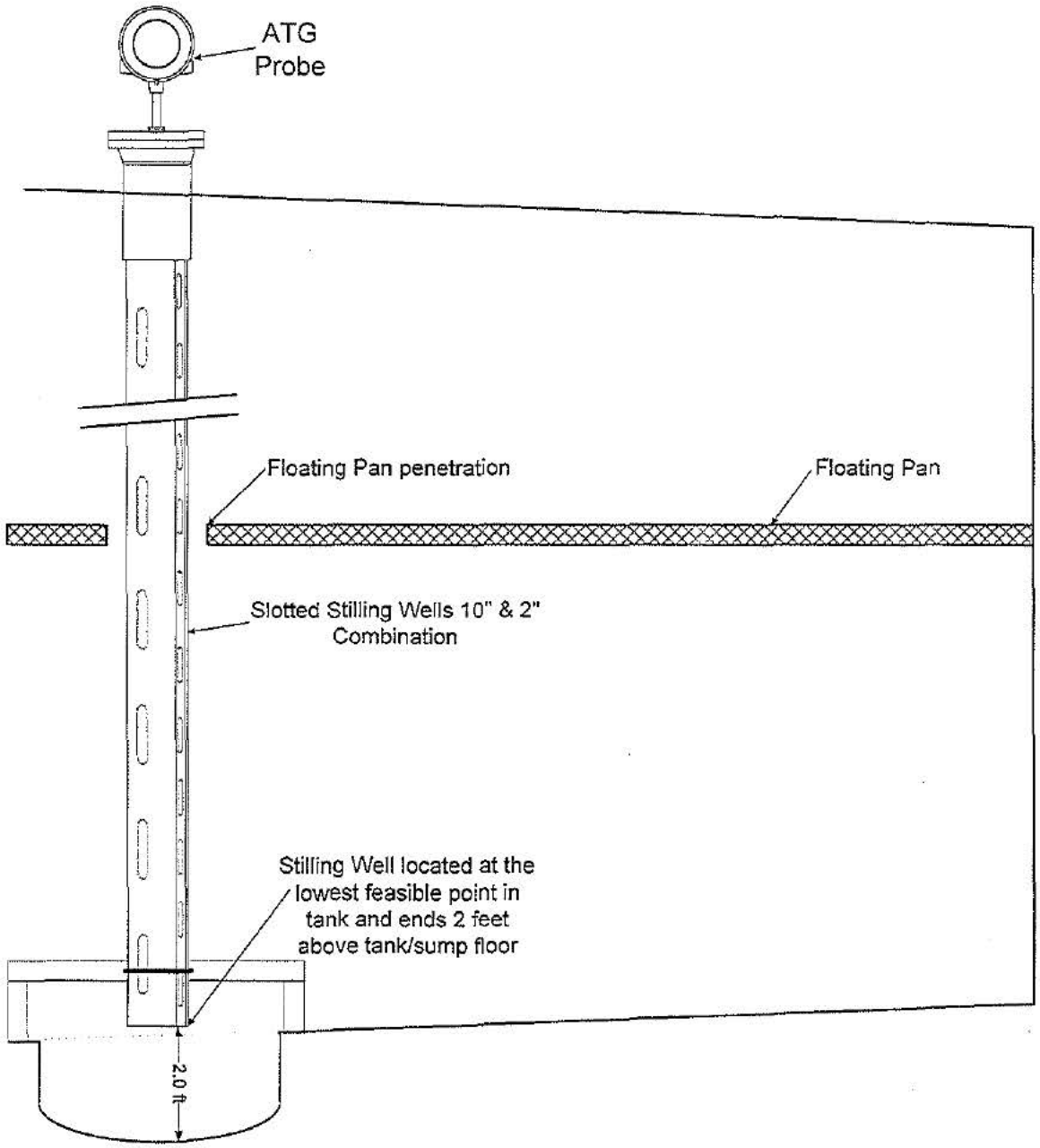
ATG System

- Floating Pan
- Only One Penetration Allowed

These drawings are for GUIDANCE ONLY.

NOT TO SCALE.

Actual Design may vary.



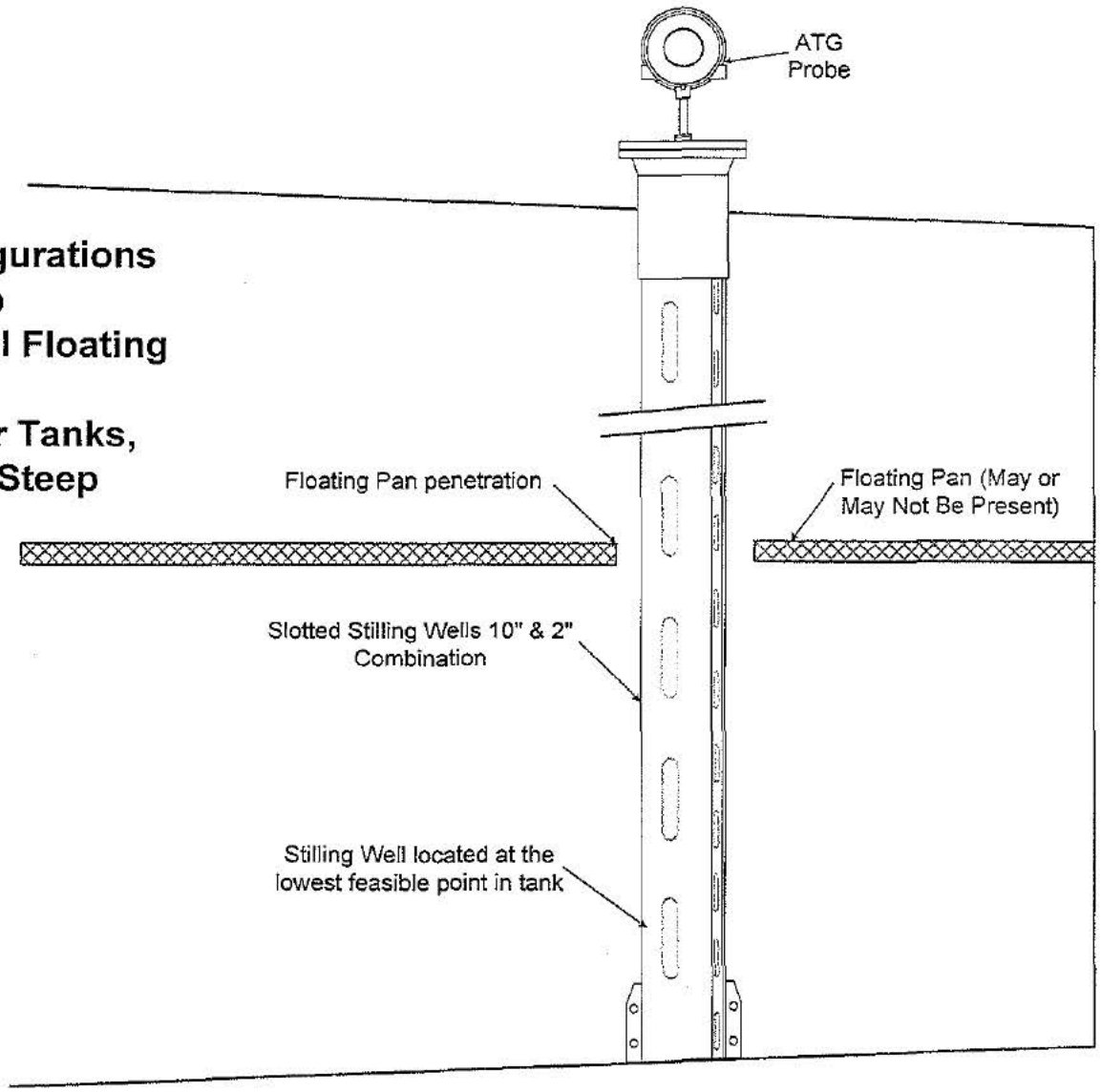
ATG System

- Only One Penetration Allowed
- Non-Standard Tank Roof Configurations
- Can Not Be Located Over Sump
- May or May Not Contain Internal Floating Pan
- Typical for Some Cut and Cover Tanks, Geodesic Domes, Snow Domes, Steep Incline Domes, etc.

These drawings are for GUIDANCE ONLY.

NOT TO SCALE.

Actual Design may vary.



Minimum Guidelines for ATG Stilling Wells Installation/Replacement

- These are only recommendations for the installation of Enraf ATG systems.
- Good engineering practices should be used in determining if deviations from these recommendations are necessary.
- Any deviation from these configurations requires DESC-WI approval. (b) (6) [redacted] for guidance.

DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
1333 ISAAC HULL AVE SE
WASHINGTON NAVY YARD DC 20376-0001

IN REPLY TO
5104
Ser 04N/078
14 Aug 2011

From: Commander, Naval Sea Systems Command (NAVSEA 04N)
To: Commander, Naval Facilities Engineering Command, Atlantic
Commander, Naval Facilities Engineering Command, Pacific

Subj: NEW REQUIREMENT TO OBTAIN NAVSEA AUTHORIZATION FOR CONTRACTS INVOLVING IONIZING RADIATION

Ref: (a) NAVFACINST 5104.1 SAFETY/OPS of 29 Apr 11
(b) COMNAVSEASYSCOM Ser 04N/014 of 15 Feb 11
(c) COMNAVSEASYSCOM Ser 04N/019 of 2 Mar 11
(d) COMNAVSEASYSCOM Ser 04N/020 of 2 Mar 11
(e) COMNAVSEASYSCOM Ser 04N/024 of 28 Mar 11
(f) COMNAVSEASYSCOM Ser 04N/129 of 22 Nov 10

Encl: (1) Guidance for Requesting Radiation Contract Authorization

1. Pursuant to the authority stated in OPNAVINST 6470.2B, Naval Sea Systems Command (NAVSEA) has been delegated to act authoritatively for the Chief of Naval Operations concerning the safe use of devices that produce ionizing radiation. Some examples include radiography devices, soil moisture density gauges, and x-ray diffraction equipment. Reference (a) delineates the requirements, responsibilities and procedures for performing oversight of contractor operations involving the use of materials or machines that produce ionizing radiation.

2. Under this authority and reference (a), you are directed to apply for, and obtain, NAVSEA authorization prior to the issuance and radiological safety oversight of new contracts involving the use of materials or machines that produce ionizing radiation aboard U.S. Government controlled property and/or vessels associated with your command. Submit your application to NAVSEA Detachment Radiological Affairs Support Office (NAVSEADET RASO) within 30-days of the date of this letter.

3. Enclosure (1) provides guidance for obtaining authorization.

4. This letter rescinds actions required per references (b) through (f); directing recipients to apply for authorization to

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issue and oversight contracts involving the use of materials or machines that produce ionizing radiation.

5. For further information, contact (b) (6) at NAVSEADET RASO at (b) (6).

(b) (6)

By direction

Copy to:
CNO (N455)
COMNAVFAC (b) (6)
COMNAVFAC LANT
COMNAVFAC PAC
COMNAVFAC NORTHWEST
COMNAVFAC MID-ATLANTIC
COMNAVFAC HAWAII
COMNAVFAC FAR EAST
OICC MCI EAST
NAVSEADET RASO (nsscnavsearasoadmin@navy.mil)

Guidance for Requesting Radiation Contract Authorization

1. The next revision to NAVSEA S0420-AA-RAD-010 Radiological Affairs Support Program Manual (RASP) will require commands who issue contracts and/or provide oversight of contractor operations involving radiation sources be authorized to perform these functions by NAVSEA 04N, Radiological Controls Program Office. OPNAVINST 6470.2 and 6470.3 assigns NAVSEA to manage the RASP which includes all operational, industrial, and research applications using radiation sources. The purpose of this requirement is to ensure that DON personnel and the environment are appropriately protected from radiation sources used by contractor personnel. This requirement is applicable when the contractor will be performing the radiological work on DOD controlled property.

2. Per the example attached to this enclosure, commands shall submit a letter (attached) requesting authorization to issue contracts involving radiation and to provide radiological safety oversight for those contracts. Examples of contractor work involving radiation include radiography for non-destructive testing, construction requiring the use of soil moisture density gauges employing radioactive materials, and material analysis (lead in paint) using analytical equipment that produce x-rays.

3. Commands will submit with their request letter, a command endorsed Radiological Contractor Oversight Management and Safety Program instruction using the attached ABCDINST 5104.X instruction as a guide. Ensure that the appropriate standard items and checklists are incorporated as enclosures to this instruction. Commands shall also include with their request letter the attached Application Information and RSO/ARSO Designation Letters and Graduation Certificates.

4. Request letters shall be sent by regular mail to Officer in Charge, NAVSEADET RASO, NWS P.O. Drawer 260, Yorktown, VA, 23691-0260 or a signed copy in portable document format (PDF) to nsscnavsearasoadmin@navy.mil.

5. Commands shall not issue indicated contracts until written authorization is received from NAVSEA 04N. Authorizations will have an expiration date indicated on the document (typically 1 year). A request to renew the authorization must be received by NAVSEADET RASO at least 3 months before the expiration date.

6. For further information, contact NAVSEADET RASO at DSN 953-4692 or commercial (757) 887-4692.

Command Letterhead

5104
Ser XXXX-11
01 Jan 2011

From: Commanding Officer {or Commander / Officer in Charge}
Command Name
To: Commander, Naval Sea Systems Command (NAVSEA 04N)

Subj: REQUEST FOR AUTHORIZATION TO ISSUE AND PROVIDE RADIOLOGICAL SAFETY OVERSIGHT FOR CONTRACTS THAT INVOLVE IONIZING RADIATION

Ref: (a) NAVFACINST XXXX.X (when published) or NAVSEA 04N ltr 5104 Ser xxx of DD MMM YYYY (ltr sent specifically to the NAVFAC Region directing SEA 04N contract authority)

Encl: (1) Application Information
(2) ABCDINST 5104.1 of DD MMM YYYY (command instruction)
(3) Designation Letters and Graduation Certificates for RSO and ARSO

1. A request for authorization to issue and/or provide oversight of contractor operations involving radiological services is required by reference (a).

2. Enclosures (1) and (2) provide information required in applying for contract authorization and oversight. Enclosure (3) provides training and appointment documents for the Radiation Safety Officer (RSO) and Assistant RSO (ARSO).

3. The command point of contact is Mr. John Smith at DSN 123-4567 or commercial (000) 123-4567.

(SIGNATURE)
Commanding Officer

Copy to:
CNO (N455)
NAVSEADET RASO (nsscnavsearasoadmin@navy.mil)

*Note: Examples and guidance are provided in italicized text below.

1. This application is for a new (or continued) authorization

2. Name, Mailing Address and UIC of Applicant:

COMMANDING OFFICER (Commander / OIC)
US Navy Command
BOX 0001
FPO-AP 96000-0000

UIC: 12345

3. Area of responsibility or Navy Region where contracts will be issued:

(State physical locations or if issued throughout a Navy Region state the Navy Region. For overseas commands state the countries that activities may be performed at in addition to the region)

4. Name of the person to be contacted about this application:

LCDR A. B Ceely, Contracting Officer, THISCOM, DSN 123-4567, Comm (000) 123-4567, ab.ceely@navy.mil.

5. This application will authorize contracting and/or oversight of radiological work.

6. Types of radiological contracts that will be issued:

(List the types of activities to be contracted. Authorization will only cover the types of activities requested.)

a. *Gamma Radiography*
b. *X-ray radiography*
c. *Moisture Density Analysis (construction)*
d. *On-site XRF analysis*
e. *Lead Paint Analysis*
f. *Use of radioactive materials (explain)*
g. *Use of x-ray producing machines (explain)*

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.

(Names, contact information and training)

Mr. Don E. Form, Radiation Safety Officer, THISCOM

Master and Bachelor of Science Public Administration/Law.

Graduate of Navy Radiation Safety Officer Course (RSO) S-4J-0016, DD MMM YYYY.

8. TRAINING FOR INDIVIDUALS ISSUING RADIOLOGICAL CONTRACTS AND PROVIDING OVERSIGHT:

(Select the applicable statements or describe the training required by your instruction.)

Contracting Officials will be trained in accordance with enclosure (2).

Personnel providing radiological contract oversight will be trained in accordance with enclosure (2).

9. RADIATION SAFETY PROGRAM:

The radiation safety program associated with contracting and oversight will be operated in accordance with enclosure (2).

ABCDINST 5104.1

XX XXX 11

XXX INSTRUCTION 5104.1

Subj: RADIOLOGICAL CONTRACTOR OVERSIGHT MANAGEMENT AND SAFETY PROGRAM

Ref: (a) NAVSEA S0420-AA-010 (RAD-010), Radiological Affairs Support Program Manual

Encl: (1) Standard Radiological Item
(2) Standard Item for Prevention of Radiographic-Inspection Ionizing-Radiation Hazards
(3) Contractor Radiography Oversight Check Sheet

1. Purpose. To delineate the requirements, responsibilities and procedures for issuance and oversight of contractor operations use of industrial sources of ionizing radiation per reference (a).

2. Background. Operations using sources of ionizing radiation have a potential for personnel (public and workers) to receive significant radiation exposures if not conducted in a safe manner. Therefore, all contracts executed by COMMAND NAME requiring the use of sources of ionizing radiation must include measures to ensure the safety of the public per reference (a). Planning and oversight of contractor operations is essential to safeguard personnel from undue radiation exposure.

3. Scope. This procedure applies to the administration of all contracts requiring the use of sources of ionizing radiation to be performed.

4. Responsibilities

a. Commanding Officer shall:

(1) Ensure the requirements of this instruction are enforced.

(2) Designate in writing a Radiation Safety Officer (RSO) and Assistant Radiation Safety Officer (ARSO) who have successfully completed NAVSEADET RASO RSO Course (S-4J-0016) and have direct access to the Commanding Officer on matters dealing with radiation safety within the region.

b. Contracting Officer shall:

(1) Ensure that the Standard Radiological Item, enclosure (1) is included in all contracts.

(2) Forward all information required by enclosure (1) to RSO/ARSO at least 5 working days prior to the start of work for review and approval.

(a) Coordinate with the contractor in correcting any deficiencies noted by RSO/ARSO.

(b) Ensure no operations commence without written approval from the RSO/ARSO.

(3) Ensure that the Standard Item for Prevention of Radiographic-Inspection Ionizing-Radiation Hazards, enclosure (2), is included in all contracts that utilize radiographic inspection as part of their work.

(4) Ensure that the Radiography Worksite Planning Sheet, enclosure (2), Attachment A is completed and submitted by the contractor at least 14 days prior to commencement of radiography operations. Forward enclosure (2), Attachment A to the RSO/ARSO for review and approval.

(a) Coordinate with the contractor in correcting any deficiencies noted by the RSO/ARSO.

(b) Ensure no radiography operations commence without the RSO/ARSO's written approval.

c. Radiation Safety Officer (RSO) and Assistant Radiation Safety Officer (ARSO) shall:

(1) Be responsible for conducting oversight of contactor operations using sources of ionizing radiation that are conducted onboard U.S. Government property and/or vessels associated with COMMAND NAME contracts in the region.

(2) Act as the principle point of contact for contractor radiation safety issues. Contact NAVSEADET RASO when assistance is needed.

(3) Implement this instruction, serve as subject matter expert for the program and ensure all personnel designated to

assist the RSO (ARSOs) are fully trained and comply with the requirements of this instruction.

(4) Designate in writing all Contract Oversight Technicians (COT) qualified to oversee radiological contractors.

(a) Verify the COT has attended the NAVSEADET RASO Radiological Safety Oversight of Contractor Operations course (S-493-0612).

(b) Provide initial training with the COT on:

(1) Command radiation safety operating and emergency procedures.

(2) Radiation exposure limits and control levels.

(3) Facility or site survey requirements.

(4) Justification for not requiring dosimetry.

(5) Biological effects and risks associated with exposure to ionizing radiation.

(6) Types and sources of ionizing radiation contributing to personnel exposure.

(7) Specific procedures for using time, distance and shielding to maintain individual exposures ALARA.

(8) Duties, responsibilities and reporting requirements.

(9) Lessons learned from contractor operations.

(c) Provide annual refresher training covering the topics listed in paragraph 4.c(4)(b).

(5) For all contracts that utilize radiographic inspection as part of their work:

(a) Upon receipt of the Radiography Worksite Planning Sheet, enclosure (2), Attachment A from the Contracting Officer, initiate Contractor Radiography Oversight Check Sheet, enclosure (3) for tracking the required contract oversight actions.

(b) Review the Radiography Worksite Planning Sheet, enclosure (2), Attachment A. Provide WRITTEN deficiencies or approval of the contractor's plan to the contracting officer.

(c) Arrange and conduct a briefing with the contractor, and tended vessel (if applicable), to discuss radiography operations including type of radiography, expected length of radiography operations, location of radiography operations, location of 2 milliRem per hour (mR/hr) (0.02 milliSievert per hour (mSv/hr)) physical boundary, words to be passed over ship's announcing system before, during and after radiography operations (if applicable).

(d) Perform independent checks to verify 2 mR/hr (0.02 mSv/hr) boundaries during radiography operations. In some circumstances the boundary may be established at a point where the dose to an individual in any unrestricted area would not exceed 2 mRem in any one hour and the radiation level at the boundary does not exceed 100 mR/hr. The perimeter of the radiation area shall be a physical barrier established by an enclosure or by stanchions and rope, as necessary. Verify that this boundary is posted with tri-foil radiation warning symbol, "Radiation Area", "Radiography in Progress", and "Keep Out" signs written in English and host-country language. The signs shall be visible to any person approaching the radiation area barrier from any accessible direction.

(e) For gamma radiography, arrange with Base Security to escort contractor from Base gate to site of radiography and back to gate once operations are completed. Perform a survey of contractor's vehicle upon arrival and prior to leaving the worksite to ensure radiation levels are <2 mR/hr (0.02 mSv/hr) on contact of the vehicle. If radiation levels on contact with the vehicle are >2 mR/hr (0.02 mSv/hr), have the contractor shield or reposition the source of radiation until levels are <2 mr/hr (0.02 mSv/hr) on contact with the vehicle. Do not allow security to approach the vehicle until radiation levels are <2 mR/hr (0.02 mSv/hr) on contact with the vehicle. Accompany base security during the transport.

(f) **IMMEDIATELY STOP** all radiography operations for any unsafe condition or for any violation of the 2 mR/hr (0.02 mSv/hr) boundary. Have the contractor place the source of radiography in a safe mode. Report the violation to the Commanding Officer/Officer-In-Charge and to NAVSEASYSCOM DET RASO prior to recommencing operations. Inform the contractor

that radiography shall not re-commence without authorization from the RSO/ARSO.

(g) The RSO shall maintain completed copies of enclosure (2), Attachment A and enclosure (3) of this instruction for a period of 3 years.

d. Contracting Oversight Technician (COT) shall:

(1) Ensure that contractor operations within their area of responsibility are conducted in compliance with the provisions of this instruction.

(2) Perform the duties in paragraphs 4c(5)(c-f) as authorized by the RSO/ARSO, reporting initiation, completion and forwarding completed attachment (A) and enclosure (3) documents to the RSO/ARSO.

(3) Notify the RSO/ARSO and contracting officer of any reportable violation of this instruction or unsafe condition that involves any contractor radiation source.

5. Administration and Maintenance. The COMMAND NAME is responsible for administration, maintenance and revision of this instruction. All changes to this instruction, including enclosures (1) and (2), must be approved by NAVSEADET RASO prior to implementation.

(Signature)
COMMANDING OFFICER

Distribution:
Command Codes as applicable
NAVSEADET RASO

XXX 5104.1

XX XXX 11

NAVSEA
STANDARD ITEM

FY-12
ITEM NO: 009-01
DATE: ***30 JUL 2010***
CATEGORY: I

3.14 Comply with ***applicable federal, state, local, and foreign contractor host country requirements*** when using Nuclear Regulatory Commission (NRC) licensed radioactive material, ***licensed radioactive material, and/or*** machine sources of ionizing radiation on Government property.

3.14.1 Do not commence ***operations*** using radioactive material or machine sources of ionizing radiation on Government property until authorized by NAVSEADET RASO, via the SUPERVISOR. NAVSEADET RASO's address/telephone number is:
Naval Sea Systems Command Detachment
Radiological Affairs Support Office
NWS P.O. Drawer 260
Yorktown, VA 23691-0260
(757) 887-4692
PLAD: NAVSEA DET RASO YORKTOWN VA (UC)

3.14.2 Contract personnel shall not be used as operators under a Navy Radioactive Material Permit (NRMP) issued to a naval facility. Navy personnel shall not be used as operators under a Nuclear Regulatory Commission (NRC) or Agreement State License issued to a contractor.

3.14.3 *Submit one legible copy, in electronic media, of a consolidated inventory of all ionizing radiation producing machines or material that will be utilized aboard the ship and/or naval facility during the performance of this Job Order to NAVSEADET RASO, via the SUPERVISOR, 5 working days prior to the start of work.*

3.14.4 Submit one legible copy, in electronic media, of the applicable NRC or Agreement State License including procedures regarding system process and operation for use of licensed radioactive material, to NAVSEADET RASO, via the SUPERVISOR. Agreement State licensees shall provide evidence of NRC Form 241 (Report of Proposed Activities in a Non-Agreement State) with the copy of the license for Agreement State licensees.

3.14.5 Submit one legible copy, in electronic media, of the applicable State license, authorization, or registration for machines

that produce ionizing radiation, to NAVSEADET RASO, via the SUPERVISOR.

3.14.6 Submit one legible copy, in electronic media, of a formal Radiological Safety Plan which shall include operating and emergency procedures pertinent to the items listed in 3.14.2, and actions to control jobsite-boundary radiation exposures below those allowed for members of the general public under NRC and OSHA standards, to NAVSEADET RASO, via the SUPERVISOR.

3.14.7 Provide NAVSEADET RASO, via the SUPERVISOR, with remedies to any radiation safety shortcomings identified by NAVSEADET RASO, to be rectified prior to commencing operations.

XXX 5104.1

XX XXX 11

NAVSEA
STANDARD ITEM

FY-12

ITEM NO: 009-AA
DATE: 30 JUL 2010
CATEGORY: I

1. SCOPE:

1.1 Title: Prevention of Radiographic-Inspection Ionizing-Radiation Hazards; accomplish

2. REFERENCES:

2.1 None.

3. REQUIREMENTS:

3.1 This item applies to all contracts that utilize radiographic inspection as part of their work. "Foreign contractor" refers to a contractor that is contracted from the U.S. Navy host country in which U.S. Navy contracts may be executed onboard U.S. Government property and/or vessels.

3.2 Each foreign contractor shall comply with the regulatory standards of the host country when conducting radiographic inspections on U.S. Government property and/or vessels.

3.3 Submit one legible copy, in hard copy or electronic media, of completed Radiography Operations Planning Work Sheet, Attachment A, to the SUPERVISOR and obtain approval prior to commencement of radiography operations.

3.4 Submit one legible copy, in hard copy or electronic media, of a diagram illustrating the boundary where the exposure rate shall not exceed 2 mr/hr (0.02 mSv/hr) or under special circumstances, the dose to an individual in any unrestricted area would not exceed 2 mrem (0.02mSv) in any one hour. In addition, the boundary shall meet the requirement that no individual member of the public will receive a dose in excess of 100 mrem (1mSv)in a calendar year from the radiographic work, exclusive of background radiation.

3.4.1 In addition to the boundary requirements of 3.4, the foreign contractor shall also illustrate the foreign radiation-boundary requirements.

3.5 Establish a physical boundary where the exposure rate is 2mr/hr or less. In some circumstances the boundary may be established at a point where the dose to an individual in any unrestricted area would not exceed 2 mrem in any one hour. The perimeter of the radiation area shall be a physical barrier established by an enclosure or by stanchions and rope, as necessary. Post this boundary with tri-foil radiation warning symbol, "Radiation Area", "Radiography in Progress", and "Keep Out" signs written in English and host-country language. The signs shall be visible to any person approaching the radiation area barrier from any accessible direction.

3.5.1 Radiographer shall maintain constant surveillance of the entire area boundary through direct observation or Radiation Safety Officer (RSO)/Radiation Safety Oversight Manager (RSOM) approved positive communication with boundary monitor who is in a position to provide visual surveillance.

3.5.2 Monitor the entire boundary using radiation detection equipment appropriate for the source of radiation during the first radiation exposure of the day. If the beam's orientation, kVp, mA, collimation, or shielding is changed between exposures, the boundary shall be re-surveyed and re-established in accordance with 3.5, if necessary.

3.5.2.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.5.2 within 24 hours. The report shall include Attachment A diagram identifying survey locations, time, date and location of the survey, the highest radiation level recorded, the kVp, mA, and beam direction of the x-ray machine or, if using gamma source material, the half value of the collimator and beam direction at the time of exposure.

3.6 If an unauthorized individual crosses the boundary, the boundary monitor shall immediately notify the radiographer who will immediately stop radiography operations.

3.6.1 Report any boundary violation immediately to the RSO/RSOM via the SUPERVISOR. Submit one legible copy, in hard copy or electronic media, of a follow-up report within 4 hours of the violation, using Boundary Violation Report, Attachment B. The report shall include the time, date of violation, name of individual(s), the

names of the radiography crew, including boundary monitor, the kVp, mA, duration of actual exposure and beam direction for the x-ray machine or if using source material, the half value of the collimator and the beam direction at the time of violation. Include a diagram showing the location of the violation and the egress path in relation to the source.

3.7 Upon discovery of loss or theft of radioactive material or x-ray producing devices, the radiographer shall cease and make safe all radiographic operations and immediately notify the RSO/RSOM via the SUPERVISOR.

3.7.1 Report verbally each incident to the SUPERVISOR as soon as management becomes aware of such an event.

3.7.1.1 Submit one legible copy, in electronic media, of a formal written report of the incident within 24 hours.

4. NOTES:

4.1 The SUPERVISOR shall perform oversight and surveillance of all radiography operations on U.S. Government property and/or vessels associated with contracted work.

4.2 The technical point of contact for the requirements contained in this Standard Item is SUPERVISOR's RSO or RSOM for radiographic inspections conducted in the host-country and any U.S. Government Detachment.

4.3 This Standard Item complies with 10 CFR Parts 19, 20, and 34 and 29 CFR 1910.1096.

ATTACHMENT A

RADIOGRAPHY OPERATIONS PLANNING WORK SHEET

General Information

1. Prime Contractor Name:

2. Subcontractor Name (if applicable):

3. Proposed Date(s) and Time(s) of Planned Radiography:

4. Purpose of Radiographic Operation:

5. Host country regulatory standards applicable to radiographic inspections preferably translated to English.

B. If conducting gamma radiography complete the following:

1. Radioisotope: Serial Number:

2. Activity: Date of Determination of Activity:

3. Collimator Serial Number:

4. Half Value Thickness:

5. Transportation and vehicle information:

a. Manufacturer:

b. Model:

c. License Plate Number:

d. Sign on Vehicle:

e. Driver's Name:

f. Passengers:

g. Location of radiography operation site (ship, submarine, building, pier):

h. Transportation route to be taken to and from work site while on Government activity:

C. If conducting x-ray radiography complete the following:

1. Machine Manufacturer:

2. Serial Number:

3. Maximum kVp:

4. Maximum mA:

5. Total Number of Exposures:

6. Direction of Beam:

D. Provide a diagram of each work site that illustrates:

1. Each location of the radiography, including major features such as walls, bulkheads, tanks, walkways or passageways that may provide shielding or difficulty in controlling the area.

2. The location of the exposure device drive cable, guide tube, and end stop if using gamma radiography equipment, or the location of the tube head and control panel if conducting x-ray radiography.

3. The location of the 2 mr/hr (0.02 mSv/hr) controlled boundary.

E. Provide the calculations for the 2 mr/hr (0.02 mSv/hr) controlled boundary from the distance from the gamma radiography source, or the x-ray machine tube head, to the location where the boundary shall be established.

F. Review/Approval:

Contractor's Radiographer:

Name (Printed)

Signature

Date:

RSO/RSOM (SUPERVISOR's) Approval:

Name (Printed)

Signature

Date:

CONTRACTOR RADIOGRAPHY OVERSIGHT CHECK SHEET

ATTRIBUTE	RSO/ARSO SIGNATURE	DATE
Contractor has submitted Appendix A of reference (b).		
RSO/ARSO performs area or ship check of proposed radiography site with the Contractor.		
RSO/ARSO independently verify the Contractor's proposed location for the 2 mr/hr (0.02 mSv/hr) boundary, maintain as part of the official records.		
RSO/ARSO arrange and conduct a pre-job brief with the tended ship if applicable.		
RSO/ARSO arrange with Base Security to escort the Contractor and the source on base.		
RSO/ARSO perform radiation survey external to the Contractor's vehicle to ensure radiation levels are < 2mR/hr (0.02 mSv/hr) on contact, if levels are > 2mR/hr (0.02 mSv/hr), have the Contractor provide shielding or to reposition the source to ensure levels are < 2mR/hr (0.02 mSv/hr) on contact with the vehicle.		

ATTRIBUTE	RSO/ARSO SIGNATURE	DATE
Provide the ship with the proper wording to be passed over the ship's announcing system before, during and after radiography operations.		
Have the ship's SDO/CDO meet the RSO/ARSO at the Quarterdeck prior to bringing the source on board; obtain the SDO/CDO's permission to bring the source on board.	SDO/CDO Signature and date: RSO/ARSO Signature:	
RSO/ARSO Escort the Contractor to the job site		
RSO/ARSO verify the Contractor has established and properly manned the 2 mr/hr (0.02 mSv/hr) boundary. Ensure proper warning signs are posted and they are in English and in the host-nation language (if applicable). Ensure effective communications are established between the radiographer and boundary monitors.		
RSO/ARSO conduct surveys during radiography operations to verify the 2 mr/hr (0.02 mSv/hr) boundary. Maintain survey records as official documents.		

ATTRIBUTE	RSO/ARSO SIGNATURE	DATE
Upon completion of radiography operations for the day, obtain permission from the SDO/CDO to remove the source from the ship, have the SDO/CDO present at the Quarterdeck.	SDO/CDO Signature and date RSO/ARSO Signature	
RSO/ARSO escort the Contractor and source from the ship to the Contractors vehicle.		
Arrange with Base Security to escort the Contractor from the job site to the base gate, accompany Base Security.		
For gamma radiography, RSO/ARSO perform radiation survey external to the Contractor's vehicle to ensure radiation levels are < 2mR/hr (0.02 mSv/hr) on contact, if levels are > 2mR/hr (0.02 mSv/hr), have the Contractor provide shielding or to reposition the source to ensure levels are < 2mR/hr (0.02 mSv/hr) on contact with the vehicle.		

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
1322 PATTERSON AVENUE, SE SUITE 1000
WASHINGTON NAVY YARD DC 20374-5065

NAVFACINST 5104.1
SAFETY/OPS
29 APR 2011

NAVFAC INSTRUCTION 5104.1

From: Commander, Naval Facilities Engineering Command

Subj: RADIOLOGICAL CONTRACTOR OVERSIGHT MANAGEMENT AND SAFETY PROGRAM

Ref: (a) NAVSEA S0420-AA-010 (RAD-010), Radiological Affairs Support Program Manual
(b) EM-385-1-1, U.S. Army Corps of Engineers Safety and Health Requirements Manual
(c) NAVFAC Guide Specification 01 35 26

1. Purpose. To delineate the requirements, responsibilities and procedures for performing oversight of contractor operations involving radioactive materials or radiation generating devices per references (a), (b), and (c).

2. Cancellation. None.

3. Scope. This instruction applies to the oversight associated with the administration of all contracts involving the use of radioactive materials or radiation generating devices.

4. Background. Operations involving radioactive materials or radiation generating devices have a potential for personnel (public and workers) to receive significant radiation exposures if not conducted in a safe manner. Therefore, all contracts executed by Naval Facilities Engineering Command involving radioactive materials or radiation generating devices must include measures to ensure the safety of Department of Navy personnel and the public. Planning and oversight of contractor operations involving radioactive materials or radiation generating devices is essential to safeguard personnel from undue radiation exposure.

5. Policy

a. Commander, Commanding Officer, Officer in Charge shall:

(1) Ensure the requirements of this instruction are enforced.

(2) Apply for Radiological Contractor Oversight Authorization in order to issue and oversee contracts involving the use of radiation sources. Contact Naval Sea Systems Command Detachment, Radiological Affairs Support Office (NAVSEADET RASO) for the application requirements.

(3) Designate, in writing, a Contractor Radiological Oversight Program Manager (CROPM), who is responsible for managing the contractor radiological oversight (CRO) program for a designated area of responsibility to ensure compliance with applicable criteria. The CROPM shall have direct access to their designated Commander, Commanding Officer or Officer in Charge on matters dealing with radiation safety. [NOTE: A CROPM may support the area of responsibility of multiple Commanding Officers.] The designated individual must have successfully completed the Radiation Safety Officer Course (S-4J-0016) provided by the Naval Sea Systems Command, Radiological Affairs Support Office (NAVSEADET RASO).

(4) Designate, in writing, Contractor Oversight Technicians (COTs), who are authorized to oversee contractor operations involving radioactive materials or radiation generating devices. The designated individual must have successfully completed Radiological Safety Oversight of Contractor Operations Course (S-493-0612) provided by NAVSEADET RASO.

(5) Ensure there is a current MOU/ISSA in place that outlines the CROPM services and responsibilities if they are provided by another Command.

(6) Notify NAVSEA RASO immediately if a contractor reports a lost or stolen radiation source.

b. Contracting Officer's Representative shall:

(1) Ensure that all contracts involving radioactive materials or radiation generating devices include radiation safety requirements from reference (c) within the contract

documents.

(2) Ensure submittals required by references (b) and (c) are completed and submitted by the contractor at least 14 days prior to commencement of operations involving radioactive materials or radiation generating devices.

(3) Ensure required submittals are forwarded to the COT for review and acceptance.

(4) Coordinate with the contractor in correcting any deficiencies noted by the COT.

(5) Ensure no operations involving radioactive materials or radiation generating devices commence without the COT's written acceptance.

c. Contractor Radiological Oversight Program Manager (CROPM) shall:

(1) Attend Radiation Safety Officer Course (S-4J-0016) provided by NAVSEADET RASO, and comply with any continuing education requirements necessary to maintain certification.

(2) Serve as subject matter expert for CRO program and support of the requirements of reference (a), which includes implementation of this instruction and requirements of references (b) and (c) for designated area of responsibility.

(3) Act as the COT's principal point of contact for safety issues related to radiation safety, and serve as principal liaison with NAVSEA RASO when assistance is needed to resolve contractor oversight issues.

(4) Verify the COTs have attended the NAVSEADET RASO Radiological Safety Oversight of Contractor Operations course (S-493-0612).

(5) Provide COTs annual refresher training covering the following topics:

i. Command radiological contractor oversight procedures, including radiation detection instrumentation operation, radiation survey techniques, and evaluation of contractor documentation required by reference (c).

ii. Radiation exposure limits and control levels

iii. Justification for not requiring dosimetry

iv. Biological effects and risks associated with exposure to ionizing radiation

v. Types and sources of ionizing radiation contributing to personnel exposure.

vi. Specific procedures for using time, distance and shielding to maintain individual exposures As Low As Reasonably Achievable (ALARA).

(6) Provide training to each COT on the requirements of paragraph 5.c.5.i after they complete the NAVSEADET RASO Radiological Safety Oversight of Contractor Operations Course (S-493-0612).

(7) Notify NAVSEA RASO when contractor operations are suspended because of radiation safety concerns and other non-compliance issues.

d. Contractor Oversight Technician (COT) shall:

(1) Attend NAVSEADET RASO Radiological Safety Oversight of Contractor Operations Course (S-493-0612) and comply with any continuing education requirements necessary to maintain COT certification.

(2) Ensure the contractor operations within their area of responsibility are conducted in compliance with the provisions of this instruction and the requirements of references (b) and (c).

(3) Ensure contract execution preparatory meeting [i.e. pre-construction conference] discusses operations involving radioactive materials of radiation generating devices including type of radiation, expected length of operations, location of operations, location of any required physical boundary, method of communicating operations to workforce.

(4) Review and accept submittals required by references (b) and (c). Provide written deficiencies or acceptance of the contractor's submittals to the Contracting Officer's Representative.

(5) For all contracts that utilize radiographic inspection as part of their work:

i. Upon receipt of the Radiography Worksite Planning Sheet contained in reference (c), initiate Contractor Radiography Oversight Check Sheet, also contained in reference (c), for tracking the required contract oversight actions.

ii. Review the Radiography Worksite Planning Sheet, contained in reference (c). Ensure contract execution preparatory meeting [i.e. pre-construction conference] discusses radiography operations including type of radiography, expected length of radiography operations, location of radiography operations, and location of 2mrem/hr (20μSv/hr) boundary.

iii. Provide WRITTEN deficiencies or acceptance of the contractor's plan to the contracting officer's representative.

iv. During contractor radiography operations, perform checks to verify 2mrem/hr (20μSv/hr) boundary. In some circumstances the radiation area boundary may be established at a point where the dose rate may exceed 2mrem/hr (20μSv/hr). In this case it must be demonstrated that the dose an individual received at the boundary would not exceed 2mrem in any one hour.

v. Verify signage is posted at the perimeter in accordance with references (b) and (c).

vi. For gamma radiography, arrange with Base Security to escort contractor from Base gate to site of radiography and back to gate once operations are completed. Perform a survey of contractor's vehicle upon arrival and prior to leaving the worksite to ensure radiation levels are <2mrem/hr (20μSv/hr) on contact of the vehicle. If radiation levels on contact with the vehicle are >2mrem/hr (20μSv/hr), have the contractor shield or reposition the source of radiation until levels are <2mrem/hr (20μSv/hr) on contact with the vehicle. Do not allow security to approach the vehicle until radiation levels are <2mrem/hr (20μSv/hr) on contact with the vehicle. Accompany base security during the transport.

vii. **IMMEDIATELY STOP** all radiography operations for any unsafe condition or for any violation of the 2mrem/hr (20μSv/hr) boundary. Have the contractor place the source of radiography in a safe mode. Report the violation to the Contracting Officer's Representative, COT and CROPM prior to

recommencing operations. Inform the contractor that radiography shall not re-commence without authorization from the CROPM.

viii. The COT shall maintain completed copies of the Radiography Worksite Planning Sheet and Contractor Radiography Oversight Check Sheet for a period of 3 years.

(6) Notify installation radiation safety personnel of the contactor's use of radiation sources so that any environmental radiation monitoring devices near the contractor's work site may be temporarily removed or deactivated.

(7) Stop any work that does not meet the conditions of the contract or are determined to be unsafe, and notify the CROPM and contracting officer of any violation of reference (b) or (c) or unsafe condition that involves any contractor radiation source.

6. Administration and Maintenance. The NAVFAC Safety Officer is responsible for administration, maintenance and revision of this instruction. All changes to this instruction and reference (c) must be approved by NAVSEA RASO prior to implementation.

Copy to:
NAVSEA RASO

403 cy

DEPARTMENT OF THE NAVY
MARE ISLAND NAVAL SHIPYARD
VALLEJO, CALIFORNIA 94592

IN REPLY REFER TO:
138-Ser 53
10310
1 May 1981

406 GA
INFO
403 By

From: Commander, Mare Island Naval Shipyard
To: Commander, Naval Facilities Engineering Command, Pacific Division

Subj: Trip to Pacific Division Naval Facilities Command, 22 through 29 April 1981; report on

Encl: (1) Agenda OICC MIDPAC, Construction review conference 24-28 April 1981

1. Purpose. The purpose of the Trip was to provide welding engineering consulting service in support of the Red Hill POL Facility Modernization Project, Pearl Harbor, Hawaii. Enclosure (1) is the program agenda for 24 through 28 April 1981. Persons met during the visit were:

OICC/ROICC	Position/Association
[redacted]	OICC
	Deputy OICC
	OICC MIDPAC
	ROICC Pearl
	AREICC Pearl
	Project CME
NAVY	
(b) (6)	PACDIV, Code 04, Director of Design
	PACDIV, Code 04, Project Design Engineer
	NAVFAC, Code 04B3, POL Consultant
	NAVFAC, Code 04B4, Metallurgical Consultant
	PACDIV 05A
	MINSY, Chief Welding Engineer
Private Industry	
Mr. Rolland (Pete) Peterson	Peabody Testing, Consultant in Testing Methods for Container Vessels
Mr. Tom Weirich	Private Consultant, Vacuum and other Testing Methods for Container Vessels
R. A. Sodestrom	Hallanger Engineers

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1 May 1981

Subj: Trip to Pacific Division Naval Facilities Command, 22 through 29 April 1981; report on

Hawaii Dredging Co., Contractor Personnel

Roger Marley	Project Superintendent
Les Cummings	Project Welding Superintendent
W. E. Brown	
Jim Mgreau	
John Wright	Clark Painting
Ed Wallace	
Bill Coleman	
A. G. Lee	

2. Discussion and Observations. Reported to ROICC Pearl Office on Thursday, 23 April 1981 at 0730. A briefing on subject project, including the current status, was provided by Mr. John Muchemore of the ROICC office. Visited the Red Hill Project site the afternoon of 23 April. Attended project conference at OICC headquarters at Pearl Harbor Naval Shipyard at 0900 on 24 April 1981 as shown on enclosure (1). Visited the Red Hill Project the remainder of the day reviewing/discussing tank repair procedures/techniques. Saturday, 25 April visited the Red Hill Project for continued viewing and discussing of the tank modernization/repair program. The discussion included an informal meeting with contractor personnel Mr. Roger Marley and Mr. Les Cummings. Discussions of observations and information obtained at the Red Hill Project site is as follows:

a. The majority of the weld repair work has been done with the Shielded Metal Arc (SMA-covered electrode) process. Some Gas Metal Arc Process (GMA) equipment (i.e. apparently three units) is being used in Tank No. 15 for welding in conjunction with the weld/backing strip encapsulation (i.e. canning). The GMA process utilizes 0.045 inch diameter solid wire electrode with carbon dioxide (CO_2) gas shielding of the arc and molten weld puddle. CO_2 is an effective atmosphere shielding gas however, it is not able to sustain a smooth metal transfer to the weld puddle. The result is a somewhat unstable arc and noticeable weld spatter on the base material and the gas shield cup and contact tip of the welding torch/gun. The CO_2 shielded GMA process has advantages over the SMA process of increased weld deposition however, the spatter factor requires clean up of the base metal/weld and frequent cleaning of the weld torch shielding gas cup and contact tip. If the gas cup/contact tip are not properly and frequently cleaned of spatter accumulation this can interrupt or distort the gas shield resulting in weld porosity and/or weld deposit oxide inclusions.

b. Cleaning of SMA and GMA weld deposits is apparently being accomplished by wire brushing and/or grinding. Tightly adherent SMA slag and GMA oxide scale are not readily/completely removed by these

Subj: Trip to Pacific Division Naval Facilities Command, 22 through 29 April 1981; report on

methods. Remnant slag or scale in weld ripples, along weld toes or in way of weld starts and stops can mask weld defects/potential leak areas.

c. It appears that vertical and semi-overhead position welding is done progressing vertically down. This technique is effective however, experienced welder skill is required to avoid weld cold shuts and/or slag and oxide inclusions which could be a source of leaks.

d. Testing of the encapsulation welds for leaks is done by visual and vacuum box inspection. It would appear that the encapsulation canning could be readily used for air pressure testing with evaluation by soap testing and/or ultrasonic audio leak detection. An alternative would be to introduce a trace element/gas such as freon into the backing strip canned volume and check for leaks using a detector such as a halogen type sensor.

e. Magnetic particle inspection (M.T.) is done on ground potential weld repair areas in the barrel and bottom dome sections of the tanks (i.e. the upper dome welds are encapsulated and M.T. is not done). The M.T. is done with the AC yoke method using red or grey powder. Under the tank interior lighting conditions yellow or white M.T. powder might be more visible making rejectable linear indications more readily discernable.

3. Recommendations.

a. Welding Process/equipment.

(1) Expand the use of the GMA process to fully realize the advantage of the increased weld deposition rate.

(2) Change to flux core self shielding electrode. Advantages are:

(a) Elimination of the CO_2 shielding gas (i.e. gas cost, plus regulators, hoses, etc. to bring the gas to the welding torch).

(b) Improved arc stability resultant from the arc stabilizing/ionizing ingredients in the flux. These agents also act to deoxidize the molten weld puddle and refine the weld metal thereby increasing the tolerence for welding on dirty material (i.e. oil, rust, etc.).

(c) A further increased weld deposition rate with some reduction in weld spatter. The spatter reduction reduces the torch

Subj: Trip to Pacific Division Naval Facilities Command, 22 through 29 April 1981; report on

maintenance factor (i.e. minimizes the frequency of need to clean accumulated spatter from the torch contact tip area).

(3) Use of the Lincoln LN-22 or equivalent electrode/wire feeder. Advantages are the equipment is specifically designed for flux core electrode and the feed drive motor runs on the welding current/voltage. The latter feature eliminates the need for a separate 115 volt power supply to drive the wire feed motor as required for most conventional electrode wire feeders. The elimination of the need for the shielding gas and a separate 115V supply makes the portability nearly equivalent to the SMA (i.e. covered electrode) process.

b. Weld Cleaning. Use air driven needle guns for weld cleaning. Advantages are rapid and more complete cleaning of weld slag and oxide/scale. A thoroughly cleaned weld will provide added assurance that the welder will visually detect weld flaws and/or inconsistencies and fix them as a part of the in process welding operation. This approach should minimize rework to repair leaks. An alternative would be to use vacublast equipment with angular steel grit for weld area and weld deposit cleaning.

c. Welding Technique/Procedures. Train and/or test welders in the procedure and technique they will be using on the job. This should include fillet welding vertically down and horizontally on 1/4 inch thick patch plates and vertical down, horizontal and overhead position fillet welds of encapsulation cans to 1/4 inch thick plate. Advantages to be realized would be improved welder performance and weld quality on the job with a reduced possibility of weld flaws/leaks.

d. Upper Dome Welds. Require encapsulation/canning of the upper dome backing straps/welds as a standard procedure in lieu of the backing strap seal welding option currently in the contract. Require that the canning weld area be cleaned, preferably by blasting to bright metal, prior to fitting and welding the canning. An alternate that could be considered is vacublasting the weld area after fitting/tack welding the canning. This could be done immediately prior to welding. The only concern would be trapping steel grit in the faying area of the canning/dome plating. Excessive amounts of angular steel blasting grit trapped in an area where it could be incorporated in the molten weld deposit could raise the carbon content of the weld and cause cracking (i.e. steel blasting grit is normally high in carbon content). Weld tests should be conducted to check this factor. Require that canning welds be tested by introducing continuous air pressure behind the canning and using a bubble solution to test. Canning sections could be predrilled (i.e. approx 1/4 inch hole) for introducing the air for testing. Air introduction could be done with a rubber molded air hose nozzel that is inserted in the predrilled hole. Air flow/volume should

be such that a 3-10 pound positive pressure is established within the encapsulation volume. The predrilled hole could be closed by plug welding. Advantages to be realized are:

(1) A standardized procedure that can be preplanned for efficiency from tank to tank.

(2) Improved welding conditions (i.e. minimum potential for oil or other weld contamination with attendant weld defects) which would expedite welding with minimized weld defects/leaks.

(3) Expedited weld testing with increased assurance that all weld defects/leaks will be found and the completed/tested welds will be defect free. It should be noted that continuous air pressure bubble testing will find both large and small leaks vice vacuum testing where the pressure differential (i.e. delta P) dictates the size flaw detected.

e. Magnetic Particle Inspection (M.T.). The purpose of the M.T. inspection is not apparent. If there is an indication, the presence of a leak is verified by vacuum box testing. Repair is accomplished with a doubler patch plate. It is suggested that the purpose served by the M.T. inspection be reevaluated. If it is considered that a purpose is served it is suggested that yellow or white M.T. powder be used. The lighter colors would provide improved ability to detect flaws under the tank interior lighting/background conditions.

4. The above recommendations/suggestions are provided as requested. If further service can be provided or additional information on the recommendations/suggestions is desired, please contact Welding Engineering Division, MINSY. Autovon 252-2415/2276 or Commercial-Area Code 707-646-2276/2415.

[redacted]

By direction

Copy to:
OICC, Pearl Harbor, Hawaii
PACDIV, Code 04 ([redacted])
ROICC, Pearl
AREICC, Pearl
NAVFAC, Code 04B4 ([redacted])

AGENDA

24 April 1981

0800 Meet at ROICC PEARL

0900 Kick-off Briefing — OICC MID PAC
- OICC MIDPAC Remarks
- Conference Overview
- Project Brief
  - Description/Status
  - Design/Repair Concepts
  - Contract Procedures
  - Problems

1030 Visit Red Hill Tanks

1230 LUNCH

1330 Working Sessions/Visit to RED HILL Tanks

A. Review/Investigation Tank Repair Procedures

(1) Brush Blast
(2) Cleaning
(3) Inspection
(4) Weld Repairs
  (a) Upper Dome - Backer Strips
    -Seal Weld
    -Encapsulation - of Flange
      Cleaning, Wire Brush
  (b) Barrel
  (c) Lower Dome
  (d) Attachments
(5) Testing
  (a) Visual
  (b) Dye Penetrant
  (c) Magnaflux
  (d) Vacuum
  (e) Helium
(6) White Metal Blast
(7) Coating
  (a) Brush Prime Visual Inspection
  (b) Holiday Testing
  (c) Coating Materials
(8) Tank Serviceability
  (a) Methods to Determine and to Locate Leaks.
  (b) Measurement Problems
  (c) Temperature Change

Enclosure (1) to MINS ltr
138-Ser 53, 10310, of
1 May 1981

B. Jobsite Interviews

(1) Government Inspectors/CMEs
(2) Contractor Personnel
    (a) CQC Staff
    (b) Project Superintendent
    (c) Trade Foreman -
        Welding
        Coating

25 April 1981

0800 - 1600 Continuous RED HILL Visits

Tank Inspections
7 - Leak Repairs
13 - White Metal Blast, Coating
15 - Weld Repairs - Upper Dome + Barrel
16 - Brush Blast, Existing Conditions

26 April 1981

0900 Further Jobsite Visit
(As Required)

27 April 1981

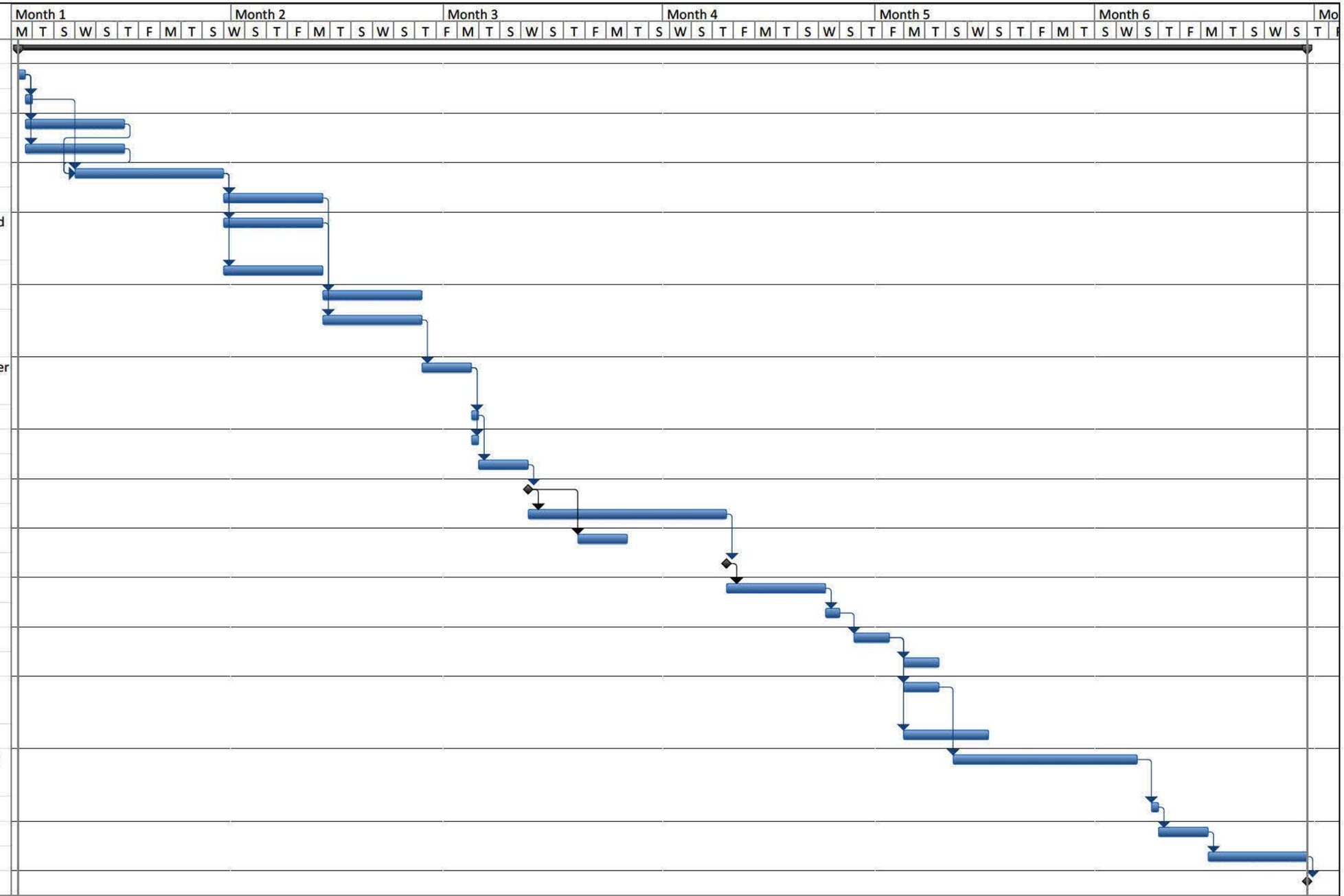
0800 - 1200 Working Session OICC MID PAC

1200 - 1600 Summarize Recommendations

28 April 1981

0800 Conference with Contractor OICC MID PAC

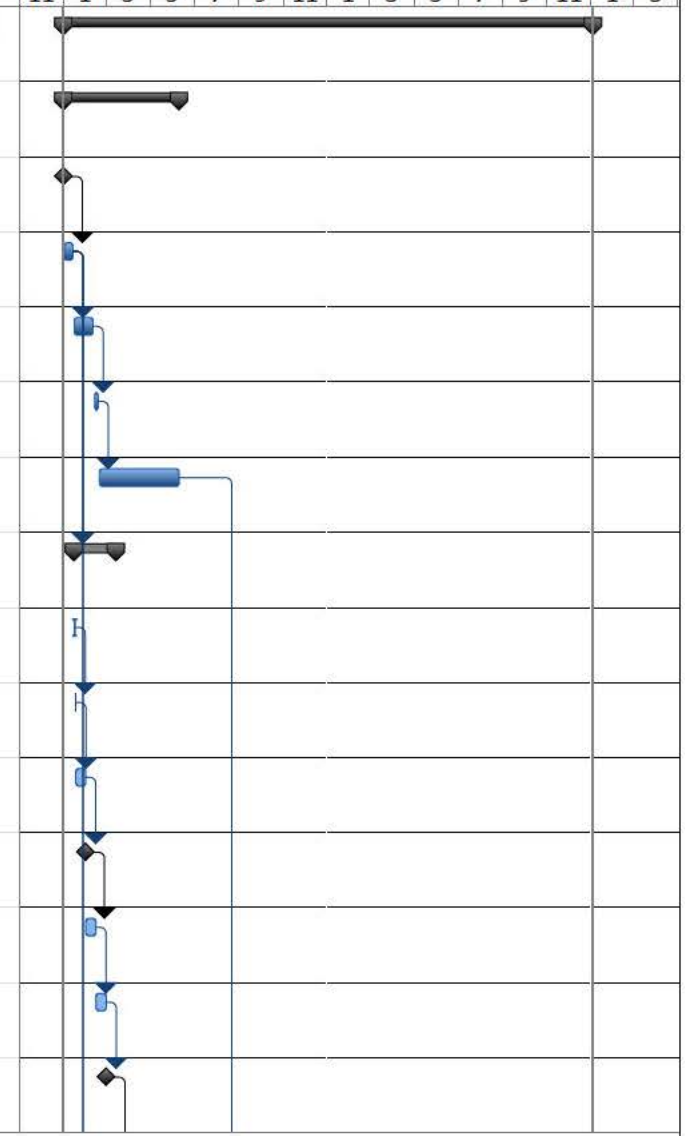
ID	Task Name
1	**Acquisition of Red Hill CIR Tank Contract**
2	Project Manager (PM) submits ECR
3	PM Request Support from Engineering Branch
4	Obtain information about known conditions or repairs
5	Obtain past inspection / Project Certification Reports
6	Develop the 6 Part Request for Proposal (RFP)
7	Develop the Independent Government Cost Estimate
8	Obtain Constructability Review from local NAVFAC Field Engineering Center (FEC)
9	Obtain FEC agreement
10	Perform Work Classification Review (WCR)
11	Incorporate FEC constructability review comments in RFP
12	Obtain RFP Sat-To Signed by FEC & Fleet Logistics Center (FLC)
13	Submit ECR to Acquisitions (ACQ)
14	Identify the Contracting Officer Representative (COR)
15	ACQ prepares RFP Solicitation Package
16	ACQ solicits RFP
17	Contractors develop proposals
18	Site Walk (if needed)
19	Receive proposals
20	Prepare Technical evaluation report of proposals
21	Review price proposals
22	Prepare Best Value analysis report
23	Update WCR
24	PM Submist Funds Request Form in amount of final price
25	ACQ prepares Post Negotiation Memorandum
26	DLA prepares funding document and sends to NAVFAC HQ
27	PM Prepares Funds Distribution Form
28	Funds arrive at EXWC/ACQ
29	Acquisition awards contract
30	Contract award



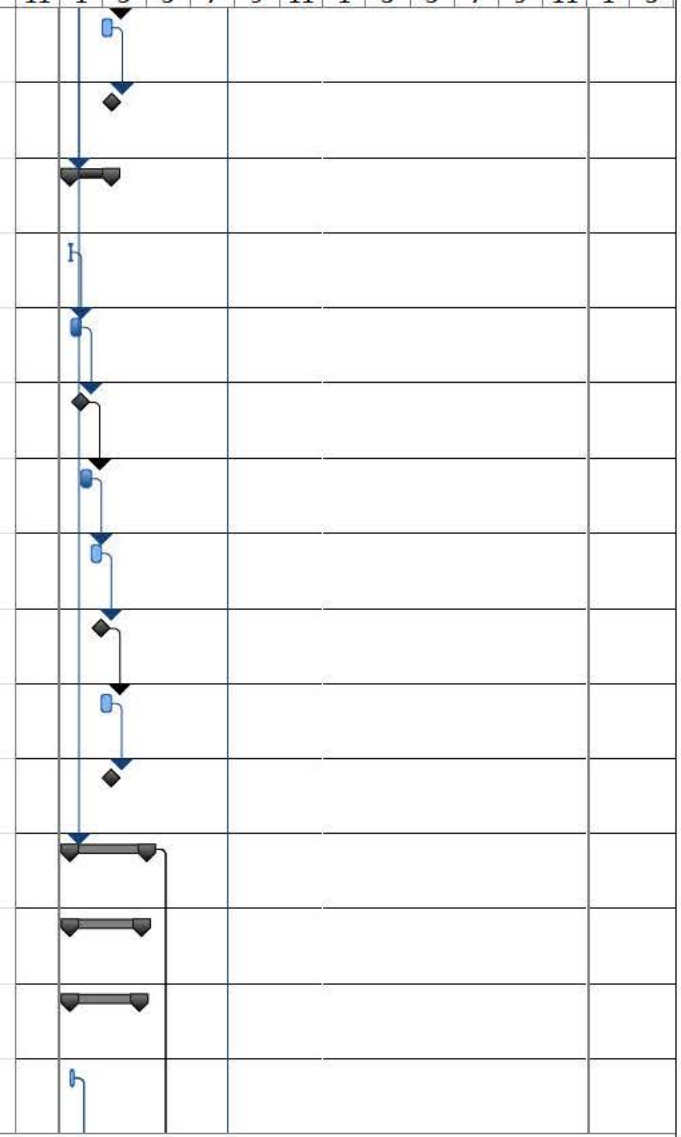
Acquistion Schedule
Red Hill AOC

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline
Split	External Tasks	Inactive Summary	Manual Summary	Progress
Milestone	External Milestone	Manual Task	Start-only	
Summary	Inactive Task	Duration-only	Finish-only	

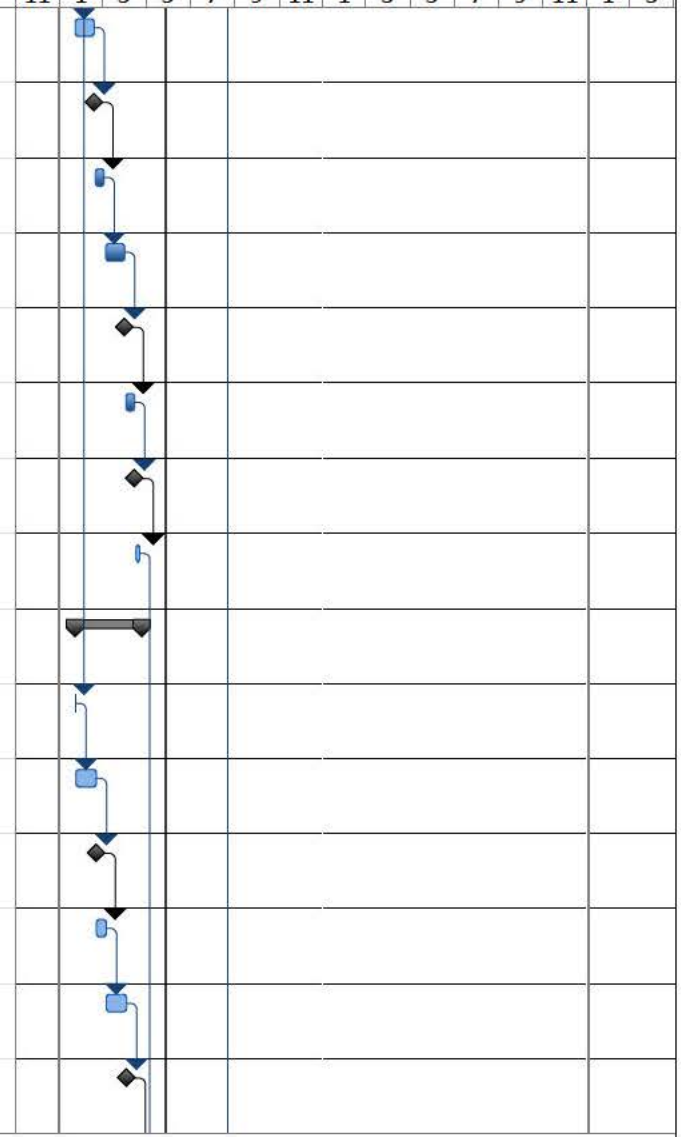
ID	Task Mode	Task Name	Duration
1		**Delivery Order xxx**	**524 days?**
2		**Project Management**	**115 days**
3		Notice to Proceed	0 days
4		Bond submittal	10 days
5		Site Visit - Authorization & Scheduling	4 wks
6		Site Visit	5 days
7		Obtain security access for team	16 wks
8		**Safety Plan**	**42 days**
9		Hold Team Safety Planning Meeting	1 day
10		Identify Safety Requirements	1 day
11		Prepare Draft Safety & APP	10 days
12		Submit Draft Safety & APP	0 days
13		GOVT review of Draft Safety & APP	10 days
14		Prepare FINAL Safety & APP	10 days
15		Submit Final Safety & APP	0 days



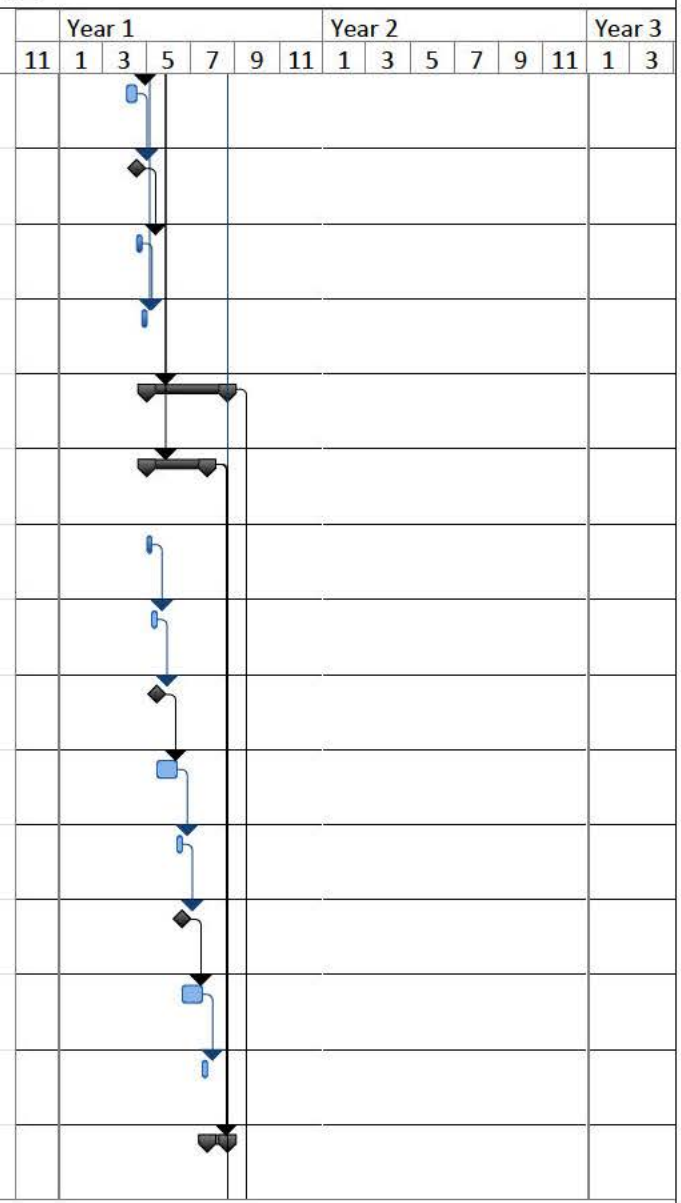
ID	Task Mode	Task Name	Duration
16		GOVT review of Final Safety & APP	10 days
17		GOVT approval of Final Safety & APP	0 days
18		**Environmental Plans**	**41 days**
19		Hold Team Environmental Meeting	1 day
20		Develop Draft Environmental Document	10 days
21		Submit Draft Env. Doc.	0 days
22		GOVT review of Draft Env. Doc.	10 days
23		Prepare Final Env. Doc.	10 days
24		Submit Final Env. Doc.	0 days
25		Govt review of Final Env. Doc.	10 days
26		Govt approval of Final Env. Doc.	0 days
27		**Engineering**	**76 days**
28		**Plans & Specs**	**71 days**
29		**Inspection Plans & Specs**	**70 days**
30		Review Tank History and Prep Data	5 days



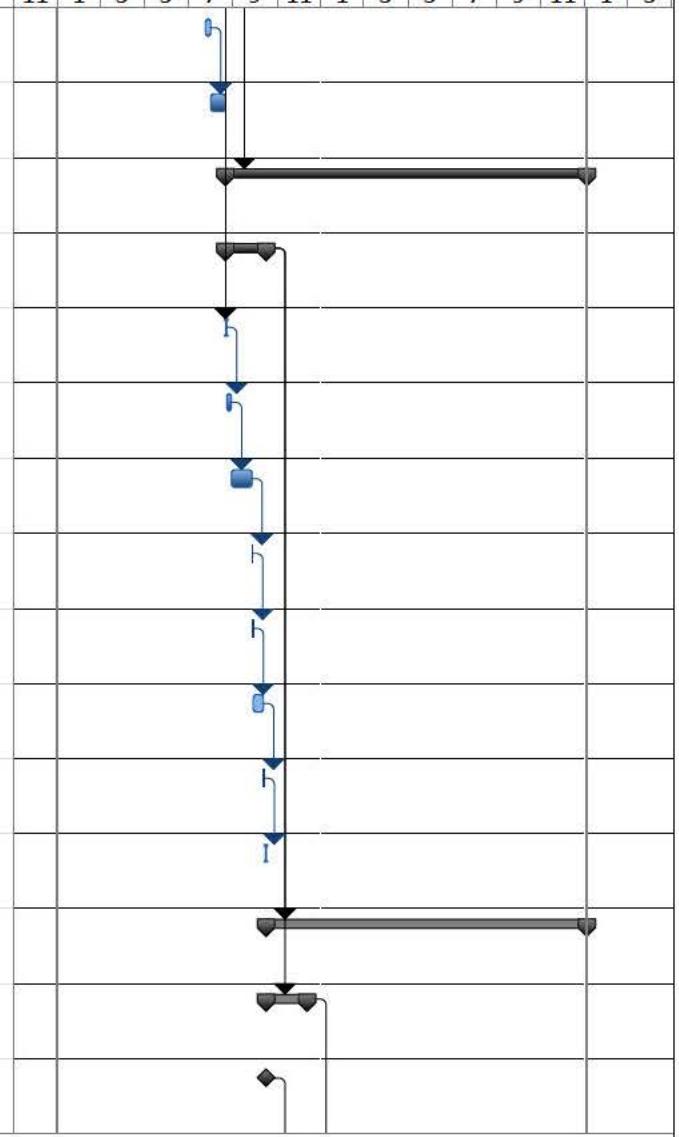
ID	Task Mode	Task Name	Duration
31		Prepare Draft Inspection Design	20 days
32		Submit Draft Inspection Design	0 days
33		GOVT review of Draft Inspection Design	10 days
34		Prepare Final Inspection Design	20 days
35		Submit Final Inspection Design	0 days
36		GOVT review of Final Inspection Design	10 days
37		Govt approval of Final Inspection Design	0 days
38		Prepare Final Documentation	5 days
39		**Repair Plans & Specs**	**66 days**
40		Review Tank History and Prep Data	1 day
41		Prepare Draft Repair Design	20 days
42		Submit Draft Repair Design	0 days
43		GOVT review of Draft Repair Design	10 days
44		Prepare Final Repair Design	20 days
45		Submit Final Repair Design	0 days



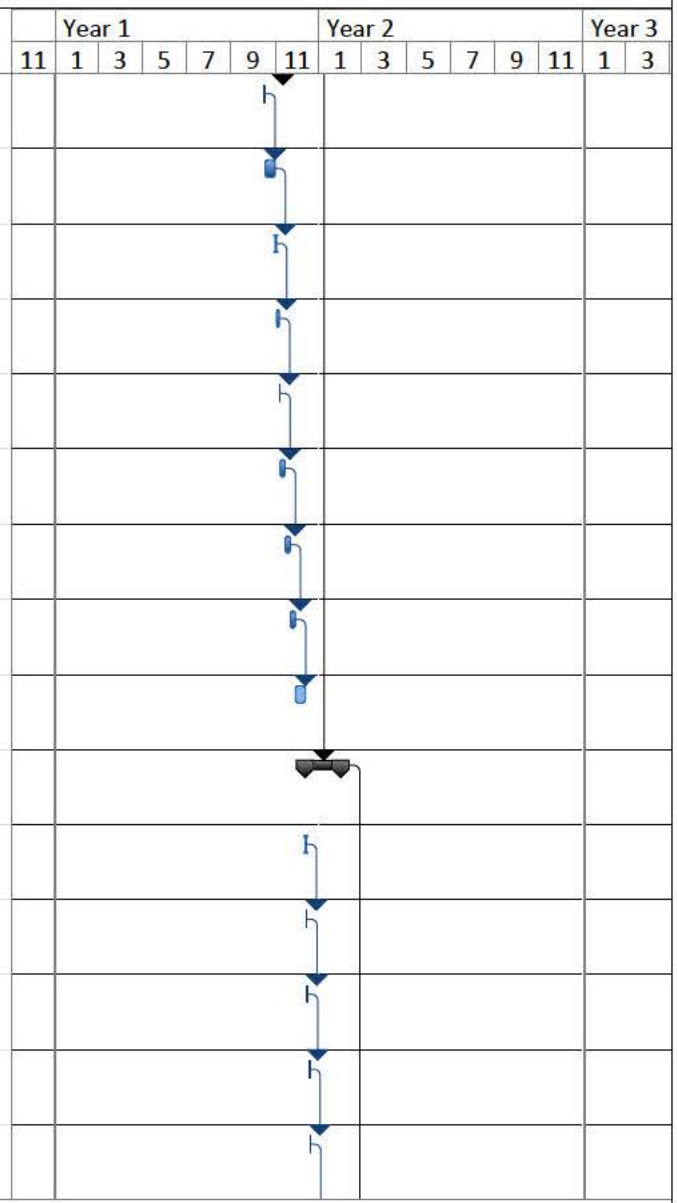
ID	Task Mode	Task Name	Duration
46		GOVT review of Final Repair Design	10 days
47		Govt approval of Final Repair Design	0 days
48		Prepare Final Documentation	5 days
49		Develop Procument Orders	5 days
50		**Procurement & Logistics**	**80 days**
51		**Material Procurement**	**60 days**
52		Select Vendor/subcontractors	5 days
53		Prepare IFB documents	5 days
54		Issue IFB to vendors	0 days
55		Bid Period	20 days
56		Assess Bids	5 days
57		Issue P.O.s	0 days
58		Supply Materials/Lead time Notification	20 days
59		Ship Materials to site	5 days
60		**Mobilize Support Containers**	**20 days**



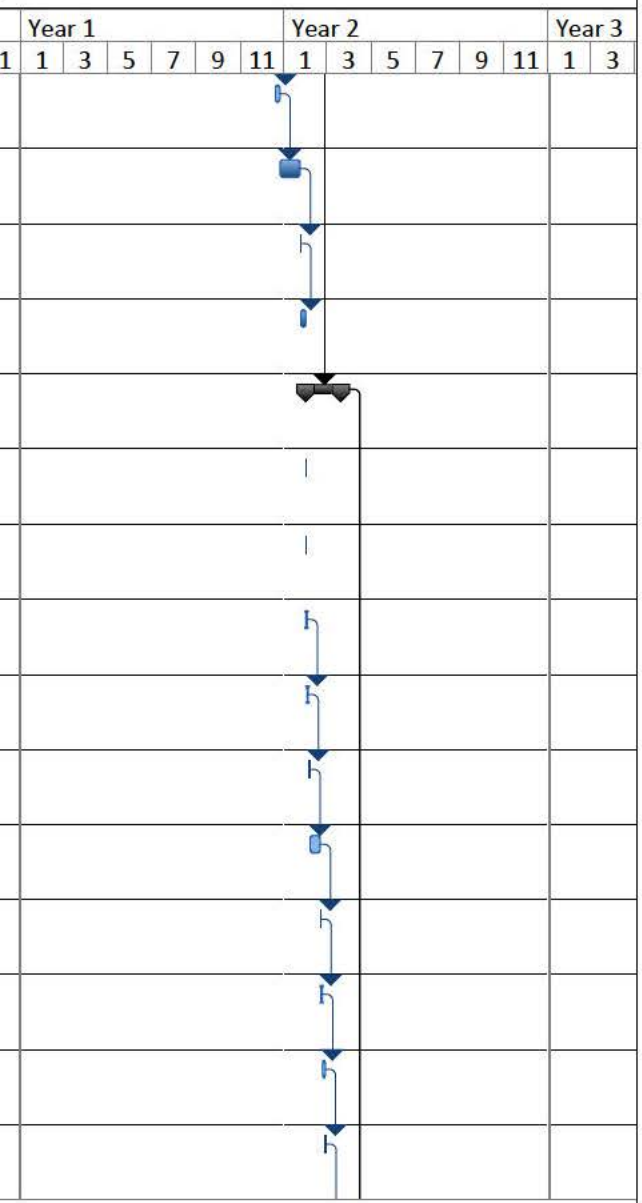
ID	Task Mode	Task Name	Duration
61		Assemble Support Equipment	5 days
62		Ship Support equipment to site	15 days
63		**Tank Inspections, Repair, and Support Activities**	**358 days?**
64		**Pre-Task Activiites**	**40 days**
65		Mobilize Site Manager, SSHO, QC	1 day
66		Perform Area Reconnaissance	5 days
67		Obtain Permits	4 wks
68		Mobilize Team	1 day
69		Site Orientation	1 day
70		Inventory & set up equipment	10 days
71		Hold Kick-Off Meeting	1 day
72		Review Safety/Lock-out/Confined Space	1 day
73		**Tank xx Vertical Storage Tank (RH)**	**318 days?**
74		**Prep Tank for Cleaning & Inspection Access**	**41 days**
75		Request Permission to Take tank OOS	0 days



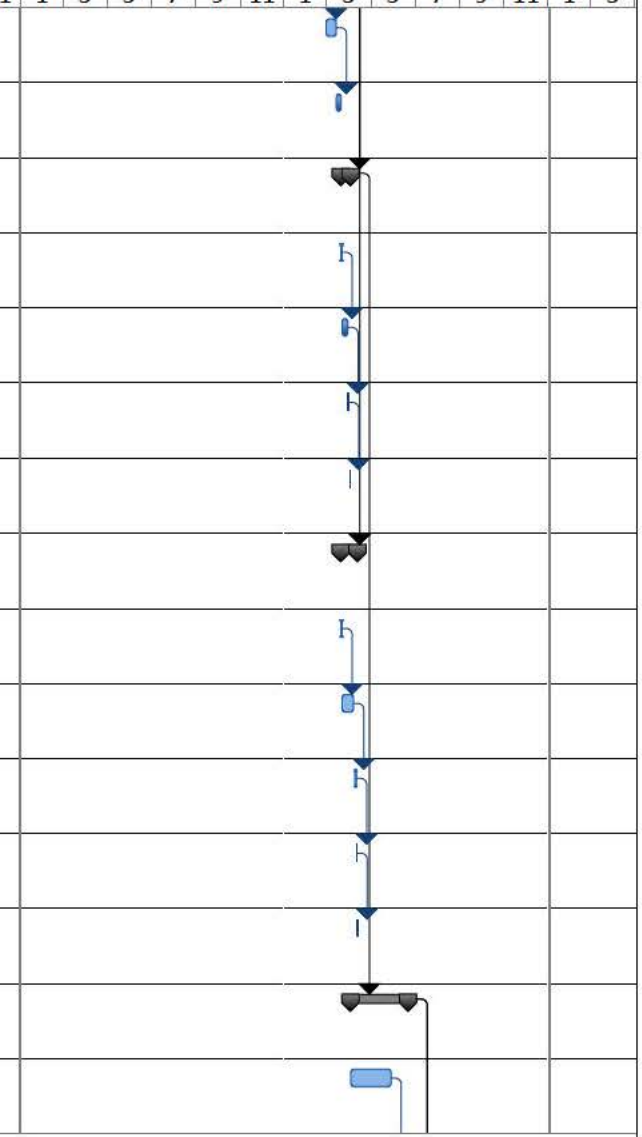
ID	Task Mode	Task Name	Duration
76		Hold Safety Meeting	1 day
77		Temporary Electrical - et-up Panel & Power Connection	10 days
78		Isolate & Block Tank Inlet header Valves	2 days
79		LO/TO Tank - Install Blinds	2 days
80		Drain Rsidual Product - Into Area Slop Line	1 day
81		Remove DBB Valves w/Motor Operators	5 days
82		Isolate & Remove Upper Tunnel Piping/Vent Spool	5 days
83		Install Ventilation Equipment and Hoses	5 days
84		Vapor Free the Tank	10 days
85		**Clean Tank**	**35 days**
86		Obtain Daily Confined Space Entry Permit	1 day
87		Gas Test - Part of confined Space Permits	1 day
88		Ensure all PPE and Tools available	1 day
89		Remove manways	1 day
90		Certify Tanks for Entry	1 day



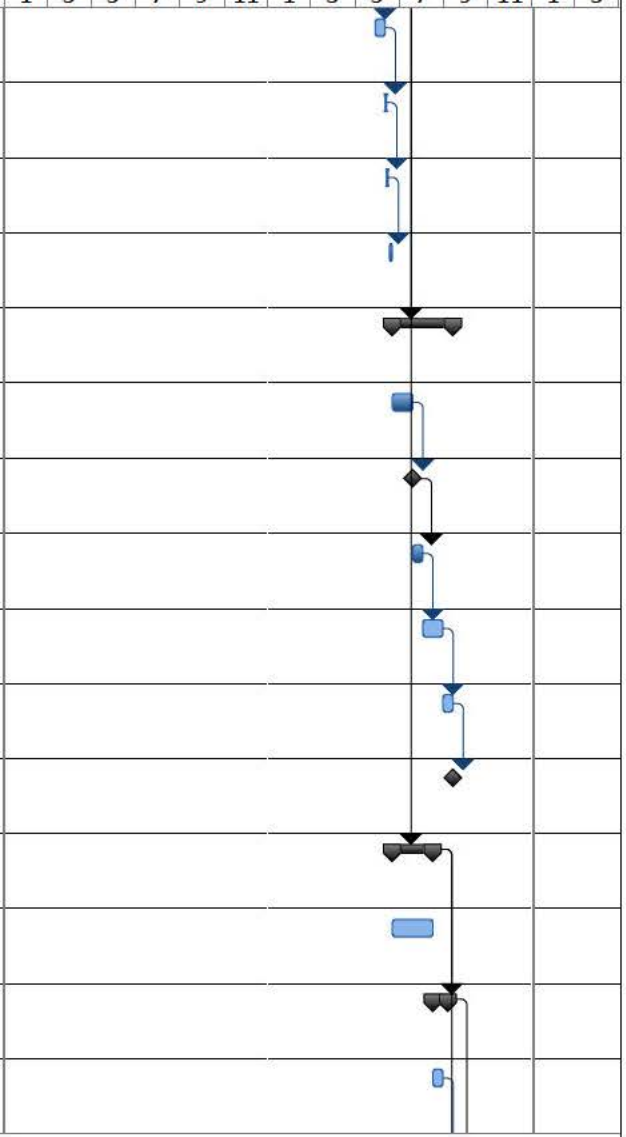
ID	Task Mode	Task Name	Duration
91		Set Up Cleaning and Recycle Equipment	4 days
92		Clean tanks - Pressure Blast Internal Surfaces	20 days
93		Certify Gas Free	1 day
94		Dispose of residual product and Sludge from Cleaning	5 days
95		**Catwalk & Structure - Inspection and Repairs**	**35 days**
96		Obtain Daily Confined Space Entry Permit	1 day
97		Gas Test - Part of confined Space Permits	1 day
98		Install temporary lighting and Safety cabling	2 days
99		Insepct catwalk and hadrails	1 day
100		Submit list of identified items for NAVFAC Approval	1 day
101		Obtain approval from NAVFAC	10 days
102		Repair catwalk deficienies and replace missing bolts	1 day
103		Install Scaffolding for tower access	2 days
104		Inspect tower & crane structure	2 days
105		Submit list of identified items for NAVFAC Approval	1 day



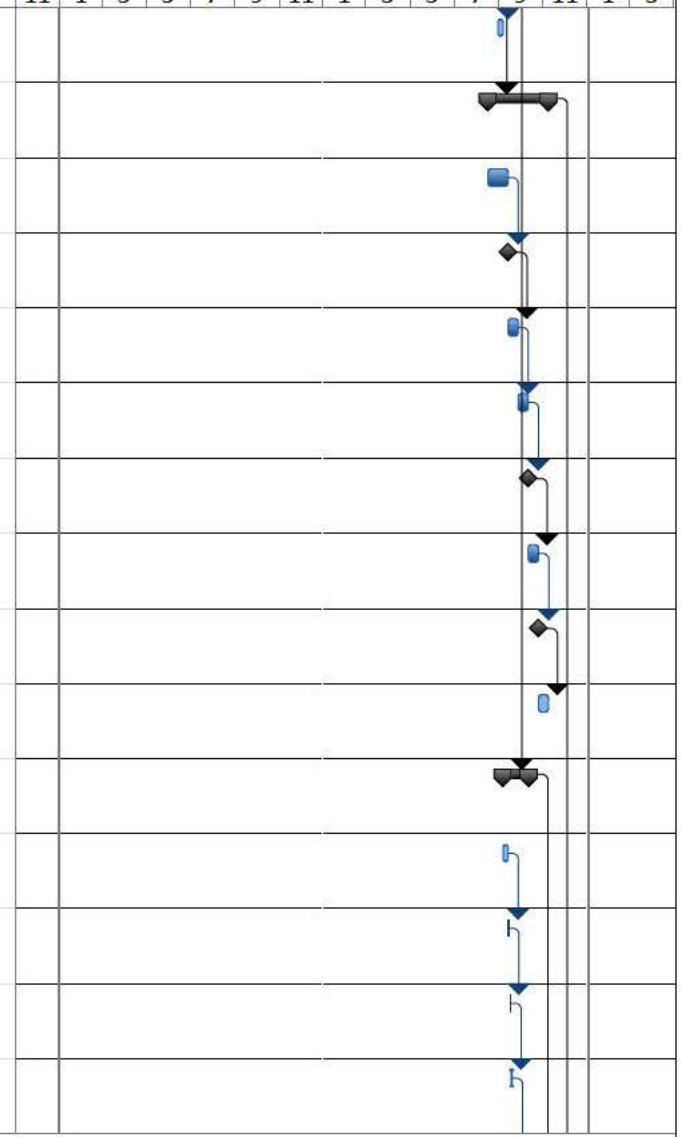
ID	Task Mode	Task Name	Duration
106		Obtain approval from NAVFAC	10 days
107		Repair tower and crane structure	5 days
108		**Tank Access Preparation**	**9 days**
109		Install Temporary lighting and Safety cabling	1 day
110		Install crane Boom & Lift equipment	6 days
111		Install Addl Scaffolding - in areas not accessable (lower & upper dome)	1 day
112		Remove Interferences	1 day
113		**Pipe Testing**	**17 days?**
114		Set up Test Equipment	1 day
115		Hydro Lower Piping sections	12 days
116		Visually inspect piping	2 days
117		Remove test equipment	1 day
118		Issue Presure test and visual inspection report to NAVFAC	1 day?
119		**Tank - Nondestructive testing & API 653 Inspection**	**58 days**
120		NDT - Upper & Lower Dome & Shell	40 days



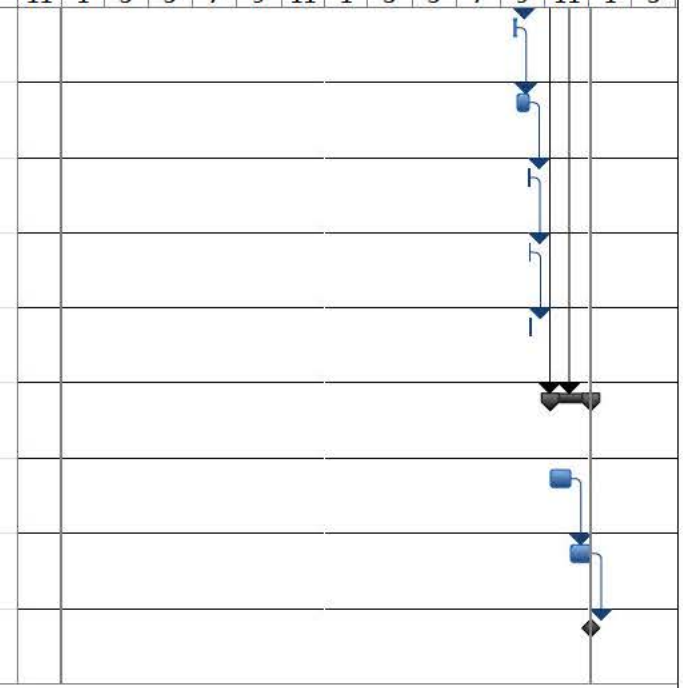
ID	Task Mode	Task Name	Duration
121		API 653 Inspection - Upper & Lower Dome & Shell (UT)	10 days
122		API 653 Inspection - Nozzles & manways	2 days
123		API 653 - Appurtenances	2 days
124		NACE Inspection - Coatings	4 days
125		**Tank Inspection Report**	**60 days**
126		Prepare Draft Inspection Report	20 days
127		Submit Draft Inspection Report to GOVT	0 days
128		GOVT review of Draft Inspection Report	10 days
129		Prepare Final Inspection Report	20 days
130		Govt Review of Final Inspection Report	10 days
131		Govt approval of Final Inspection Report	0 days
132		**Tank - Perform Predictive Repairs**	**40 days**
133		Perform Tank Repairs	40 days
134		**Tank Coating**	**15 days**
135		Sandblast & Coat Lower Dome	10 days



ID	Task Mode	Task Name	Duration
136		Paint Cure Time	1 wk
137		**Prepare Tank Return to Operator Documentation**	**60 days**
138		Prepair Draft RTO Document	20 days
139		Submit Draft RTO document to GOVT	0 days
140		Govt Review of RTO document	10 days
141		Prepare Final RTO document	10 days
142		Submit Final RTO Document to GOVT	0 days
143		Govt review of final RTO document	10 days
144		Govt approval of final RTO document	0 days
145		NAVSUP approval of RTO document	2 wks
146		**Return Tank to Service**	**26 days**
147		Remove Lift Equipment from Tank	5 days
148		Remove Scaffolding for Tower Access	1 day
149		Remove tools, lighting and Safety Devices from tank	1 day
150		Rmove Blinds & fittings protections	2 days



ID	Task Mode	Task Name	Duration
151		Reinstall Manway and vent spool	2 days
152		Reinstall lower piping spools and motor valves	12 days
153		Inspect tank using inspection checklist	1 day
154		Inform Operators of Tank Readiness	1 day
155		Remove Locks and Chains from Tank Valves	1 day
156		**Start Tank Filling procedure**	**40 days**
157		Monitor tank for leaks	20 days
158		Check all tank appurtenances for weeps, drips	20 days
159		Begin Normal Operations	0 days



RED HILL TANK CIR - COMPRESSED SCHEDULE (OVERLAPPING PLANNING & REPAIR)

6-months RFP develop + ACQ -- 24 months CIR

One tank per product out of service at one time, except JP-5 (two JP-5 tanks at a time)

9-Aug-16

eProjects WON:	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Apr-17	Jul-17	Oct-17	Jan-18	Apr-18	Jul-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19	Jan-20	Apr-20	Jul-20	Oct-20	Jan-21	Apr-21	Jul-21	Oct-21	Jan-22	Apr-22	Jul-22	Oct-22	Jan-23	Apr-23	Jul-23	Oct-23	Jan-24	Apr-24	Jul-24	Oct-24	Jan-25	Apr-25	Jul-25	Oct-25	Jan-26	Apr-26	Jul-26	Oct-26	Jan-27	Apr-27	Jul-27	Oct-27	Jan-28	Apr-28	Jul-28
# of Tanks OOS				3	3	4	4	4	4	4	4	2	2	2	2	3	3	3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1					
1295001	Tank 5																																																	
1548681	RFP			Tank 14 CIR								Already drained and cleaned. 1-1/2 year Inspect + Repair. ***Convert from F-76 to JP-5 at end of project.***																																										
				Tank 17 CIR								Already drained and cleaned. Inspect + Repair (*and* 577 telltale patches to address).																																								
								Tank 18 CIR				Start upon completion of either tank 14 or 17																																							
1548683	RFP					Tank 4 CIR						Move fuel into Red Hill Tank 5. 2 years Clean, Inspect, Repair.																																								
		RFP		Tank 13 CIR								2 years Clean, Inspect, Repair. ***Convert from F-76 to JP-5 at end of project.***																																								
TBD										RFP		Tank 3 CIR					Start upon completion of Tank 4. 2 years Clean, Inspect, Repair.																																		
TBD											RFP	Tank 11 CIR					Start upon completion of Tank 18. 2 years Clean, Inspect, Repair.																																		
												Tank 12 CIR					Same ktr work on two adjacent tanks																																		
TBD												RFP	Tank 9 CIR				Start upon completion of Tank 11. 2 years Clean, Inspect, Repair.																																		
													Tank 8 CIR				Same ktr work on two adjacent tanks																																		
TBD													RFP	Tank 7 CIR																																				
														Tank 10 CIR																																				
TBD														RFP	Tank 15 CIR																																			
																																	Tank 16 CIR																			
TBD																																																		
TBD																																																		

JP-5 OOS | JP-8 OOS | F-76 OOS

JP-5 PLANNING | JP-8 PLANNING | F-76 PLANNING

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 43

1 CONTRACT/PURCH ORDER/ AGREEMENT NO	2 DELIVERY ORDER/ CALL NO	3 DATE OF ORDER/CALL (YYYYMMMDD)	4 REQ / PURCH REQUEST NO	5 PRIORITY
N39430-15-D-1632	0005	2016 Aug 31	ACQR4250809	

6. ISSUED BY CODE N39430
NAVFAC EXWC
CODE ACQ / NAVAL BASE VENTURA COUNTY
1100 23RD AVE BLDG 1100
PORT HUENEME CA 93043-4301

7. ADMINISTERED BY *(if other than 6)* CODE N62478
NAVFAC HAWAII
400 MARSHALL RD
PEARL HARBOR HI 96860-3139

8. DELIVERY FOB
[X] DESTINATION
[ ] OTHER
(See Schedule if other)

9. CONTRACTOR CODE 1YQ36 FACILITY
NAME AND ADDRESS
CB&I FEDERAL SERVICES LLC
JUSTIN MYERS
1725 DUKE ST, STE 400
ALEXANDRIA VA 22314-3470

10. DELIVER TO FOB POINT BY (Date) *(YYYYMMMDD)*
SEE SCHEDULE

11. MARK IF BUSINESS IS
[ ] SMALL
[ ] SMALL DISADVANTAGED
[ ] WOMEN-OWNED

12. DISCOUNT TERMS

13. MAIL INVOICES TO THE ADDRESS IN BLOCK
See Item 7

14. SHIP TO CODE N62478
NAVFAC HAWAII
ORLINO PERALTA
400 MARSHALL RD
BLDG C27
JBPHH HI 96860-3139

15. PAYMENT WILL BE MADE BY CODE N68732
DFAS CLEVELAND
CLEVELAND NORFOLK ACCOUNTS PAYABLE
PO BOX 998022
CLEVELAND OH 44199-8022

MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.

16. TYPE OF ORDER			
	DELIVERY/ CALL	X	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract
	PURCHASE		Reference your quote dated Furnish the following on terms specified herein REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR | SIGNATURE | TYPED NAME AND TITLE | DATE SIGNED (YYYYMMMDD)

[X] If this box is marked, supplier must sign Acceptance and return the following number of copies 1

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE
See Schedule

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
	SEE SCHEDULE				

* *If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.*

24. UNITED STATES OF AMERICA
TEL: 805-982-5570
EMAIL: [redacted]
BY: [redacted]
CONTRACTING / ORDERING OFFICER

25. TOTAL $20,437,942.00
26. DIFFERENCES

27a. QUANTITY IN COLUMN 20 HAS BEEN
[ ] INSPECTED [ ] RECEIVED [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE | c. DATE (YYYYMMMDD) | d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

f. TELEPHONE NUMBER | g. E-MAIL ADDRESS

36. I certify this account is correct and proper for payment.
a. DATE (YYYYMMMDD) | b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

28. SHIP NO. | 29. DO VOUCHER NO. | 30. INITIALS

31. PAYMENT
[ ] PARTIAL
[ ] FINAL
[ ] COMPLETE
[ ] PARTIAL
[ ] FINAL

32. PAID BY

33. AMOUNT VERIFIED CORRECT FOR

34. CHECK NUMBER

35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO	42. S/R VOUCHER NO.

Section 00010 - Solicitation Contract Form

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002		[redacted]	Project	[redacted]	$20,437,942.00
EXERCISED OPTION	1ST OPTION YEAR FOR THE POL IDIQ MACC FFP IGF::OT::IGF X033 NEXWC CI11 CLEAN, INSPECT, REPAIR, AND INSPECT REPAIRS TO MINED-IN-PLACE MILITARY PETROLEUM STORAGE TANKS (RED HILL TANKS 14, 17 AND 18) LOCATED AT JOINT BASE PEARL HARBOR-HICKAM FOB: Destination PURCHASE REQUEST NUMBER: [redacted]				
				NET AMT	$20,437,942.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000201	[redacted]				$0.00
				NET AMT	$0.00
	[redacted]				$4,618,477.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000202					$0.00

[redacted]

NET AMT $0.00

[redacted] $1,891,383.00

[redacted]

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000203					$0.00

[redacted]

NET AMT $0.00

[redacted] $5,807,187.00

[redacted]

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000204					$0.00
	(b) (4) [redacted]				
				NET AMT	$0.00
	[redacted]				$1,694,809.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000205					$0.00
	(b) (4) [redacted]				
				NET AMT	$0.00
	[redacted]				$4,889,328.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000206					$0.00

[redacted]

NET AMT $0.00

[redacted] $1,536,758.00

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0002	Destination	Government	Destination	Government
000201	N/A	N/A	N/A	Government
000202	N/A	N/A	N/A	Government
000203	N/A	N/A	N/A	Government
000204	N/A	N/A	N/A	Government
000205	N/A	N/A	N/A	Government
000206	N/A	N/A	N/A	Government

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0002	26-DEC-2019	1	NAVFAC HAWAII ORLINO PERALTA 400 MARSHALL RD BLDG C27 JBPHH HI 96860-3139 808-474-3220 X267 FOB: Destination	N62478

000201	N/A	N/A	N/A	N/A
000202	N/A	N/A	N/A	N/A
000203	N/A	N/A	N/A	N/A
000204	N/A	N/A	N/A	N/A
000205	N/A	N/A	N/A	N/A
000206	N/A	N/A	N/A	N/A

Section 00700 - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.222-50	Combating Trafficking in Persons	MAR 2015
252.204-0002	Line Item Specific: Sequential ACRN Order	SEP 2009

CLAUSES INCORPORATED BY FULL TEXT

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 15 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 1,213 days after award. The time stated for completion shall include final cleanup of the premises.

(End of clause)

52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of Tank 14 - $2,100.00; Tank 17 - $2,700; Tank 18 - $3,100.00; for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
69.1%	6.9%

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the

goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

(1) Name, address, and telephone number of the subcontractor;

(2) Employer's identification number of the subcontractor;

(3) Estimated dollar amount of the subcontract;

(4) Estimated starting and completion dates of the subcontract; and

(5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is Honolulu, HI

(End of provision)

252.232-7006 WIDE AREA WORKFLOW PAYMENT INSTRUCTIONS (MAY 2013)

(a) Definitions. As used in this clause--

Department of Defense Activity Address Code (DoDAAC) is a six position code that uniquely identifies a unit, activity, or organization.

Document type means the type of payment request or receiving report available for creation in Wide Area WorkFlow (WAWF).

Local processing office (LPO) is the office responsible for payment certification when payment certification is done external to the entitlement system.

(b) Electronic invoicing. The WAWF system is the method to electronically process vendor payment requests and receiving reports, as authorized by DFARS 252.232-7003, Electronic Submission of Payment Requests and Receiving Reports.

(c) WAWF access. To access WAWF, the Contractor shall--

(1) Have a designated electronic business point of contact in the System for Award Management at https://www.acquisition.gov; and

(2) Be registered to use WAWF at https://wawf.eb mil/ following the step-by-step procedures for self-registration available at this Web site.

(d) WAWF training. The Contractor should follow the training instructions of the WAWF Web-Based Training Course and use the Practice Training Site before submitting payment requests through WAWF. Both can be accessed by selecting the "Web Based Training" link on the WAWF home page at https://wawf.eb.mil/.

(e) WAWF methods of document submission. Document submissions may be via Web entry, Electronic Data Interchange, or File Transfer Protocol.

(f) WAWF payment instructions. The Contractor must use the following information when submitting payment requests and receiving reports in WAWF for this contract/order:

(1) Document type. The Contractor shall use the following document type(s).

Navy Construction/Facilities Management Invoice (NAVCON)

(2) Inspection/acceptance location. The Contractor shall select the following inspection/acceptance location(s) in WAWF, as specified by the contracting officer.

N/A

(3) Document routing. The Contractor shall use the information in the Routing Data Table below only to fill in applicable fields in WAWF when creating payment requests and receiving reports in the system.

Routing Data Table*

Field Name in WAWF	Data to be entered in WAWF
Pay Official DoDAAC	N68732
Issue By DoDAAC	N39730
Admin DoDAAC	N62478
Inspect By DoDAAC	N62478
Ship To Code	N62478
Ship From Code	N/A
Mark For Code	N/A
Service Approver (DoDAAC)	N/A
Service Acceptor (DoDAAC)	N62478
Accept at Other DoDAAC	N/A
LPO DoDAAC	N62478
DCAA Auditor DoDAAC	N/A
Other DoDAAC(s)	N62478

(4) Payment request and supporting documentation. The Contractor shall ensure a payment request includes appropriate contract line item and subline item descriptions of the work performed or supplies delivered, unit price/cost per unit, fee (if applicable), and all relevant back-up documentation, as defined in DFARS Appendix F, (e.g. timesheets) in support of each payment request.

(5) WAWF email notifications. The Contractor shall enter the email address identified below in the "Send Additional Email Notifications" field of WAWF once a document is submitted in the system.

[redacted]

(g) WAWF point of contact. (1) The Contractor may obtain clarification regarding invoicing in WAWF from the following contracting activity's WAWF point of contact.

[redacted]

(2) For technical WAWF help, contact the WAWF helpdesk at 866-618-5988.

(End of clause)

5252.228-9305 NOTICE OF BONDING REQUIREMENTS (DEC 2000)

(a) Within 15 days after receipt of award, the bidder/offeror to whom the award is made shall furnish the following bond(s) each with satisfactory security:

__X__ A Performance Bond (Standard Form 25). The performance bond shall be in a penal sum equal to 100% percent of the contract price.

__X__ A Payment Bond (Standard Form 25A). The payment bond shall be in a penal sum equal to 100% of the contract price.

(b) Any surety company holding a certificate of authority from the Secretary of Treasury as an acceptable Surety on Federal bonds will be accepted. Individual sureties will be permitted as prescribed in FAR 28.203 and FAC 5252.228-9300. Alternative types of security in lieu of furnishing sureties on performance and/or payment bonds will be permitted as prescribed in FAR 28.204, and will be held for at least one year after the completion of the contract. Additional bond security may be required as prescribed in FAR 52.228-2. Bonds shall be accompanied by a document authenticating the agent's authority to sign bonds for the surety company.

(c) The contract time for purposes of fixing the completion date, default, and liquidated damages shall begin to run 15 days from the date of award, regardless of when performance and payment bonds or deposits in lieu of surety are executed.

(End of clause)

DESIGN-BUILD CONTRACT – INCORPORATION OF DESIGNER OF RECORD FINAL DESIGN (JUL 2008)

Upon Government receipt and acceptance of the Designer of Record signed and stamped final design submission for all work, a no-cost unilateral modification shall be issued to incorporate the final design into the contract.

If the Contractor is authorized to proceed with portions of the work prior to the completion of a final design for all work, a no-cost unilateral modification shall be issued for each Government accepted Designer of Record signed and stamped design submission for each portion of the work in order to incorporate that design submittal into the contract.

(End of clause)

Section 00800 - Special Contract Requirements

STATEMENT OF WORK
This task order includes the Parts 2, 3, 5, and 6 from the RFTOP, the basic contract and CB&I's proposal dated 29 July 2016.

The duration of performance is 1,213 days from award to return to operator.

Pre-Performance Inquiries

No.	Reference	Question	Answer
1	Section 00210, Factor 2 - Schedule	Since there are two (2) facilities (tanks), is the entire schedule to be limited to 120 activities (2 x 60 activities)? Or, does the limitation of 60 activities per facility only pertain to construction activities and **NOT** to Milestones, Planning/Pre-Construction, Design, Procurement, Management, and Govt Review activities that are not specific to any one facility?	This solicitation includes three (3) facilities (tanks). Submittal of one 11"x17" CPM schedule per tank, limited to 60 activities per tank is acceptable. The 60 activities include those listed in 00210, and as described in 01 32 17.05 20 activity categories (i.e., under design activities, procurement activities, government activities, quality management activities, construction activities, turnover and closeout activities).
2	Section 00210, Factor 2 - Schedule	Regarding the 60 activity limitation per facility, is 60 activities equivalent to 60 rows? For example, if we use a group header for coating work on Tank XX, does that group row count towards the 60 activity limitation?	A group header or group row will not be counted towards the 60 activity per tank limitation.
3	General	What is the weight capacity of the Facility freight elevator?	The freight elevator capacity is 10,000 lbs.
4	General	Will NAVFAC HI Crane Center be providing training and certification for operators of the Adit 3 overhead crane?	Yes. NAVFAC Hawaii conducts a NAVFAC P-307 Category 3 crane safety course 1-2 times per year. Contractor shall coordinate attendance with COR following contract award, for those personnel who will be using the equipment hoist at Adit 3.
5	General – Site Photographs	Site walk instructions stated photographs were not allowed without a permit. Several contractors collected photographs, presumably under a photo permit. Can the Gov't request that photos collected be shared with all contractors?	No. However, See No. 6 & 7 below.
6	General – Site Photographs	Will the Gov't take pictures of the entrance to each of the Adits (i.e. Adit 3, 4, 5, and 6)?	Due to the large file memory size, the Government will provide files via ARMRDEC SAFE (U. S. Army Aviation and Missile Research Development and Engineering Center Safe Access File Exchange). The seven files are: Adit 3, Adit 3 closer, Adit 4, Adit 4 closer, Adit 5, Adit 6, and Adit 6 closer.

7	General – Site Photographs	Will the Gov't collect pictures of the piping/valves/conduit at each tank for contractors to develop an approach for removal/install?	Due to the large file memory size, the Government will provide files via ARMRDEC SAFE (U. S. Army Aviation and Missile Research Development and Engineering Center Safe Access File Exchange). The 17 files are: Tank 14 Piping 01 to 07, Tank 17 Piping 01 to 06, and Tank 18 Piping 01 to 04.
8	General – Existing Equipment	Will the Gov't supply the drawings and information on the existing booms and baskets which are laying in the floor utilized on earlier projects?	One set of Government-owned booms is stored on the deck in Adit 4. The condition and serviceability of this equipment is unknown. It might be available for use where-is and as-is upon approval of a request by the Contracting Officer. Also stowed at Adit 4 are the Government-owned dome truss equipment, and monorail scaffolding. The condition and serviceability of this equipment is unknown. It might be available for use where-is and as-is upon approval of a request by the Contracting Officer. Government takes no responsibility for condition of any of this equipment. If Contractor requests permission to utilize this equipment, Contractor assumes all liability for design adequacy, condition, refurbishment, inspection, certification, and conformance with current safety codes and regulations. As stated in RFP Contractor is responsible to design the means and methods for personnel to safely access all of the interior surfaces in the tank for cleaning, inspection, and repairs. Government is not directing Contractor to utilize GFE or to purchase equipment. The following files are provided as reference information and no representation is made to the accuracy, adequacy, or completeness of the information: RFI Q No 8 Red Hill Dome Truss Scaffold and Monorail - Design Dwgs. RFI Q No 8 Red Hill Dome Truss Scaffolding - List of Materials RFI Q No 8 Red Hill Telescoping Box Boom Design Drawings RFI Q No 8 YD Drawing No. 294365 The tank inspections include assessment of the existing towers. Attachment of any equipment to the tower, catwalk, or bridge require structural inspection and an analysis of adequacy. Tower cable guys may require removal in Tank 18 to accomodate equipment installation and operation. Analysis and bracing of the towers to the upper dome is required. Previous modifications to the tower bracing are provided on as reference information on Sheet S-10 (NAVFAC Sketch No. SK-7669). No representation is made to the accuracy, adequacy, or completeness of the information.

			Willbros Government Services also owns two sets of telescoping box booms and baskets. Contact Willbros Government Services for more information.
9	General – Work Hours	For bidding purposes and to minimize TIA submittals, how many days a week should contractors assume hot work will be prohibited due to fuel movement within the Facility?	Contractor is required to certify each tank gas-free and ready for hot work. Fuel movement within the facility has not impacted the ability to perform hot work within each tank.
10	Project Program, Section 3.1.2	The Preliminary Final Inspection Report for Tank 17 has not been accepted. Is the Gov't calling for another complete inspection and scan of the subject tank?	Yes.
11	Project Program, Section 3.1.2	Have the existing coatings (within the tanks and the exterior pipelines) been tested for lead content?	No.
12	Project Program, Table 3.2	Where is the nearest electrical substation? Would power be available for purchase if the contractor installed a meter?	The nearest Hawaiian Electric substation is behind Adit 6. This option would be between the awarded Contractor and HECO.
13	Section 01 35 26.05 20, 1.09) Transmitter Requirements	What type of radio system is permitted inside the tunnel? What frequency is permissible?	The frequencies on commercially-available FCC compliant mine radio systems should be acceptable. Operation on Government frequencies will not be sponsored on this contract.
14	Section 01 35 26.05 20, 1.6.3.2. e.	Does the facility have a rescue plan available for emergencies?	No. Follow RFP.

15	Section 01 35 26.05 20, 3.8, b.	What is the basis for one air change per hour? 29 CFR 1910.146(c)(5)(ii)(E) calls for 20 air changes an hour, which is not feasible for the operational limitations of the tunnel. Is this an accepted value from previous CSE operations? Must the equipment be explosion proof for forced air ventilation? The existing tank operation at Tank 5 was not.	As indicated in 01 35 26.05 20 Section 3.8.b, forced air ventilation is required for all confined space entryoperations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level regardless of classification. After degassing is complete Contractor is responsible to certify the atmosphere gas free and to maintain a vapor-free condition inside the tank. In past projects, one air change per hour provided acceptable working conditions after the tank was cleaned and gas free.
16	Section 01 50 00.05 20 Page 102 Table Last item:	Will the Lower Tunnel train be available to the contractor on each of the two contracts for up to 8 hours per day if both projects time lines overlap?	No.
17	Project Program B201009 Exterior Painting and Coatings	Sow references Section 33 52 80, which is the guide specification for new pipeline coating. Is Section 09 97 13.27 the appropriate Section?	Delete references to 33 52 80 in B20. Design shall include an edited version of Section 09 97 13.27.
18	Project Program, G306001 Liquid Fuels Distribution Piping	The issue/receipt motor operated 12-inch and 20-inch ball valves have been rebuilt previously (circa 2004), and while the valves tested successfully in the shop, they continued to malfunction after return to service. The manufacturer is no longer in operation, therefore direct replacement seat materials and springs are not available. Would the Gov't consider revising the scope to be repair by replacement for the AES motor operated valves?	Please base proposals on refurbishing the motor-operated ball valves as described in SOW, for typical 12" and 20" 150#-CL ball valves.
19	Project Program, G306003 Liquid Fuels Storage Tanks, Tank Repairs, d.	What diameter and at what elevation are the datum plates to be installed? How many per tank?	Follow RFP on diameter and elevation. One datum plate per tank.
20	Project Program, G306001 Liquid Fuels Storage Tanks, Tank Repairs, f.	Can we utilize a slip on flange for the 32-inch non-standard flange repairs inside the tank?	No.
21	Project Program, G306003 Liquid Fuels Storage Tanks, Tank Repairs, h.	Where are we to label and stencil the tank? The skin of the tank is not visible.	Stencil information on exterior of manway access in upper tunnel.
22	01 14 00 .05 20 paragraphs 1.4.4 and 1.4.5	Regular working hours are defined as an 8 1/2 hour period established by the Contracting Officer, between 7 a.m. and 3:30 p.m., Monday through Friday, excluding Government holidays. Given the time to clear security and access site, can contractor assume that this will not be included in 8.5 hour work period, and we will have full 8.5 hours of work duration per shift? Will Navy agree to extend work shift to 10 hours per day? Will Navy agree to allow Saturday work?	Follow RFP.

23	01 50 00.05 20 1.6	Please confirm what power will be available inside the tunnel for use by the Contractor (110v, 240v or 480v) and how many amps? Are there any general expectations regarding power interruptions and how long they last??	Government will not furnish electrical power. Follow RFP.
24	General	Please confirm that only electric powered or air operated equipment are the only allowable equipment while working inside the tunnels. Also, please confirm that no combustion powered equipment will be allowed inside tunnels or tanks.	Ventilation within the Red Hill facility tunnels is for normal occupancy and cannot accommodate exhaust from internal combustion engines. If Contractor's proposed means and methods include engine-driven equipment, Contractor shall be responsible to ensure discharge of any exhaust or emissions at a safe exit elevation outside of the facility. Exhaust of any gas, fumes or particles from Contractor's work inside the facility shall likewise be removed and exit at a safe outside elevation in compliance with federal, state, or local permits under the Clean Air Act as required in 01 57 19.00 20 Section 1.6.h.
25	General	Please confirm what lighting will be supplied by the NAVY.	None.
26	General	When is current contractor (Wilbros) expected to be completely off site?	Current estimate is 4th Quarter CY 2106.
27	01 74 19.05 20 3.1 d	RFP states Contractor is responsible for characterizing waste. Contractor assumes this includes lead & Hexavalent Chromium testing of existing coatings? For bidding purposes, what assumptions should contractor make regarding presence or absence of lead and Hexavalent Chromium in existing coatings to be repaired?	Yes. Assume no lead and Hexavalent Chromium.
28	General	Will Contractor be required to provide Rescue team or will this be supplied by others?	Follow RFP.
29	General	Will Contractor be responsible for Hole/Fire watches and if so how many people are required?	Follow RFP.
30	General	What type of communication will be required from inside the tunnel to the outside support?	Follow RFP.
31	General	Will the government be providing the site walk sign in sheets to prospective contractors?	Yes, enclosed are copies of the sign-in sheets, agenda, and hand-outs from the 30 June 2016 site visit.

32	General	Will contractors be allowed to set anchor/lift points into the tunnel walls to aid in equipment dismounting/mounting (e.g., heavy overhead valves)?	No.
33	Part 3, Project Program, G 30, General System requirements, pages 15 and16	How have API Std 653, and Recommended Practice API RP 575, been modified in the past, to accommodate the unique construction of these storage tanks?	Provide engineering expertise and industry experience to design an appropriate program to inspect, assess, and repair the tanks. Implement the principles of API 653 to the extent possible.
34	EPA report (EPA DKT NO. RCRA 7003- R9-2015-01 and DOH DKT NO. 15-UST- EA-01)	Can we be provided an official copy of the "lessons learned" from Tank 5 repairs? In our independent research, we identified an EPA report (EPA DKT NO. RCRA 7003-R9-2015-01 and DOH DKT NO. 15-UST-EA-01). Attachment A, Statement of Work is an "Administrative Order on Consent In the Matter of Red Hill Bulk Fuel Storage Facility EPA Docket No: RCRA 7003-R9-2015-01, DOH Docket No: 15-UST-EA-01) In paragraph 2.2 TIRM Procedures Report, is referenced, " b. Lessons learned from Tank 5 and related modifications to current procedures;"	No.
35	Section 00210, Factor 1 – Technical Approach	Submission Requirements state: "provide narrative (not to exceed 10 pages) to address 4 key elements. Can Gov't allow more than 10 pages in order to clearly describe our means, methods, tools / equipment to be utilized, mitigation plans for anticipated problems and logistical challenges that will demonstrate our understanding of the scope to be performed.	Page limitation has been increased from 10 pages to 20 pages.
36	Section 00210, Factor 4 - Price	Submission Requirements indicate Summary pricing for each tank (Facility), but also a breakdown by Maintenance, Repair, and New (Minor Construction). Can the Government provide which scope items are to be categorized or considered Repair, Maintenance, and Minor Construction?	MAINTENANCE ITEMS include: Mobilization, preparation of submittals, temporary air and electrical power and distribution; Drain product, clean tank interior, dispose of sludge; Detailed internal inspection of tank to include measuring thickness and condition of shell plates, welds, and appurtenances, and hydrostatic testing of nozzles; Preparation and recoating of bottom dome IAW UFGS; Refurbish tank skin valves (20", 12", 6" DBBs, & 12" ball valve); Perform strapping and provide charts; Project management, engineering, site safety, quality control, and other supplies, travel, labor, and equipment needed to support maintenance activities. Tank 17 maintenance includes estimated additonal 577 shell repairs, to re-work patch plates installed over telltale penetrations. REPAIR ITEMS include: Predictive repairs include 200 predictive

			shell repairs; reinforcement of internal tower and installation of missing fasteners; extending catwalk handrailing; replacing internal and exterior sampling lines with new SCH 80 pipe; installing new datum plate at tank bottom; Project management, engineering, site safety, quality control, and other supplies, travel, labor, and equipment needed to support repair activities. MINOR CONSTRUCTION ITEMS: None identified.
37	Part Three -Project Program, Section 2.6	Are there fabrication or shop drawings available for the booms and spider basket systems that are currently in use (Tank 5) for access to the tank interior shell liner? Are there Drawings for "carousel" system, for the pieces staged in Adit 4, to access the upper dome?	The following files are provided as reference information and no representation is made to the accuracy, adequacy, or completeness of the information: RFI Q No 8 Red Hill Dome Truss Scaffold and Monorail - Design Dwgs. RFI Q No 8 Red Hill Dome Truss Scaffolding - List of Materials RFI Q No 8 Red Hill Telescoping Box Boom Design Drawings RFI Q No 8 YD Drawing No. 294365
38	Part Three – Project Program, Section 2.6	For supplying temporary electrical power, are we required to draw power source upstream of the Red Hill facility? Or must we draw from a source within the Red Hill Facility?	Provide temporary electrical power. Government will not furnish electrical power.
39	Drawing M-1 Note 7	Inspection of center tower - What are design requirements for the "climbing basket"?	Drawing M-1 was provided as information only and is not part of the RFP.
40	Drawing M-1 Note 4 and PART 3 - CHAPTER 6 / ESR G30 - Page 21 General "Design means and methods for personnel to safely access all of the interior surfaces…"	Certification of boom and ancillary equipment - What code or standard will we be held to? Is there a form to fill out? Who provides acceptance of inspection? How often, if required, are inspections required? If any of these are considered critical lifts, does Navy need to witness or sign off daily? Is proof or load testing required? Trial lifts before each shift? If equipment is used to lift personnel, is a Qualified Rigger and Crane/Hoist Operator required to operate boom and hoist (Spider basket) or just the boom?	Drawing M-1 was provided as information only and is not part of the RFP. Follow RFP.

41	Drawing M-1 Note 4 and PART 3 - CHAPTER 6 / ESR G30 - Page 21 General "Design means and methods for personnel to safely access all of the interior surfaces…"	What are qualifications of the inspector for certification of boom and ancillary equipment? Engineer? Registered PE?, Registered PE in Hawaii? For inspection of booms, man baskets, and lifts while in use, what are the qualifications of the inspector? Competent Person? Qualified Rigger? What class of "crane" does the Navy consider these mounted boom lifts for moving materials & for lifting personnel?	Drawing M-1 was provided as information only and is not part of the RFP. Follow RFP.
42	Drawing M-1 Note 5 andPART 3 - CHAPTER 6 / ESRG30 - Page 21 General "Design means and methods for personnel to safely access all of the interior surfaces…"	"Climbing basket" Design criteria of suspended work platform - What code or standard will we be held to? What are qualifications of inspector? – engineer, registered PE, or Registered PE in HI?Is there a form to fill out?Who provides acceptance of inspection?US Federal OSHA restricts the use of work from a crane suspended work basket to tasks that could not be performed more safely by other means. Will work be allowed suspended from the type of mechanism shown on the drawings without consideration of a 'safer' means?	Drawing M-1 was provided as information only and is not part of the RFP. Follow RFP.
43	Drawing M-1 Note 7	Design of work platform lift mechanism - What code or standard will we be held to? What are qualifications of inspector – engineer?, Registered PE?, Registered in HI?, Is there a form to fill out? Who provides acceptance of inspection?	Drawing M-1 was provided as information only and is not part of the RFP. Follow RFP.
44	Part Three – Project Program, Section 2.3 RFP X033	Is tank cleaning required for Tanks 14 & 17 since they are currently out of service? Or simply verify gas-free?	Follow RFP.
45	Part Two –General Requirements, Spec 01 35 26.05 20, 1.6.1.1	Confirm that 1 one Site Safety & Health Officer (SSHO) is required at all times during field work at each work site -- Work site defined as each tank; Therefore (2) individual SSHOs would be required if two tanks are being worked concurrently.	Confirmed.
46	Part Two – Gen requirements, Spec 01 45 00.05 20, 1.4	Understanding the site QC manager cannot be the SSHO, can the Site Superintendent dual hat as also the site QC Manager? Or, are 3 separate individuals required for the SSHO, site QC Manager and Site Superintendent?	Separate individuals.

47	Section 01 45 00.05 20 ¶1.4.3.1 Special Inspections table	API 653 Tank Inspector: Under frequency it says: "full-time during inspection. Under area of Responsibility, it calls for: Initial tank inspection; post-repair tank inspection; suitability for service. In Part 3, G30, 2nd par. Page 16, it requires the API 653 inspector provide oversight of inspection and repairs. It is not clear if this is "on site", full or part time. Question: it is not mentioned at all if the API Inspector must be on-site part time or full time during repairs. Please clarify if it is the government's intent for the inspector to have a QC role during repairs or simply after repairs to QC verify repairs. In considering the response, a full-time API presence would be in the government's interest as a commercially independent third party individual to provide the level of independent review of the repair workmanship. In concept, this is not any different than requiring a full time Level III NACE inspector from a QP-5 organization on coating projects.	API 653 inspector required onsite full time during API inspection and audit inspection of repairs.
48	Section 01 45 00.05 20 ¶1.4.3.1 Special Inspections table	Registered Engineer: Under frequency it says "full time during inspection". Under area of responsibility: it calls for presence (full time) a) During validation (inspection) audit of tank repairs, and b) Suitability for service Question: Please clarify/confirm that the Registered Engineer is not required full or part time during the tank inspection, or during the repair process	Engineer required onsite full time during audit inspection of repairs.
49	Part Three – Project Program – Section 6 G30, Inspection Design, Page 17	Regard to the inspection of the piping, between the tank and the lower tunnel: The 32" tank nozzle is accessible for entry, and full visual inspection to satisfy the API 653 requirements for a visual inspection. However there are smaller, large bore piping (6"-16"-18" depending on location), that are not directly accessible. Question: will the government clarify the "visual inspection" requirement to mandate use of high definition video equipment to provide a full visual inspection, in order to satisfy the requirements of API 653?	This is a Design-Build contract requiring contractor to design both inspections and repair. Follow RFP.

50	Part Three – Project Program – Section 6 G30, Inspection Design	We were unable to identify anywhere in the SOW for any special level of statistical Quality Assurance check by a member of the construction project team. On sensitive projects, this final level of contractor quality control/assurance checking has been specified elsewhere, so that an additional tier of assurance is brought into the process.Question: is there a requirement now, or upon consideration the government intends to add such a requirement?	Not at this time.
51	Part Three – Project Program – Section 6 G30, Inspection Design	Regarding Access to the "top" of the tank. SOW indicates Tank Inspection will include 100% interior of the tank. The Note on drawing M1 states: "Climbing basket for access to any point in the tank, except for top center of dome." (plan view upper right). Although there is no real definition of what is the "top" portion of the dome. Question: Is inspection of the tank to include the very top of the upper dome that is not accessible by the Current Boom and Basket system?	Yes.
52	RFTOP Section 00100 Instruction to Offerors Item 13. Proposal Due Date	Due to the complexity of this RFP, will the Government consider to extend the due date for receipt of bids to 29 July 2016?	The proposal due date for this requirement has been extended to 4pm (PST) 29 July 2016.
53	Amd 1-PPIs_N39430-15-D-1600-X033 T14 T17 T18-13 Jul 16, Question 36.	We are requesting clarification of the response to Question #36. The last sentence under the tasks considered Maintenance items... "Tank 17 maintenance includes estimated additional 577 shell repairs, to re-work patch plates, installed over the telltale penetrations." This scope item for Tank 17 does not appear in any parts of the RFP, nor Part 3 Project Program under Tank Repairs (page 21 & 22 of Part 3- Chapter 6. Are the 577 shell repairs re-work now part of the scope of the RFP work for Tank 17? If so, what does the re-work entail? Cut out of welds? Replace with what size patch plate?	Tank 17 shell repair work is part of the scope via Amd 1. Tank 17 telltale system has been removed with shell penetrations covered by round plates. Scope includes rework of telltale plates (Tank 17 only). Pricing shall be based on the removal and disposal of 577 round plates; provide and install 577 new round 8" x 1/4" carbon steel plates; and 100% magnetic particle examination and vacuum box testing of the welds.
54	Amd 3-PPIs_N39430-15-D-1600-X033 T14 T17 T18-22 Jul 16, Question 53	The revision of 200 predictive to 577 repairs for Tank 17 increases the level of effort without changing the Period of Performance. Does the Government believe the POP of 760 days is accurate? X032 has an identical 760 day POP duration for less tanks (and repairs).	No change to PoP. X032's two tanks are in service and the Contractor must empty, clean and then certify them to be gas-free. The three tanks for X033 are not in the same status: Tank 17 has already been emptied and cleaned by Others. Additionally, Tank 14 has already been emptied and cleaned by Others.

The administrative contracting office (ACO) is:

NAVFAC Hawaii
400 Marshall Road
JBPHH HI 96860-3139

The contracting officer's representative (COR) is [redacted] 808-474-3220 [redacted]

The administrative contracting officer (ACO) is [redacted] 808-474-3220 [redacted]

Bonds and insurance should be provided to the ACO.

General Decision Number: HI160001 08/19/2016 HI1

Superseded General Decision Number: HI20150001

State: Hawaii

Construction Types: Building, Heavy (Heavy and Dredging), Highway and Residential

Counties: Hawaii Statewide.

BUILDING CONSTRUCTION PROJECTS; RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories); HEAVY AND HIGHWAY CONSTRUCTION PROJECTS AND DREDGING

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016
1	01/15/2016
2	01/22/2016
3	02/05/2016
4	02/26/2016
5	03/18/2016
6	07/29/2016
7	08/19/2016

ASBE0132-001 08/29/2010

	Rates	Fringes
Asbestos Workers/Insulator Includes application of all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems. Also the application of firestopping material for wall openings and penetrations in walls, floors, ceilings and [redacted]		

BOIL0627-005 01/01/2013

	Rates	Fringes
[redacted]		

BRHI0001-001 09/03/2012

	Rates	Fringes
BRICKLAYER		
Bricklayers and Stonemasons Pointers, Caulkers and [redacted]	$ 35.35	22.92

BRHI0001-002 09/02/2013

	Rates	Fringes
Tile, Marble & Terrazzo Worker		
[redacted]		
Terrazzo Floor Grinders		
[redacted]		
Tile, Marble and Terrazzo		
[redacted]		

CARP0745-001 08/31/2015

	Rates	Fringes
Carpenters: Carpenters; Hardwood Floor Layers; Patent Scaffold Erectors (14 ft. and over); Piledrivers;		

Pneumatic Nailers; Wood
Shinglers and Transit

[redacted]

CARP0745-002 08/31/2015

Rates Fringes

Drywall and Acoustical

[redacted]

ELEC1186-001 02/21/2016

Rates Fringes

Electricians:

[redacted]

ELEC1186-002 02/21/2016

Rates Fringes

Line Construction:

[redacted]

ELEV0126-001 01/01/2015

Rates Fringes

[redacted]

a. VACATION: Employer contributes 8% of basic hourly rate for
5 years service and 6% of basic hourly rate for 6 months to
5 years service as vacation pay credit.

b. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence
Day, Labor Day, Veterans' Day, Thanksgiving Day, the Friday
after Thanksgiving Day and Christmas Day.

ENGI0003-002 08/31/2015

Rates Fringes

Diver (Aqua Lung) (Scuba))
Diver (Aqua Lung) (Scuba)
[redacted]
Diver (Aqua Lung) (Scuba)
[redacted]
Stand-by Diver (Aqua Lung)
[redacted]
Diver (Other than Aqua Lung)
Diver (Other than Aqua
[redacted]
Diver Tender (Other than
[redacted]
Stand-by Diver (Other than
[redacted]
Helicopter Work
Airborne Hoist Operator
[redacted]
Power equipment operator - tunnel work
[redacted]
Power equipment operators:
[redacted]

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Fork Lift (up to and including 10 tons); Partsman (heavy duty repair shop parts room when needed).

GROUP 2: Conveyor Operator (Handling building material); Hydraulic Monitor; Mixer Box Operator (Concrete Plant).

GROUP 3: Brakeman; Deckhand; Fireman; Oiler; Oiler/Gradechecker; Signalman; Switchman; Highline Cableway Signalman; Bargeman; Bunkerman; Concrete Curing Machine (self-propelled, automatically applied unit on streets, highways, airports and canals); Leveeman; Roller (5 tons and under); Tugger Hoist.

GROUP 4: Boom Truck or dual purpose "A" Frame Truck (5 tons or less); Concrete Placing Boom (Building Construction); Dinky Operator; Elevator Operator; Hoist and/or Winch (one drum); Straddle Truck (Ross Carrier, Hyster and similar).

GROUP 5: Asphalt Plant Fireman; Compressors, Pumps, Generators and Welding Machines ("Bank" of 9 or more, individually or collectively); Concrete Pumps or Pumpcrete Guns; Lubrication and Service Engineer (Grease Rack); Screedman.

GROUP 6: Boom Truck or Dual Purpose "A"Frame Truck (over 5 tons); Combination Loader/Backhoe (up to and including 3/4 cu. yd.); Concrete Batch Plants (wet or dry); Concrete Cutter, Groover and/or Grinder (self-propelled unit on streets, highways, airports, and canals); Conveyor or Concrete Pump (Truck or Equipment Mounted); Drilling Machinery (not to apply to waterliners, wagon drills or jack hammers); Fork Lift (over 10 tons); Loader (up to and including 3 and 1/2 cu. yds); Lull High Lift (under 40 feet); Lubrication and Service Engineer (Mobile); Maginnis Internal Full Slab Vibrator (on airports, highways, canals and warehouses); Man or Material Hoist; Mechanical Concrete Finisher (Large Clary, Johnson Bidwell, Bridge Deck and similar); Mobile Truck Crane Driver; Portable Shotblast Concrete Cleaning Machine; Portable Boring Machine (under streets, highways, etc.); Portable Crusher; Power Jumbo Operator (setting slip forms, etc., in tunnels); Rollers (over 5 tons); Self-propelled Compactor (single engine); Self-propelled Pavement Breaker; Skidsteer Loader with attachments; Slip Form Pumps (Power driven by hydraulic, electric, air, gas, etc., lifting device for concrete forms); Small Rubber Tired Tractors; Trencher (up to and including 6 feet); Underbridge Personnel Aerial Platform

(50 feet of platform or less).

GROUP 7: Crusher Plant Engineer, Dozer (D-4, Case 450, John Deere 450, and similar); Dual Drum Mixer, Extend Lift; Hoist and/or Winch (2 drums); Loader (over 3 and 1/2 cu. yds. up to and including 6 yards.); Mechanical Finisher or Spreader Machine (asphalt), (Barber Greene and similar) (Screedman required); Mine or Shaft Hoist; Mobile Concrete Mixer (over 5 tons); Pipe Bending Machine (pipelines only); Pipe Cleaning Machine (tractor propelled and supported); Pipe Wrapping Machine (tractor propelled and supported); Roller Operator (Asphalt); Self-Propelled Elevating Grade Plane; Slusher Operator; Tractor (with boom) (D-6, or similar); Trencher (over 6 feet and less than 200 h.p.); Water Tanker (pulled by Euclids, T-Pulls, DW-10, 20 or 21, or similar); Winchman (Stern Winch on Dredge).

GROUP 8: Asphalt Plant Operator; Barge Mate (Seagoing); Cast-in-Place Pipe Laying Machine; Concrete Batch Plant (multiple units); Conveyor Operator (tunnel); Deckmate; Dozer (D-6 and similar); Finishing Machine Operator (airports and highways); Gradesetter; Kolman Loader (and similar); Mucking Machine (Crawler-type); Mucking Machine (Conveyor-type); No-Joint Pipe Laying Machine; Portable Crushing and Screening Plant; Power Blade Operator (under 12); Saurman Type Dragline (up to and including 5 yds.); Stationary Pipe Wrapping, Cleaning and Bending Machine; Surface Heater and Planer Operator, Tractor (D-6 and similar); Tri-Batch Paver; Tunnel Badger; Tunnel Mole and/or Boring Machine Operator Underbridge Personnel Aerial Platform (over 50 feet of platform).

GROUP 9: Combination Mixer and Compressor (gunite); Do-Mor Loaderand Adams Elegrader; Dozer (D-7 or equal); Wheel and/or Ladder Trencher (over 6 feet and 200 to 749 h.p.).

GROUP 9A: Dozer (D-8 and similar); Gradesetter (when required by the Contractor to work from drawings, plans or specifications without the direct supervision of a foreman or superintendent); Push Cat; Scrapers (up to and including 20 cu. yds); Self-propelled Compactor with Dozer; Self-Propelled, Rubber-Tired Earthmoving Equipment (up to and including 20 cu. yds) (621 Band and similar); Sheep's Foot; Tractor (D-8 and similar); Tractors with boom (larger than D-6, and similar).

GROUP 10: Chicago Boom; Cold Planers; Heavy Duty Repairman or Welder; Hoist and/or Winch (3 drums); Hydraulic Skooper (Koehring and similar); Loader (over 6 cu. yds. up to and including 12 cu. yds.); Saurman type Dragline (over 5 cu. yds.); Self-propelled, rubber-tired Earthmoving Equipment (over 20 cu. yds. up to and including 31 cu. yds.) (637D and similar); Soil Stabilizer (P & H or equal); Sub-Grader (Gurries or other automatic type); Tractors (D-9 or

equivalent, all attachments); Tractor (Tandem Scraper); Watch Engineer.

GROUP 10A: Boat Operator; Cable-operated Crawler Crane (up to and including 25 tons); Cable-operated Power Shovel, Clamshell, Dragline and Backhoe (up to and including 1 cu. yd.); Dozer D9-L; Dozer (D-10, HD41 and similar) (all attachments); Gradall (up to and including 1 cu. yd.); Hydraulic Backhoe (over 3/4 cu. yds. up to and including 2 cu. yds.); Mobile Truck Crane Operator (up to and including 25 tons) (Mobile Truck Crane Driver Required); Self-propelled Boom Type Lifting Device (Center Mount) (up to and including 25 tons) (Grove, Drott, P&H, Pettibone and similar; Trencher (over 6 feet and 750 h.p. or more); Watch Engineer (steam or electric).

GROUP 11: Automatic Slip Form Paver (concrete or asphalt); Band Wagon (in conjunction with Wheel Excavator); Cable-operated Crawler Cranes (over 25 tons but less than 50 tons); Cable-operated Power Shovel, Clamshell, Dragline and Backhoe (over 1 cu. yd. up to 7 cu. yds.); Gradall (over 1 cu. yds. up to 7 cu. yds.); DW-10, 20, etc. (Tandem); Earthmoving Machines (multiple propulsion power units and 2 or more Scrapers) (up to and including 35 cu. yds.," struck" m r.c.); Highline Cableway; Hydraulic Backhoe (over 2 cu. yds. up to and including 4 cu. yds.); Leverman; Lift Slab Machine; Loader (over 12 cu. yds); Master Boat Operator; Mobile Truck Crane Operator (over 25 tons but less than 50 tons); (Mobile Truck Crane Driver required); Pre-stress Wire Wrapping Machine; Self-propelled Boom-type Lifting Device (Center Mount) (over 25 tons m r.c); Self-propelled Compactor (with multiple-propulsion power units); Single Engine Rubber Tired Earthmoving Machine (with Tandem Scraper); Tandem Cats; Trencher (pulling attached shield).

GROUP 12: Clamshell or Dipper Operator; Derricks; Drill Rigs; Multi-Propulsion Earthmoving Machines (2 or more Scrapers) (over 35 cu. yds "struck"m r.c.); Operators (Derricks, Piledrivers and Cranes); Power Shovels and Draglines (7 cu. yds. m.r.c. and over); Self-propelled rubber-tired Earthmoving equipment (over 31 cu. yds.) (657B and similar); Wheel Excavator (up to and including 750 cu. yds. per hour); Wheel Excavator (over 750 cu. yds. per hour).

GROUP 12A: Dozer (D-11 or similar or larger); Hydraulic Excavators (over 4 cu. yds.); Lifting cranes (50 tons and over); Pioneering Dozer/Backhoe (initial clearing and excavation for the purpose of providing access for other equipment where the terrain worked involves 1-to-1 slopes that are 50 feet in height or depth, the scope of this work does not include normal clearing and grubbing on usual hilly terrain nor the excavation work once the access is provided); Power Blade Operator (Cat 12 or equivalent or

over); Straddle Lifts (over 50 tons); Tower Crane, Mobile; Traveling Truss Cranes; Universal, Liebher, Linden, and similar types of Tower Cranes (in the erection, dismantling, and moving of equipment there shall be an additional Operating Engineer or Heavy Duty Repairman); Yo-Yo Cat or Dozer.

GROUP 13: Truck Driver (Utility, Flatbed, etc.)

GROUP 13A: Dump Truck, 8 cu.yds. and under (water level); Water Truck (up to and including 2,000 gallons).

GROUP 13B: Water Truck (over 2,000 gallons); Tandem Dump Truck, over 8 cu. yds. (water level).

GROUP 13C: Truck Driver (Semi-trailer. Rock Cans, Semi-Dump or Roll-Offs).

GROUP 13D: Truck Driver (Slip-In or Pup).

GROUP 13E: End Dumps, Unlicensed (Euclid, Mack, Caterpillar or similar); Tractor Trailer (Hauling Equipment); Tandem Trucks hooked up to Trailer (Hauling Equipment)

BOOMS AND/OR LEADS (HOURLY PREMIUMS):

The Operator of a crane (under 50 tons) with a boom of 80 feet or more (including jib), or of a crane (under 50 tons) with leads of 100 feet or more, shall receive a per hour premium for each hour worked on said crane (under 50 tons) in accordance with the following schedule:

Booms of 80 feet up to but
not including 130 feet or
Leads of 100 feet up to but
[redacted]
Booms and/or Leads of 130 feet
[redacted]
Booms and/or Leads of 180 feet up
[redacted]

The Operator of a crane (50 tons and over) with a boom of 180 feet or more (including jib) shall receive a per hour premium for each hour worked on said crane (50 tons and over) in accordance with the following schedule:

[redacted]

ENGI0003-004 09/01/2015

	Rates	Fringes
Dredging: (Boat Operators)		
[redacted]		
Dredging: (Clamshell or Dipper Dredging)		
[redacted]		
Dredging: (Derricks)		
[redacted]		
Dredging: (Hydraulic Suction Dredges)		
[redacted]		

CLAMSHELL OR DIPPER DREDGING CLASSIFICATIONS

GROUP 1: Clamshell or Dipper Operator.
GROUP 2: Mechanic or Welder; Watch Engineer.
GROUP 3: Barge Mate; Deckmate.
GROUP 4: Bargeman; Deckhand; Fireman; Oiler.

HYDRAULIC SUCTION DREDGING CLASSIFICATIONS

GROUP 1: Leverman.
GROUP 2: Watch Engineer (steam or electric).
GROUP 3: Mechanic or Welder.
GROUP 4: Dozer Operator.
GROUP 5: Deckmate.
GROUP 6: Winchman (Stern Winch on Dredge)
GROUP 7: Deckhand (can operate anchor scow under direction of Deckmate); Fireman; Leveeman; Oiler.

DERRICK CLASSIFICATIONS

GROUP 1: Operators (Derricks, Piledrivers and Cranes).
GROUP 2: Saurman Type Dragline (over 5 cubic yards).
GROUP 3: Deckmate; Saurman Type Dragline (up to and

including 5 yards).
GROUP 4: Deckhand, Fireman, Oiler.

ENGI0003-044 08/31/2015

	Rates	Fringes
Power Equipment Operators (PAVING)		
[redacted]		
(10)Loader (2 1/2 cu. yds. [redacted]		
[redacted]		
(11)Loader (over 2 1/2 cu. yds. to and including 5 [redacted]		
(3)Roller Operator (five [redacted]		
[redacted]		
(6)Combination Loader/Backhoe (up to 3/4 [redacted]		
(6)Concrete Saws and/or Grinder (self-propelled unit on streets, highways, [redacted]		
(6)Roller Operator (over [redacted]		
(7)Combination Loader/Backhoe (over 3/4 [redacted]		
Asphalt Concrete Material [redacted]		

IRON0625-001 09/01/2014

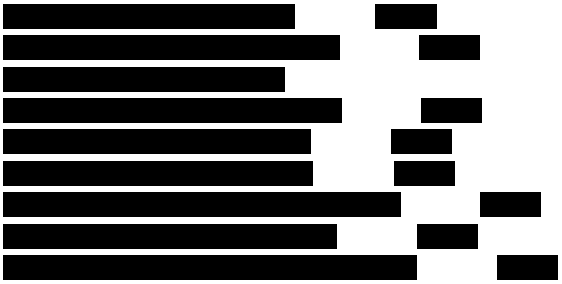
	Rates	Fringes
[redacted]		

a. Employees will be paid $.50 per hour more while working in tunnels and coffer dams; $1.00 per hour more when required to work under or are covered with water (submerged) and when they are required to work on the summit of Mauna Kea, Mauna Loa or Haleakala.

LABO0368-001 08/31/2015

	Rates	Fringes

Laborers:



LABORERS CLASSIFICATIONS

Laborer I: Air Blasting run by electric or pneumatic compressor; Asphalt Laborer, Ironer, Raker, Luteman, and Handroller, and all types of Asphalt Spreader Boxes; Asphalt Shoveler; Assembly and Installation of Multiplates, Liner Plates, Rings, Mesh, Mats; Batching Plant (portable and temporary); Boring Machine Operator (under streets and sidewalks); Buggymobile; Burning and Welding; Chainsaw, Faller, Logloader, and Bucker; Compactors (Jackson Jumping Jack and similar); Concrete Bucket Dumpman; Concrete Chipping; Concrete Chuteman/Hoseman (pouring concrete) (the handling of the chute from ready-mix trucks for such jobs as walls, slabs, decks, floors, foundations, footings, curbs, gutters, and sidewalks); Concrete Core Cutter (Walls, Floors, and Ceiling); Concrete Grinding or Sanding; Concrete: Hooking on, signaling, dumping of concrete for treme work over water on caissons, pilings, abutments, etc.; Concrete: Mixing, handling, conveying, pouring, vibrating, otherwise placing of concrete or aggregates or by any other process; Concrete: Operation of motorized wheelbarrows or buggies or machines of similar character, whether run by gas, diesel, or electric power; Concrete Placement Machine Operator: operation of Somero Hammerhead, Copperheads, or similar machines; Concrete Pump Machine (laying, coupling, uncoupling of all connections and cleaning of equipment); Concrete and/or Asphalt Saw (Walking or Handtype) (cutting walls or flatwork) (scoring old or new concrete and/or asphalt) (cutting for expansion joints) (streets and ways for laying of pipe, cable or conduit for all purposes); Concrete Shovelers/Laborers (Wet or Dry); Concrete Screeding for Rough Strike-Off: Rodding or striking-off, by hand or mechanical means prior to finishing; Concrete Vibrator Operator; Coring Holes: Walls, footings, piers or other obstructions for passage of pipes or conduits for any purpose and the pouring of concrete to secure the hole; Cribbers, Shorer, Lagging, Sheeting, and Trench Jacking and Bracing, Hand-Guided Lagging Hammer Whaling Bracing; Curbing (Concrete and Asphalt); Curing of Concrete (impervious membrane and form oiler) mortar and other materials by any mode or method; Cut Granite Curb Setter (setting, leveling and grouting of all precast

concrete or stone curbs); Cutting and Burning Torch (demolition); Dri Pak-It Machine; Environmental Abatement: removal of asbestos, lead, and bio hazardous materials (EPA and/or OSHA certified); Falling, bucking, yarding, loading or burning of all trees or timber on construction site; Forklift (9 ft. and under); Gas, Pneumatic, and Electric tools; Grating and Grill work for drains or other purposes; Green Cutter of concrete or aggregate in any form, by hand, mechanical means, grindstone or air and/or water; Grout: Spreading for any purpose; Guinea Chaser (Grade Checker) for general utility trenches, sitework, and excavation; Headerboard Man (Asphalt or Concrete); Heat Welder of Plastic (Laborers' AGC certified workers) (when work involves waterproofing for waterponds, artificial lakes and reservoir) heat welding for sewer pipes and fusion of HDPE pipes; Heavy Highway Laborer (Rigging, signaling, handling, and installation of pre-cast catch basins, manholes, curbs and gutters); High Pressure Nozzleman - Hydraulic Monitor (over 100# pressure); Jackhammer Operator; Jacking of slip forms: All semi and unskilled work connected therewithin; Laying of all multi-cell conduit or multi-purpose pipe; Magnesite and Mastic Workers (Wet or Dry)(including mixer operator);Mortar Man; Mortar Mixer (Block, Brick, Masonry, and Plastering); Nozzleman (Sandblasting and/or Water Blasting): handling, placing and operation of nozzle; Operation, Manual or Hydraulic jacking of shields and the use of such other mechanical equipment as may be necessary; Pavement Breakers; Paving, curbing and surfacing of streets, ways, courts, under and overpasses, bridges, approaches, slope walls, and all other labor connected therewith; Pilecutters; Pipe Accessment in place, bolting and lining up of sectional metal or other pipe including corrugated pipe; Pipelayer performing all services in the laying and installation of pipe from the point of receiving pipe in the ditch until completion of operation, including any and all forms of tubular material, whether pipe, HDPE, metallic or non-metallic, conduit, and any other stationary-type of tubular device used for conveying of any substance or element, whether water, sewage, solid, gas, air, or other product whatsoever and without regard to the nature of material from which tubular material is fabricated; No-joint pipe and stripping of same, Pipewrapper, Caulker, Bander, Kettlemen, and men applying asphalt, Laykold, treating Creosote and similar-type materials (6-inch) pipe and over); Piping: resurfacing and paving of all ditches in preparation for laying of all pipes; Pipe laying of lateral sewer pipe from main or side sewer to buildings or structure (except Contactor may direct work be done under proper supervision); Pipe laying, leveling and marking of the joint used for main or side sewers and storm sewers; Laying of all clay, terra cotta, ironstone, vitrified concrete, HDPE or other pipe for drainage; Placing and setting of water mains, gas mains and all pipe including removal of skids; Plaster Mortar

Mixer/Pump; Pneumatic Impact Wrench; Portable Sawmill Operation: Choker setters, off bearers, and lumber handlers connected with clearing; Posthole Digger (Hand Held, Gas, Air and Electric); Powderman's Tender; Power Broom Sweepers (Small); Preparation and Compaction of roadbeds for railroad track laying, highway construction, and the preparation of trenches, footings, etc., for cross-country transmission by pipelines, electrical transmission or underground lines or cables (by mechanical means); Raising of structure by manual or hydraulic jacks or other methods and resetting of structure in new locations, including all concrete work; Ramming or compaction; Rigging in connection with Laborers' work (except demolition), Signaling (including the use of walkie talkie) Choke Setting, tag line usage; Tagging and Signaling of building materials into high rise units; Riprap, Stonepaver, and Rock Slinger (includes placement of stacked concrete, wet or dry and loading, unloading, signaling, slinging and setting of other similar materials); Rotary Scarifier (including multiple head concrete chipping Scarifier); Salamander Heater, Drying of plaster, concrete mortar or other aggregate; Scaffold Erector Leadman; Scaffolds: (Swing and hanging) including maintenance thereof; Scaler; Septic Tank/Cesspool and Drain Fields Digger and Installer; Shredder/Chipper (tree branches, brush, etc.); Stripping and Setting Forms; Stripping of Forms: Other than panel forms which are to be re-used in their original form, and stripping of forms on all flat arch work; Tampers (Barko, Wacker, and similar type); Tank Scaler and Cleaners; Tarman; Tree Climbers and Trimmers; Trencher (includes hand-held, Davis T-66 and similar type); Trucks (flatbed up to and including 2 1/2 tons when used in connection with on-site Laborers'work; Trucks (Refuse and Garbage Disposal) (from job site to dump); Vibra-Screed (Bull Float in connection with Laborers' work); Well Points, Installation of or any other dewatering system.

Laborer II: Asphalt Plant Laborer; Boring Machine Tender; Bridge Laborer; Burning of all debris (crates, boxes, packaging waste materials); Chainman, Rodmen, and Grade Markers; Cleaning, clearing, grading and/or removal for streets, highways, roadways, aprons, runways, sidewalks, parking areas, airports, approaches, and other similar installations; Cleaning or reconditioning of streets, ways, sewers and waterlines, all maintenance work and work of an unskilled and semi-skilled nature; Concrete Bucket Tender (Groundman) hooking and unhooking of bucket; Concrete Forms; moving, cleaning, oiling and carrying to the next point of erection of all forms; Concrete Products Plant Laborers; Conveyor Tender (conveying of building materials); Crushed Stone Yards and Gravel and Sand Pit Laborers and all other similar plants; Demolition, Wrecking and Salvage Laborers: Wrecking and dismantling of buildings and all structures, with use of cutting or wrecking tools,

breaking away, cleaning and removal of all fixtures, All hooking, unhooking, signaling of materials for salvage or scrap removed by crane or derrick; Digging under streets, roadways, aprons or other paved surfaces; Driller's Tender; Chuck Tender, Outside Nipper; Dry-packing of concrete (plugging and filling of she-bolt holes); Fence and/or Guardrail Erector: Dismantling and/or re-installation of all fence; Finegrader; Firewatcher; Flagman (Coning, preparing, stablishing and removing portable roadway barricade devices); Signal Men on all construction work defined herein, including Traffic Control Signal Men at construction site; General Excavation; Backfilling, Grading and all other labor connected therewith; Digging of trenches, ditches and manholes and the leveling, grading and other preparation prior to laying pipe or conduit for any purpose; Excavations and foundations for buildings, piers, foundations and holes, and all other construction. Preparation of street ways and bridges; General Laborer: Cleaning and Clearing of all debris and surplus material. Clean-up of right-of-way. Clearing and slashing of brush or trees by hand or mechanical cutting. General Clean up: sweeping, cleaning, wash-down, wiping of construction facility and equipment (other than "Light Clean up (Janitorial) Laborer. Garbage and Debris Handlers and Cleaners. Appliance Handling (job site) (after delivery unlading in storage area); Ground and Soil Treatment Work (Pest Control); Gunite/Shotcrete Operator Tender; Junk Yard Laborers (same as Salvage Yard); Laser Beam "Target Man" in connection with Laborers' work; Layout Person for Plastic (when work involves waterproofing for waterponds, artificial lakes and reservoirs); Limbers, Brush Loaders, and Pilers; Loading, Unloading, carrying, distributing and handling of all rods and material for use in reinforcing concrete construction (except when a derrick or outrigger operated by other than hand power is used); Loading, unloading, sorting, stockpiling, handling and distribution of water mains, gas mains and all pipes; Loading and unloading of all materials, fixtures, furnishings and appliances from point of delivery to stockpile to point of installation; hooking and signaling from truck, conveyance or stockpile; Material Yard Laborers; Pipelayer Tender; Pipewrapper, Caulker, Bander, Kettlemen, and men applying asphalt, Laykold, Creosote, and similar-type materials (pipe under 6 inches); Plasterer Laborer; Preparation, construction and maintenance of roadbeds and sub-grade for all paving, including excavation, dumping, and spreading of sub-grade material; Prestressed or precast concrete slabs, walls, or sections: all loading, unloading, stockpiling, hooking on of such slabs, walls or sections; Quarry Laborers; Railroad, Streetcar, and Rail Transit Maintenance and Repair; Roustabout; Rubbish Trucks in connection with Building Construction Projects (excluding clearing, grubbing, and excavating); Salvage Yard: All work connected with cutting, cleaning, storing, stockpiling or handling of

materials, all cleanup, removal of debris, burning, back-filling and landscaping of the site; Sandblasting Tender (Pot Tender): Hoses and pots or markers; Scaffolds: Erection, planking and removal of all scaffolds used for support for lathers, plasters, brick layers, masons, and other construction trades crafts; Scaffolds: (Specially designed by carpenters) laborers shall tend said carpenter on erection and dismantling thereof, preparation for foundation or mudsills, maintenance; Scraping of floors; Screeds: Handling of all screeds to be reused; handling, dismantling and conveyance of screeds; Setting, leveling and securing or bracing of metal or other road forms and expansion joints; Sheeting Piling/trench shoring (handling and placing of skip sheet or wood plank trench shoring); Ship Scalers; Shipwright Tender; Sign Erector (subdivision traffic, regulatory, and street-name signs); Sloper; Slurry Seal Crews (Mixer Operator, Applicator, Squeegee Man, Shuttle Man, Top Man); Snapping of wall ties and removal of tie rods; Soil Test operations of semi and unskilled labor such as filling sand bags; Striper (Asphalt, Concrete or other Paved Surfaces); Tool Room Attendant (Job Site); Traffic Delineating Device Applicator; Underpinning, lagging, bracing, propping and shoring, loading, signaling, right-of-way clearance along the route of movement, The clearance of new site, excavation of foundation when moving a house or structure from old site to new site; Utilities employees; Water Man; Waterscape/Hardscape Laborers; Wire Mesh Pulling (all concrete pouring operations); Wrecking, stripping, dismantling and handling concrete forms an false work.

LABO0368-002 09/01/2015

	Rates	Fringes
Landscape & Irrigation Laborers	[redacted]	[redacted]

LABORERS CLASSIFICATIONS

GROUP 1: Installation of non-potable permanent or temporary irrigation water systems performed for the purposes of Landscaping and Irrigation architectural horticultural work; the installation of drinking fountains and permanent or temporary irrigation systems using potable water for Landscaping and Irrigation architectural horticultural purposes only. This work includes (a) the installation of all heads, risers, valves, valve boxes, vacuum breakers (pressure and non-pressure), low voltage electrical lines and, provided such work involves electrical wiring that

will carry 24 volts or less, the installation of sensors, master control panels, display boards, junction boxes, conductors, including all other components for controllers, (b) and metallic (copper, brass, galvanized, or similar) pipe, as well as PVC or other plastic pipe including all work incidental thereto, i.e., unloading, handling and distribution of all pipes fittings, tools, materials and equipment, (c) all soldering work in connection with the above whether done by torch, soldering iron, or other means; (d) tie-in to main lines, thrust blocks (both precast and poured in place), pipe hangers and supports incidental to installation of the entire irrigation system, (e) making of pressure tests, start-up testing, flushing, purging, water balancing, placing into operation all irrigation equipment, fixtures and appurtenances installed under this agreement, and (f) the fabrication, replacement, repair and servicing oflandscaping and irrigation systems. Operation of hand-held gas, air, electric, or self-powered tools and equipment used in the performance of Landscape and Irrigation work in connection with architectural horticulture; Choke-setting, signaling, and rigging for equipment operators on job-site in the performance of such Landscaping and Irrigation work; Concrete work (wet or dry) performed in connection with such Landscaping and Irrigation work. This work shall also include the setting of rock, stone, or riprap in connection with such Landscape, Waterscape, Rockscape, and Irrigation work; Grubbing, pick and shovel excavation, and hand rolling or tamping in connection with the performance of such Landscaping and Irrigation work; Sprigging, handseeding, and planting of trees, shrubs, ground covers, and other plantings and the performance of all types of gardening and horticultural work relating to said planting; Operation of flat bed trucks (up to and including 2 1/2 tons).:

GROUP 2. Layout of irrigation and other non-potable irrigation water systems and the layout of drinking fountains and other potable irrigation water systems in connection with such Landscaping and Irrigation work. This includes the layout of all heads, risers, valves, valve boxes, vacuum breakers, low voltage electrical lines, hydraulic and electrical controllers, and metallic (coppers, brass, galvanized, or similar) pipe, as well as PVC or other plastic pipe. This work also includes the reading and interpretation of plans and specifications in connection with the layout of Landscaping, Rockscape, Waterscape, and Irrigation work; Operation of Hydro-Mulching machines (sprayman and driver), Drillers, Trenchers (riding type, Davis T-66, and similar) and fork lifts used in connection with the performance of such Landscaping and Irrigation work; Tree climbers and chain saw tree trimmers, Sporadic operation (when used in connection with Landscaping, Rockscape, Waterscape, and Irrigation work) of Skid-Steer Loaders (Bobcat and

similar), Cranes (Bantam, Grove, and similar), Hoptos, Backhoes, Loaders, Rollers, and Dozers (Case, John Deere, and similar), Water Trucks, Trucks requiring a State of Hawaii Public Utilities Commission Type 5 and/or type 7 license, sit-down type and "gang" mowers, and other self-propelled, sit-down operated machines not listed under Landscape & Irrigation Maintenance Laborer; Chemical spraying using self-propelled power spraying equipment (200 gallon capacity or more).

GROUP 3: Maintenance of trees, shrubs, ground covers, lawns and other planted areas, including the replanting of trees, shrubs, ground covers, and other plantings that did not "take" or which are damaged; provided, however, that re-planting that requires the use of equipment, machinery, or power tools shall be paid for at the rate of pay specified under Landscape and Irrigation Laborer, Group 1; Raking, mowing, trimming, and runing, including the use of "weed eaters", hedge trimmers, vacuums, blowers, and other hand-held gas, air, electric, or self-powered tools, and the operation of lawn mowers (Note: The operation of sit-down type and "gang" mowers shall be paid for at the rate of pay specified under Landscape & Irrigation Laborer, Group 2); Guywiring, staking, propping, and supporting trees; Fertilizing, Chemical spraying using spray equipment with less than 200 gallon capacity, Maintaining irrigation and sprinkler systems, including the staking, clamping, and adjustment of risers, and the adjustment and/or replacement of sprinkler heads, (Note: the cleaning and gluing of pipe and fittings shall be paid for at the rate of pay specified under Landscape & Irrigation Laborer(Group 1); Watering by hand or sprinkler system and the peformance of other types of gardening, yardman, and horticultural-related work.

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* LABO0368-003 07/29/2016

	Rates	Fringes
Underground Laborer	[redacted]	[redacted]

GROUP 1: Watchmen; Change House Attendant.

GROUP 2: Swamper; Brakeman; Bull Gang-Muckers, Trackmen; Dumpmen (any method); Concrete Crew (includes rodding and spreading); Grout Crew; Reboundmen

GROUP 3: Chucktenders and Cabletenders; Powderman (Prime House); Vibratorman, Pavement Breakers

GROUP 4: Miners - Tunnel (including top and bottom man on shaft and raise work); Timberman, Retimberman (wood or steel or substitute materials thereof); Blasters, Drillers, Powderman (in heading); Microtunnel Laborer; Headman; Cherry Pickerman (where car is lifted); Nipper; Grout Gunmen; Grout Pumpman & Potman; Gunite, Shotcrete Gunmen & Potmen; Concrete Finisher (in tunnel); Concrete Screed Man; Bit Grinder; Steel Form Raisers & Setters; High Pressure Nozzleman; Nozzleman (on slick line); Sandblaster-Potman (combination work assignment interchangeable); Tugger

GROUP 5: Shaft Work & Raise (below actual or excavated ground level); Diamond Driller; Gunite or Shotcrete Nozzleman; Rodman; Groundman

GROUP 6: Shifter

GROUP 7: Shifter (Shaft Work & Raiser)

PAIN1791-001 01/01/2016

	Rates	Fringes
[redacted]		

PAIN1889-001 07/01/2016

	Rates	Fringes
[redacted]		

PAIN1926-001 03/01/2015

	Rates	Fringes
[redacted]		

PAIN1944-001 01/01/2016

	Rates	Fringes
[redacted]		

PLAS0630-001 08/31/2015

	Rates	Fringes
[redacted]		

PLAS0630-002 08/31/2015

	Rates	Fringes
Cement Masons:		
[redacted]		
[redacted]		

PLUM0675-001 07/03/2016

	Rates	Fringes
Plumber, Pipefitter,		
[redacted]		

ROOF0221-001 09/06/2015

	Rates	Fringes
Roofers (Including Built Up,		
[redacted]		

SHEE0293-001 08/01/2015

	Rates	Fringes
[redacted]		

SUHI1997-002 09/15/1997

	Rates	Fringes
[redacted]		
FENCE ERECTOR (Chain Link Fence).....	$ 9.33	1.65

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the

classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

ACCOUNTING AND APPROPRIATION DATA

[redacted]
AMOUNT: $4,618,477.00
[redacted]: $4,618,477.00

[redacted]
AMOUNT: $1,891,383.00
[redacted]: $1,891,383.00

[redacted]
AMOUNT: $5,807,187.00
[redacted]: $5,807,187.00

[redacted]
AMOUNT: $1,694,809.00
[redacted]: $1,694,809.00

[redacted]
AMOUNT: $4,889,328.00
[redacted]: $4,889,328.00

[redacted]
AMOUNT: $1,536,758.00
[redacted]: $1,536,758.00

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 41

1 CONTRACT/PURCH ORDER/ AGREEMENT NO	2 DELIVERY ORDER/ CALL NO	3 DATE OF ORDER/CALL (YYYYMMMDD)	4 REQ / PURCH REQUEST NO	5 PRIORITY
N39430-15-D-1632	0004	2016 Aug 31	ACQR4420708	

6. ISSUED BY CODE N39430
NAVFAC EXWC
CODE ACQ / NAVAL BASE VENTURA COUNTY
1100 23RD AVE BLDG 1100
PORT HUENEME CA 93043-4301

7. ADMINISTERED BY *(if other than 6)* CODE N62478
NAVFAC HAWAII
400 MARSHALL RD
PEARL HARBOR HI 96860-3139

8. DELIVERY FOB
[X] DESTINATION
[ ] OTHER
(See Schedule if other)

9. CONTRACTOR CODE 1YQ36 FACILITY
NAME AND ADDRESS
CB&I FEDERAL SERVICES LLC
JUSTIN MYERS
1725 DUKE ST, STE 400
ALEXANDRIA VA 22314-3470

10. DELIVER TO FOB POINT BY (Date) *(YYYYMMMDD)*
SEE SCHEDULE

11. MARK IF BUSINESS IS
[ ] SMALL
[ ] SMALL DISADVANTAGED
[ ] WOMEN-OWNED

12. DISCOUNT TERMS

13. MAIL INVOICES TO THE ADDRESS IN BLOCK
See Item 7

14. SHIP TO CODE N62478
NAVFAC HAWAII
ORLINO PERALTA
400 MARSHALL RD
BLDG C27
JBPHH HI 96860-3139

15. PAYMENT WILL BE MADE BY CODE N68732
DFAS CLEVELAND
CLEVELAND NORFOLK ACCOUNTS PAYABLE
PO BOX 998022
CLEVELAND OH 44199-8022

MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.

16. TYPE OF ORDER			
	DELIVERY/ CALL	X	This delivery order/call is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract
	PURCHASE		Reference your quote dated Furnish the following on terms specified herein REF:

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED (YYYYMMMDD)

[X] If this box is marked, supplier must sign Acceptance and return the following number of copies 1

17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE
See Schedule

18. ITEM NO.	19. SCHEDULE OF SUPPLIES/ SERVICES	20. QUANTITY ORDERED/ ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
	SEE SCHEDULE				

* *If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.*

24. UNITED STATES OF AMERICA
TEL: 805-982-5570
EMAIL: [redacted]
BY: [redacted]
CONTRACTING / ORDERING OFFICER

25. TOTAL $14,718,398.00
26. DIFFERENCES

27a. QUANTITY IN COLUMN 20 HAS BEEN
[ ] INSPECTED [ ] RECEIVED [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	c. DATE (YYYYMMMDD)	d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	28. SHIP NO.	29. DO VOUCHER NO.	30. INITIALS
	[ ] PARTIAL [ ] FINAL	32. PAID BY	33. AMOUNT VERIFIED CORRECT FOR
f. TELEPHONE NUMBER / g. E-MAIL ADDRESS	31. PAYMENT [ ] COMPLETE [ ] PARTIAL [ ] FINAL		34. CHECK NUMBER
36. I certify this account is correct and proper for payment. a. DATE (YYYYMMMDD) / b. SIGNATURE AND TITLE OF CERTIFYING OFFICER			35. BILL OF LADING NO.

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED (YYYYMMMDD)	40. TOTAL CONTAINERS	41. S/R ACCOUNT NO	42. S/R VOUCHER NO.

Section 00010 - Solicitation Contract Form

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002		[redacted]	Project	[redacted]	$14,718,398.00
EXERCISED OPTION	1ST OPTION YEAR FOR THE POL IDIQ MACC FFP IGF::OT::IGF X032 NEXWC CI11 CLEAN, INSPECT, REPAIR, AND INSPECT REPAIRS TO MINED-IN-PLACE MILITARY PETROLEUM STORAGE TANKS (RED HILL TANKS 4 AND 13) LOCATED AT JOINT BASE PEARL HARBOR-HICKAM FOB: Destination PURCHASE REQUEST NUMBER: [redacted]				
				NET AMT	$14,718,398.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000201	[redacted]				$0.00
				NET AMT	$0.00
	[redacted]				$2,201,683.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000202					$0.00

[redacted]

NET AMT $0.00

[redacted] $5,170,778.00

[redacted]

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000203					$0.00

[redacted]

NET AMT $0.00

[redacted] $2,167,709.00

[redacted]

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000204					$0.00

[redacted]

NET AMT $0.00

[redacted] $5,178,228.00

[redacted]

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0002	Destination	Government	Destination	Government
000201	N/A	N/A	N/A	Government
000202	N/A	N/A	N/A	Government
000203	N/A	N/A	N/A	Government
000204	N/A	N/A	N/A	Government

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0002	10-AUG-2018	1	NAVFAC HAWAII [redacted] 400 MARSHALL RD BLDG C27 JBPHH HI 96860-3139 808-474-3220 X267 FOB: Destination	N62478
000201	N/A	N/A	N/A	N/A

000202	N/A	N/A	N/A	N/A
000203	N/A	N/A	N/A	N/A
000204	N/A	N/A	N/A	N/A

Section 00700 - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.222-50	Combating Trafficking in Persons	MAR 2015
252.204-0002	Line Item Specific: Sequential ACRN Order	SEP 2009

CLAUSES INCORPORATED BY FULL TEXT

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 15 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 710 days after award. The time stated for completion shall include final cleanup of the premises.

(End of clause)

52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of Tank 4 - $3,100.00; Tank 13 - $3,100.00; for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
69.1%	6.9%

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the

goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

(1) Name, address, and telephone number of the subcontractor;

(2) Employer's identification number of the subcontractor;

(3) Estimated dollar amount of the subcontract;

(4) Estimated starting and completion dates of the subcontract; and

(5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is Honolulu,HI.

(End of provision)

252.232-7006 WIDE AREA WORKFLOW PAYMENT INSTRUCTIONS (MAY 2013)

(a) Definitions. As used in this clause--

Department of Defense Activity Address Code (DoDAAC) is a six position code that uniquely identifies a unit, activity, or organization.

Document type means the type of payment request or receiving report available for creation in Wide Area WorkFlow (WAWF).

Local processing office (LPO) is the office responsible for payment certification when payment certification is done external to the entitlement system.

(b) Electronic invoicing. The WAWF system is the method to electronically process vendor payment requests and receiving reports, as authorized by DFARS 252.232-7003, Electronic Submission of Payment Requests and Receiving Reports.

(c) WAWF access. To access WAWF, the Contractor shall--

(1) Have a designated electronic business point of contact in the System for Award Management at https://www.acquisition.gov; and

(2) Be registered to use WAWF at https://wawf.eb mil/ following the step-by-step procedures for self-registration available at this Web site.

(d) WAWF training. The Contractor should follow the training instructions of the WAWF Web-Based Training Course and use the Practice Training Site before submitting payment requests through WAWF. Both can be accessed by selecting the "Web Based Training" link on the WAWF home page at https://wawf.eb.mil/.

(e) WAWF methods of document submission. Document submissions may be via Web entry, Electronic Data Interchange, or File Transfer Protocol.

(f) WAWF payment instructions. The Contractor must use the following information when submitting payment requests and receiving reports in WAWF for this contract/order:

(1) Document type. The Contractor shall use the following document type(s).

Navy Construction/Facilities Management Invoice (NAVCON)

(2) Inspection/acceptance location. The Contractor shall select the following inspection/acceptance location(s) in WAWF, as specified by the contracting officer.

N/A

(3) Document routing. The Contractor shall use the information in the Routing Data Table below only to fill in applicable fields in WAWF when creating payment requests and receiving reports in the system.

Routing Data Table*

Field Name in WAWF	Data to be entered in WAWF
Pay Official DoDAAC	N68732
Issue By DoDAAC	N39430
Admin DoDAAC	N62478
Inspect By DoDAAC	N62478
Ship To Code	N62478
Ship From Code	N/A
Mark For Code	N/A
Service Approver (DoDAAC)	N/A
Service Acceptor (DoDAAC)	N62478
Accept at Other DoDAAC	N/A
LPO DoDAAC	N62478
DCAA Auditor DoDAAC	N/A
Other DoDAAC(s)	N62478

(4) Payment request and supporting documentation. The Contractor shall ensure a payment request includes appropriate contract line item and subline item descriptions of the work performed or supplies delivered, unit price/cost per unit, fee (if applicable), and all relevant back-up documentation, as defined in DFARS Appendix F, (e.g. timesheets) in support of each payment request.

(5) WAWF email notifications. The Contractor shall enter the email address identified below in the "Send Additional Email Notifications" field of WAWF once a document is submitted in the system.

corinne kurth@navy mil

(g) WAWF point of contact. (1) The Contractor may obtain clarification regarding invoicing in WAWF from the following contracting activity's WAWF point of contact.

corinne kurth@navy.mil

(2) For technical WAWF help, contact the WAWF helpdesk at 866-618-5988.

(End of clause)

5252.228-9305 NOTICE OF BONDING REQUIREMENTS (DEC 2000)

(a) Within 15 days after receipt of award, the bidder/offeror to whom the award is made shall furnish the following bond(s) each with satisfactory security:

__X__ A Performance Bond (Standard Form 25). The performance bond shall be in a penal sum equal to 100% percent of the contract price.

__X__ A Payment Bond (Standard Form 25A). The payment bond shall be in a penal sum equal to 100% of the contract price.

(b) Any surety company holding a certificate of authority from the Secretary of Treasury as an acceptable Surety on Federal bonds will be accepted. Individual sureties will be permitted as prescribed in FAR 28.203 and FAC 5252.228-9300. Alternative types of security in lieu of furnishing sureties on performance and/or payment bonds will be permitted as prescribed in FAR 28.204, and will be held for at least one year after the completion of the contract. Additional bond security may be required as prescribed in FAR 52.228-2. Bonds shall be accompanied by a document authenticating the agent's authority to sign bonds for the surety company.

(c) The contract time for purposes of fixing the completion date, default, and liquidated damages shall begin to run __15__ days from the date of award, regardless of when performance and payment bonds or deposits in lieu of surety are executed.

(End of clause)

DESIGN-BUILD CONTRACT – INCORPORATION OF DESIGNER OF RECORD FINAL DESIGN (JUL 2008)

Upon Government receipt and acceptance of the Designer of Record signed and stamped final design submission for all work, a no-cost unilateral modification shall be issued to incorporate the final design into the contract.

If the Contractor is authorized to proceed with portions of the work prior to the completion of a final design for all work, a no-cost unilateral modification shall be issued for each Government accepted Designer of Record signed and stamped design submission for each portion of the work in order to incorporate that design submittal into the contract.

(End of clause)

Section 00800 - Special Contract Requirements

STATEMENT OF WORK
This task order includes the Parts 2, 3, 5 and 6 from the RFTOP, the basic contract, and CB&I's proposal dated 29 July 2016.

The duration of performance is 710 days from award to return to operator.

Pre-Performance Inquiries

No.	Reference	Question	Answer
1	Section 00210, Factor 2 - Schedule	Since there are two (2) facilities (tanks), is the entire schedule to be limited to 120 activities (2 x 60 activities)? Or, does the limitation of 60 activities per facility only pertain to construction activities and **NOT** to Milestones, Planning/Pre-Construction, Design, Procurement, Management, and Govt Review activities that are not specific to any one facility?	Submittal of one 11"x17" CPM schedule per tank, limited to 60 activities per tank is acceptable. The 60 activities include those listed in 00210, and as described in 01 32 17.05 20 activity categories (i.e., under design activities, procurement activities, government activities, quality management activities, construction activities, turnover and closeout activities).
2	Section 00210, Factor 2 - Schedule	Regarding the 60 activity limitation per facility, is 60 activities equivalent to 60 rows? For example, if we use a group header for coating work on Tank XX, does that group row count towards the 60 activity limitation?	A group header or group row will not be counted towards the 60 activity per tank limitation.
3	General	What is the weight capacity of the Facility freight elevator?	The freight elevator capacity is 10,000 lbs.
4	General	Will NAVFAC HI Crane Center be providing training and certification for operators of the Adit 3 overhead crane?	Yes. NAVFAC Hawaii conducts a NAVFAC P-307 Category 3 crane safety course 1-2 times per year. Contractor shall coordinate attendance with COR following contract award, for those personnel who will be using the equipment hoist at Adit 3.
5	General – Site Photographs	Site walk instructions stated photographs were not allowed without a permit. Several contractors collected photographs, presumably under a photo permit. Can the Gov't request that photos collected be shared with all contractors?	No. However, See No. 6 & 7 below.
6	General – Site Photographs	Will the Gov't take pictures of the entrance to each of the Adits (i.e. Adit 3, 4, 5, and 6)?	Due to the large file memory size, the Government will provide files via ARMRDEC SAFE (U. S. Army Aviation and Missile Research Development and Engineering Center Safe Access File Exchange).
7	General – Site Photographs	Will the Gov't collect pictures of the piping/valves/conduit at each tank for contractors to develop an approach for removal/install?	Due to the large file memory size, the Government will provide files via ARMRDEC SAFE (U. S. Army Aviation and Missile Research Development and Engineering Center Safe Access File Exchange).

8	General – Existing Equipment	Will the Gov't supply the drawings and information on the existing booms and baskets which are laying in the floor utilized on earlier projects?	One set of Government-owned booms is stored on the deck in Adit 4. The condition and serviceability of this equipment is unknown. It might be available for use where-is and as-is upon approval of a request by the Contracting Officer. Also stowed at Adit 4 are the Government-owned dome truss equipment, and monorail scaffolding. The condition and serviceability of this equipment is unknown. It might be available for use where-is and as-is upon approval of a request by the Contracting Officer. Government takes no responsibility for condition of any of this equipment. If Contractor requests permission to utilize this equipment, Contractor assumes all liability for design adequacy, condition, refurbishment, inspection, certification, and conformance with current safety codes and regulations. As stated in RFP Contractor is responsible to design the means and methods for personnel to safely access all of the interior surfaces in the tank for cleaning, inspection, and repairs. Government is not directing Contractor to utilize GFE or to purchase equipment. The following files are provided as reference information and no representation is made to the accuracy, adequacy, or completeness of the information: RFI Q No 8 Red Hill Dome Truss Scaffold and Monorail - Design Dwgs. RFI Q No 8 Red Hill Dome Truss Scaffolding - List of Materials RFI Q No 8 Red Hill Telescoping Box Boom Design Drawings RFI Q No 8 YD Drawing No. 294365 The tank inspections include assessment of the existing towers. Attachment of any equipment to the tower, catwalk, or bridge require structural inspection and an analysis of adequacy. Tower cable guys may require removal in Tank 18 to accomodate equipment installation and operation. Analysis and bracing of the towers to the upper dome is required. Previous modifications to the tower bracing are provided on as reference information on Sheet S-10 (NAVFAC Sketch No. SK-7669). No representation is made to the accuracy, adequacy, or completeness of the information. Willbros Government Services also owns two sets of telescoping box booms and baskets. Contact Willbros Government Services for more information.
9	General – Work Hours	For bidding purposes and to minimize TIA submittals, how many days a week should contractors assume hot work will be prohibited due to fuel movement within the Facility?	Contractor is required to certify each tank gas-free and ready for hot work. Fuel movement within the facility has not impacted the ability to perform hot work within each tank.
10	Project Program, Section 3.1.2	Have the existing coatings (within the tanks and the exterior pipelines) been tested for lead content?	No.
11	Project Program, Table 3.2	Where is the nearest electrical substation? Would power be available for purchase if the contractor installed a meter?	The nearest Hawaiian Electric substation is behind Adit 6. This option would be between the awarded Contractor and HECO.

12	Section 01 35 26.05 20, 1.09) Transmitter Requirements	What type of radio system is permitted inside the tunnel? What frequency is permissible?	The frequencies on commercially-available FCC compliant mine radio systems should be acceptable. Operation on Government frequencies will not be sponsored on this contract.
13	Section 01 35 26.05 20, 1.6.3.2. e.	Does the facility have a rescue plan available for emergencies?	No. Follow RFP.
14	Section 01 35 26.05 20, 3.8, b.	What is the basis for one air change per hour? 29 CFR 1910.146(c)(5)(ii)(E) calls for 20 air changes an hour, which is not feasible for the operational limitations of the tunnel. Is this an accepted value from previous CSE operations? Must the equipment be explosion proof for forced air ventilation? The existing tank operation at Tank 5 was not.	As indicated in 01 35 26.05 20 Section 3.8.b, forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level regardless of classification. After degassing is complete Contractor is responsible to certify the atmosphere gas free and to maintain a vapor-free condition inside the tank. In past projects, one air change per hour provided acceptable working conditions after the tank was cleaned and gas free.
15	Section 01 50 00.05 20 Page 102 Table Last item:	Will the Lower Tunnel train be available to the contractor on each of the two contracts for up to 8 hours per day if both projects time lines overlap?	No.
16	Project Program B201009 Exterior Painting and Coatings	Sow references Section 33 52 80, which is the guide specification for new pipeline coating. Is Section 09 97 13.27 the appropriate Section?	Delete references to 33 52 80 in B20. Design shall include an edited version of Section 09 97 13.27.
17	Project Program, G306001 Liquid Fuels Distribution Piping	The issue/receipt motor operated 12-inch and 20-inch ball valves have been rebuilt previously (circa 2004), and while the valves tested successfully in the shop, they continued to malfunction after return to service. The manufacturer is no longer in operation, therefore direct replacement seat materials and springs are not available. Would the Gov't consider revising the scope to be repair by replacement for the AES motor operated valves?	Please base proposals on refurbishing the motor-operated ball valves as described in SOW, for typical 12" and 20" 150#-CL ball valves.
18	Project Program, G306003 Liquid Fuels Storage Tanks, Tank Repairs, d.	What diameter and at what elevation are the datum plates to be installed? How many per tank?	Follow RFP on diameter and elevation. One datum plate per tank.
19	Project Program, G306001 Liquid Fuels Storage Tanks, Tank Repairs, f.	Can we utilize a slip on flange for the 32-inch non-standard flange repairs inside the tank?	No.
20	Project Program, G306003 Liquid Fuels Storage Tanks, Tank Repairs, h.	Where are we to label and stencil the tank? The skin of the tank is not visible.	Stencil information on exterior of manway access in upper tunnel.

21	01 14 00 .05 20 paragraphs 1.4.4 and 1.4.5	Regular working hours are defined as an 8 1/2 hour period established by the Contracting Officer, between 7 a.m. and 3:30 p.m., Monday through Friday, excluding Government holidays. Given the time to clear security and access site, can contractor assume that this will not be included in 8.5 hour work period, and we will have full 8.5 hours of work duration per shift? Will Navy agree to extend work shift to 10 hours per day? Will Navy agree to allow Saturday work?	Follow RFP.
22	01 50 00.05 20 1.6	Please confirm what power will be available inside the tunnel for use by the Contractor (110v, 240v or 480v) and how many amps? Are there any general expectations regarding power interruptions and how long they last??	Government will not furnish electrical power. Follow RFP.
23	General	Please confirm that only electric powered or air operated equipment are the only allowable equipment while working inside the tunnels. Also, please confirm that no combustion powered equipment will be allowed inside tunnels or tanks.	Ventilation within the Red Hill facility tunnels is for normal occupancy and cannot accommodate exhaust from internal combustion engines. If Contractor's proposed means and methods include engine-driven equipment, Contractor shall be responsible to ensure discharge of any exhaust or emissions at a safe exit elevation outside of the facility. Exhaust of any gas, fumes or particles from Contractor's work inside the facility shall likewise be removed and exit at a safe outside elevation in compliance with federal, state, or local permits under the Clean Air Act as required in 01 57 19.00 20 Section 1.6.h.
24	General	Please confirm what lighting will be supplied by the NAVY.	None.
25	General	When is current contractor (Wilbros) expected to be completely off site?	Current estimate is 4th Quarter CY 2106.
26	01 74 19.05 20 3.1 d	RFP states Contractor is responsible for characterizing waste. Contractor assumes this includes lead & Hexavalent Chromium testing of existing coatings? For bidding purposes, what assumptions should contractor make regarding presence or absence of lead and Hexavalent Chromium in existing coatings to be repaired?	Yes. Assume no lead and Hexavalent Chromium.
27	General	Will Contractor be required to provide Rescue team or will this be supplied by others?	Follow RFP.
28	General	Will Contractor be responsible for Hole/Fire watches and if so how many people are required?	Follow RFP.

29	General	What type of communication will be required from inside the tunnel to the outside support?	Follow RFP.
30	General	Will the government be providing the site walk sign in sheets to prospective contractors?	Yes, enclosed are copies of the sign-in sheets, agenda, and hand-outs from the 30 June 2016 site visit.
31	General	Will contractors be allowed to set anchor/lift points into the tunnel walls to aid in equipment dismounting/mounting (e.g., heavy overhead valves)?	No.
32	Part 3, Project Program, G 30, General System requirements, pages 15 and 16	How have API Std 653, and Recommended Practice API RP 575, been modified in the past, to accommodate the unique construction of these storage tanks?	Provide engineering expertise and industry experience to design an appropriate program to inspect, assess, and repair the tanks. Implement the principles of API 653 to the extent possible.
33	EPA report (EPA DKT NO. RCRA 7003- R9-2015-01 NO. 15-UST- EA-01) and DOH DKT	Can we be provided an official copy of the "lessons learned" from Tank 5 repairs? In our independent research, we identified an EPA report (EPA DKT NO. RCRA 7003-R9-2015-01 and DOH DKT NO. 15-UST-EA-01). Attachment A, Statement of Work is an "Administrative Order on Consent In the Matter of Red Hill Bulk Fuel Storage Facility EPA Docket No: RCRA 7003-R9-2015-01, DOH Docket No: 15-UST-EA-01) In paragraph 2.2 TIRM Procedures Report, is referenced, " b. Lessons learned from Tank 5 and related modifications to current procedures;"	No.
34	RFTOP Section 00210, Factor 1 – Technical Approach	Submission Requirements state: "provide narrative (not to exceed 10 pages) to address 4 key elements. Can Gov't allow more than 10 pages in order to clearly describe our means, methods, tools / equipment to be utilized, mitigation plans for anticipated problems and logistical challenges that will demonstrate our understanding of the scope to be performed.	Page limitation has been increased from 10 pages to 20 pages.

35	RFTOP Section 00210, Factor 4 - Price	Submission Requirements indicate Summary pricing for each tank (Facility), but also a breakdown by Maintenance, Repair, and New (Minor Construction). Can the Government provide which scope items are to be categorized as Repair, Maintenance, and Minor Construction?	MAINTENANCE ITEMS include: Mobilization, preparation of submittals, temporary air and electrical power and distribution; Drain product, clean tank interior, dispose of sludge; Detailed internal inspection of tank to include measuring thickness and condition of shell plates, welds, and appurtenances, and hydrostatic testing of nozzles; Preparation and recoating of bottom dome IAW UFGS; Refurbish tank skin valves (20", 12", 6" DBBs, & 12" ball valve); Perform strapping and provide charts; Project management, engineering, site safety, quality control, and other supplies, travel, labor, and equipment needed to support maintenance activities. Tank 17 maintenance includes estimated additonal 577 shell repairs, to re-work patch plates installed over telltale penetrations. REPAIR ITEMS include: Predictive repairs include 200 predictive shell repairs; reinforcement of internal tower and installation of missing fasteners; extending catwalk handrailing; replacing internal and exterior sampling lines with new SCH 80 pipe; installing new datum plate at tank bottom; Project management, engineering, site safety, quality control, and other supplies, travel, labor, and equipment needed to support repair activities. MINOR CONSTRUCTION ITEMS: None identified.
36	Part Three -Project Program, Section 2.6	Are there fabrication or shop drawings available for the booms and spider basket systems that are currently in use (Tank 5) for access to the tank interior shell liner?	The following files are provided as reference information and no representation is made to the accuracy, adequacy, or completeness of the information: RFI Q No 8 Red Hill Dome Truss Scaffold and Monorail - Design Dwgs. RFI Q No 8 Red Hill Dome Truss Scaffolding - List of Materials RFI Q No 8 Red Hill Telescoping Box Boom Design Drawings RFI Q No 8 YD Drawing No. 294365
37	Part Three – Project Program, Section 2.6	For supplying temporary electrical power, are we required to draw power source upstream of the Red Hill facility? Or must we draw from a source within the Red Hill Facility?	Provide temporary electrical power. Government will not furnish electrical power.
38	Drawing M-1 Note 7	Inspection of center tower - What are design requirements for the “climbing basket”?	Drawing M-1 was provided as information only and is not part of the RFP.
39	Drawing M-1 Note 4 andPART 3 - CHAPTER 6 / ESRG30 - Page 21 General “Design means and methods for personnel to safely access all of the interior surfaces…”	Certification of boom and ancillary equipment - What code or standard will we be held to?Is there a form to fill out?Who provides acceptance of inspection?	Drawing M-1 was provided as information only and is not part of the RFP. Follow RFP.
40	Drawing M-1 Note 4 and PART 3 - CHAPTER 6 / ESR G30 - Page 21 General “Design means and methods for personnel to safely access all of the	What are qualifications of the inspector for certification of boom and ancillary equipment? Engineer? Registered PE?, Registered PE in Hawaii?	Drawing M-1 was provided as information only and is not part of the RFP. Follow RFP.

	interior surfaces…"		
41	Drawing M-1 Note 5 and PART 3 - CHAPTER 6 / ESR G30 - Page 21 General "Design means and methods for personnel to safely access all of the interior surfaces…"	"Climbing basket" Design criteria of suspended work platform - What code or standard will we be held to? What are qualifications of inspector? – engineer, registered PE, or Registered PE in HI? Is there a form to fill out? Who provides acceptance of inspection? US Federal OSHA restricts the use of work from a crane suspended work basket to tasks that could not be performed more safely by other means. Will work be allowed suspended from the type of mechanism shown on the drawings without consideration of a 'safer' means?	Drawing M-1 was provided as information only and is not part of the RFP. Follow RFP.
42	Drawing M-1 Note 7	Design of work platform lift mechanism - What code or standard will we be held to? What are qualifications of inspector – engineer?, Registered PE?, Registered in HI?, Is there a form to fill out? Who provides acceptance of inspection?	Drawing M-1 was provided as information only and is not part of the RFP. Follow RFP.
43	Part Two –General Requirements, Spec 01 35 26.05 20, 1.6.1.1	Confirm that 1 one Site Safety & Health Officer (SSHO) is required at all times during field work at each work site -- Work site defined as each tank; Therefore (2) individual SSHOs would be required if two tanks are being worked concurrently.	Confirmed.
44	Part Two – Gen requirements, Spec 01 45 00.05 20, 1.4	Understanding the site QC manager cannot be the SSHO, can the Site Superintendent dual hat as also the site QC Manager? Or, are 3 separate individuals required for the SSHO, site QC Manager and Site Superintendent?	Separate individuals.

45	Section 01 45 00.05 20 ¶1.4.3.1 Special Inspections table	API 653 Tank Inspector: Under frequency it says: "full-time during inspection. Under area of Responsibility, it calls for: Initial tank inspection; post-repair tank inspection; suitability for service. In Part 3, G30, 2nd par. Page 16, it requires the API 653 inspector provide oversight of inspection and repairs. It is not clear if this is "on site", full or part time. Question: it is not mentioned at all if the API Inspector must be on-site part time or full time during repairs. Please clarify if it is the government's intent for the inspector to have a QC role during repairs or simply after repairs to QC verify repairs. In considering the response, a full-time API presence would be in the government's interest as a commercially independent third party individual to provide the level of independent review of the repair workmanship. In concept, this is not any different than requiring a full time Level III NACE inspector from a QP-5 organization on coating projects.	API 653 inspector required onsite full time during API inspection and audit inspection of repairs.
46	Section 01 45 00.05 20 ¶1.4.3.1 Special Inspections table	Registered Engineer: Under frequency it says "full time during inspection". Under area of responsibility: it calls for presence (full time) a) During validation (inspection) audit of tank repairs, and b) Suitability for service Question: Please clarify/confirm that the Registered Engineer is not required full or part time during the tank inspection, or during the repair process	Engineer required onsite full time during audit inspection of repairs.
47	Part Three – Project Program – Section 6 G30, Inspection Design, Page 17	Regard to the inspection of the piping, between the tank and the lower tunnel:The 32" tank nozzle is accessible for entry, and full visual inspection to satisfy the API 653 requirements for a visual inspection. However there are smaller, large bore piping (6"- 16"-18" depending on location), that are not directly accessible.Question: will the government clarify the "visual inspection" requirement to mandate use of high definition video equipment to provide a full visual inspection, in order to satisfy the requirements of API 653?	This is a Design-Build contract requiring contractor to design both inspections and repair. Follow RFP.

48	Part Three – Project Program – Section 6 G30, Inspection Design	We were unable to identify anywhere in the SOW for any special level of statistical Quality Assurance check by a member of the construction project team. On sensitive projects, this final level of contractor quality control/assurance checking has been specified elsewhere, so that an additional tier of assurance is brought into the process. Question: is there a requirement now, or upon consideration the government intends to add such a requirement?	Not at this time.
49	Part Three – Project Program – Section 6 G30, Inspection Design	Regarding Access to the "top" of the tank. SOW indicates Tank Inspection will include 100% interior of the tank. The Note on drawing M1 states: "Climbing basket for access to any point in the tank, except for top center of dome." (plan view upper right). Although there is no real definition of what is the "top" portion of the dome. Question: Is inspection of the tank to include the very top of the upper dome that is not accessible by the Current Boom and Basket system?	Yes.
50	RFTOP Section 00100 Instruction to Offerors Item 13. Proposal Due Date	Due to the complexity of this RFP, will the Government consider to extend the due date for receipt of bids to 29 July 2016?	The proposal due date for this requirement has been extended to 4pm (PST) 29 July 2016.

The administrative contracting office (ACO) is:

NAVFAC Hawaii
400 Marshall Road
JBPHH HI 96860-3139

The contracting officer's representative (COR) is [redacted] 808-474-3220 [redacted]

The administrative contracting officer (ACO) is [redacted] 808-474-3220 [redacted]

Bonds and insurance should be provided to the ACO.

General Decision Number: HI160001 08/19/2016 HI1

Superseded General Decision Number: HI20150001

State: Hawaii

Construction Types: Building, Heavy (Heavy and Dredging),
Highway and Residential

Counties: Hawaii Statewide.

BUILDING CONSTRUCTION PROJECTS; RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories); HEAVY AND HIGHWAY CONSTRUCTION PROJECTS AND DREDGING

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016
1	01/15/2016
2	01/22/2016
3	02/05/2016
4	02/26/2016
5	03/18/2016
6	07/29/2016
7	08/19/2016

ASBE0132-001 08/29/2010

	Rates	Fringes
Asbestos Workers/Insulator Includes application of all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems. Also the application of firestopping material for wall openings and penetrations in walls, floors, ceilings and	[redacted]	[redacted]

BOIL0627-005 01/01/2013

	Rates	Fringes
[redacted]		

BRHI0001-001 09/03/2012

	Rates	Fringes
BRICKLAYER		
[redacted]		
Pointers, Caulkers and		
[redacted]		

BRHI0001-002 09/02/2013

	Rates	Fringes
Tile, Marble & Terrazzo Worker		
[redacted]		
Terrazzo Floor Grinders		
[redacted]		
Tile, Marble and Terrazzo		
[redacted]		

CARP0745-001 08/31/2015

	Rates	Fringes
Carpenters:		
Carpenters; Hardwood Floor Layers; Patent Scaffold Erectors (14 ft. and over); Piledrivers; Pneumatic Nailers; Wood Shinglers and Transit		
[redacted]		
Millwrights and Machine		
[redacted]		
Power Saw Operators (2		
[redacted]		

CARP0745-002 08/31/2015

	Rates	Fringes
Drywall and Acoustical		
[redacted]		

ELEC1186-001 02/21/2016

	Rates	Fringes
Electricians:		
[redacted]		
[redacted]		
[redacted]		

ELEC1186-002 02/21/2016

Rates Fringes

Line Construction:
[redacted]

ELEV0126-001 01/01/2015

Rates Fringes

[redacted]

a. VACATION: Employer contributes 8% of basic hourly rate for 5 years service and 6% of basic hourly rate for 6 months to 5 years service as vacation pay credit.

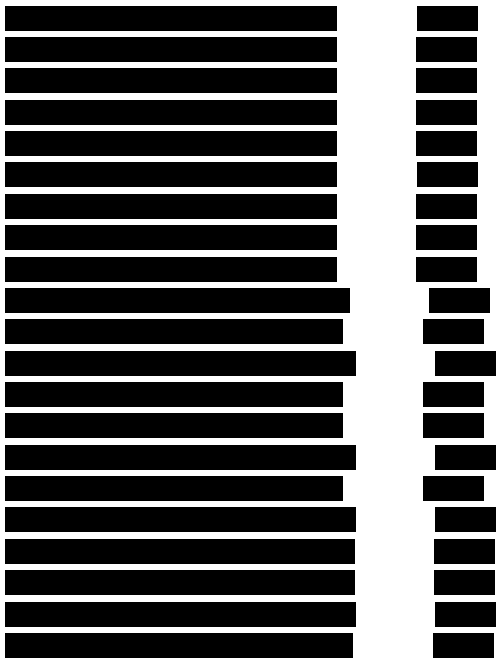
b. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the Friday after Thanksgiving Day and Christmas Day.

ENGI0003-002 08/31/2015

Rates Fringes

Diver (Aqua Lung) (Scuba))
Diver (Aqua Lung) (Scuba)
[redacted]
Diver (Aqua Lung) (Scuba)
[redacted]
Stand-by Diver (Aqua Lung)
[redacted]
Diver (Other than Aqua Lung)
Diver (Other than Aqua
[redacted]
Diver Tender (Other than
[redacted]
Stand-by Diver (Other than
[redacted]
Helicopter Work
Airborne Hoist Operator
[redacted]
Power equipment operator - tunnel work
[redacted]

Power equipment operators:



POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Fork Lift (up to and including 10 tons); Partsman (heavy duty repair shop parts room when needed).

GROUP 2: Conveyor Operator (Handling building material); Hydraulic Monitor; Mixer Box Operator (Concrete Plant).

GROUP 3: Brakeman; Deckhand; Fireman; Oiler; Oiler/Gradechecker; Signalman; Switchman; Highline Cableway Signalman; Bargeman; Bunkerman; Concrete Curing Machine (self-propelled, automatically applied unit on streets, highways, airports and canals); Leveeman; Roller (5 tons and under); Tugger Hoist.

GROUP 4: Boom Truck or dual purpose "A" Frame Truck (5 tons or less); Concrete Placing Boom (Building Construction); Dinky Operator; Elevator Operator; Hoist and/or Winch (one drum); Straddle Truck (Ross Carrier, Hyster and similar).

GROUP 5: Asphalt Plant Fireman; Compressors, Pumps, Generators and Welding Machines ("Bank" of 9 or more, individually or collectively); Concrete Pumps or Pumpcrete Guns; Lubrication and Service Engineer (Grease Rack); Screedman.

GROUP 6: Boom Truck or Dual Purpose "A"Frame Truck (over 5 tons); Combination Loader/Backhoe (up to and including 3/4 cu. yd.); Concrete Batch Plants (wet or dry); Concrete Cutter, Groover and/or Grinder (self-propelled unit on streets, highways, airports, and canals); Conveyor or Concrete Pump (Truck or Equipment Mounted); Drilling Machinery (not to apply to waterliners, wagon drills or jack hammers); Fork Lift (over 10 tons); Loader (up to and including 3 and 1/2 cu. yds); Lull High Lift (under 40 feet); Lubrication and Service Engineer (Mobile); Maginnis Internal Full Slab Vibrator (on airports, highways, canals and warehouses); Man or Material Hoist; Mechanical Concrete Finisher (Large Clary, Johnson Bidwell, Bridge Deck and similar); Mobile Truck Crane Driver; Portable Shotblast Concrete Cleaning Machine; Portable Boring Machine (under streets, highways, etc.); Portable Crusher; Power Jumbo Operator (setting slip forms, etc., in tunnels); Rollers (over 5 tons); Self-propelled Compactor (single engine); Self-propelled Pavement Breaker; Skidsteer Loader with attachments; Slip Form Pumps (Power driven by hydraulic, electric, air, gas, etc., lifting device for concrete forms); Small Rubber Tired Tractors; Trencher (up to and including 6 feet); Underbridge Personnel Aerial Platform (50 feet of platform or less).

GROUP 7: Crusher Plant Engineer, Dozer (D-4, Case 450, John Deere 450, and similar); Dual Drum Mixer, Extend Lift; Hoist and/or Winch (2 drums); Loader (over 3 and 1/2 cu. yds. up to and including 6 yards.); Mechanical Finisher or Spreader Machine (asphalt), (Barber Greene and similar) (Screedman required); Mine or Shaft Hoist; Mobile Concrete Mixer (over 5 tons); Pipe Bending Machine (pipelines only); Pipe Cleaning Machine (tractor propelled and supported); Pipe Wrapping Machine (tractor propelled and supported); Roller Operator (Asphalt); Self-Propelled Elevating Grade Plane; Slusher Operator; Tractor (with boom) (D-6, or similar); Trencher (over 6 feet and less than 200 h.p.); Water Tanker (pulled by Euclids, T-Pulls, DW-10, 20 or 21, or similar); Winchman (Stern Winch on Dredge).

GROUP 8: Asphalt Plant Operator; Barge Mate (Seagoing); Cast-in-Place Pipe Laying Machine; Concrete Batch Plant (multiple units); Conveyor Operator (tunnel); Deckmate; Dozer (D-6 and similar); Finishing Machine Operator (airports and highways); Gradesetter; Kolman Loader (and similar); Mucking Machine (Crawler-type); Mucking Machine (Conveyor-type); No-Joint Pipe Laying Machine; Portable Crushing and Screening Plant; Power Blade Operator (under

12); Saurman Type Dragline (up to and including 5 yds.); Stationary Pipe Wrapping, Cleaning and Bending Machine; Surface Heater and Planer Operator, Tractor (D-6 and similar); Tri-Batch Paver; Tunnel Badger; Tunnel Mole and/or Boring Machine Operator Underbridge Personnel Aerial Platform (over 50 feet of platform).

GROUP 9: Combination Mixer and Compressor (gunite); Do-Mor Loaderand Adams Elegrader; Dozer (D-7 or equal); Wheel and/or Ladder Trencher (over 6 feet and 200 to 749 h.p.).

GROUP 9A: Dozer (D-8 and similar); Gradesetter (when required by the Contractor to work from drawings, plans or specifications without the direct supervision of a foreman or superintendent); Push Cat; Scrapers (up to and including 20 cu. yds); Self-propelled Compactor with Dozer; Self-Propelled, Rubber-Tired Earthmoving Equipment (up to and including 20 cu. yds) (621 Band and similar); Sheep's Foot; Tractor (D-8 and similar); Tractors with boom (larger than D-6, and similar).

GROUP 10: Chicago Boom; Cold Planers; Heavy Duty Repairman or Welder; Hoist and/or Winch (3 drums); Hydraulic Skooper (Koehring and similar); Loader (over 6 cu. yds. up to and including 12 cu. yds.); Saurman type Dragline (over 5 cu. yds.); Self-propelled, rubber-tired Earthmoving Equipment (over 20 cu. yds. up to and including 31 cu. yds.) (637D and similar); Soil Stabilizer (P & H or equal); Sub-Grader (Gurries or other automatic type); Tractors (D-9 or equivalent, all attachments); Tractor (Tandem Scraper); Watch Engineer.

GROUP 10A: Boat Operator; Cable-operated Crawler Crane (up to and including 25 tons); Cable-operated Power Shovel, Clamshell, Dragline and Backhoe (up to and including 1 cu. yd.); Dozer D9-L; Dozer (D-10, HD41 and similar) (all attachments); Gradall (up to and including 1 cu. yd.); Hydraulic Backhoe (over 3/4 cu. yds. up to and including 2 cu. yds.); Mobile Truck Crane Operator (up to and including 25 tons) (Mobile Truck Crane Driver Required); Self-propelled Boom Type Lifting Device (Center Mount) (up to and including 25 tons) (Grove, Drott, P&H, Pettibone and similar; Trencher (over 6 feet and 750 h.p. or more); Watch Engineer (steam or electric).

GROUP 11: Automatic Slip Form Paver (concrete or asphalt); Band Wagon (in conjunction with Wheel Excavator); Cable-operated Crawler Cranes (over 25 tons but less than 50 tons); Cable-operated Power Shovel, Clamshell, Dragline and Backhoe (over 1 cu. yd. up to 7 cu. yds.); Gradall (over 1 cu. yds. up to 7 cu. yds.); DW-10, 20, etc. (Tandem); Earthmoving Machines (multiple propulsion power units and 2 or more Scrapers) (up to and including 35 cu. yds.," struck" m r.c.); Highline Cableway; Hydraulic

Backhoe (over 2 cu. yds. up to and including 4 cu. yds.); Leverman; Lift Slab Machine; Loader (over 12 cu. yds); Master Boat Operator; Mobile Truck Crane Operator (over 25 tons but less than 50 tons); (Mobile Truck Crane Driver required); Pre-stress Wire Wrapping Machine; Self-propelled Boom-type Lifting Device (Center Mount) (over 25 tons m r.c); Self-propelled Compactor (with multiple-propulsion power units); Single Engine Rubber Tired Earthmoving Machine (with Tandem Scraper); Tandem Cats; Trencher (pulling attached shield).

GROUP 12: Clamshell or Dipper Operator; Derricks; Drill Rigs; Multi-Propulsion Earthmoving Machines (2 or more Scrapers) (over 35 cu. yds "struck"m r.c.); Operators (Derricks, Piledrivers and Cranes); Power Shovels and Draglines (7 cu. yds. m.r.c. and over); Self-propelled rubber-tired Earthmoving equipment (over 31 cu. yds.) (657B and similar); Wheel Excavator (up to and including 750 cu. yds. per hour); Wheel Excavator (over 750 cu. yds. per hour).

GROUP 12A: Dozer (D-11 or similar or larger); Hydraulic Excavators (over 4 cu. yds.); Lifting cranes (50 tons and over); Pioneering Dozer/Backhoe (initial clearing and excavation for the purpose of providing access for other equipment where the terrain worked involves 1-to-1 slopes that are 50 feet in height or depth, the scope of this work does not include normal clearing and grubbing on usual hilly terrain nor the excavation work once the access is provided); Power Blade Operator (Cat 12 or equivalent or over); Straddle Lifts (over 50 tons); Tower Crane, Mobile; Traveling Truss Cranes; Universal, Liebher, Linden, and similar types of Tower Cranes (in the erection, dismantling, and moving of equipment there shall be an additional Operating Engineer or Heavy Duty Repairman); Yo-Yo Cat or Dozer.

GROUP 13: Truck Driver (Utility, Flatbed, etc.)

GROUP 13A: Dump Truck, 8 cu.yds. and under (water level); Water Truck (up to and including 2,000 gallons).

GROUP 13B: Water Truck (over 2,000 gallons); Tandem Dump Truck, over 8 cu. yds. (water level).

GROUP 13C: Truck Driver (Semi-trailer. Rock Cans, Semi-Dump or Roll-Offs).

GROUP 13D: Truck Driver (Slip-In or Pup).

GROUP 13E: End Dumps, Unlicensed (Euclid, Mack, Caterpillar or similar); Tractor Trailer (Hauling Equipment); Tandem Trucks hooked up to Trailer (Hauling Equipment)

BOOMS AND/OR LEADS (HOURLY PREMIUMS):

The Operator of a crane (under 50 tons) with a boom of 80 feet or more (including jib), or of a crane (under 50 tons) with leads of 100 feet or more, shall receive a per hour premium for each hour worked on said crane (under 50 tons) in accordance with the following schedule:

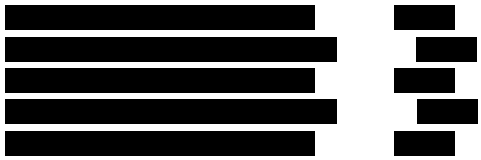
Booms of 80 feet up to but
not including 130 feet or
Leads of 100 feet up to but
[redacted]
Booms and/or Leads of 130 feet
[redacted]
Booms and/or Leads of 180 feet up
[redacted]

The Operator of a crane (50 tons and over) with a boom of 180 feet or more (including jib) shall receive a per hour premium for each hour worked on said crane (50 tons and over) in accordance with the following schedule:

Booms of 180 feet up to
[redacted]

ENGI0003-004 09/01/2015

	Rates	Fringes
Dredging: (Boat Operators)	[redacted]	
Dredging: (Clamshell or Dipper Dredging)	[redacted]	
Dredging: (Derricks)	[redacted]	
Dredging: (Hydraulic Suction Dredges)	[redacted]	



CLAMSHELL OR DIPPER DREDGING CLASSIFICATIONS

GROUP 1: Clamshell or Dipper Operator.
GROUP 2: Mechanic or Welder; Watch Engineer.
GROUP 3: Barge Mate; Deckmate.
GROUP 4: Bargeman; Deckhand; Fireman; Oiler.

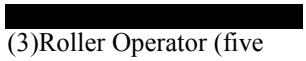
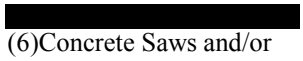
HYDRAULIC SUCTION DREDGING CLASSIFICATIONS

GROUP 1: Leverman.
GROUP 2: Watch Engineer (steam or electric).
GROUP 3: Mechanic or Welder.
GROUP 4: Dozer Operator.
GROUP 5: Deckmate.
GROUP 6: Winchman (Stern Winch on Dredge)
GROUP 7: Deckhand (can operate anchor scow under direction of Deckmate); Fireman; Leveeman; Oiler.

DERRICK CLASSIFICATIONS

GROUP 1: Operators (Derricks, Piledrivers and Cranes).
GROUP 2: Saurman Type Dragline (over 5 cubic yards).
GROUP 3: Deckmate; Saurman Type Dragline (up to and including 5 yards).
GROUP 4: Deckhand, Fireman, Oiler.

ENGI0003-044 08/31/2015

	Rates	Fringes
Power Equipment Operators (PAVING)		
 (10)Loader (2 1/2 cu. yds.		
 (11)Loader (over 2 1/2 cu. yds. to and including 5		
 (3)Roller Operator (five		
 (6)Combination Loader/Backhoe (up to 3/4		
 (6)Concrete Saws and/or Grinder (self-propelled		

unit on streets, highways,
[redacted]
(6)Roller Operator (over
[redacted]
(7)Combination
Loader/Backhoe (over 3/4
[redacted]
Asphalt Concrete Material
[redacted]

IRON0625-001 09/01/2014

	Rates	Fringes
[redacted]		

a. Employees will be paid $.50 per hour more while working in tunnels and coffer dams; $1.00 per hour more when required to work under or are covered with water (submerged) and when they are required to work on the summit of Mauna Kea, Mauna Loa or Haleakala.

LABO0368-001 08/31/2015

	Rates	Fringes
Laborers:		
[redacted]		

LABORERS CLASSIFICATIONS

Laborer I: Air Blasting run by electric or pneumatic compressor; Asphalt Laborer, Ironer, Raker, Luteman, and Handroller, and all types of Asphalt Spreader Boxes; Asphalt Shoveler; Assembly and Installation of Multiplates, Liner Plates, Rings, Mesh, Mats; Batching Plant (portable and temporary); Boring Machine Operator (under streets and sidewalks); Buggymobile; Burning and Welding; Chainsaw, Faller, Logloader, and Bucker; Compactors (Jackson Jumping Jack and similar); Concrete Bucket Dumpman; Concrete Chipping; Concrete Chuteman/Hoseman (pouring concrete) (the handling of the chute from ready-mix trucks for such jobs

as walls, slabs, decks, floors, foundations, footings, curbs, gutters, and sidewalks); Concrete Core Cutter (Walls, Floors, and Ceiling); Concrete Grinding or Sanding; Concrete: Hooking on, signaling, dumping of concrete for treme work over water on caissons, pilings, abutments, etc.; Concrete: Mixing, handling, conveying, pouring, vibrating, otherwise placing of concrete or aggregates or by any other process; Concrete: Operation of motorized wheelbarrows or buggies or machines of similar character, whether run by gas, diesel, or electric power; Concrete Placement Machine Operator: operation of Somero Hammerhead, Copperheads, or similar machines; Concrete Pump Machine (laying, coupling, uncoupling of all connections and cleaning of equipment); Concrete and/or Asphalt Saw (Walking or Handtype) (cutting walls or flatwork) (scoring old or new concrete and/or asphalt) (cutting for expansion joints) (streets and ways for laying of pipe, cable or conduit for all purposes); Concrete Shovelers/Laborers (Wet or Dry); Concrete Screeding for Rough Strike-Off: Rodding or striking-off, by hand or mechanical means prior to finishing; Concrete Vibrator Operator; Coring Holes: Walls, footings, piers or other obstructions for passage of pipes or conduits for any purpose and the pouring of concrete to secure the hole; Cribbers, Shorer, Lagging, Sheeting, and Trench Jacking and Bracing, Hand-Guided Lagging Hammer Whaling Bracing; Curbing (Concrete and Asphalt); Curing of Concrete (impervious membrane and form oiler) mortar and other materials by any mode or method; Cut Granite Curb Setter (setting, leveling and grouting of all precast concrete or stone curbs); Cutting and Burning Torch (demolition); Dri Pak-It Machine; Environmental Abatement: removal of asbestos, lead, and bio hazardous materials (EPA and/or OSHA certified); Falling, bucking, yarding, loading or burning of all trees or timber on construction site; Forklift (9 ft. and under); Gas, Pneumatic, and Electric tools; Grating and Grill work for drains or other purposes; Green Cutter of concrete or aggregate in any form, by hand, mechanical means, grindstone or air and/or water; Grout: Spreading for any purpose; Guinea Chaser (Grade Checker) for general utility trenches, sitework, and excavation; Headerboard Man (Asphalt or Concrete); Heat Welder of Plastic (Laborers' AGC certified workers) (when work involves waterproofing for waterponds, artificial lakes and reservoir) heat welding for sewer pipes and fusion of HDPE pipes; Heavy Highway Laborer (Rigging, signaling, handling, and installation of pre-cast catch basins, manholes, curbs and gutters); High Pressure Nozzleman - Hydraulic Monitor (over 100# pressure); Jackhammer Operator; Jacking of slip forms: All semi and unskilled work connected therewithin; Laying of all multi-cell conduit or multi-purpose pipe; Magnesite and Mastic Workers (Wet or Dry)(including mixer operator);Mortar Man; Mortar Mixer (Block, Brick, Masonry, and Plastering); Nozzleman (Sandblasting and/or Water Blasting): handling, placing and operation of nozzle;

Operation, Manual or Hydraulic jacking of shields and the use of such other mechanical equipment as may be necessary; Pavement Breakers; Paving, curbing and surfacing of streets, ways, courts, under and overpasses, bridges, approaches, slope walls, and all other labor connected therewith; Pilecutters; Pipe Accessment in place, bolting and lining up of sectional metal or other pipe including corrugated pipe; Pipelayer performing all services in the laying and installation of pipe from the point of receiving pipe in the ditch until completion of operation, including any and all forms of tubular material, whether pipe, HDPE, metallic or non-metallic, conduit, and any other stationary-type of tubular device used for conveying of any substance or element, whether water, sewage, solid, gas, air, or other product whatsoever and without regard to the nature of material from which tubular material is fabricated; No-joint pipe and stripping of same, Pipewrapper, Caulker, Bander, Kettlemen, and men applying asphalt, Laykold, treating Creosote and similar-type materials (6-inch) pipe and over); Piping: resurfacing and paving of all ditches in preparation for laying of all pipes; Pipe laying of lateral sewer pipe from main or side sewer to buildings or structure (except Contactor may direct work be done under proper supervision); Pipe laying, leveling and marking of the joint used for main or side sewers and storm sewers; Laying of all clay, terra cotta, ironstone, vitrified concrete, HDPE or other pipe for drainage; Placing and setting of water mains, gas mains and all pipe including removal of skids; Plaster Mortar Mixer/Pump; Pneumatic Impact Wrench; Portable Sawmill Operation: Choker setters, off bearers, and lumber handlers connected with clearing; Posthole Digger (Hand Held, Gas, Air and Electric); Powderman's Tender; Power Broom Sweepers (Small); Preparation and Compaction of roadbeds for railroad track laying, highway construction, and the preparation of trenches, footings, etc., for cross-country transmission by pipelines, electrical transmission or underground lines or cables (by mechanical means); Raising of structure by manual or hydraulic jacks or other methods and resetting of structure in new locations, including all concrete work; Ramming or compaction; Rigging in connection with Laborers' work (except demolition), Signaling (including the use of walkie talkie) Choke Setting, tag line usage; Tagging and Signaling of building materials into high rise units; Riprap, Stonepaver, and Rock Slinger (includes placement of stacked concrete, wet or dry and loading, unloading, signaling, slinging and setting of other similar materials); Rotary Scarifier (including multiple head concrete chipping Scarifier); Salamander Heater, Drying of plaster, concrete mortar or other aggregate; Scaffold Erector Leadman; Scaffolds: (Swing and hanging) including maintenance thereof; Scaler; Septic Tank/Cesspool and Drain Fields Digger and Installer; Shredder/Chipper (tree branches, brush, etc.); Stripping

and Setting Forms; Stripping of Forms: Other than panel forms which are to be re-used in their original form, and stripping of forms on all flat arch work; Tampers (Barko, Wacker, and similar type); Tank Scaler and Cleaners; Tarman; Tree Climbers and Trimmers; Trencher (includes hand-held, Davis T-66 and similar type); Trucks (flatbed up to and including 2 1/2 tons when used in connection with on-site Laborers'work; Trucks (Refuse and Garbage Disposal) (from job site to dump); Vibra-Screed (Bull Float in connection with Laborers' work); Well Points, Installation of or any other dewatering system.

Laborer II: Asphalt Plant Laborer; Boring Machine Tender; Bridge Laborer; Burning of all debris (crates, boxes, packaging waste materials); Chainman, Rodmen, and Grade Markers; Cleaning, clearing, grading and/or removal for streets, highways, roadways, aprons, runways, sidewalks, parking areas, airports, approaches, and other similar installations; Cleaning or reconditioning of streets, ways, sewers and waterlines, all maintenance work and work of an unskilled and semi-skilled nature; Concrete Bucket Tender (Groundman) hooking and unhooking of bucket; Concrete Forms; moving, cleaning, oiling and carrying to the next point of erection of all forms; Concrete Products Plant Laborers; Conveyor Tender (conveying of building materials); Crushed Stone Yards and Gravel and Sand Pit Laborers and all other similar plants; Demolition, Wrecking and Salvage Laborers: Wrecking and dismantling of buildings and all structures, with use of cutting or wrecking tools, breaking away, cleaning and removal of all fixtures, All hooking, unhooking, signaling of materials for salvage or scrap removed by crane or derrick; Digging under streets, roadways, aprons or other paved surfaces; Driller's Tender; Chuck Tender, Outside Nipper; Dry-packing of concrete (plugging and filling of she-bolt holes); Fence and/or Guardrail Erector: Dismantling and/or re-installation of all fence; Finegrader; Firewatcher; Flagman (Coning, preparing, stablishing and removing portable roadway barricade devices); Signal Men on all construction work defined herein, including Traffic Control Signal Men at construction site; General Excavation; Backfilling, Grading and all other labor connected therewith; Digging of trenches, ditches and manholes and the leveling, grading and other preparation prior to laying pipe or conduit for any purpose; Excavations and foundations for buildings, piers, foundations and holes, and all other construction. Preparation of street ways and bridges; General Laborer: Cleaning and Clearing of all debris and surplus material. Clean-up of right-of-way. Clearing and slashing of brush or trees by hand or mechanical cutting. General Clean up: sweeping, cleaning, wash-down, wiping of construction facility and equipment (other than "Light Clean up (Janitorial) Laborer. Garbage and Debris Handlers and Cleaners. Appliance Handling (job site) (after delivery

unlading in storage area); Ground and Soil Treatment Work (Pest Control); Gunite/Shotcrete Operator Tender; Junk Yard Laborers (same as Salvage Yard); Laser Beam "Target Man" in connection with Laborers' work; Layout Person for Plastic (when work involves waterproofing for waterponds, artificial lakes and reservoirs); Limbers, Brush Loaders, and Pilers; Loading, Unloading, carrying, distributing and handling of all rods and material for use in reinforcing concrete construction (except when a derrick or outrigger operated by other than hand power is used); Loading, unloading, sorting, stockpiling, handling and distribution of water mains, gas mains and all pipes; Loading and unloading of all materials, fixtures, furnishings and appliances from point of delivery to stockpile to point of installation; hooking and signaling from truck, conveyance or stockpile; Material Yard Laborers; Pipelayer Tender; Pipewrapper, Caulker, Bander, Kettlemen, and men applying asphalt, Laykold, Creosote, and similar-type materials (pipe under 6 inches); Plasterer Laborer; Preparation, construction and maintenance of roadbeds and sub-grade for all paving, including excavation, dumping, and spreading of sub-grade material; Prestressed or precast concrete slabs, walls, or sections: all loading, unloading, stockpiling, hooking on of such slabs, walls or sections; Quarry Laborers; Railroad, Streetcar, and Rail Transit Maintenance and Repair; Roustabout; Rubbish Trucks in connection with Building Construction Projects (excluding clearing, grubbing, and excavating); Salvage Yard: All work connected with cutting, cleaning, storing, stockpiling or handling of materials, all cleanup, removal of debris, burning, back-filling and landscaping of the site; Sandblasting Tender (Pot Tender): Hoses and pots or markers; Scaffolds: Erection, planking and removal of all scaffolds used for support for lathers, plasters, brick layers, masons, and other construction trades crafts; Scaffolds: (Specially designed by carpenters) laborers shall tend said carpenter on erection and dismantling thereof, preparation for foundation or mudsills, maintenance; Scraping of floors; Screeds: Handling of all screeds to be reused; handling, dismantling and conveyance of screeds; Setting, leveling and securing or bracing of metal or other road forms and expansion joints; Sheeting Piling/trench shoring (handling and placing of skip sheet or wood plank trench shoring); Ship Scalers; Shipwright Tender; Sign Erector (subdivision traffic, regulatory, and street-name signs); Sloper; Slurry Seal Crews (Mixer Operator, Applicator, Squeegee Man, Shuttle Man, Top Man); Snapping of wall ties and removal of tie rods; Soil Test operations of semi and unskilled labor such as filling sand bags; Striper (Asphalt, Concrete or other Paved Surfaces); Tool Room Attendant (Job Site); Traffic Delineating Device Applicator; Underpinning, lagging, bracing, propping and shoring, loading, signaling, right-of-way clearance along the route of movement, The clearance of new site, excavation of foundation when moving

a house or structure from old site to new site; Utilities employees; Water Man; Waterscape/Hardscape Laborers; Wire Mesh Pulling (all concrete pouring operations); Wrecking, stripping, dismantling and handling concrete forms an false work.

LABO0368-002 09/01/2015

	Rates	Fringes
Landscape & Irrigation Laborers	[redacted]	[redacted]

LABORERS CLASSIFICATIONS

GROUP 1: Installation of non-potable permanent or temporary irrigation water systems performed for the purposes of Landscaping and Irrigation architectural horticultural work; the installation of drinking fountains and permanent or temporary irrigation systems using potable water for Landscaping and Irrigation architectural horticultural purposes only. This work includes (a) the installation of all heads, risers, valves, valve boxes, vacuum breakers (pressure and non-pressure), low voltage electrical lines and, provided such work involves electrical wiring that will carry 24 volts or less, the installation of sensors, master control panels, display boards, junction boxes, conductors, including all other components for controllers, (b) and metallic (copper, brass, galvanized, or similar) pipe, as well as PVC or other plastic pipe including all work incidental thereto, i.e., unloading, handling and distribution of all pipes fittings, tools, materials and equipment, (c) all soldering work in connection with the above whether done by torch, soldering iron, or other means; (d) tie-in to main lines, thrust blocks (both precast and poured in place), pipe hangers and supports incidental to installation of the entire irrigation system, (e) making of pressure tests, start-up testing, flushing, purging, water balancing, placing into operation all irrigation equipment, fixtures and appurtenances installed under this agreement, and (f) the fabrication, replacement, repair and servicing oflandscaping and irrigation systems. Operation of hand-held gas, air, electric, or self-powered tools and equipment used in the performance of Landscape and Irrigation work in connection with architectural horticulture; Choke-setting, signaling, and rigging for equipment operators on job-site in the performance of such Landscaping and Irrigation work; Concrete work (wet or dry) performed in connection with such Landscaping and Irrigation work. This work shall also include the setting

of rock, stone, or riprap in connection with such Landscape, Waterscape, Rockscape, and Irrigation work; Grubbing, pick and shovel excavation, and hand rolling or tamping in connection with the performance of such Landscaping and Irrigation work; Sprigging, handseeding, and planting of trees, shrubs, ground covers, and other plantings and the performance of all types of gardening and horticultural work relating to said planting; Operation of flat bed trucks (up to and including 2 1/2 tons).:

GROUP 2. Layout of irrigation and other non-potable irrigation water systems and the layout of drinking fountains and other potable irrigation water systems in connection with such Landscaping and Irrigation work. This includes the layout of all heads, risers, valves, valve boxes, vacuum breakers, low voltage electrical lines, hydraulic and electrical controllers, and metallic (coppers, brass, galvanized, or similar) pipe, as well as PVC or other plastic pipe. This work also includes the reading and interpretation of plans and specifications in connection with the layout of Landscaping, Rockscape, Waterscape, and Irrigation work; Operation of Hydro-Mulching machines (sprayman and driver), Drillers, Trenchers (riding type, Davis T-66, and similar) and fork lifts used in connection with the performance of such Landscaping and Irrigation work; Tree climbers and chain saw tree trimmers, Sporadic operation (when used in connection with Landscaping, Rockscape, Waterscape, and Irrigation work) of Skid-Steer Loaders (Bobcat and similar), Cranes (Bantam, Grove, and similar), Hoptos, Backhoes, Loaders, Rollers, and Dozers (Case, John Deere, and similar), Water Trucks, Trucks requiring a State of Hawaii Public Utilities Commission Type 5 and/or type 7 license, sit-down type and "gang" mowers, and other self-propelled, sit-down operated machines not listed under Landscape & Irrigation Maintenance Laborer; Chemical spraying using self-propelled power spraying equipment (200 gallon capacity or more).

GROUP 3: Maintenance of trees, shrubs, ground covers, lawns and other planted areas, including the replanting of trees, shrubs, ground covers, and other plantings that did not "take" or which are damaged; provided, however, that re-planting that requires the use of equipment, machinery, or power tools shall be paid for at the rate of pay specified under Landscape and Irrigation Laborer, Group 1; Raking, mowing, trimming, and runing, including the use of "weed eaters", hedge trimmers, vacuums, blowers, and other hand-held gas, air, electric, or self-powered tools, and the operation of lawn mowers (Note: The operation of sit-down type and "gang" mowers shall be paid for at the rate of pay specified under Landscape & Irrigation Laborer, Group 2); Guywiring, staking, propping, and supporting trees; Fertilizing, Chemical spraying using spray equipment

with less than 200 gallon capacity, Maintaining irrigation and sprinkler systems, including the staking, clamping, and adjustment of risers, and the adjustment and/or replacement of sprinkler heads, (Note: the cleaning and gluing of pipe and fittings shall be paid for at the rate of pay specified under Landscape & Irrigation Laborer(Group 1); Watering by hand or sprinkler system and the peformance of other types of gardening, yardman, and horticultural-related work.

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* LABO0368-003 07/29/2016

	Rates	Fringes
Underground Laborer	[redacted]	[redacted]

GROUP 1: Watchmen; Change House Attendant.

GROUP 2: Swamper; Brakeman; Bull Gang-Muckers, Trackmen; Dumpmen (any method); Concrete Crew (includes rodding and spreading); Grout Crew; Reboundmen

GROUP 3: Chucktenders and Cabletenders; Powderman (Prime House); Vibratorman, Pavement Breakers

GROUP 4: Miners - Tunnel (including top and bottom man on shaft and raise work); Timberman, Retimberman (wood or steel or substitute materials thereof); Blasters, Drillers, Powderman (in heading); Microtunnel Laborer; Headman; Cherry Pickerman (where car is lifted); Nipper; Grout Gunmen; Grout Pumpman & Potman; Gunite, Shotcrete Gunmen & Potmen; Concrete Finisher (in tunnel); Concrete Screed Man; Bit Grinder; Steel Form Raisers & Setters; High Pressure Nozzleman; Nozzleman (on slick line); Sandblaster-Potman (combination work assignment interchangeable); Tugger

GROUP 5: Shaft Work & Raise (below actual or excavated ground level); Diamond Driller; Gunite or Shotcrete Nozzleman; Rodman; Groundman

GROUP 6: Shifter

GROUP 7: Shifter (Shaft Work & Raiser)

PAIN1791-001 01/01/2016

Rates Fringes

Painters:
[redacted]

PAIN1889-001 07/01/2016

Rates Fringes

[redacted]

PAIN1926-001 03/01/2015

Rates Fringes

[redacted]

PAIN1944-001 01/01/2016

Rates Fringes

[redacted]

PLAS0630-001 08/31/2015

Rates Fringes

[redacted]

PLAS0630-002 08/31/2015

Rates Fringes

Cement Masons:
[redacted]

PLUM0675-001 07/03/2016

Rates Fringes

Plumber, Pipefitter,
Steamfitter & Sprinkler Fitter...$ 40.85 24.98

ROOF0221-001 09/06/2015

Rates Fringes

Roofers (Including Built Up,
[redacted]

SHEE0293-001 08/01/2015

Rates Fringes

[redacted]

SUHI1997-002 09/15/1997

Rates Fringes

[redacted]

FENCE ERECTOR (Chain Link
[redacted]

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter

* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

ACCOUNTING AND APPROPRIATION DATA

[redacted]
AMOUNT: $2,201,683.00
[redacted]: $2,201,683.00

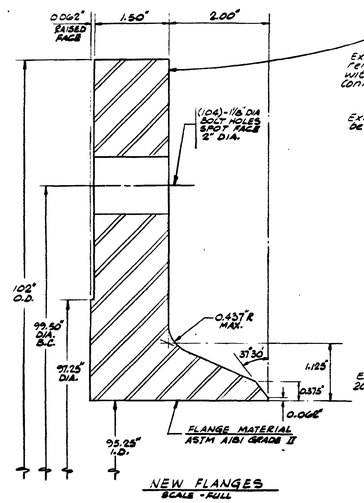
[redacted]
AMOUNT: $5,170,778.00
[redacted]: $5,170,778.00

[redacted]
AMOUNT: $2,167,709.00
[redacted]: $2,167,709.00

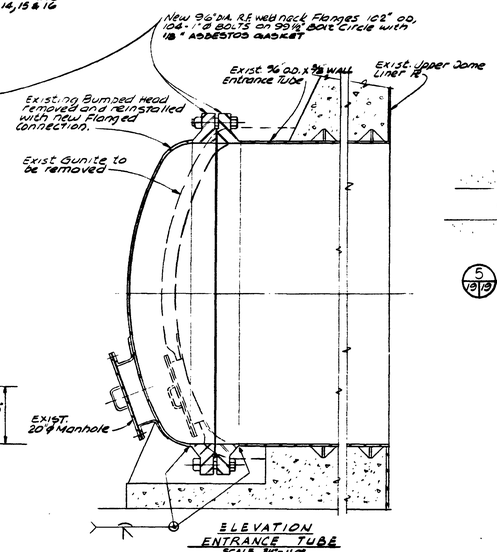
[redacted]
AMOUNT: $5,178,228.00
[redacted] $5,178,228.00

NOTE

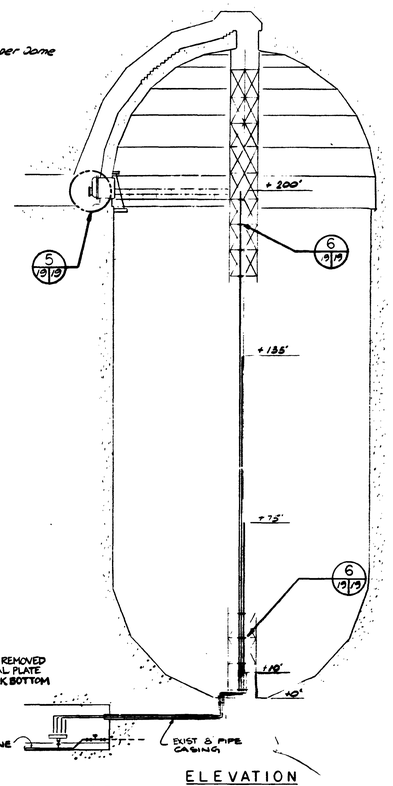
NEW WELD NECK FLANGES ARE REQUIRED ON TANKS 1, 2, 3, 4, 7, 8, 9, 11, 13, 14, 15 & 16



NEW FLANGES
SCALE - FULL

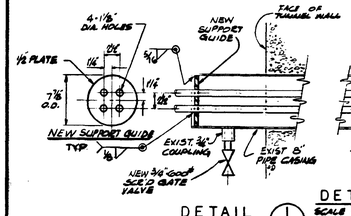


ELEVATION
ENTRANCE TUBE
SCALE ⅜"=1'-0"

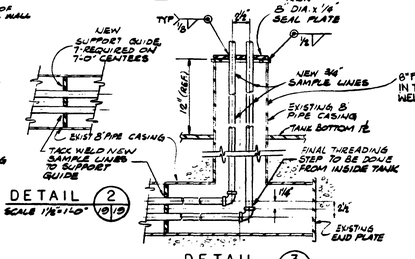


ELEVATION
NEW SAMPLING SYSTEM
SCALE, 1"=20'-0"

DETAIL 5
SCALE - AS NOTED 16 10/19

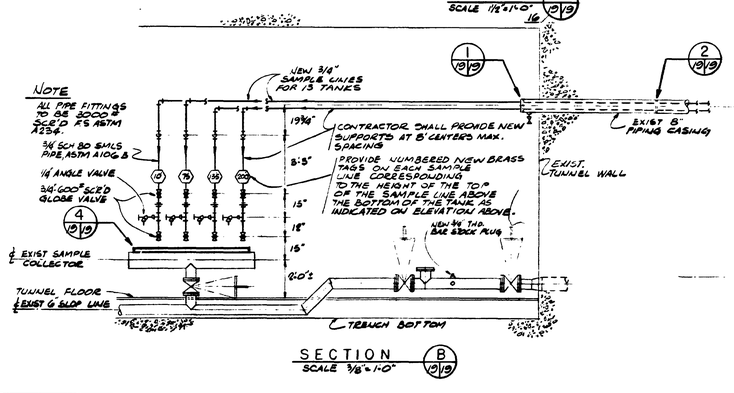


DETAIL 1
SCALE 1½"=1'-0" 10/19

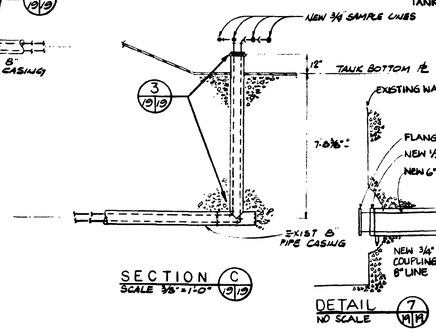


DETAIL 2
SCALE 1½"=1'-0" 10/19

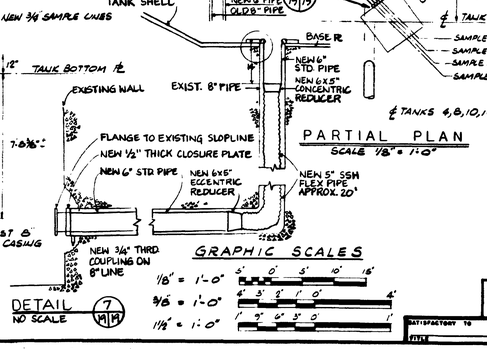
DETAIL 3
SCALE 1½"=1'-0" 10/19



SECTION B
SCALE 3/16"=1'-0" 10/19



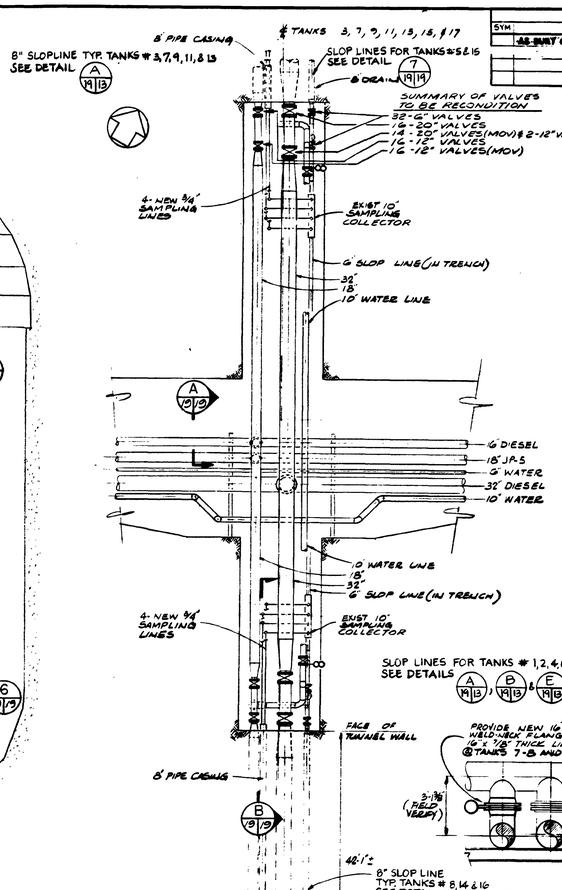
SECTION C
SCALE 3/16"=1'-0" 10/19



DETAIL 7
NO SCALE 11/19

PARTIAL PLAN
SCALE 1/8" = 1'-0"

GRAPHIC SCALES
1/8" = 1'-0"
3/16" = 1'-0"
1½" = 1'-0"



BID ITEM NO. 1

The Contractor will be responsible for coordinating the work among the various trades as necessary to avoid conflicts and to insure the installation of all work within the available space.

AS-BUILT DRAWINGS
DATE 2/27/85

IF SHEET IS LESS THAN 36" x 48" IT IS A REDUCED PRINT - SCALE REDUCED ACCORDINGLY

REVISION			
SYM	DESCRIPTION	DATE	APPROVED
	AS BUILT CONDITION SHOWN T.I.	2/26/85	M. Engkvist

HALLANDER ENGINEERS INC. ORINDA CALIFORNIA

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
PACIFIC DIVISION
MAKALAPA, HAWAII
NAVAL SUPPLY CENTER PEARL HARBOR, OAHU, HAWAII
MODERNIZATION OF RED HILL POL FACILITY (P-030)
TANKS 1-4, 7-11 & 13-16 MISC. NEW WORK & SLOP LINE MODS

SIZE	CODE IDENT NO.	NAVFAC DRAWING NO
F	80091	7019544
SCALE	CONTR CONTR NO. N62471-77-C-1316	
	SPEC 34-77-1316	SHEET 19 OF 30

M-9

7019544